CENTENNIAL EDITION CATALOG

WWW.SIEMON.COM

SIEMON™

When my great grandfather started this business in 1903, I wonder if he ever imagined that 100 years later his efforts and ambition would have spanned across four generations. Here we are today, 100 years after the fact, celebrating the centennial of The Siemon Company.

I am honored to be leading The Siemon Company into what is now our second century of operation. Looking back, the 20th century certainly presented some unique challenges – the Great Depression, two world wars, multiple recessions and so much more – but through it all The Siemon Company has been able to survive and thrive. This is a rare accomplishment. In fact, research shows that only 3% of family-owned businesses, regardless of size, reach the fourth generation of operation.

This special Centennial Edition Catalog is a celebration of our past. It is a tribute to the vision, dedication and hard work of the many thousands of Siemon employees who have advanced our company to where it is today – a world-renowned leader in the network cabling industry. I invite you to peruse the pages of this catalog. As you look through you will see that each chapter begins with a look back at the past, including a brief history of the company, the challenges we faced and the opportunities we enjoyed.

One of the strengths of The Siemon Company culture is that we do not rest upon achievements of the past. We have built our brand on understanding future trends – on our knowledge of technology and our ability to create products and services that fill future needs. Our new corporate logo reflects our vision of the future. Long in the works, it symbolizes our commitment to technology, our determination to meet and exceed the needs of our customers and our continued drive to be the pre-eminent global provider of network cabling infrastructures. The new logo features a three dimensional pyramid encircled by an angled ring. The pyramid was derived from the red triangle of the former Siemon Cabling System logo and symbolizes Siemon's longevity and stability. The ring around the pyramid represents our global ability and the billions of connections that the world's leading organizations rely upon thanks to Siemon connectivity solutions.

I am proud of this company's heritage and our position today. May the dreams and determination of our predecessors continue to inspire us all to greater achievements in the future.

Sincerely,

Carl N. Siemon
President

REFERENCE GUIDE

PERFORMANCE MARKINGS

Meets category 3 ANSI/TIA/EIA-568-B.1 & B.2 and class C requirements of ISO/IEC 11801:2002 2nd Edition specifications. Requirements are specified to an upper frequency limit of 16 MHz.

Meets category 5e ANSI/TIA/EIA-568-B.1 & B.2 and class D requirements of ISO/IEC 11801:2002 2nd Edition specifications. Requirements are specified to an upper frequency limit of 100 MHz. This classification is a superset of CATEGORY 5.

Meets category 6 ANSI/TIA/EIA-568-B.2-1 and class E requirements of ISO/IEC 11801:2002 2nd Edition specifications. Requirements are specified to an upper frequency limit of 250 MHz. This classification is a superset of CATEGORY 5e.

Performance exceeds category 6 and class E specifications of ANSI/TIA/EIA-568-B.2-1 and ISO/IEC 11801:2002 2nd Edition specifications. Requirements are specified to an upper frequency limit of 300 MHz. This classification is a superset of CATEGORY 5e.

Performance exceeds draft category 7 and meets class F ISO/IEC 11801:2002 2nd Edition specifications. Requirements are specified to an upper frequency limit of 600 MHz. This classification is an electrical superset of CATEGORY 6.

SAFETY MARKINGS

Communications Circuit Accessory Listed per Underwriters Laboratories Standard UL 1863 or Secondary Protectors for Communications Circuits Listed per Underwriters Laboratories Standard UL 497A, or non-metallic surface raceway and fittings Listed per UL 5A.

Certification by Underwriters Laboratories to United States Standards and C22.2 Canadian Telecommunications Standards.

Certification by the Canadian Standards Association to C22.2 Canadian Telecommunications Standards.

Electromagnetic Compatibility according to Article 10 of European Council Directive 89/336/EEC.

ORDERING INFORMATION

FOCUS products are the most popular Siemon products and should always be readily available at your local Siemon distributor. FOCUS products are identified by the FOCUS symbol and are also distinguished with red text. If a FOCUS item is not available at your local distributor, please contact Siemon Customer Service for prompt resolution.

Bulk project packs are the most economical and environmentally friendly way to purchase products for large projects. Less packaging means fewer packages to open and less waste to clean up, which saves time and money. Bulk pack products are identified by the bulk pack symbol.

ISO 9001 and 14001

Because we are continuously improving our products, The Siemon Company reserves the right to change specifications and availability without prior notice. For other product options, please call Customer Service.


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SIEMON CELEBRATES

ONE HUNDRED YEARS OF TECHNOLOGY INNOVATION

The dawn of the 21st century has ushered in an overwhelming dependence on information. Whether it's streaming video, high-speed data transfers, Internet telephony or some other high-bandwidth application, one thing is for certain: this information has become the very core of our businesses and our lives. As this demand continues to grow, the underlying infrastructure over which this information flows is being taxed beyond its capacity. Bandwidth intensive applications require a network that is built to withstand the rigors placed upon it – a network that can not only handle the traffic but also thrive in an environment of ever-escalating demands. So no matter what business you are in, your information technology (IT) infrastructure will form – if it hasn't already – the very foundation of your business.

Providing Innovation Since 1903

Founded in 1903, The Siemon Company has one hundred years of experience in building innovative solutions to meet customer needs. Celebrating our centennial year in 2003, we remain at the leading edge of technology. What began so many years ago as an excursion into the newly developing field of molded plastics has today become a global power in the field of network cabling infrastructure. Along the way, Siemon has become a model of twentieth century success – a true source of ideas, ideologies and innovations. Through it all, Siemon's core competencies in manufacturing, engineering and quality evolved and grew. That focus on technology and innovation has yielded many industry firsts:

- Fully compliant Category 5e cabling system 4 years before Standards ratification
- First to market with a Category 6/Class E cabling system
- The world's first and still the only available Category 7/Class F system
- Standards-approved industrial connectivity
- Patented, time-saving fiber-optic termination methods

The Growing Need for Increased Bandwidth

Now, as we enter our second century of operation, the needs of the market have never been so diverse. Emerging bandwidth-intensive applications – like voice over IP and digital audio and video – and the convergence of those applications onto a single network backbone are becoming reality. Increasingly, businesses are looking for their investment in information technology to positively impact their bottom line. Increased sales, decreased operational costs, improved product quality and enhanced customer satisfaction are the universal business objectives and today's businesses expect their IT system to deliver all of them and more. Now, more than ever, information plays a vital role. The successful delivery of that information across our businesses – whether in one location or across the globe – is an absolute necessity.

We Do It Better Than Anyone Else

With the Siemon Cabling System, Siemon can deliver the products and services you need to design and build an IT infrastructure that will serve your strategic business needs well into the future. Siemon's heritage is providing the highest quality, best performing structured cabling systems available. We are specialists at what we do and we do it better than anyone else.

Siemon offers the most comprehensive product set in the industry today. Featuring independently verified category 6 cabling components that guarantee performance far better than the ratified standards, high performance category 5e cabling systems, advanced fiber solutions – all of which support the applications of today and tomorrow – combined with the industry's best warranty and support services, Siemon can build a solution for any enterprise application or need.

Invest in the Future...Now

IT permeates every aspect of your business. If you want to protect it for tomorrow, a solid structured cabling system, built to handle future applications, is your best insurance policy.

At Siemon, we are ready to serve your IT infrastructure needs. With offices and distribution facilities in every major market throughout the world, Siemon is a true global operation that can deliver on our promise to provide the highest quality, highest value cabling solutions on the market today.

WORLD'S LEADING

COMMERCIAL — INDUSTRIAL
BASF
Beijing National Wealth Plaza
Ciba Geigy
Cincinnati Milacron
Con Edison
Dow Chemical
EDS
Exxon
Ford Motor Company
General Electric
General Motors
Georgia Pacific
Hundai Electronics
Imation
Ingersol Rand
JD Edwards
Johnson & Johnson
Kuala Lumpur City Center
Merck
Microsoft
Motorola
Nestlé
Olin
Ray-O-Vac
Raytheon
Salt Palace Convention Center
Seagate Malaysia
Sino Chemical Group
Sony
Sydney Harbour Casino

FINANCE
American Express
Bank of China
Bank of New York
Bank One
Beijing Financial Bureau
Blue Cross Blue Shield
BMW Financial Services
Center Bank
Charles Schwab
Commonwealth Bank
Czech National Bank
Deloitte & Touche
Deutsch Bank
Donaldson, Lufkin & Jenrette
Ernst & Young
Goldman Sachs
HSBC
Mastercard International
Merrill Lynch
NASDAQ
National Reserve Bank
National Westminster Bank
PacifiCorp
PricewaterhouseCoopers
Progressive Insurance
Tullet & Tokyo Forex

RETAIL
Ace Hardware
Advanced Autoparts
Albertsons
Amazon.com
Clopay
Federated Stores
Hollywood Video
J.Crew
K-Mart
Nieman Marcus
Sears
Sotheby's
Staples
Toys "R" Us
Walgreens
Wal-Mart

TELECOMMUNICATIONS
AT&T
Cabletron
Cellular One
CSC Australia Pty Ltd.
General Datacomm
HBO
Hewlett Packard
Honeywell
IBM
MCI Worldcom
Mitel
Motorola
NEC
NOKIA
Nortel Networks
Shanghai Telephone Institute
Siemens Business Communications
Sprint
Unisys
U.S. West

TRANSPORTATION
Dallas International Airport
DHL
Federal Aviation Administration
Japan Tourist Bureau
Long Island Railroad
Malaysian Airlines
Ministry of Railways
Port Authority of New York
Southwest Airlines
Toronto Airport
United Airlines
UPS

EDUCATION
Baylor College of Medicine
Boston College
Dartmouth College
Emory University
Georgetown University
Harvard University
Oxford University
Seattle University
Thomas Jefferson Library
University of Madrid
University of Mexico
University of Pennsylvania
University of Technology Sydney
University of Utah
Washington and Lee University
Yale University

MEDICAL
Baylor Medical Center
Children's Hospital Philadelphia
Clinic Leicester Royal Infirmary
Conemaugh Valley Hospital
Deaconess Medical Center
DeKalb Medical Center
Gems Metropolitan Family Health
Imperial Cancer Research Fund
Kaiser Permanente—Kaiser Koolau
Mayo Clinic
Merck
Princeton Medical Center
Sacred Heart Medical Center
Salisbury Health Authority
Wilcox Memorial Hospital
Yale–New Haven Hospital

GOVERNMENT
Beijing Water Authority
City of Westminster
City of Wyoming
Civil Aviation Safety Authority
IRS
Job Corp
National Guard
National Wealth Center
New South Wales Police
Parliament House Australia
Scottish Hydro Electric
State of Connecticut
United Nations
U.S. Department of Energy
U.S. Federal Court System
U.S. Post Office


ORGANIZATIONS
SPECIFY STEMON

WORK AREA




	MAX® SERIES (pages 1.2 – 1.13)	CT® SERIES (pages 1.14 – 1.25)	FIBER OUTLET BOX (FOB2) (pages 1.28 – 1.29)	SM® SERIES (pages 1.30 – 1.33)
Product Applications	Compact design allows modules to be side-stacked in faceplates for maximum density. Ideal solution for any combination of copper, fiber, or coax outlets. Flat MAX modules can also be used in MAX patch panels.	CT Couplers provide a sleek, clean appearance for medium density work area require-ments. Flat couplers can also be mounted in CT patch panels.	The FOB2's ability to manage fiber slack and protect connections makes it the best mounting solution for fiber-to-the-desk applications. Also supports a mix of fiber and copper outlets.	Ideal for surface mount work area applications where outlet boxes are not practical. Supports a variety of copper, fiber, and coax outlets.
Connectors	MAX Modules	CT Couplers	FOB Fiber Bezels, CT Couplers, MAX Modules	SM Modules, Flat MAX Modules
Media Types	UTP, Coax, Fiber, Video	UTP, Coax, Fiber, Video	UTP, Coax, Fiber, Video	UTP, Coax, Fiber, Video
Category	3 5e 6 6a	3 5e 6	3 5e 6	3 5e 6
Termination Types	S310, Tool-less, SC, ST, MT-RJ, LC, BNC, F-TYPE, RCA, SVHS, HD15	S110, S310, SC, ST, MT-RJ, LC, BNC, F-Type, RCA, SVHS	S310, Tool-less, SC, ST, MT-RJ, LC, BNC, F-Type, RCA	S110, SC, ST, MT-RJ, LC, BNC, F-Type, RCA
Mounting Options	Wall, Surface	Wall, Surface	Wall	Surface
Capacity (Ports)	Single Gang: 1-6 ports Double Gang: 1-12 ports	Single Gang: 1-4 ports Double Gang: 1-8 ports (with dual CT Couplers)	2-12 ports Fiber, 1-6 ports Copper	1-6 ports
Options	Stand-off rings, surface mounting boxes, service fitting plates, hinged doors	Stand-off rings, surface mounting boxes, service fitting plates, hinged doors	Extended cover for added fiber protection	Magnets, shutter door

Colors

00 01 02 03 04 05 06 07 08 09 20 25 60 80 82

All products not available in all colors.

SECTION CONTENTS

1 9 0 3

The year was 1903. Boston won baseball's very first world series, Henry Ford sold his first Model-T, and the Wright brothers defied gravity for 12 seconds. The American Dream is alive and well!

In a small city in Connecticut, U.S.A., a transplanted mid-westerner with a flair for chemistry, was mixing up his own version of the American dream. An accomplished chemist with renowned experience in the newly emerging field of plastics, Carl F. Siemon combined his unique chemical composition with an equally ambitious $2,500 investment (equivalent to over $50,000 today), to create the Siemon Hard Rubber Company. The new company created imitation stag-horn knife handles out of Siemon's durable plastic compound that offered superior resistance to extreme temperatures and boiling water.

From the day Carl F. Siemon opened the doors of the Siemon Hard Rubber Company in Bridgeport, Connecticut to today, there has been one thing that has defined the company: plastic. In 1903, plastic was a new technology, destined to become, over the next century, one of the most significant contributors to society and technology. Plastics, and the way The Siemon Company used it to create innovative products, was, from the very beginning, the main core competency of the company.

ULTRA™ MAX® 6 MODULES

Category 6 component compliant to 300 MHz

Siemon's new Ultra MAX 6 module not only exceeds all category 6 component requirements to 250 MHz, they are also fully qualified out to 300 MHz*. This superior level of performance is achieved via an enhanced circuit board design, optimization of jack pin geometry, and stringent inspection and quality control procedures. The end result is the best performing UTP outlet available.

1 Easy Installation
Install from either front or rear of faceplate

2 Universal Wiring
T568A and T568B wiring compatible

3 High-Density Solutions
Side-stackable for maximum density

4 Familiar Termination
Terminates with standard 110 termination tools

5 Quick Identification
Icons provided for port identification

6 Protective Doors
Protective doors available to minimize exposure to dust and other contaminants

7 Backward Compatibility
Backward compatible with category 5e and lower patch cords

Revolutionary PCB Tuning

Our printed circuit board is tuned and balanced in conjunction with our high-performance block and jack to maximize margin above category 6 specifications.

Quick Installation

Pyramid™ wire entry system on S310® blocks separates paired conductors when lacing cables to simplify and reduce installation time

Superior Performance

For superior performance use Ultra MC® 6 modular cords to unlock the performance of Ultra MAX 6 modules

**Performance from 250-300 MHz based on extrapolated TIA/EIA limits.*

ULTRA™ MAX® 6 MODULES

FOCUS PATENTED

MX6-(XX)U . . . . . .

Angled module with T568A/B wiring rear strain relief cap and protective color-matching rubber door

MX6-F(XX)U . . . . . .

Flat module with T568A/B wiring and rear strain relief cap

MX6-K(XX)U . . . . . .

Keystone module with T568A/B wiring and rear strain relief cap

RELATED PRODUCTS **Ultra HD® 6 Patch Panels see page 2.2 – 2.3, Ultra MC® 6 Patch Cords see pages 4.2 – 4.3 MAX Patch Panels pages 2.6 – 2.7, MAX Faceplates pages 1.8 – 1.13**

MAX 6 MODULES

FOCUS PATENTED

MX6-(XX) . . . . . .

Angled MAX 6 module with T568A/B wiring, rear strain relief cap and protective color-matching rubber door

MX6-F(XX) . . . . . .

Flat module with T568A/B wiring and rear strain relief cap

MX6-K(XX) . . . . . .

Keystone module with T568A/B wiring and rear strain relief cap

RELATED PRODUCTS **MAX Patch Panels pages 2.6 – 2.7, MAX Faceplates pages 1.8 – 1.13, MC 6 Patch Cords see page 4.3, HD 6 Patch Panels see page 2.4**

ORDERING INFORMATION FOR ULTRA MAX 6 AND MAX 6 MODULES

Angled modules *include one color-matching, one red, and one blue icon. Door color is clear for red, yellow, blue and orange angled modules.*

Flat modules *include one color-matching, one red, and one blue icon. Add "-D" for optional color-matching door Door color is white for red, yellow, blue and orange modules.*

Keystone *version is designed for integration with various international mounting products and is not compatible with MAX mounting hardware.*

01 02 03 04 05 06 09 20 25 80 82

Use (XX) to specify color: 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 09 = orange, 20 = ivory, 25 = bright white, 80 = light ivory*, 82 = alpine white*

Ⓑ *Add "B" to end of part number for bulk project pack of 100 modules (angled and flat modules include icons).*

**Ultra MAX modules available as FOCUS items for these colors only.*

MAX® 5e MODULES

FOCUS

Punch-down MAX 5e modules significantly exceed category 5e performance with component and channel performance to 160 MHz*! These modules offer all the functional advantages of our MAX 6 outlets (see page 1.2) and feature our S310® punch-down block — making termination quick and easy.

160 MHz
Featuring universal T568A/B wiring with component and channel performance to 160 MHz.

MX5-(XX) . . . . . .

Angled module with T568A/B wiring, rear strain relief cap and protective color-matching rubber door

MX5-F(XX) . . . . . .

Flat module with T568A/B wiring and rear strain relief cap

MX5-K(XX) . . . . . .

Keystone module with T568A/B wiring and rear strain relief cap

Angled modules *include one color-matching, one red, and one blue icon. Door color is clear for red, yellow, blue and orange angled modules.*

Flat modules *include one color-matching, one red, and one blue icon. Add "-D" for optional color-matching door. Door color is white for red, yellow, blue and orange modules.*

Keystone *version is designed for integration with various international mounting products and is not compatible with MAX mounting hardware.*

Use (XX) to specify color: 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 09 = orange, 20 = ivory, 25 = bright white, 80 = light ivory, 82 = alpine white

** Performance from 100 – 160 MHz based upon extrapolated TIA/EIA limits*

Ⓑ *Add "B" to end of part number for bulk project pack of 100 modules (angled and flat modules include icons).*

RELATED PRODUCTS **HD5® Patch Panels page 2.5, MAX Patch Panels pages 2.6 – 2.7, MAX Faceplates pages 1.8 – 1.13, MC® 5 Patch Cords page 4.4**

MAX 3 MODULES

MAX 3 modules provide a cost-effective solution for category 3 applications. These modules utilize our user-friendly S310 termination block, providing the flexibility to wire these jacks for a wide variety of voice and data configurations.

MX3-(XX)-(XX) . . . . . .

Angled module with rear strain relief cap and protective color-matching rubber door

MX3-F-(XX)-(XX) . . . . . .

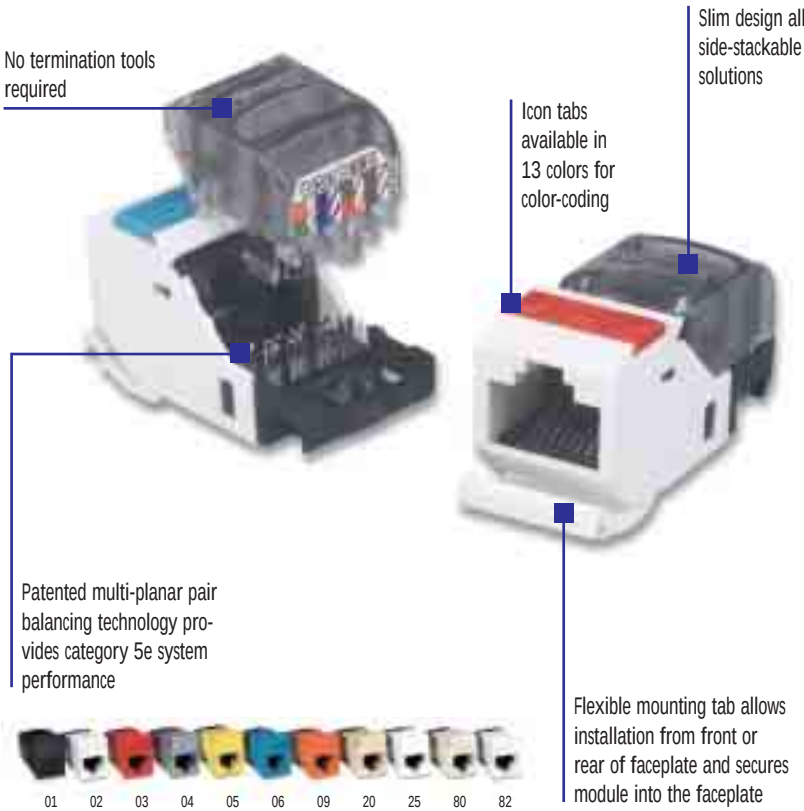
Flat module with rear strain relief cap

Use 1st (XX) to specify jack option: U3 = 3-pair, 6-position jack USOC; U4 = 4-pair, 8-position jack, USOC

Use 2nd (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

Modules include one color-matching, one red, and one blue icon.

TOOL-LESS MAX® MODULES



The tool-less MAX module provides category 5e system performance and user-friendly installation features. Our tool-less termination allows all eight conductors to be terminated simultaneously when the termination cap is pressed into place. The compact size provides high-density connectivity in the work area and telecommunications room.

Termination

Mass terminate all eight conductors by hand or use a single-position S110® termination tool in the MAX termination cap.

Quick Pair Placement

Conductors can be sequentially placed into termination cap, minimizing cable pair untwist and simplifying termination.

Verify Proper Wiring

The termination cap has a large window for viewing terminations.

TOOL-LESS MAX MODULES

FOCUS PATENTED

MX-C5-(XX) . . . . . .
Angled module with T568A/B wiring

MX-F-C5-(XX) . . . . . .
Flat module with T568A/B wiring

MX-K-C5-(XX) . . . . . .
Keystone module with T568A/B wiring

Keystone version is designed for integration with various international mounting products and is not compatible with MAX mounting hardware.

Use (XX) to specify color: 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 09 = orange, 20 = ivory, 25 = bright white, 80 = light ivory, 82 = alpine white

Add "-D" for optional door for angled and flat versions.

Door color is white for red, yellow, blue, and orange flat modules; clear for angled.

Ⓑ *Add "B" to end of part number for bulk project pack of 100 modules.*

Flat and Keystone modules include one color-matching, one red, and one blue icon.

RELATED PRODUCTS

MAX Patch Panels pages 2.6 – 2.7,
MAX Faceplates pages 1.8 – 1.13

TOOL-LESS MAX® 3 MODULES

PATENTED

MAX modules provide a full range of voice and specific data wiring configurations.

MX-(XX)-(XX) . . . . . .
Angled module

MX-F-(XX)-(XX) . . . . . .
Flat module

Use 1st (XX) to specify jack: U3 = 3-pair, 6-position jack, USOC; U4 = 4-pair, 8-position jack, USOC

Use 2nd (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

Modules include one color-matching, one red, and one blue icon.

MAX FIBER ADAPTER MODULES

FOCUS PATENTED

Siemon MAX fiber adapter modules are compatible with all MAX series faceplates, modular furniture adapters, surface mount boxes and patch panels. All fiber adapters are "universal" to support either multimode or singlemode fiber connections.

MX-F-SA-(XX)* . . . .
Flat module with 1 simplex ST adapter (1 fiber)

MX-SA-(XX) . . . . . .
Angled module with 1 simplex ST adapter (1 fiber)

MX-MT-(XX) . . . . . .
Angled module with 1 duplex MT-RJ adapter (2 fibers)

MX-F-S2-(XX) . . . . .
Flat module with 1 duplex ST adapter (2 fibers)

MX-S2-(XX) . . . . . .
Angled module with 1 duplex ST adapter (2 fibers)

MX-F-MT-(XX)* . . . .
Flat module with 1 duplex MT-RJ adapter (2 fibers)

MX-F-SC-(XX) . . . . .
Flat module with 1 duplex SC adapter (2 fibers)

MX-SC-(XX) . . . . . .
Angled module with 1 duplex SC adapter (2 fibers)

MX-F1-LC(X)-(XX) . .
Flat module with 1 duplex LC adapter (2 fibers)

Use (X) to specify LC adapter color: blank = beige, U = blue

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

Modules include dust caps, one color-matching, one red, and one blue icon per port.

**Compatible with SM® boxes*

MAX OUTLET BLANKS AND DOORS

FOCUS PATENTED

Blank inserts for unused ports and future growth and doors to protect outlets from outside contaminants.

MX-BL-(XX) . . . . . .
Blank module, bag of 10

MX-FD-(XX) . . . . . .
Door assembly for flat 6- or 8-position outlets, bag of 20

MX-AD-(XX) . . . . . .
Door assembly for angled 6- or 8-position outlets, bag of 20

Use (XX) to specify color: 00 = clear (MX-AD-XX only), 01 = black, 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory*

**Not available for angled doors. Recommend using clear or white if required.*

COAX MAX® MODULES

PATENTED

For terminating coaxial cables at the work area or telecommunications room, Siemon's coax MAX modules are available with both BNC and F-type adapters. The F-type is available in both flat and angled while the BNC is available in flat only. They each include a space for using color coded icons to identify type of service.

MX-FA-(XX) . . . . . .
Angled module with 1 F-type adapter, 75 ohms, 2 GHz

MX-F-FA-(XX)* . . . . . .
Flat module with 1 F-type adapter, 75 ohms, 2 GHz

MX-F-BA-(XX)* . . . . . .
Flat module with 1 BNC adapter, 75 ohms

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

Modules include one color-matching, one red, and one blue icon.

**Compatible with SM® boxes*

RELATED PRODUCTS **EZ-Twist page 11.5**

MAX AUDIO / VIDEO MODULES

PATENTED

Siemon audio / video MAX modules provide connectivity for a wide range of applications. Available media types include RCA, SVHS and HD15.

MX-F-RC-(XX)* . . . . . .
Flat module with 1 RCA connector with solder tail

MX-F-VH-(XX) . . . . . .
MAX series SVHS connector, S110® punch-down style
(uses 2-port space in MAX mounting hardware)

MX-RC-(XX) . . . . . .
Angled module with 1 RCA connector with solder tail

MX-D4F-15-(XX) . . . . . NEW
4-port MAX mounting frame with HD15 female-female adapter installed

MX-D4F-15E-(XX) . . . . . NEW
4-port MAX mounting frame, HD15 cut-out, empty

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

RCA Modules include one color-matching, one red, and one blue icon.

**Compatible with SM boxes*

Use (XX) to specify color: 02 = white, 20 = ivory, 25 = bright white, 80 = light ivory

ACCESSORIES

Part #	Description
CT-ICON-(XX)	25 colored icon tabs (phone on one side, computer on reverse)
TAB-(XX)	25 colored blank tabs for couplers
CT-ICON-LBL*	10 label sheets for clear tabs that will fit any standard 8.5 x 11 printer, 168 labels per sheet
S110-TC-2P	2-pair termination caps for S110 blocks
TW-4	102mm (4 in.) cable tie (bag of 1000)

Laser-printed customized tabs now available.

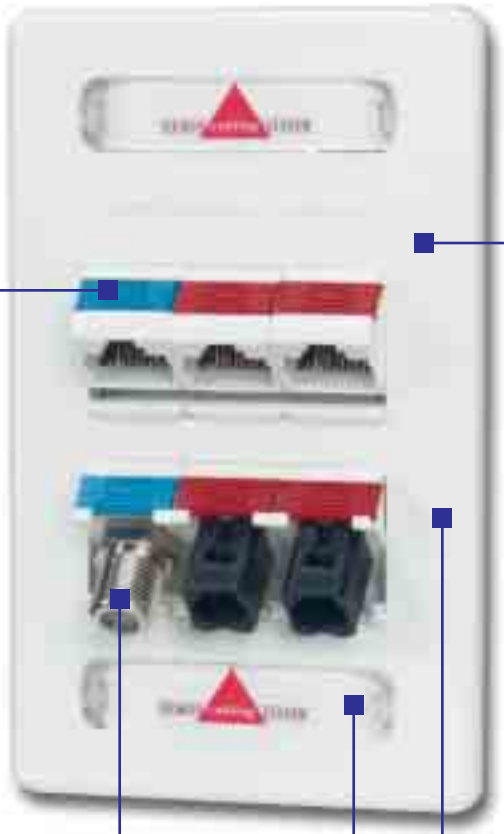
Use (XX) to specify color: 00 = clear (TAB-XX only), 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07 = green, 08 = violet, 09 = orange, 20 = ivory, 25 = bright white, 60 = brown, 80 = light ivory

Ⓑ *Add "B" for bulk pack of 100 icons or tabs.*

**Visit our web site or contact our Technical Support Department for labeling software.*

Other CT-ICON colors available. Contact our Customer Service Department for ordering information.

MAX® MODULAR FACEPLATES



Slide-in color-coded icons allow users to instantly identify different types of devices or applications

Faceplates available in black, white, bright white, gray, ivory, light ivory, and stainless steel

Complete multimedia support

Single and double gang faceplates available

Sheets of designation labels can be ordered for use with printers

Installation Flexibility

Flexible mounting tab on MAX modules allows installation from front or rear of faceplate.

Superior Density

Fits up to 6 outlets in a single gang or 12 in a double gang faceplate.

Labeling

Faceplates include pressure-release designation label covers for quick, tool-less removal.

The MAX modular faceplates combine high capacity with aesthetics providing a fresh look to match today's technologies. The faceplates are designed to be used with angled or flat MAX modules. Its durable finish masks minor scuffs that may occur during daily usage.

RELATED PRODUCTS Modular Furniture Brackets page 1.22, MAX Modules pages 1.2 – 1.7

MAX® MODULAR FACEPLATES

FOCUS

MX-FP-S-01-(XX) . . . . . .
Single gang faceplate for one MAX module

MX-FP-S-04-(XX) . . . . . .
Single gang faceplate for four MAX modules

MX-FP-D-06-(XX) . . . . . .
Double gang faceplate for six MAX modules

MX-FP-S-02-(XX) . . . . . .
Single gang faceplate for two MAX modules

MX-FP-S-06-(XX) . . . . . .
Single gang faceplate for six MAX modules

MX-FP-D-08-(XX) . . . . . .
Double gang faceplate for eight MAX modules

MX-FP-S-03-(XX) . . . . . .
Single gang faceplate for three MAX modules

MX-FP-D-12-(XX) . . . . . .
Double gang faceplate for twelve MAX modules

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray,* 20 = ivory, 80 = light ivory*

Faceplates include designation labels, clear label covers, and mounting screws.

*Add "B" to end of part number for bulk project pack of 100 faceplates.**

**Black and gray color options and bulk project packs available for single gang faceplates only.*

TAMPER-PROOF MAX FACEPLATE

Siemon's tamper-proof MAX faceplates provide a secure, low profile solution for mounting our complete line of MAX modules. The design features a one-piece base which accepts up to six angled MAX modules and is secured by a solid cover and a choice of tamper-proof star or standard slotted head screw. The base mounts to any single gang outlet (including Siemon's fiber outlet box – page 1.28).

Part #	Description
MX-TFP-S-06-(XX)	Single gang, tamper-proof faceplate for six angled MAX modules

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

STAINLESS STEEL MAX FACEPLATES

Single and double gang stainless steel MAX faceplates for use with flat and angled MAX modules. Brushed finish on plates mask minor scratches and scuffs that may occur during day-to-day usage.

MX-FP-S-(XX)-SS-L . . . . . Single gang stainless steel faceplate with labels and label holder

MX-FP-S-(XX)-SS . . . . . Single gang stainless steel faceplate

Use (XX) to specify number of ports: 01 = 1-port, 02 = 2-port, 03 = 3-port, 04 = 4-port, 06 = 6-port

Faceplates include mounting screws.

MX-FP-D-(XX)-SS-L. . . . . Double gang stainless steel faceplate with labels and label holder

MX-FP-D-(XX)-SS. . . . . Double gang stainless steel faceplate

Use (XX) to specify number of ports: 06 = 6-port, 08 = 8-port, 12 = 12-port

Faceplates include mounting screws.

MAX® DUPLEX AND DESIGNER™ FACEPLATES

The MAX Duplex and Designer faceplates are designed for use with Siemon's MAX series mounting frames. They are ideal for today's small office, home office, or residential environment. Faceplates include designation labels and color-matching label covers for circuit identification.

DP-S-(XX) . . . . . .
Single gang, plastic Duplex faceplate

DR-S-(XX) . . . . . .
Single gang, plastic Designer faceplate

DRE-D-(XX) . . . . .
Double gang Designer / Duplex faceplate

DR-D-(XX) . . . . . .
Double gang Designer faceplate

Use (XX) to specify color: 02 = white, 20 = ivory, 25 = bright white, 80 = light ivory

RELATED PRODUCTS
MAX Modules pages 1.2 – 1.7

MAX MODULAR MOUNTING FRAMES

Siemon's MAX mounting frames provide a solution for installing MAX modules in an environment where electrical Duplex or Designer style faceplates are desired. They can be used with any Duplex or Designer style faceplate.

DUPLEX MOUNTING FRAMES

MX-E2F-(XX). . . . .
Duplex mounting frame, accepts two flat MAX modules

MX-E2A-(XX) . . .
Duplex mounting frame, accepts two angled MAX modules

MX-E4F-(XX). . . .
Duplex mounting frame, accepts four flat MAX modules

MX-E4A-(XX) . . .
Duplex mounting frame, accepts four angled MAX modules

DESIGNER MOUNTING FRAMES

MX-D1-(XX) . . . .
Designer mounting frame, accepts one flat or angled MAX module

MX-D2-(XX) . . . .
Designer mounting frame, accepts two flat or angled MAX modules

MX-D4-(XX) . . . .
Designer mounting frame, accepts four flat or angled MAX modules

MX-D6F-(XX) . . .
Designer mounting frame, accepts six flat MAX modules

Use (XX) to specify color:
02 = white, 20 = ivory, 25 = bright white, 80 = light ivory

RELATED PRODUCTS **HD15 Mounting Frame page 1.7**

WALL PHONE FACEPLATES

FOCUS

WPJP . . . . . .
Plastic Wall Phone Faceplate with 4-pair USOC jack included

MX-WP-(XX)-SS. . . .
MAX Series Stainless Steel Wall Phone Faceplate with keystone MAX module included

MX-WP-SS . . . . . .
MAX Series Stainless Steel Wall Phone Faceplate for keystone MAX modules

Use (XX) to specify wiring option: C5 = 4-pair, category 5e, T568A / B; U3 = 3-pair, 6-position USOC; U4 = 4-pair, 8-position USOC

MAX® SERVICE FITTING PLATES

MAX Service Fitting Plates are used to mount flat MAX modules directly onto Walker 500 series service fittings. These MAX series plates are constructed of aluminum and are available in 2-, 4- and 6-port options. Mounting screws included.

Part#	Description
MX-SFP-(X)	MAX Series Service Fitting Plate

*Use (X) to specify number of ports: 2 = 2-ports, 4 = 4-ports, 6 = 6-ports**

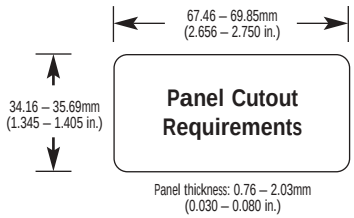
**Shielded MAX modules are not side stackable. Maximum density is 4 shielded modules in the 6-port plate. MAX blanks can be used as a spacer.*

MAX MODULAR FURNITURE ADAPTERS

FOCUS

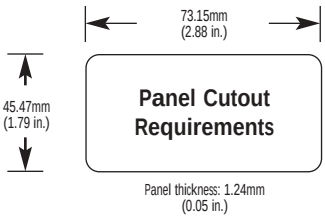
The MAX modular furniture adapters will accept four MAX angled or flat modules and snaps directly into communication outlet openings* in most major modular furniture systems, including Steelcase, Hon Industries, Haworth, Kimball and DRG. Adapters include designation label and clear label cover to allow for circuit identification.

MAX Modular Furniture adapters mount into modular furniture openings, providing superior density with proper circuit designation.



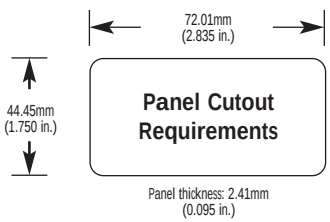
MX-MFP-(XX) . . . . . .

Modular furniture adapter for standard openings including steelcase



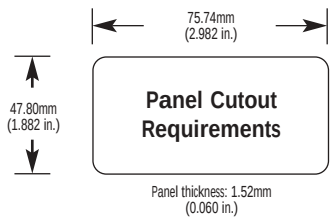
MX-MFP-KNL-(XX) . . . . . .

Modular furniture adapter for Knoll Group openings (not available in white or ivory)



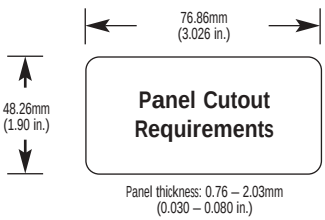
MX-MFP-HME-(XX) . . . . . .

Modular furniture adapter for Herman Miller Ethospace Beltline openings (not available in white or ivory)



MX-MFP-HMA-(XX) . . . . . .

Modular furniture adapter for Herman Miller Action Office Series 2 and Ethospace base openings



MX-MFP-AO3-(XX) . . . . . .

Modular furniture adapter for Herman Miller Action Office Series 3 base opening

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

Note: For Herman Miller Action Office Series 3 152mm (6 in.) vertical panel, use our MX-FP-S-(XX)-(XX) to mount up to six MAX modules.

**Furniture outlet openings, panel thickness, and raceway clearance may vary. Please consult furniture manufacturer for actual dimensions to determine compatibility.*

ACCESSORIES

Part #	Description
CT-FP-LBL-104*	10 sheets of labels for faceplates that will fit any standard 8.5 x 11 printer, 104 labels/sheet
MX-FP-CVR-(XX)	Bag of 100 label covers for MAX faceplates

Use (XX) to specify color: 00 = clear, 01 = black, 02 = white, 20 = ivory, 25 = bright white, 80 = light ivory

**Visit our web site or contact our Technical Support Department for labeling software.*

SURFACE MOUNTING BOXES FOR MAX® AND CT® FACEPLATES

FOCUS

These boxes offer a surface mounting option for MAX or CT single and double gang faceplates. These boxes are perfect for installations where the work area outlet cannot be recessed into a wall or floor box. The boxes are also compatible with our stand-off rings if extra depth is required behind the faceplate. Mounting hardware not included.

CT4-BOX-(XX). . . . . .

Surface mount box for single gang MAX or CT faceplate

height: 119.3mm (4.70 in)
width: 74.8mm (2.95 in)
depth: 40.6mm (1.60 in)

CT8-BOX-(XX). . . . . .

Surface mount box for double gang MAX or CT faceplate

height: 119.3mm (4.70 in)
width: 120.8mm (4.76 in)
depth: 40.6mm (1.60 in)

AB. . . . . .

Adhesive backing (package of 10)

MB . . . . . .

Magnetic backing (package of 10)

Note: Two magnetic or adhesive backings required for double gang boxes.

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

RELATED PRODUCTS

Perimeters™ Raceway pages 1.34 – 1.35, MAX Faceplates pages 1.8 – 1.9, CT Faceplates pages 1.20 – 1.21

STAND-OFF RINGS FOR MAX AND CT FACEPLATES

Stand-off rings are a mounting option for installations that need extra depth behind the faceplate. They are compatible with both MAX and CT faceplates. The 25.4mm (1.00 in.) ring is especially useful to ensure the proper bend radius for optical fiber or other multimedia applications (faceplate not included).

Part #	Description
CT4-RING-050-(XX).	12.7mm (0.50 in.) stand-off ring for single gang MAX or CT faceplate
CT4-RING-100-(XX).	25.4mm (1.0 in.) stand-off ring for single gang MAX or CT faceplate
CT8-RING-050-(XX).	12.7mm (0.50 in.) stand-off ring for double gang MAX or CT faceplate
CT8-RING-100-(XX).	25.4mm (1.0 in.) stand-off ring for double gang MAX or CT faceplate

RELATED PRODUCTS **MAX Faceplates page 1.8 – 1.9, CT Faceplates page 1.20 – 1.21**

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

MAX BRITISH FACEPLATES

The MAX British faceplate is compatible with British standards (85mm x 85mm). The faceplate is designed to accept up to six angled or flat MAX modules. Faceplates include designation label(s), clear label cover(s), and mounting screws.

MX-BFP-S-01-(XX). . . .

Single gang faceplate for one MAX module

MX-BFP-S-02-(XX). . . .

Single gang faceplate for two MAX modules

MX-BFP-S-03-(XX). . . .

Single gang faceplate for three MAX modules

MX-BFP-S-04-(XX). . . .

Single gang faceplate for four MAX modules

MX-BFP-S-06-(XX). . . .

Single gang faceplate for six MAX modules

Use (XX) to specify color: 02 = white, 25 = bright white, 82 = alpine white

RELATED PRODUCTS **British Surface Mount Boxes page 1.24**

MAX® AUSTRALIAN / ITALIAN FACEPLATES

MX-HFP-01-(XX). . . . . .

Single gang horizontal Australian / Italian faceplate for one MAX module

MX-HFP-02-(XX). . . . . .

Single gang horizontal Australian / Italian faceplate for two MAX modules

MX-HFP-03-(XX). . . . . .

Single gang horizontal Australian / Italian faceplate for three MAX modules

MX-HFP-04-(XX). . . . . .

Single gang horizontal Australian / Italian faceplate for four MAX modules

Use (XX) to specify color: 01=black, 02=white, 20=ivory, 80=light ivory

Note: Faceplates include designation label(s), color-matching and clear label covers, and color-matching screw covers.

MAX BRITISH FLEXYOKES

The MAX flexyokes allow a single port MAX module to be mounted in British 37mm x 22mm openings.

FY-MX-(XX). . . . . .

Flexyoke housing only

Use (XX) to specify color:
02 = white, 25 = bright white

RELATED PRODUCTS

MAX Modules pages 1.2 – 1.7

MAX DANISH FACEPLATE

MX-DFP-02-02. . . . . .

Danish white faceplate for two MAX modules. Includes clear designation label covers

MAX INTERNATIONAL ADAPTERS

These adapters allow two MAX modules to be mounted into standard openings.

MX-45-01-(XX) . . . . . .

45mm x 45mm 1-port adapter

NEW

Use (XX) to specify color: 02=white, 25 = bright white, 82 = alpine white

MX-A-(XX) . . . . . .

50mm x 50mm adapter. Includes designation label and clear label covers.

Use (XX) to specify color: 01=black, 02=white, 25 = bright white, 82 = alpine white

MX-45-02-(XX) . . . . . .

45mm x 45mm 2-port adapter

REVISED

Use (XX) to specify color: 02=white, 25 = bright white, 82 = alpine white

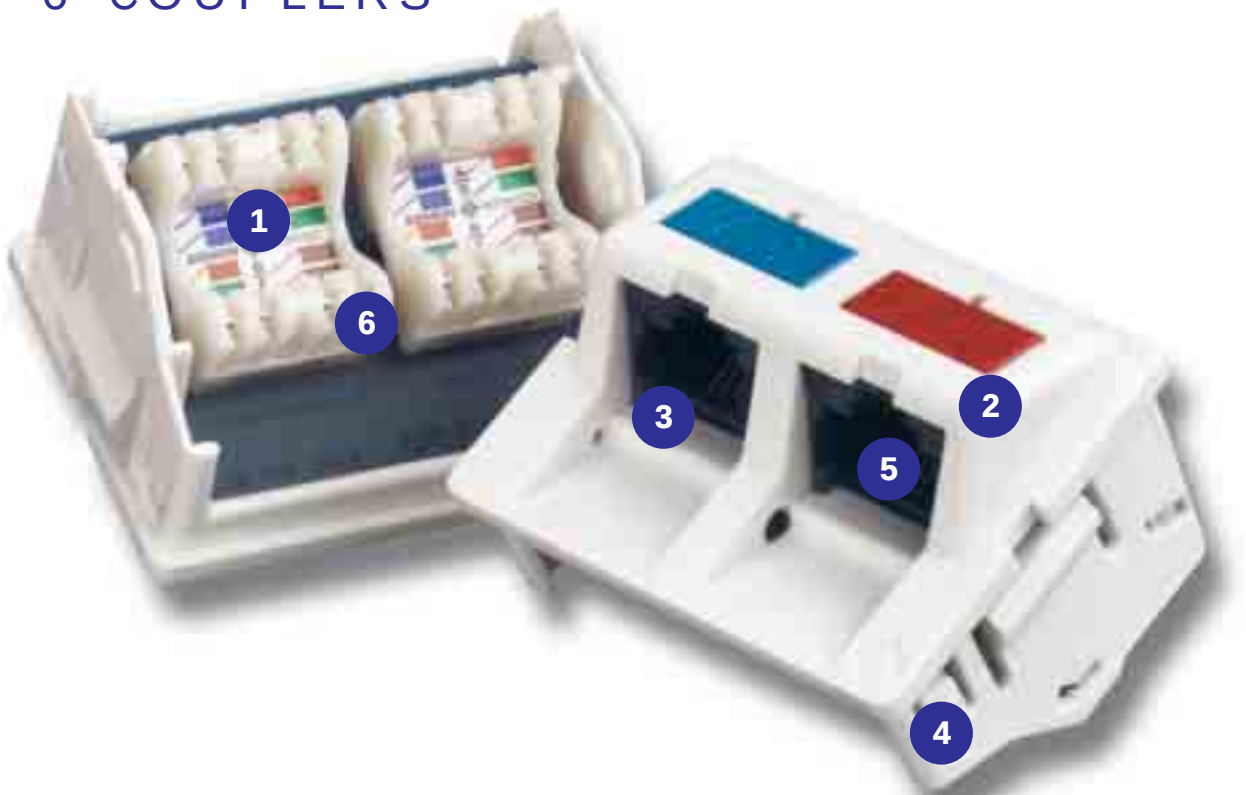
MX-RFP-S-02-(XX) . . . . . .

45mm x 50mm adapter

Use (XX) to specify color: 02=white, 25 = bright white

Contact our Technical Support Department for questions on mounting dimensions.

CT® 6 COUPLERS



The unique Siemon engineering innovations used in the design of the CT 6 couplers enables full compliance with category 6 connecting hardware specifications for all pair combinations up to 250 MHz.

1 Universal Wiring
All outlets are compatible with both T568A and T568B wiring options

2 Superior Design
Patented "gravity feed" design on angled couplers controls bend radius of mated modular cord and physically protects the connection point from being disturbed

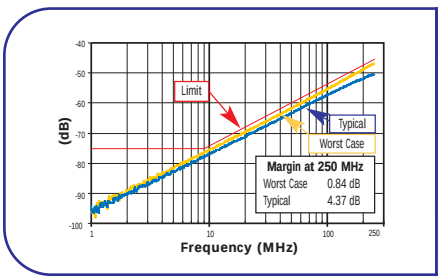
3 Spring Door Option
Angled CT 6 Couplers are available with optional spring doors to protect modular jacks from outside contaminants

4 Easy Installation
Snaps quickly into CT faceplates or patch panels and can be easily removed using a small screwdriver

5 Backward Compatibility
Backward compatible — can be used with MC® 5 modular cords for category 5e compatibility

6 Familiar Termination
Utilizes standard 110 termination tools

Exceeds Category 6



Patented Tri-Balance™ technology ensures full compliance with category 6 specifications.

Quick Termination

Pyramid™ Wire Entry System on new S310® blocks separates paired conductors when lacing cables to simplify and reduce installation time.

Superior Performance

Use MC 6 modular cords to unlock the performance of Siemon CT 6 modules.

ANGLED CT® 6 COUPLERS

PATENTED

Siemon's patented gravity-feed jack controls the bend radius of the mated modular cords to ensure the integrity of the transmission channel, while physically protecting the connection from incidental contact at the work area. This angled shroud creates a slim profile, perfect for installations in shallow raceways and modular furniture.

CT-C6-C6-(XX) . . . . . .
Angled, double coupler, T568A / B wiring

CT-C6-(XX) . . . . . .
Angled, single coupler, T568A / B wiring

Technical Tip!
Angled couplers are recommended for work area applications.

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory, 82 = alpine white
Add "-D" for spring door option
Ⓑ *Add "B" to end of part number for bulk project pack of 100 couplers*
(Bulk option includes couplers and icons only — termination caps and cable ties are available separately see page 1.19).
Couplers include one color-matching icon (clear for black) and one termination cap per port, plus one red and one blue icon.

RELATED PRODUCTS **CT Faceplates page 1.21, Palm Guard page 12.7, MC® 6 Patch Cords page 4.3**

FLAT CT 6 COUPLERS

PATENTED

Flat CT 6 couplers are designed for use in flush mount applications and are also recommended for use with CT patch panels.

CT-F-C6-C6-(XX) . . . . .
Flat, double coupler, T568A / B wiring

CT-F-C6-(XX) . . . . . .
Flat, single coupler, T568A / B wiring

Technical Tip!
Flat couplers are recommended for patch panel applications.

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory, 82 = alpine white
Ⓑ *Add "B" to end of part number for bulk project pack of 100 couplers*
(Bulk option includes couplers and icons only — termination caps and cable ties are available separately see page 1.19).
Couplers include one color-matching icon (clear for black) and one termination cap per port, plus one red and one blue icon.

RELATED PRODUCTS **CT Panels pages 2.8 – 2.10, Palm Guard page 12.7, MC® 6 Patch Cords page 4.3**

CT® 5e COUPLERS

160 MHz
Featuring universal T568A/B wiring with component and channel performance to 160 MHz*.

Clear plastic cover protects circuitry from accidental damage

Patented compliant pin technology allows use of Siemon's 4-pair impact tool to minimize termination time

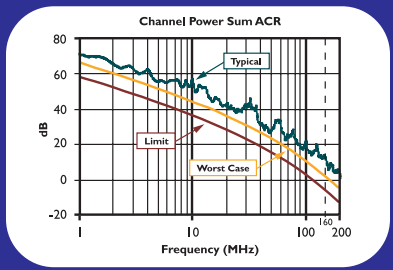
Cable-tie anchor points provide effective strain relief for cables entering from top or bottom of coupler

Snap-in color-coding icons are included (red, blue, and matching) allowing users to instantly identify different types of services

Angled CT 5e Couplers are available with optional spring doors to protect modular jacks from outside contaminants

** Performance from 100 –160 MHz based upon extrapolated TIA/EIA limits*

Superior Performance



Patented "reactive balance" technology provides exceptional category 5e transmission performance.

Angled Coupler

Patented gravity-feed design controls bend radius of mated modular cord. The angled shroud protects the connection point from being physically disturbed.

Easy Installation

Snaps quickly into CT faceplates or patch panels and can be easily removed using a small screwdriver to access terminated cable.

The engineering innovations used in the design of the CT 5e couplers ensure full-featured, end-to-end category 5e connectivity. The couplers feature universal T568A/B wiring and comply fully with all applicable ISO and TIA specifications for all pair combinations.

The most economical way to order CT couplers is with the Ⓑ Bulk project pack option.

RELATED PRODUCTS CT Panels pages 2.8 – 2.10, CT Faceplates page 1.21, S110® Multi-Pair Termination Tool page 12.6

CT® 5e COUPLERS

PATENTED

ANGLED COUPLERS

CT-C5-C5-(XX) . . . . . .
Angled, double coupler, universal T568A/B wiring

CT-C5-(XX) . . . . . .
Angled, single coupler, universal T568A/B wiring

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory, 82 = alpine white
Add "-D" for spring door option.

FLAT COUPLERS

CT-F-C5-C5-(XX) . . . . . .
Flat, double coupler, universal T568A/B wiring

CT-F-C5-(XX). . . . . .
Flat, single coupler, universal T568A/B wiring

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory, 82 = alpine white

Technical Tip!
Angled couplers are recommended for work area applications and flat couplers are recommended for patch panel applications.

Ⓑ *Add "B" to end of part number for bulk project pack of 100 couplers*
(Bulk option includes couplers and icons only — termination caps and cable ties are available separately see page 1.19).
Couplers include one color-matching icon (clear for black); 2 termination caps; and one cable tie per port, plus one red and one blue icon.

FLAT CT 3 COUPLERS

PATENTED

Flat CT 3 couplers provide a full range of voice wiring configurations. They are available with single or double modular jacks.

DOUBLE COUPLERS

CT-(XX)-(XX)-(XX). . . . . .
Flat, double coupler

Use 1st (XX) to specify jack A (see below)
Use 2nd (XX) to specify jack B (see below)
Use 3rd (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory, 82 = alpine white

SINGLE COUPLERS

CT-(XX)-(XX) . . . . . .
Flat, single coupler

Use 1st (XX) to specify jack option (see below)
Use 2nd (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory, 82 = alpine white

Jack Options: *U3 = 3-pair, 6-position jack, USOC ; U4 = 4-pair jack, USOC*
Ⓑ *Add "B" to end of part number for bulk project pack of 100 couplers*
(Bulk option includes couplers and icons only — termination caps and cable ties are available separately).
Couplers include one color-matching icon (clear for black); 2 termination caps; and one cable tie per port, plus one red and one blue icon.

FIBER ADAPTER CT® COUPLERS

PATENTED

The CT fiber coupler line consists of MT-RJ, LC, SC, ST and SC / ST hybrid adapters available in 2 and 4 fiber versions. Angled versions are available with our patented gravity-feed design for controlling the bend radius of fiber cables at the work area. All fiber adapters are "universal" to support either multimode or singlemode fiber connections.

CT-MT-(XX)

Flat coupler with 1 duplex MT-RJ adapter (2 fibers)

CT-MT-MT-(XX)

Flat coupler with 2 duplex MT-RJ adapters (4 fibers)

CT-A-MT-(XX)

Angled coupler with 1 duplex MT-RJ adapter (2 fibers)

CT-A-MT-MT-(XX)

Angled coupler with 2 duplex MT-RJ adapters (4 fibers)

CT-LC(X)-(XX)

Flat coupler with 1 duplex LC adapter (2 fibers)

CT-LC(X)-LC(X)-(XX)

Flat coupler with 2 duplex LC adapters (4 fibers)

CT-A-LC(X)-(XX)

Angled coupler with 1 duplex LC adapter (2 fibers)

CT-A-LC(X)-LC(X)-(XX)

Angled coupler with 2 duplex LC adapters (4 fibers)

CT-SC-SC-(XX)

Flat coupler with 1 duplex SC adapter (2 fibers)

CT-SC-4-(XX)

Flat coupler with 2 duplex SC adapters (4 fibers)

CT-A-SC-SC-(XX)

Angled coupler with 1 duplex SC adapter (2 fibers)

CT-SA-SA-(XX)

Flat coupler with 1 duplex ST adapter (2 fibers)

CT-SA-4-(XX)

Flat coupler with 2 duplex ST adapters (4 fibers)

CT-A-SA-SA-(XX)

Angled coupler with 1 duplex ST adapter (2 fibers)

CT-AC-AC-(XX)

Flat coupler with 1 duplex ST-to-SC adapter (front side=SC) (2 fibers)

CT-AC-4-(XX)

Flat coupler with 2 duplex ST-to-SC adapters (front side=SC) (4 fibers)

CT-A-AC-AC-(XX)

Angled coupler with 1 duplex ST-to-SC adapter (front side=SC) (2 fibers)

Use (X) to specify LC adapter color: blank = beige, U = blue

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

Couplers include one color-matching icon (clear for black); plus one red and one blue icon.

RELATED PRODUCTS **CT-MMO page 1.27, CT Panels pages 2.8 – 2.10, CT Fiber Management Tray page 5.9**

COAX CT® COUPLERS

CT-BA-(XX)
Flat coupler with 1 BNC adapter

CT-A-BA-(XX)
Angled coupler with 1 BNC adapter

CT-FA-(XX)
Flat coupler with 1 F-type adapter

CT-A-FA-(XX)
Angled coupler with 1 F-type adapter

CT-BA-BA-(XX)
Flat coupler with 2 BNC adapters

CT-A-BA-BA-(XX)
Angled coupler with 2 BNC adapters

CT-FA-FA-(XX)
Flat coupler with 2 F-type adapters

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory
Couplers include one color-matching icon (clear for black); one red and one blue icon.

Technical Tip!
Angled coax couplers are recommended for work area applications and flat coax couplers are recommended for patch panel applications.

VIDEO CT COUPLERS

CT-RC-RC-(XX)
Flat coupler with 2 RCA connectors with solder tails

CT-A-RC-RC-(XX)
Angled coupler with 2 RCA connectors with solder tails

CT-RA-(XX)
Flat coupler with 1 RCA adapter

CT-RA-RA-(XX)
Flat coupler with 2 RCA adapters

CT-VH-(XX)
Flat coupler with 1 SVHS connector with solder tail

CT-VA-(XX)
Flat coupler with 1 SVHS adapter

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory
RCA couplers include one color-matching icon (clear for black); one red and one blue icon.

OTHER CT COUPLERS

CT-AUD-(XX)
Flat coupler with 2 audio connectors

CT-BLNK-(XX)
Flat blank coupler

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

ACCESSORIES

Part #	Description
CT-ICON-(XX)	25 colored icon tabs (phone on one side, computer on reverse)
TAB-(XX)	25 colored blank tabs for couplers
CT-ICON-LBL*	10 label sheets for clear tabs that will fit any standard 8.5 x 11 printer, 168 labels per sheet
TW-4	102mm (4 in.) cable ties, bag of 1000
S110-TC-2P	2-pair S110® termination caps, bag of 500

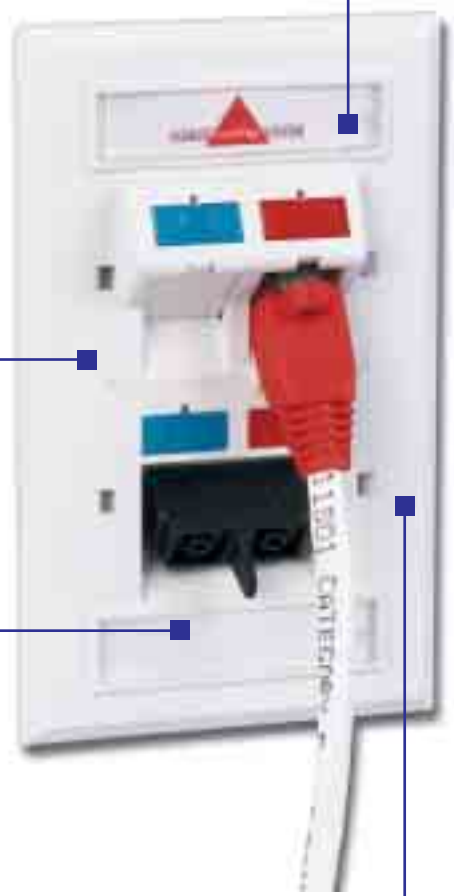
Laser-printed customized tabs now available.

Use (XX) to specify color: 00 = clear (TAB-XX only), 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07 = green, 08 = violet, 09 = orange, 20 = ivory, 25 = bright white, 60 = brown, 80 = light ivory
Ⓑ *Add "B" for bulk pack of 100 icons or tabs.*
**Visit our web site or contact our Technical Support Department for labeling software.*
Other CT-ICON colors available. Contact our Customer Service Department for ordering information.

CT® FACEPLATES

Faceplates and CT couplers are available in white, ivory, light ivory, gray and black. Stainless steel versions are also available

Write-on circuit designation labels protected by clear plastic cover located over the mounting screws



Sheets of designation labels can be ordered for use with desktop printers

UV resistant, high impact plastic prevents color fading and provides added durability

Easy Installation

Couplers can be easily snapped out of the front of faceplates, making moves, adds, and changes quick and easy.

Flexibility

Cutouts allow couplers to pass through plates enabling mounting of faceplates after cables are terminated.

Labeling

Faceplates include quick pressure-release designation label covers for quick, tool-less removal.

At the work area, Siemon CT faceplates offer a sleek, clean appearance for mounting CT couplers. Designation labels cover the mounting screws (included) and provide ample circuit identification.

The most economical way to order CT faceplates is with the (B) Bulk project pack option.

CT® FACEPLATES

ENHANCED PATENTED

CT2-FP-(XX) . . . . . .

Single gang plastic faceplate for one coupler

CT4-FP-(XX) . . . . . .

Single gang plastic faceplate for two couplers

CT8-FP-(XX) . . . . . .

Double gang plastic faceplate for four couplers

CT2-HFPA-(XX)* . . . . . .

Single gang plastic horizontal faceplate for one coupler with screw caps (#6-32 screws)

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

Faceplates include designation label(s), label cover(s) and screws.

Ⓑ *Add "B" to end of part number for bulk project pack, (includes 100 CT2 or CT4 faceplates or 50 CT8 faceplates, screws, designation labels, and label covers).*

**Not available in bulk project pack.*

STAINLESS STEEL CT FACEPLATES

PATENTED

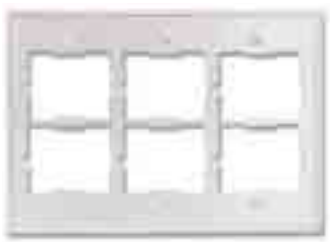
CT4-FP-SS-L . . . . . .
Single gang stainless steel faceplate for two couplers with labels and label holders

CT8-FP-SS-L . . . . . .
Double gang stainless steel faceplate for four couplers with labels and label holders

CT4-FP-SS . . . . . .
Single gang stainless steel faceplate for two couplers

CT8-FP-SS . . . . . .
Double gang stainless steel faceplate for four couplers

CT12-FP-SS . . . . . .
Triple gang stainless steel faceplate for six couplers



ACCESSORIES

Part #	Description
CT-FP-LBL-104*	10 sheets of labels for faceplates that will fit any standard 8.5 x 11 printer, 104 labels per sheet
CT-FP-CVR	Bag of 100 clear label covers for CT faceplates

**Visit our web site or contact our Technical Support Department for labeling software.*

MODULAR FURNITURE BRACKETS

These modular furniture brackets provide a solution for mounting faceplate surface mounting boxes or SM® series 4- or 6-port surface mount boxes onto modular furniture systems.

MFB-1 . . . . . .

Bracket for Steelcase 9000, Haworth, Knoll Morrison, Allsteel, and Westinghouse furniture systems

MFB-2 . . . . . .

Bracket for Herman Miller Ethospace, Steelcase Avenir, and DRG furniture systems

MFB-3 . . . . . .

Brackets for Herman Miller Action Office Furniture Systems

Note: Furniture panel openings may vary. Please consult furniture manufacturer for actual dimensions to determine compatibility.

RELATED PRODUCTS **Faceplate Surface Mounting Boxes pages 1.12, 1.23, SM Boxes pages 1.30 – 1.31**

CT SERVICE FITTING PLATES

The CT service fitting plates mount directly onto Walker 500 Series service fittings. Mounting screws are included.

CT-SFP-S . . . . . .

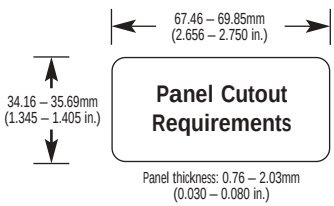
Plate with one coupler opening

CT-SFP-D . . . . . .

Plate with two coupler openings

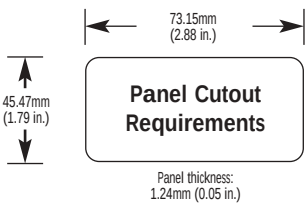
CT MODULAR FURNITURE ADAPTERS

The CT modular furniture adapter will accept any CT coupler and snaps directly into communication outlet openings* in most major modular furniture systems, including Steelcase, Hon Industries, Haworth, Kimball, and DRG.



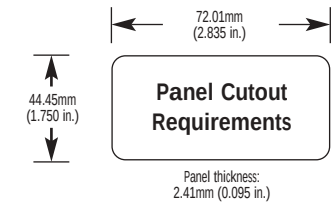
CT-MFP-(XX) . . . . . .

Adapter for standard openings including steelcase (accepts one CT coupler)



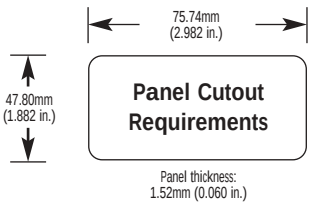
CT-MFP-KNL-(XX) . . . . . .

Adapter for Knoll Group openings (accepts one CT coupler — not available in white or ivory)



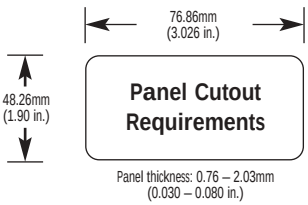
CT-MFP-HME-(XX) . . . . . .

Adapter for Herman Miller Ethospace Beltline openings (accepts one CT coupler — not available in white or ivory)



CT-MFP-HMA-(XX) . . . . . .

Adapter for Herman Miller Action Office Series 2 and Ethospace base openings (accepts two CT couplers)



CT-MFP-AO3-(XX) . . . . . .

Adapter for Herman Miller Action Office Series 3 base opening (accepts one CT coupler)

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

For Herman Miller Action Office Series 3 152mm (6 in.) vertical panel, use our standard CT4-FP to mount two CT couplers (see page 1.21).

**Furniture outlet openings, panel thickness, and raceway clearance may vary. Please consult furniture manufacturer for actual dimensions to determine compatibility.*

STAND-OFF RINGS FOR MAX® AND CT® FACEPLATES

Stand-off rings are a mounting option for installations that need extra depth behind the faceplate. They are compatible with both MAX and CT faceplates. The 25.4mm (1.00 in.) ring is especially useful to ensure the proper bend radius for optical fiber or other multimedia applications (faceplate not included).

Part #	Description
CT4-RING-050-(XX)	12.7mm (0.50 in.) stand-off ring for single gang MAX or CT faceplate
CT4-RING-100-(XX)	25.4mm (1.0 in.) stand-off ring for single gang MAX or CT faceplate
CT8-RING-050-(XX)	12.7mm (0.50 in.) stand-off ring for double gang MAX or CT faceplate
CT8-RING-100-(XX)	25.4mm (1.0 in.) stand-off ring for double gang MAX or CT faceplate

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

RELATED PRODUCTS **MAX Faceplates page 1.8 – 1.9, CT Faceplates page 1.20 – 1.21**

SURFACE MOUNTING BOXES FOR MAX AND CT FACEPLATES

FOCUS

These boxes offer a surface mounting option for MAX or CT single and double gang faceplates. These boxes are perfect for installations where the work area outlet cannot be recessed into a wall or floor box. The boxes are also compatible with our stand-off rings if extra depth is required behind the faceplate. Mounting hardware not included.

CT4-BOX-(XX)

Surface mount box for single gang MAX or CT faceplate

height: 119.3mm (4.70 in)
width: 74.8mm (2.95 in)
depth: 40.6mm (1.60 in)

CT8-BOX-(XX)

Surface mount box for double gang MAX or CT faceplate

height: 119.3mm (4.70 in)
width: 120.8mm (4.76 in)
depth: 40.6mm (1.60 in)

AB

Adhesive backing (package of 10)

MB

Magnetic backing (package of 10)

Note: Two magnetic or adhesive backings required for double gang boxes.

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

RELATED PRODUCTS

Perimeters™ Raceway pages 1.34 – 1.35,
MAX Faceplates pages 1.8 – 1.9,
CT Faceplates pages 1.20 – 1.21

SHEETROCK RING FOR FACEPLATES

Sheetrock rings are designed for installations where wall openings have been inadvertently cut too large and standard single or double gang faceplates do not provide sufficient wall coverage. They mount directly behind MAX or CT faceplates and offer an additional 6.4mm (0.25 in.) of coverage on each side of the faceplate.

SR-1-(XX)

Single gang ring

SR-2-(XX)

Double gang ring

Use (XX) to specify color: 01 = black, 02 = white, 20 = ivory

RELATED PRODUCTS **CT Faceplates page 1.20 – 1.21, MAX Faceplates page 1.8 – 1.9**

BRITISH CT® FACEPLATES

The CT series British faceplates are compatible with British standards (85mm X 85mm) and are designed to work with our complete line of CT couplers.

CTE2-FP-(XX) . . . . . .

Single gang British style faceplate for one CT coupler

CTE4-FP22-(XX) . . . . . .

Single gang British style faceplate for two CT couplers

CTE4-FP-02 shown with two CT couplers

CTE4-FP-(XX) . . . . . .

Double gang British style faceplate for two CT couplers

Use (XX) to specify color: 02 = white, 82 = alpine white

BRITISH SURFACE MOUNT BOXES

The CTE2 and CTE4 boxes offer surface mount capabilities for the British CT series faceplates featured above.

CTE2-BOX-02. . . . . .

Single gang surface mount box for British CT faceplates, white

CTE4-BOX-02 shown with CTE4-FP-02 and two CT couplers

CTE4-BOX-02. . . . . .

Double gang surface mount box for British CT faceplates, white

INTERNATIONAL CT® FACEPLATES

CT-FP-D-(XX) . . . . . .

Single gang German faceplate for one CT coupler

CT-FP-DKIT-(XX) . . . . . .

Single gang German faceplate kit, for one CT coupler. Includes faceplate, mounting ring and stand-off frame

Use (XX) to specify color: 02 = white, 80 = light ivory, 82 = alpine white

CTE-DFP-02 . . . . . .

Danish white faceplate for one CT coupler

CT2-HFP-(XX) . . . . . .

Horizontal Australian / Italian faceplate for one CT coupler

Use (XX) to specify color: 01 = black, 02 = white, 04 = gray, 20 = ivory, 80 = light ivory

CT-FP-DKIT-02 shown with CT coupler

CT INTERNATIONAL ADAPTERS

CTE-A-(XX) . . . . . .

50mm x 50mm adapter for one CT coupler

Use (XX) to specify color: 01 = black, 02 = white, 82 = alpine white

CTE-45-(XX) . . . . . .

45mm x 45mm adapter for one CT coupler

Use (XX) to specify color: 02 = white, 82 = alpine white

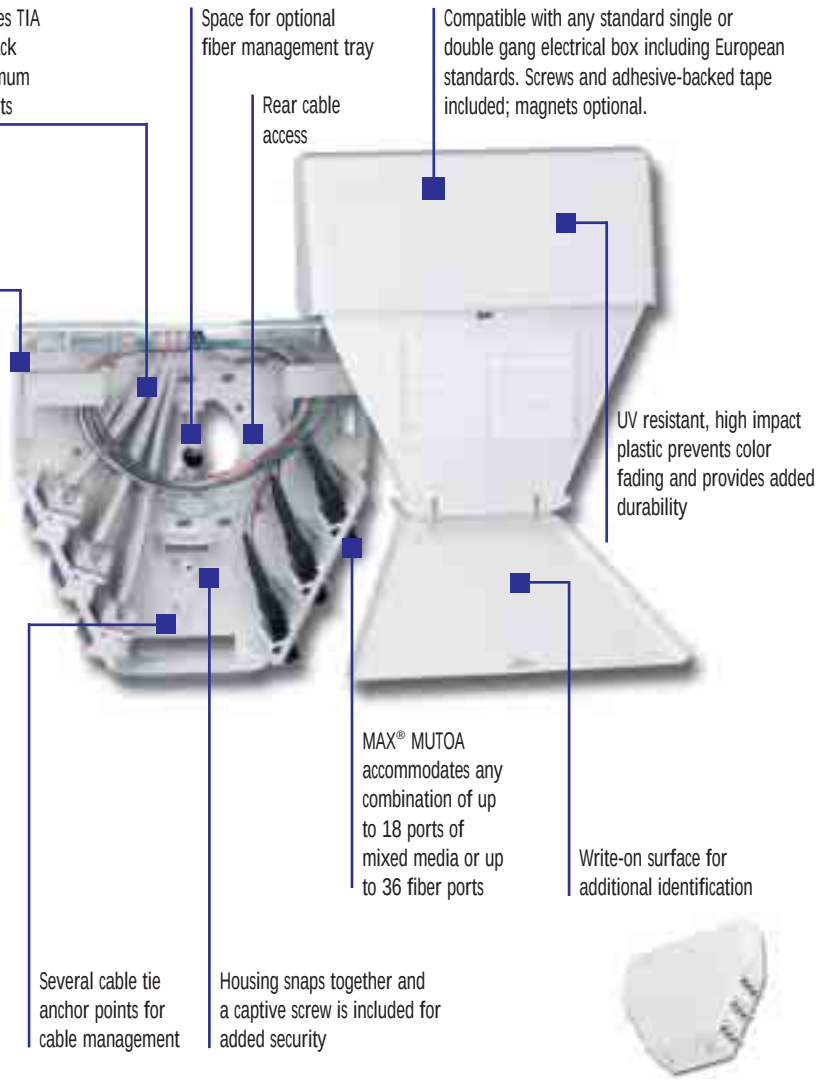
CT-RFP-02 . . . . . .

White 45mm X 50mm adapter for one CT coupler

CTE-45-02 shown with CT coupler

Contact our Technical Support Department for questions on mounting dimensions.

MULTI-USER TELECOMMUNICATIONS OUTLET ASSEMBLY (MUTOA)



Installation Options

Available in both MAX and CT® versions for greater flexibility. The MAX MUTOA accepts up to 18 modules.

Fiber Management

Optional fiber management trays enable isolation and proper routing of optical fiber cabling.

Innovative Labeling

Hideaway labeling system flips down to reveal a designation area that utilizes standard size faceplate designation labels.

This low-profile multi-user/multimedia surface mount box is unsurpassed in features and flexibility, and is ideal for use as a multi-user telecommunications outlet assembly (MUTOA) as specified in ANSI/TIA/EIA-568-B.1. It provides storage area for up to 12m (39.4 ft.) of buffered optical fiber cable using our optional fiber management tray and at least 2m (6.6 ft.) of 4-pair twisted pair cable in the base, while maintaining a minimum bend radius of 30mm (1.2 in.).

MAX® MUTOA

FOCUS PATENTED

Part #	Description
MX-MMO-(XX)	Multi-user/telecommunications outlet box with cable ties, mounting screws and adhesive tape

height: 200.2mm (7.88 in.),
width: 200.2mm (7.88 in.),
depth: 57.0mm (2.25 in.)

Optional Fiber Management Tray sold separately (see below)

Use (XX) to specify color: 02 = white, 20 = ivory, 80 = light ivory

RELATED PRODUCTS **MAX Modules pages 1.2 – 1.7, Perimeters Raceway pages 1.34 – 1.35**

CT® MUTOA

PATENTED

Part #	Description
CT-MMO-(XX)	Multi-user/telecommunications outlet box with cable ties, mounting screws and adhesive tape

height: 200.2mm (7.88 in.),
width: 200.2mm (7.88 in.),
depth: 57.0mm (2.25 in.)

Optional Fiber Management Tray sold separately (see below)

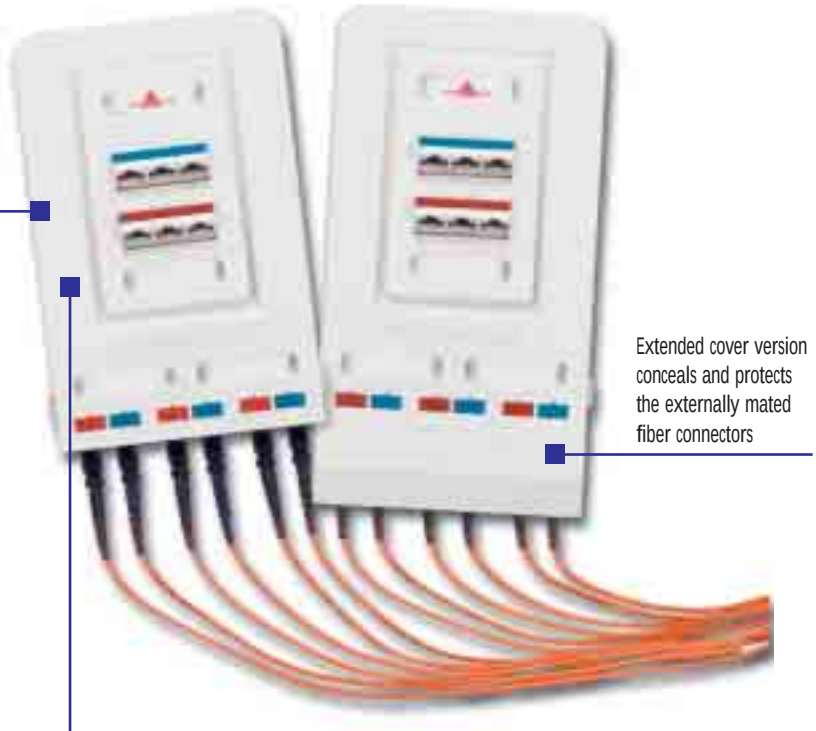
Use (XX) to specify color: 02 = white, 20 = ivory, 80 = light ivory

RELATED PRODUCTS **CT Couplers pages 1.14 – 1.19, Perimeters™ Raceway pages 1.34 – 1.35**

ACCESSORIES

Part #	Description
CT-MMO-MAG	Set of 3 magnets for mounting MAX or CT MUTOA
FMT	Clear fiber management tray for MAX or CT MUTOA

FIBER OUTLET BOX (FOB2)



Slim, tapered design hugs the wall, minimizing disturbance

Extended cover version conceals and protects the externally mated fiber connectors

Cover snaps on and off of the base. Screw holes are provided (concealed beneath identification labels) to secure cover to base, if desired

Angled/arched slots in fiber managers fully retain the fibers strands while facilitating loading

Slide-in adapter bezels allow for easy installation and removal and are polarized to assure that adapter keyways are always facing up

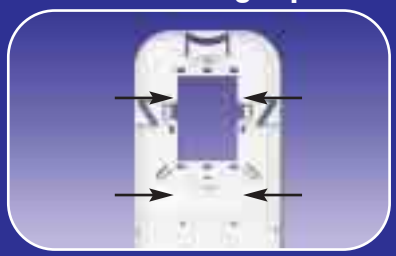
Innovative Cable Access

The unique design allows snap-on cover to be removed to access fiber connections without disturbing the faceplate connections (and vice versa).

Fiber Management

The base of the FOB2 provides storage and management for up to 1 meter of slack for as many as 6 fibers.

More Mounting Options



Mounting holes allow FOB2 to be mounted to both single and double gang U.S. wall outlets as well as single gang European outlets.

Siemon's low-profile Fiber Outlet Box (FOB2) is the optimal solution for bringing fiber to the desk. The FOB2 offers a well-defined method for managing fiber cabling at the work area by providing a connection point for up to 12 fibers (or 6 coaxial) connectors utilizing slide-in bezels. A single gang faceplate is mounted to the FOB2 base and accommodates up to six MAX® modules or two CT® couplers.

FIBER OUTLET BOX (FOB2)

FOCUS PATENTED

FOB2-(XX) . . . . . Includes base, cover, designation labels, clear label covers, mounting hardware, cable ties, icons, and three blank bezels

FOB2-GRD-(XX) . . . . . Includes base, extended cover, designation labels, clear label covers, mounting hardware, cable ties, icons, and three blank bezels

Use (XX) to specify color: 01 = black, 02 = white, 80 = light ivory

RELATED PRODUCTS **CT® Faceplates pages 1.20 – 1.21, MAX® Faceplates pages 1.8 – 1.13**

FIBER BEZELS

FOCUS PATENTED

FOB-BZL-MT1-01 . . . . .

1 Duplex MT-RJ adapter, (2 fibers)

FOB-BZL-LC(X)1-01 . . . .

1 Duplex LC adapter, (2 fibers)

FOB-BZL-SC-01 . . . . . .

Duplex SC adapter, (2 fibers)

FOB-BZL-MT-01 . . . . . .

2 Duplex MT-RJ adapters, (4 fibers)

FOB-BZL-LC(X)-01 . . . . .

2 Duplex LC adapters, (4 fibers)

FOB-BZL-SA-01 . . . . . .

Duplex ST adapters, (2 fibers)

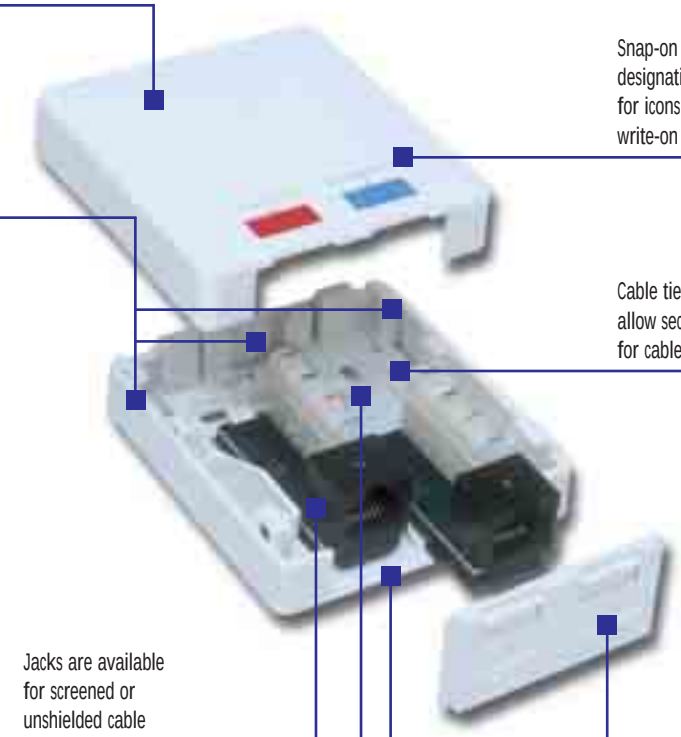
FOB-BZL-BL-01 . . . . . .

Blank bezel

Use (X) to specify LC adapter color: blank = beige, U = blue

Note: All fiber adapters are "universal" to support both multimode and singlemode fiber connections.

SM® SURFACE MOUNT BOXES



MAX® Module Compatibility

All Siemon SM boxes include an adapter bezel (PN: MX-SM) to accommodate flat single MAX modules (see pages 1.2 – 1.7)

Fiber Management

SM4 and SM6 surface mount boxes include fiber management posts to allow optical fiber slack to be stored at the work area.

Perimeters™ Ready

The Siemon Company's Perimeters raceway system compliments our complete line of SM boxes (see pages 1.34 and 1.35 for more information).

Surface mount boxes feature a compact, easy-to-install design. UTP, ScTP, fiber, video, and coax components can be ordered preassembled or can be purchased separately and quickly installed into the base. S110® cable termination and multiple cable management features provide a simple and well organized installation.

RELATED PRODUCTS
Perimeters™ Raceway pages 1.34 – 1.35,
Flat MAX Modules pages 1.2 – 1.7,
Screened SM Modular Jack Components page 7.9

FIELD-ASSEMBLED SM® BOXES

FOCUS ENHANCED PATENTED

Field-assembled surface mount boxes do not include connectors. See pages 1.2-1.7 for MAX® modules or pages 1.32 and 1.33 for other connector options.

SM1-(XX) . . . . . .

1-port box with cover, base, icons, termination caps, cable ties, screws, adhesive tape, and one flat MAX adapter bezel

height: 61.8mm (2.43 in.), width: 44.6mm (1.76 in.), depth: 27.9mm (1.10 in.)

SM2-(XX) . . . . . .

2-port box with cover, base, icons, termination caps, cable ties, screws, adhesive tape, and two flat MAX adapter bezels

height: 70.6mm (2.78 in.), width: 66.3mm (2.61 in.), depth: 27.9mm (1.10 in.)

SM4-(XX) . . . . . .

4-port box with cover, base, icons, termination caps, cable ties, screws, adhesive tape, and four flat MAX adapter bezels

height: 90.1mm (3.55 in.), width: 115.5mm (4.55 in.), depth: 27.9mm (1.10 in.)

SM6-(XX) . . . . . .

6-port box with cover, base, icons, termination caps, cable ties, screws, adhesive tape, and six flat MAX adapter bezels

height: 101.6mm (4.00 in.), width: 165.1mm (6.50 in.), depth: 27.9mm (1.10 in.)

Use (XX) to specify color: 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory.
Add "-D" for optional spring shutter door.

FACTORY ASSEMBLED SM BOXES

FOCUS PATENTED 5e compatible

SM1-5-(XX)-(XX) . . . . . .

1-port surface mount box

SM2-5-(XX)-(XX) . . . . . .

2-port surface mount box

SM4-5-(XX)-(XX) . . . . . .

4-port surface mount box

SM6-5-(XX)-(XX) . . . . . .

6-port surface mount box

Use 1st (XX) to specify wiring for all ports: T4 = T568A wiring; A4 = T568B wiring

Use 2nd (XX) to specify color: 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

For optional spring shutter door add "-D".

All factory assembled SM boxes include: icons, termination caps, cable ties, screws and adhesive tape.

For custom and other media configurations contact our Customer Service Department.

SM® MODULAR JACK COMPONENTS

PATENTED

SMC-5-T4 . . . . . .
Modular jack, T568A
5e compatible

SMC-5-A4 . . . . . .
Modular jack, T568B
5e compatible

SMC-(XX). . . . . .
Other UTP jacks
3

Use (XX) to specify jack option: U3 = 3-pair, 6-position jack, USOC; U4 = 4-pair, 8-position jack, USOC;

RELATED PRODUCTS **Screened SM Modular Jack Components page 7.9**

SM FIBER ADAPTER BEZELS

PATENTED

SMC-SC-(XX) . . . . . .
Dual bezel with 1 duplex SC fiber adapter (2 fibers)

SMC-LC(X)-(XX). . . . . .
Dual bezel with 2 duplex LC adapters (4 fibers)

SMC-SA-(XX) . . . . . .
Dual bezel with 2 ST fiber adapters (2 fibers)

SMC-1SA-(XX)*. . . . . .
Dual bezel with 1 ST fiber adapter (1 fiber)

SMC-1P-SA-(XX) . . . . . .
Single bezel with 1 ST fiber adapter (1 fiber)
Use with SM1 boxes only

MT-RJ connectivity can be achieved via the use of the flat MT-RJ MAX® modules in conjunction with the MX-SM adapters which are included with all field assembled SM boxes (see page 1.6).

Use (X) to specify LC adapter color: blank = beige, U = blue

Use (XX) to specify color: 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory

All adapters are "universal" to support either multimode or singlemode fiber connections.

**Single-port components come with adapter standard on the right side. To order adapter on the left side add "-L". The dual bezels use 2-port locations, one containing the specified adapter, the other can be utilized for different connector component or an optional blank for future configuration.*

SM® COAX ADAPTER BEZELS

PATENTED

SMC-FA-(XX) . . . . . .
Dual bezel with 2 F-type adapters, (2-ports)

SMC-1FA-(XX)* . . . . . .
Dual bezel with 1 F-type coax adapter, (1-port)

SMC-1P-FA-(XX) . . . . . .
Single bezel with 1 F-type coax adapter. Use with SM1 boxes only

Use (XX) to specify color: 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory
**Single-port components come with adapter standard on the right side. To order adapter on the left side add "-L". The dual bezels use 2-port locations, one containing the specified adapter, the other can be utilized for different connector component or an optional blank for future configuration.*

OTHER SM SERIES COMPONENTS

PATENTED

SM-DOOR-(XX) . . . . .
Dual bezel with 2 spring shutter doors

SMC-RC-(XX) . . . . . .
Dual bezel with 2 RCA connectors with solder tails (2-ports)

SMC-RA-(XX) . . . . . .
Dual bezel with 2 RCA connectors (2-ports)

SM-1P-DOOR-(XX) . . .
Single bezel with spring shutter door. Use with SM1 boxes only

SMC-1RC-(XX)* . . . . .
Dual bezel with 1 RCA connector with solder tail (1-port)

SMC-1P-RC-(XX) . . . .
Single bezel with 1 RCA connector with solder tail (1-port). Use with SM1 boxes only

SM-BLNK-(XX) . . . . . .
Single blank insert for unused port

Use (XX) to specify color: 02 = white, 04 = gray, 20 = ivory, 25 = bright white, 80 = light ivory
**Single-port components come with adapter standard on the right side. To order adapter on the left side add "-L".*
The dual bezels use 2-port locations, one containing the specified adapter, the other can be utilized for different connector component or an optional blank for future configuration.

ACCESSORIES

Part #	Description
CT-ICON-(XX)	25 colored icon tabs (phone on one side, computer on reverse)
TAB-(XX).	25 colored blank tabs
CT-ICON-LBL*	10 label sheets for clear tabs that will fit any standard 8.5 x 11 printer, 168 labels per sheet
SM2-MAG	Two magnets for mounting SM1, SM2, or SM4 boxes
SM6-MAG	Four magnets for mounting SM6 boxes
S110-TC-2P	2-pair termination caps for S110® blocks

Laser-printed customized tabs now available.

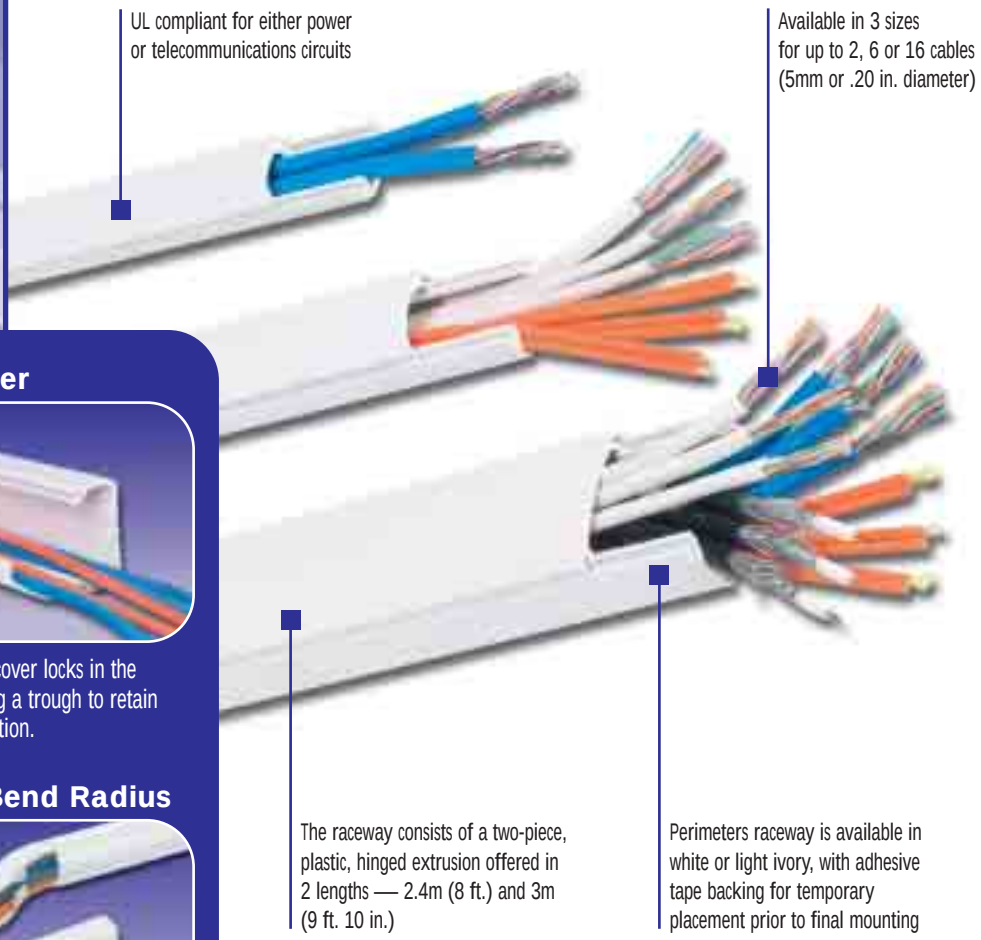
Use (XX) to specify color: 00 = clear (TAB-(XX) only), 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07 = green, 08 = violet, 09 = orange, 20 = ivory, 25 = bright white, 60 = brown, 80 = light ivory

Ⓑ *Add "B" for bulk pack of 100 icons or tabs.*

**Visit our web site or contact our Technical Support Department for labeling software.*

Other CT-ICON colors available. Contact our Customer Service Department for ordering information.

PERIMETERS™ RACEWAY SYSTEM



Hinged Cover

Symmetrical hinged cover locks in the open position forming a trough to retain cables during installation.

Maintains Bend Radius

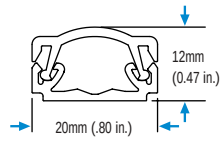
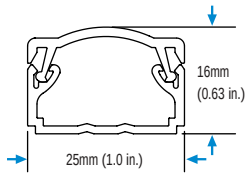
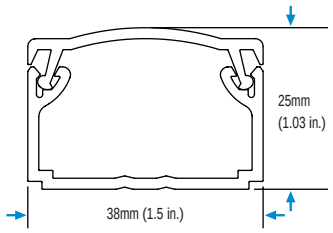
Outside corner fitting maintains minimum bend radius while minimizing gaps between the fitting and the wall.

UL Compliant

Perimeters Raceway System completely encloses cables for UL compliance with either power or telecommunications circuits.

The Siemon Company's Perimeters raceway system is a standards-compliant, installer-friendly surface-mount raceway system designed to complement Siemon's entire line of work area connectivity products. Siemon's Perimeters raceway system offers unique, beneficial features to the installer while providing an aesthetic appearance in any office or residential environment. Perimeters includes a complete line of fittings that meet the industry standard requirements for maintaining minimum bend radius of fiber and copper cables.

RELATED PRODUCTS Surface Mounting Boxes pages 1.12 and 1.23, SM® Series Surface Mount Boxes pages 1.30 – 1.31

	PRE1-(XX)-(XX)		PRE2-(XX)-(XX)		PRE3-(XX)-(XX)	
						
Internal Cross–Sectional Area	96.8mm² (0.15 in²)		225mm² (0.35 in²)		632mm² (0.98 in²)	
Cable Fill Capacity (see % fill below)	**40%**	**Physical Max.**	**40%**	**Physical Max.**	**40%**	**Physical Max.**
Typical 4-pair UTP Cable with a 5mm (.200 in) diameter	2	2	4	6	12	16

For other cables, it is recommended to use the following formula to calculate % fill based on the actual cable O.D. and internal cross-sectional area provided:

% Fill = $\frac{\text{(\# cables) X Cross sectional area of (1) cable}}{\text{Internal cross sectional area (per above table)}}$

Ref: Cable cross sectional area = πr^2
r = cable radius (1/2 of cable O.D.), π = 3.14

PERIMETERS™ EXTRUSIONS

PATENTED

Part #	Description
PRE1-(XX)-(XX)-T	12 x 20mm (0.47 x 0.80 in.) extrusion
PRE2-(XX)-(XX)-T	16 x 25mm (0.63 x 1.0 in.) extrusion
PRE3-(XX)-(XX)-T	25 x 38mm (1.03 x 1.50 in.) extrusion

Use 1st (XX) to specify length: 24 = 2.4m (8 ft.), 30= 3.0m (9 ft. 10 in.)
Use 2nd (XX) to specify color: 02 = white, 80 = light ivory
All extrusions include adhesive tape backing

PERIMETERS FITTINGS

PATENTED

PRF(X)-A-(XX)
Outside corner fitting with base

PRF(X)-B-(XX)
Inside corner fitting

PRF(X)-C-(XX)
Equal tee fitting with backplate

PRF(X)-D-(XX)
90° elbow fitting with backplate

PRF(X)-E-(XX)
Joint coupler fitting

PRF(X)-F-(XX)
End cap fitting

PRF(X)-G-(XX)
Interface adapter fitting, for use at outlet box, ceiling, and floor interfaces

PRF3-H-(XX)
SM Adapter fitting, for use with PRE3 extrusions when interfacing with SM® series surface mount boxes

PRF(X)-J-(XX)
Drop ceiling adapter fitting

PRF(X)-K-(XX)
Right angle entrance fitting

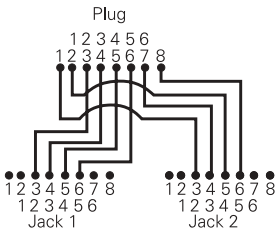
Use 1st (X) to specify size: 1 = 20mm (0.80 in.), 2 = 25mm (1.00 in.), 3 = 38mm (1.50 in)
Use 2nd (XX) to specify color: 02 = white, 80 = light ivory

MODULAR Y-ADAPTERS

Y-adapters are available as "splitters" which convert one 4-pair jack into two jacks. The Y-adapters utilize Siemon's patented UP-2468 plug which allows adapters to be used in 6- or 8-position jacks. The adapter body can be rotated 180° to view either the colored icons or the Y-adapter pinouts, which are printed on the opposite side.

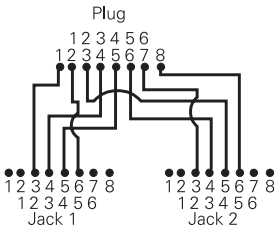
YU4-U2-U2 . . . . . .

Splits a 4-pair USOC jack for Token Ring or voice applications at either jack



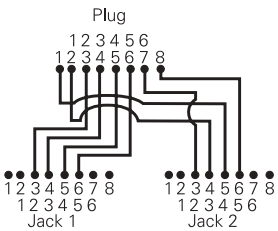
YA4-U2-U2 . . . . . .

Splits a 4-pair T568B jack for Token Ring or voice applications at either jack



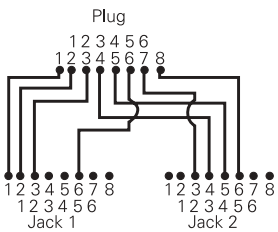
YT4-U2-U2 . . . . . .

Splits a 4-pair T568A jack for Token Ring or voice applications at either jack



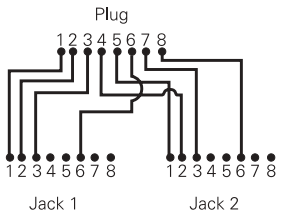
YT4-E2-U2 . . . . . .

Splits a 4-pair T568A / T568B jack for 10BASE-T and Token Ring or voice applications



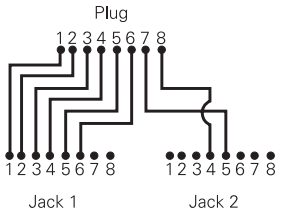
YT4-E2-E2 . . . . . .

Splits a 4-pair T568A / T568B jack for 10BASE-T applications at either jack



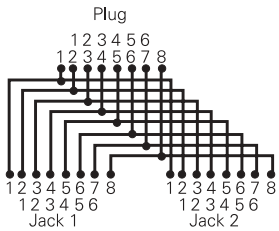
YA4-A3-U1 . . . . . .

Splits a 4-pair T568B jack for 1-, 2- or 3-pair voice and 1-pair voice / modem



Y-BRIDGE . . . . . .

Bridges all jack pairs. Compatible with any jack wiring. Provides an additional 4-pair jack with the same wiring.



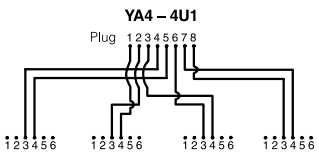
Note: These modular adapters meet category 3 transmission specifications.

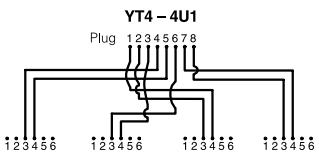
MODULAR 4-WAY SPLITTER

Siemon's modular 4-way splitter provides provides access to each individual pair of a 4-pair modular outlet. The splitter converts a single 4-pair outlet to 4 individual 1-pair, 6-position outlets to enable four unique modular connections. The universal plug design enables compatibility with both 6- and 8-position outlets.

YA4-4U1 . . . . . Modular 4-way splitter, T568B

YT4-4U1 . . . . . Modular 4-way splitter, T568A





6-PORT SP5 SURFACE PACK MODULE

PATENTED

This 6-port SP5 Surface Pack is designed to provide high performance modular connectivity and category 5e transmission performance for mobile, surface mount applications. The module fits through 57.15mm (2.25 in.) diameter openings for easy relocation and can be mounted using either mounting screws (not provided) or optional internal mounting magnets. Cable tie strain relief points and tapered entrance secures and protects cables.

Part #	Description
SP5-C5	6-port, surface pack module, T568A/B. Includes icon label holder, label, and cable tie

Add "-M" for optional mounting magnets.

HARMONICA

This outlet converts 25-pair feeder cable into modular jack ports to serve work areas. The Harmonica has one 25-pair male connector and can accommodate up to 12 modular jacks, depending on the pair count of the jack. It allows easy moves and changes for stations using multiple voice and data ports. It comes equipped with Siemon's patented universal connector holddown.

Part #	Description
H50M-12MJ4	12, 2-pair, 8-position jacks, USOC
H50M-12MJ4-ETH	12, 2-pair, 8-position jacks, 10BASE-T
H50M-8MJ6	8, 3-pair, 6-position jacks, USOC
H50M-6MJ8	6, 4-pair jacks, USOC
H50M-6MJ8-ATT	6, 4-pair jacks, T568B
H50M-6MJ8-TIA	6, 4-pair jacks, T568A

MODULAR RS232 KIT

These DB-to-modular adapters are used to connect equipment to wall outlets via modular cords. They convert the connector on the station equipment — either a DB25 or DB09 — to a single 4-pair non-keyed modular jack. The jack is pre-terminated to RS232-type poke-through pins, and the pin-out is field configurable.

Part #	Description
DB09(X)-MJ8K	DB09 to 8-position, 8-conductor modular jack adapter
DB25(X)-MJ8K	DB25 to 8-position, 8-conductor modular jack adapter

Use (X) to specify DB gender: M = male, F = female

MODULAR PATCHING



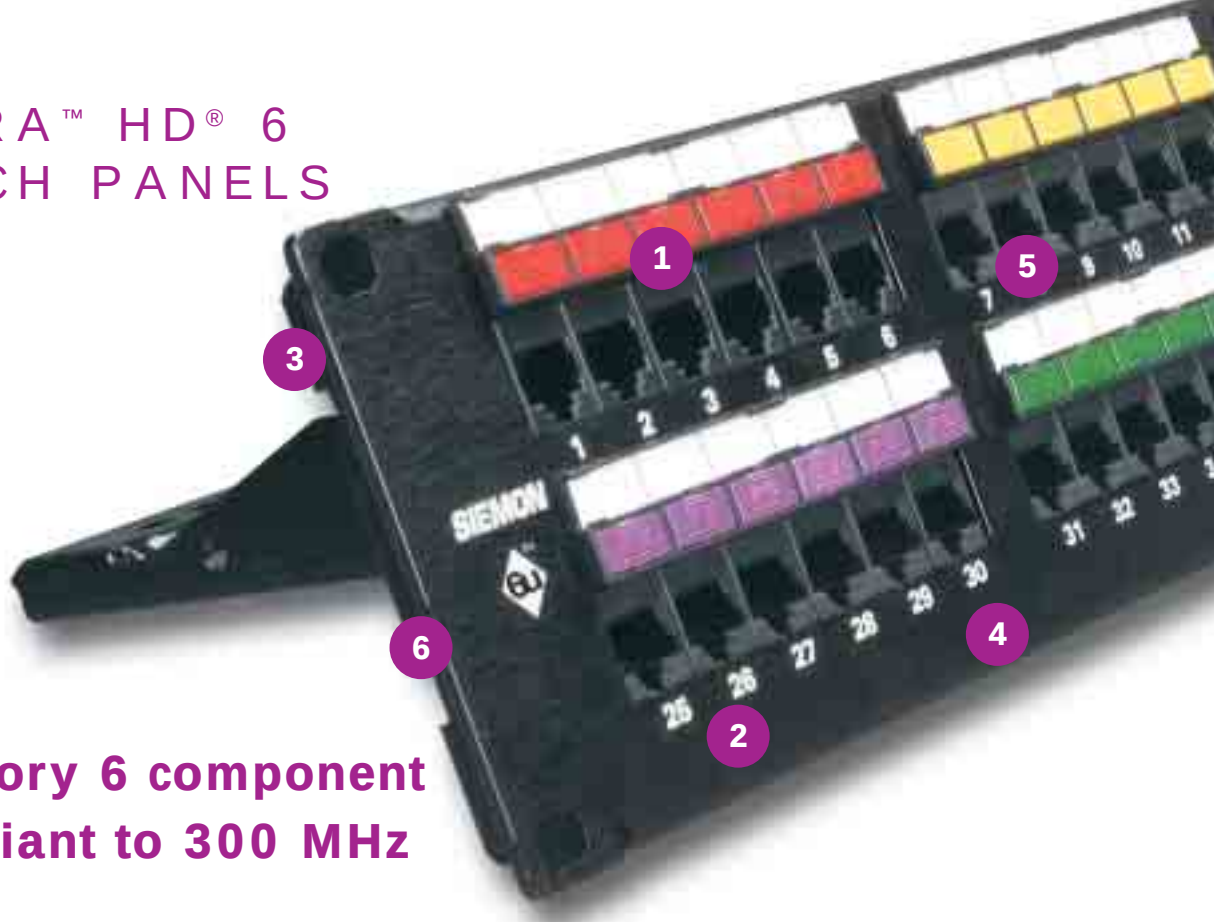
	HD® PANELS (pages 2.2 – 2.5)	MAX® PANELS (pages 2.6 – 2.7)	CT® PANELS (pages 2.8 – 2.10)
Product Applications	High density, high performance modular patching for UTP	Multimedia (used in conjunction with MAX modules at work area)	Multimedia (used in conjunction with CT couplers at work area)
Connectors	Integral	MAX Modules	CT Couplers
Media Types	UTP	UTP, Coax, Fiber, Video	UTP, Coax, Fiber, Video
Category	5e 6 6A	3 5e 6	3 5e 6
Termination Types	S310®, S110®, 25-pair	S310, Tool-less, SC, ST, MT-RJ, LC, BNC, F-type, RCA, SVHS	S310, S110, SC, ST, MT-RJ, LC, BNC, F-type, RCA, SVHS
Capacity (Ports)	12-Port on 89D Bracket, 16, 24, 32, 48, 96	12-Port on 89D Bracket, 16, 24, 48	16, 24, 32, 48, 64, 96
Included Accessories	Rear Cable Management Bar, Icon/Label Holders, Designation Labels, Cable Ties, Mounting Hardware	Rear Cable Management Bar, Designation Labels, Cable Ties, Mounting Hardware	Mounting Hardware

SECTION CONTENTS

1906

In 1906, The Siemon Company entered the fledgling telecommunications market with its 3-pole connecting block – a product that offered superior performance to the standard ceramic connecting block of the day. Fashioned out of a refined hardened plastic compound, affectionately known as "Connecticut River Mud," the Siemon 3-pole connecting block resisted the cracking and breaking so common with the ceramic blocks. As such, it soon became a staple product for a new customer – Western Electric (better known as AT&T). Though the products may have changed over the years, The Siemon Company is still supplying AT&T and other Bell companies with innovative products, and today remains one of their longest continuous suppliers.

ULTRA™ HD® 6 PATCH PANELS



Category 6 component compliant to 300 MHz

Siemon's new Ultra HD 6 modular patch panel not only exceeds all category 6 component requirements to 250 MHz, it is also fully qualified out to 300 MHz*. This superior level of performance is achieved via enhanced circuit board and jack designs.

1 Superior Performance
Superior performance for interconnect, cross-connect or consolidation point applications

2 Backward Compatibility
Backward compatible with category 5e and lower patch cords

3 Familiar Termination
Terminates with standard 110 termination tools

4 Aesthetics
Black anodized finish, rolled edges and screw-free front surface provide an aesthetically pleasing appearance

5 Durability
Durable modular outlets are FCC CFR 47 part 68 subpart F and IEC 60603-7 compliant. Outlet contacts are plated with 50 microinches of gold

6 Universal Wiring
T568A and T568B wiring compatible

Pyramid™ System

Pyramid wire entry system on S310® blocks separates paired conductors when lacing cables to simplify and reduce installation time

Circuit Protection

Protective rear metal housing prevents accidental damage of internal circuit board

Built-In Cable Manager

Includes rear cable manager to properly guide cables to point of termination

Performance from 250-300 MHz based on extrapolated TIA/EIA limits.

ULTRA™ HD® 6 PATCH PANELS

FOCUS PATENTED

The superior level of performance of the Ultra HD 6 patch panel is achieved via a completely new circuit board design, optimization of jack pin geometry, and stringent inspection and quality control procedures. When used with an Ultra MC® 6 patch cord, the result is a cross-connect solution with typical NEXT margin of 5 dB across the entire frequency range from 1-300 MHz.

Combine Ultra HD 6 patch panels with Siemon's new Ultra MAX® 6 modules and Ultra MC 6 modular cords for a complete channel solution with worst case PS ACR beyond 300 MHz and typical results out to 350 MHz! This superior cabling system delivers unparalleled network performance today and support for multi-gigabit Ethernet applications expected in the coming years.

Part #	Description	RMS
HD6-24U	24-port panel, T568A/B wiring	1
HD6-48U	48-port panel, T568A/B wiring	2

Panels include rear cable manager, icon label holders, designation labels, cable ties, and mounting hardware

Ⓑ Add "B" to end of part number for bulk project pack of 5 panels (rear cable managers and icon label holders not included but can be ordered separately).

Contact our Customer Service Department for other panel sizes.

Note: 1 RMS = 44.5mm (1.75 in.)

RELATED PRODUCTS **Ultra MC 6 Patch Cords pages 4.2 – 4.3, Ultra MAX 6 Modules pages 1.2 – 1.3**

OPTIONAL HD PANEL ACCESSORIES

FOCUS

Part #	Description
HD-RWM	Rear cable management bracket for HD patch panels
HD5-ICON6	Adhesive-backed strips in a package of 8 for color-coding and port designation for 24-, 48-, or 96-port panels (icons not included)
HD5-ICON6-LBL	10 sheets of labels for HD5-ICON6 for laser printing (16 labels per sheet)*
HD5-ICON8	Adhesive-backed strips in a package of 4 for color-coding and port designation for 16-, or 32-port panels (icons not included)
HD5-ICON8-LBL	20 sheets of labels for HD5-ICON8 for laser printing (8 labels per sheet)*
HD5-LBL-ID	Adhesive designation strips in a package of twenty for 24-, 48-, or 96-port panels
HD5-LBL-480	Adhesive strips for sequentially numbering panel ports 1 through 480 for 24-, 48-, or 96-port panels
HD5-LBL-2	White removable designation strips in a package of fifty for all versions of HD panels
HD5-LBL6-(X)	Removable designation strips in a package of eight for 24-, 48-, or 96-port panels

HD5-LBL-ID

HD5-LBL-480

HD5-LBL-2

HD5-LBL6-(X)

Use (X) to specify color: 2 = white, 5 = yellow, 6 = blue

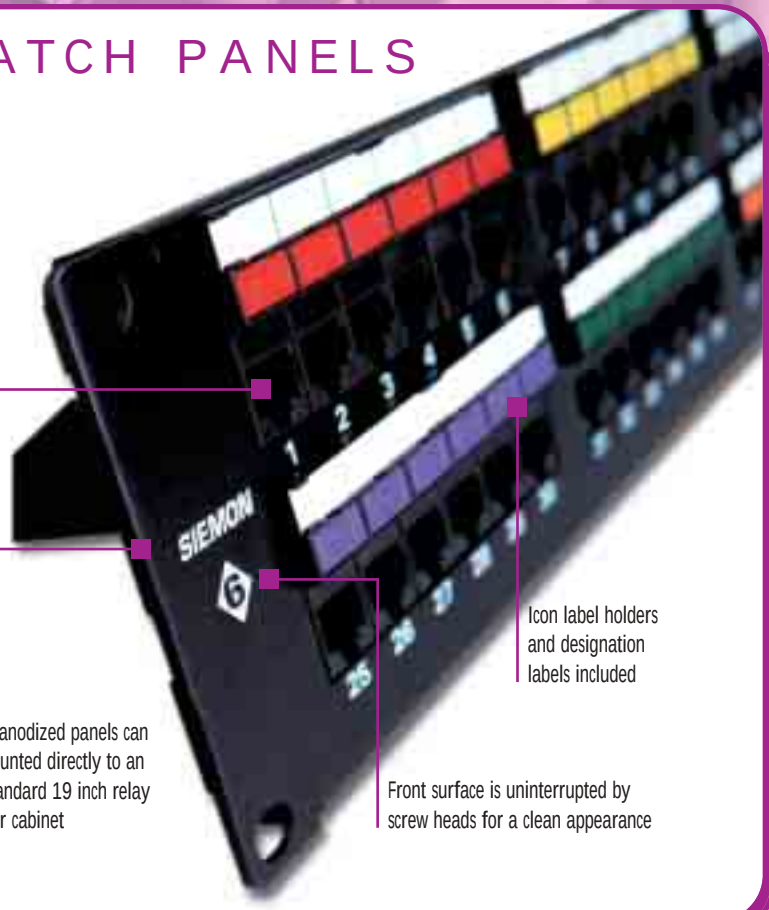
**Visit our web site or contact our Technical Support Department for labeling software.*

RELATED PRODUCTS **Colored Icons page 1.7**

HD® 6 PATCH PANELS

HD 6 Patch Panels feature universal wiring for both T568A and T568B applications.

Modular outlets are FCC CFR 47 part 68 subpart F and IEC 60603-7 compliant and have 50 microinch gold plated contacts



Pyramid™ Wire Entry System

Pyramid wire entry system on S310® blocks separates paired conductors when lacing cables to reduce installation time.

Circuit Protection

Rear metal enclosure protects printed circuitry.

Built-In Cable Manager

Includes rear cable manager to properly guide cables to point of termination.

A breakthrough in patch panel performance. Siemon's HD 6 is the industry's first patch panel to exceed category 6 connecting hardware specifications for all pair combinations up to 250 MHz. Get revolutionary performance and user-friendly termination, labeling, and cable management features with Siemon's popular HD 6 patch panel.

HD 6 PATCH PANELS

FOCUS PATENTED

Part #	Description	RMS
HD6-16	16-port panel, T568A/B wiring	1
HD6-24	24-port panel, T568A/B wiring	1
HD6-32	32-port panel, T568A/B wiring	2
HD6-48	48-port panel, T568A/B wiring	2
HD6-96	96-port panel, T568A/B wiring	4

Panels include rear cable manager, icon label holders, designation labels, cable ties, and mounting hardware

Ⓑ *Add "B" for bulk project pack of 5 panels (rear cable managers and icon label holders not included but can be ordered separately).*
Note: 1 RMS = 44.5mm (1.75 in.)

RELATED PRODUCTS **MC® 6 Modular Cords page 4.3, MAX® 6 modules page 1.3**

HD5® PATCH PANELS

FOCUS PATENTED 5e cULus

160 MHz
Featuring universal T568A/B wiring with component and channel performance to 160 MHz.*

HD5 series patch panels offer the most robust patching solution in the industry. HD5 panels feature universal T568A/B wiring and exceed category 5e requirements with component and channel performance to 160 MHz*. Panels include a rear cable manager, icon/label holders, designation labels, cable ties, and mounting hardware.

Part #	Description	RMS
HD5-16	16-port panel	1
HD5-24	24-port panel	1
HD5-32	32-port panel	2
HD5-48	48-port panel	2
HD5-96	96-port panel	4

Panels include rear cable manager, icon/label holders, designation labels, cable ties, and mounting hardware

Add "B" for bulk project pack of 5 panels (rear cable managers and icon label holders not included but can be ordered separately).

Note: 16- and 32-port HD5 panels feature S310® termination blocks and are not compatible with S110® multi-pair termination tools.

Note: 1 RMS = 44.5mm (1.75 in.)

** Performance from 100 – 160 MHz based upon extrapolated TIA/EIA limits.*

RELATED PRODUCTS **HD® Panel accessories page 2.3**

12-PORT HD 6 MOUNTED ON S89D BRACKET

6 cULus

The HD6-89 offers an economical solution for small applications and is ideal for retrofitting S66™ punch down blocks to a high performance modular design.

HD6-89D-12	12-port HD 6 panel, T568A/B wiring, mounted on S89D bracket

height: 254.0mm (10.0 in),
width: 85.9mm (3.38 in),
depth: 60.2mm (2.37 in)

12-PORT HD5 MOUNTED ON S89D BRACKET

5e SP UL

The HD5-89 offers an economical solution for small applications and is ideal for retrofitting S66 punch down blocks to a modular design.

HD5-89D-12	12-port HD5 panel, T568A/B wiring, mounted on S89D bracket

height: 254.0mm (10.0 in.),
width: 85.9mm (3.38 in.),
depth: 47.8mm (1.88 in.)

HD5 QUICK-PATCH™ PANEL

PATENTED 5 compatible cULus

Siemon's HD5 Quick-Patch panel provides a quick and easy category 5e channel patching solution for 10/100BASE-T hubs with 25-pair connectors. The HD5 Quick-Patch Panel incorporates many user-friendly features and benefits, including rear connectors that are staggered to enable easy routing of 25-pair cable to the connection point and a rear metal enclosure that protects printed circuitry. The black anodized panel can be mounted directly to a standard 19 inch rack or cabinet with the mounting hardware included. Icon/label holders and designation labels (included).

Part #	Description
HD5-QP-48	48-port 10/100BASE-T panel (Active pins 1, 2, 3 & 6 only), four 25-pair connectors (female), 2 RMS

Panels include icon/label holders, designation labels, and mounting hardware

Note: 1 RMS = 44.5mm (1.75 in.)

RELATED PRODUCTS **Category 5e 25-pair cable assemblies page 4.6**

MAX® PATCH PANELS

Modularity

Individual modules snap into place from front or rear of panel for added installation flexibility.

Port Identification

Removable designation labels can be laser printed and enable proper circuit identification for each port.

Cable Management

Rear cable management bar included for routing horizontal cables to terminations.

Technical Tip!

Use flat MAX modules for patch panel applications.

MAX patch panels provide a flexible, high density termination solution for the telecommunications room. Using the full line of MAX modules (available separately), the panel can be configured for a variety of multimedia applications. Blank modules can be used to reserve ports for future capacity.

RELATED PRODUCTS MAX Modules pages 1.2 – 1.7, Fiber Management Tray page 5.9

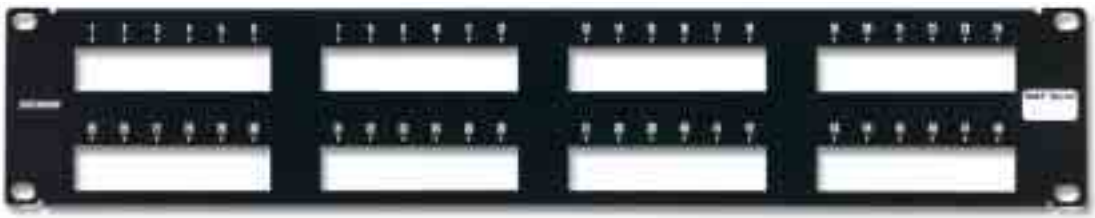
MAX® PATCH PANELS

FOCUS PATENTED

Part #	Description	RMS
MX-PNL-16	16-port panel	1

Part #	Description	RMS
MX-PNL-24	24-port panel	1

Part #	Description	RMS
MX-PNL-48	48-port panel	2



Panels include rear cable manager, designation labels, cable ties, and mounting hardware.
MAX Panels not compatible with shielded MAX modules. Use the TERA™-MAX panel (see page 7.5).
Note: 1 RMS = 44.5mm (1.75 in.)

12-PORT MAX PANEL MOUNTED ON S89D BRACKET

The MAX S89D offers an economical solution for smaller applications while allowing for a range of different media using the full line of MAX modules.

Part #	Description
MX-89D-12	12-port MAX panel mounted on an 89D bracket *height: 254.0mm (10.0 in.),* *width: 85.9mm (3.38 in.),* *depth: 47.8mm (1.88 in.)*

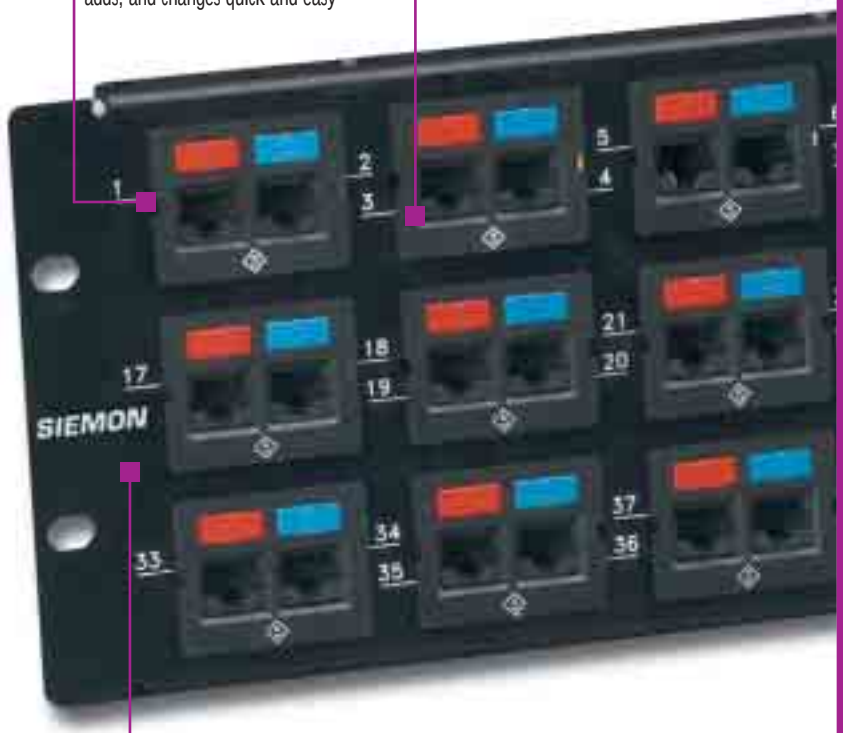
OPTIONAL ACCESSORIES

MX-PNL-LBL4*. . . . . .
10 sheets of laser printable labels for 16-port MAX panel

MX-PNL-LBL6*. . . . . .
10 sheets of laser printable labels for 24- and 48-port MAX panels

**Visit our web site or contact our Technical Support Department for labeling software.*

CT® PATCH PANELS



Couplers can be easily removed from the panel making moves, adds, and changes quick and easy

Cutouts allow terminated couplers to pass through panels from front to back or back to front

Black anodized aluminum panels can be mounted directly to an EIA standard 19 inch relay rack or cabinet

Note: use optional fiber management tray when mixing copper and fiber in CT panel (see page 5.9)

Multimedia Capability

For optimum flexibility, the CT Panel accepts a wide variety of CT couplers, including UTP, fiber, and coax.

Rear Labeling System

CT Panels are labeled on rear to assist in cable identification while terminating.

Rear Cable Management

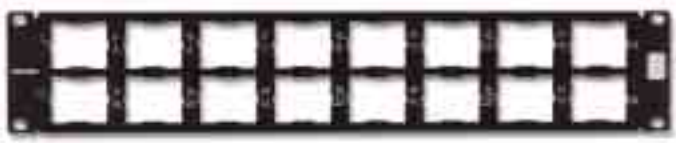
Siemon offers a wide range of rear cable management products to encompass a wide range of rack sizes and cable routing methods — see page 3.11 for more information.

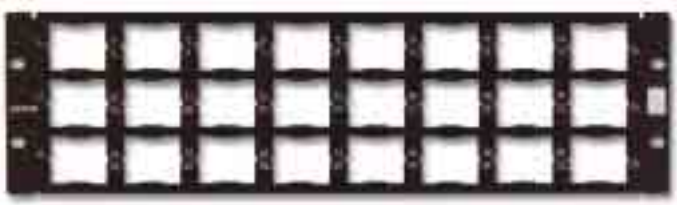
CT panels complement our CT work area products and offer a feature-rich and flexible patching solution. Flat CT couplers are ordered separately and quickly snap into black anodized patch panels. This modular capability allows custom configuration of panels to suit a variety of applications. Low cost blank couplers are available to fill unused ports and can be replaced with active couplers when the need arises.

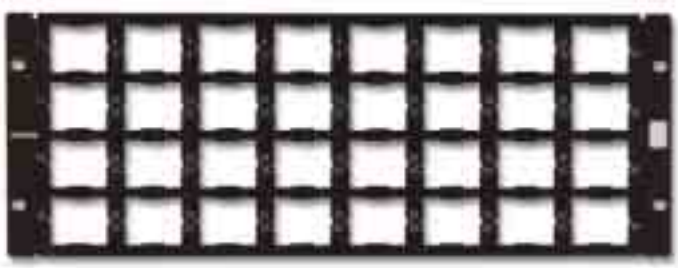
RELATED PRODUCTS CT Couplers pages 1.14 – 1.19, Fiber Management Tray page 5.9

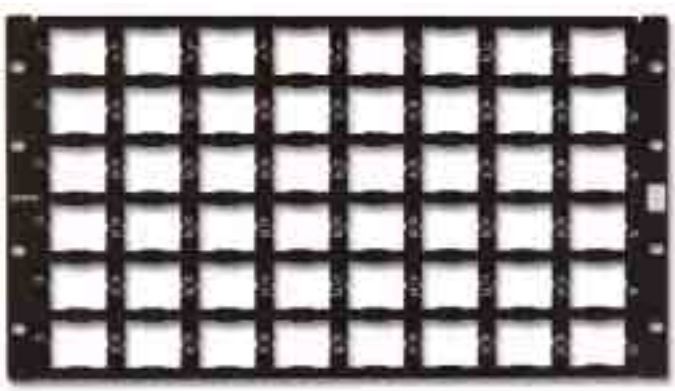
CT® PATCH PANELS

Part #	Description*	RMS	Maximum Quantity of CT Couplers
CT-PNL-16	16-port panel	1	8
CT-PNL-24	24-port panel	2	12
CT-PNL-32	32-port panel	2	16
CT-PNL-48	48-port panel	3	24
CT-PNL-64	64-port panel	4	32
CT-PNL-96	96-port panel	6	48









Technical Tip!

Flat couplers are recommended for patch panel applications.

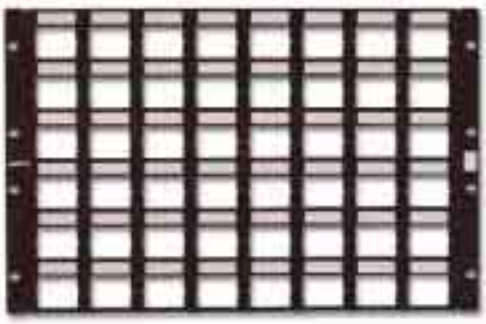
**Number of ports when configured with two-port CT couplers*

Note: 1 RMS = 44.5mm (1.75 in.)

OVERSIZED CT® PANELS

Oversized CT panels are available for applications that require additional labeling space. They provide the same flexibility as our standard CT panels and feature a write-on designation surface above each coupler opening that can also be used as a space for adhering your own label. Siemon offers adhesive-backed label holders with replaceable write-on labels that mount above the entire row of CT couplers.

Part #	Description*	RMS	Maximum Quantity of CT Couplers
CT-PNL-16-ID	16-port panel	2	8
CT-PNL-24-ID	24-port panel	3	12
CT-PNL-32-ID	32-port panel	3	16
CT-PNL-48-ID	48-port panel	4	24
CT-PNL-96-ID	96-port panel	7	48



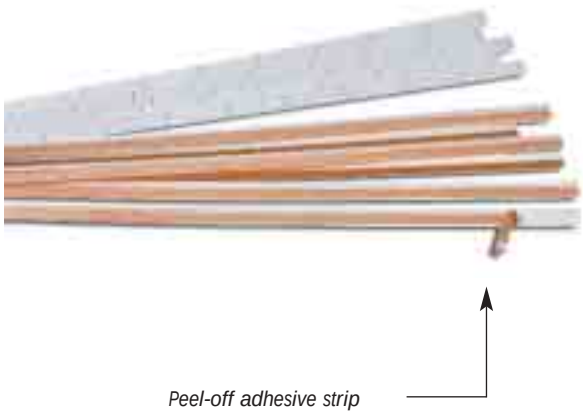
**Number of ports when configured with two-port CT couplers*

Note: 1 RMS = 44.5mm (1.75 in.)

CT-DK DESIGNATION KIT

The CT-DK designation kit is a plastic, self-adhesive designation label holder with paper inserts designed for use with our ID series of oversized CT panels. Each kit comes with six label holders and six paper inserts.

Part #	Description
CT-DK	Bag of 6 adhesive backed, clear plastic holders with paper designation strips



MODULAR PATCH BLOCKS®

PATENTED

Our economical Modular Patch Blocks provide a convenient 24-port modular cross-connect field for equipment with 25-pair female connector input. They are excellent for use with voice, broadcast, or alarm systems. The blocks fit a standard 66M block footprint for backboard or rack mounting applications.

Part #	Description
SPB-V1	One, 25-pair connector wired to 24, 1-pair 6-position modular jacks, USOC wiring. Black universal holddown
SPB-V2	Two, 25-pair connectors, each wired to 24, 2-pair 6-position modular jacks, USOC wiring. One black, one blue universal holddown
SPB-V4	Four, 25-pair connectors, each wired to 24, 4-pair modular jacks, USOC wiring. Black, blue, red, and green universal holddowns
SPB-V4-ATT	Four, 25-pair connectors, each wired to 24, 4-pair modular jacks, T568B wiring. Black, blue, red, and green universal holddowns

BLANK FILLER PANELS

FOCUS

Blank filler panels are ideal for installations where open or expansion rack space is to be covered. Panels are blank on one side and feature the Siemon logo on the other side.

Part #	Description
PNL-BLNK-(X)	Blank filler panel for 19 inch rack

Use (X) to specify rack mount space height of panel: 1 = 1 RMS, 2 = 2 RMS, 3 = 3 RMS, 4 = 4 RMS,
Note: 1 RMS = 44.5mm (1.75 in)

RACKS AND CABLE MANAGEMENT



	RS2 RACK SYSTEM (page 3.3)	RS RACK SYSTEM (page 3.4)	RS-E RACK SYSTEM (page 3.5)
Vertical Side Rail Capacity	117mm x 152mm (4.6 in. x 6.0 in.)	76mm x 152mm (3.0 in. x 6.0 in.)	76mm x 370mm (3.0 in. x 14.5 in.)
Cable Manager Covers	Multi-piece snap-on	None	None
Accessories	• Rack top cable tray • Power strip • Double-sided rack mount cable manager • Rear cable managers	• Rack top cable tray • Power strip • Vertical patching channels • Rear cable managers	• Power strip • Vertical patching channels • Rear cable managers

The following capacity table is provided for planning purposes. The values shown reflect a combination of actual and calculated capacity and represent a 100% fill. These values were derived using properly dressed cables and can be adversely reduced by poor cable routing practices.

CABLE MANAGER CAPACITY TABLE

Part Number	Catalog Page Numbers	Cable Diameter					
		0.15	0.17	0.19	0.21	0.23	0.25
CABLE MANAGERS							
S143, WM-143-5	3.9	99	77	62	50	42	35
S144, WM-144-5	3.9	203	158	126	103	86	73
S145, WM-145-5	3.9	422	328	263	215	179	152
S146	3.9	737	574	459	376	313	265
S147	3.9	1159	902	722	591	493	417
RWM-1, RWM-1DS	3.9	122	95	76	62	51	43
S110B1RMS-(XX), S110A1RMS-(XX), S110-RWM-(XX)	3.13, 9.21	126	98	78	64	53	45
S110B2RMS, S110A2RMS-(XX), S110-RWM2-(XX), S110-RWM-2DS	3.13, 9.21	306	238	190	156	130	110
CABLE MANAGEMENT RACKS AND ACCESSORIES							
RS2*	3.2	834	649	519	425	354	300
RS*	3.4	496	386	309	253	210	178
RS-E*	3.5	1488	1158	927	759	633	535
RS-CH, PH-3	3.5, 3.8	283	220	176	144	120	101
RS-CNL	3.5	1292	1006	805	659	549	465
RS-CNL3	3.5	832	647	518	424	353	299

* Values shown are for the interior of each vertical channel and should be doubled to determine total rack capacity.

SECTION CONTENTS

1910s

During the early decades that followed, The Siemon Company developed into a true plastics manufacturing and engineering powerhouse. A walk through the company museum in the Siemon Company's world headquarters office, now located in Watertown, CT, USA, bears testament to this fact and is quite like a trip through an antique novelty shop. In addition to the stag-horn handles and 3-pole connecting blocks mentioned previously, Siemon manufactured such items as ear and mouth pieces for early telephones, rifle butts, lamp switches, battery terminals, and buttons. From the beginning, The Siemon Company was a recognized leader in the plastics field and built a well-earned reputation for high-quality, dependable products.

RS2 RACK SYSTEM

Headers with slotted carriage bolt holes on top of rack easily locate standard 304.8mm (12 in.) ladder tray

Ladders can be brought in from sides, front or rear

Modular snap-on design of vertical cable manager covers eliminates the need to remove full length covers for each patch cord addition or change

Relocatable quarter-turn hook and loop cable managers can be attached in side channels to manage various size cable bundles

Cable access holes on side rails allow cables to be routed between adjacent racks

Mounting holes provided for anchoring rack to floor

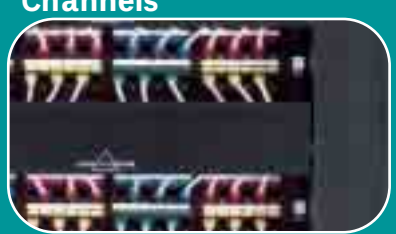
High Capacity Side Rails

117 mm (4.6 in.) x 152mm (6 in.) vertical side rails provide additional space for easy routing of horizontal or backbone cables.

Integrated Vertical Management

Vertical cable management enables easy, quick addition and removal of patch cords while effectively retaining them through the channel.

Covered Cable Channels



Covers on vertical cable management channel conceal cable slack and present a clean, professional appearance.

Siemon RS2 series cable management rack system provides high volume cable management for proper routing of both horizontal / backbone cabling as well as patch cords. Vertical channels and cable managers conceal and route cable for a neat and clean installation.

RELATED PRODUCTS
Double-Sided Rack Mount Cable Manager page 3.3
Rack Top Cable Tray page 3.5,
Rear Cable Managers page 3.11

RS2 RACK SYSTEM

FOCUS

RS2-07 . . . . . 7 ft. x 19 in. (2.1m x 482mm) aluminum enhanced cable management rack system. Includes: rack assembly hardware, vertical cable managers with covers, and ground lug

height: 2.1m (7 ft.),
width: 685.8mm (27 in.),
depth: 457.2mm (18 in.)

Add "-S" for steel

Note: Aluminum racks are intended for use with connecting hardware and cable managers only. For mounting of active equipment, steel racks are recommended.

RACK TOP CABLE TRAY

PATENTED

This product is designed for use with Siemon's RS and RS2 series cable management racks. The tray supports and manages cable bundles routed above the racks and eliminates the need for installing a ladder rack for routing cables. It easily fits into place without the use of tools or hardware and includes up to three (3) separate cable paths featuring relocatable quarter-turn cable managers for maximum flexibility. Re-usable hook and loop cable managers allow for quick cable additions or changes.

Part #	Description
RS-TRAY	Rack top cable tray includes nine quarter-turn cable managers and nine 457mm (18 in.) hook and loop cable managers

DOUBLE-SIDED RACK MOUNT CABLE MANAGERS

FOCUS

These cable managers are designed for use with Siemon's RS2 series cable management racks and use the same managers as the existing 2 RMS S110® / S210® cable manager but with a one piece, plastic cover. The front, cover snaps easily over cable managers and extends to meet flush with the vertical cable management channels of the RS2 to provide a clean patching environment.

Part #	Description
S110-RWM-2DS	Double-sided 19 inch cable manager, 2 RMS

S110-RWM-2DS-front with cover

S110-RWM-2DS-rear

See Cable Management Capacity table on page 3.0

Note: 1 RMS = 44.5mm (1.75 in.)

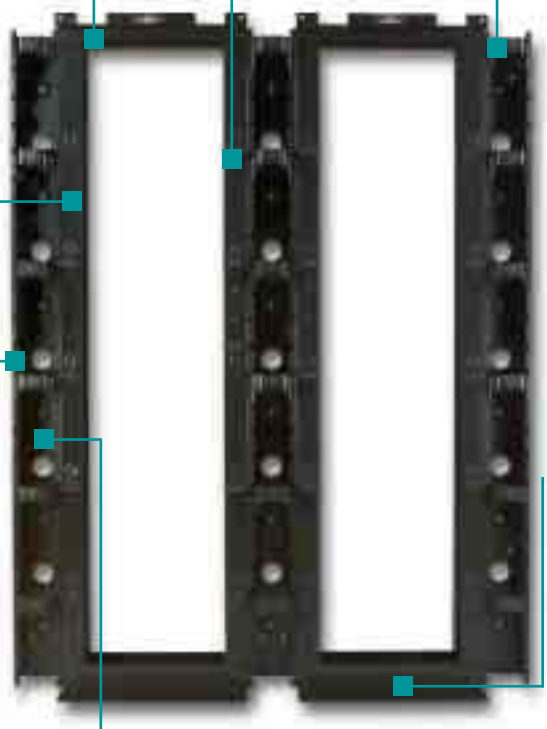
RS RACK SYSTEM

Ladder channels on top of rack easily accommodate standard 305mm (12 in.) ladder tray

Twist-lock hook and loop cable managers can be custom located in side channels to manage various size cable bundles

Cable management channel is available in 76mm (3 in.) or 152mm (6 in.) versions. Hook and loop cable managers can be inserted at the back of the channel for routing additional horizontal or backbone cables

Mounting holes for twist-lock cable managers are located in many positions on the front, side, back, and within channel for maximum flexibility



Mounting holes provided for anchoring rack to floor

Cable access holes allow cables to be routed from front-to-back on the rack

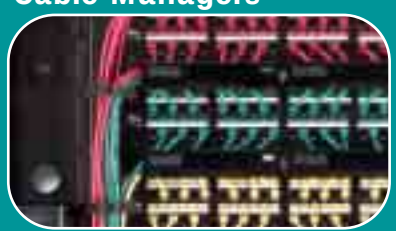
Removable channel retainers can be hinged left or right and located in any position along the vertical channel

An optional 1.2m (4 ft.) power strip (page 3.5) is available and mounts directly to rear of rack for providing power to active electronics mounted in rack

High Capacity Side Rails

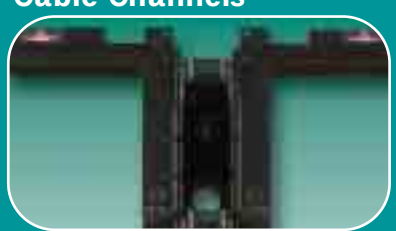
76mm (3 in.) x 152mm (6 in.) vertical side rail channels on rack provide large area for routing high volumes of horizontal or backbone cables.

Twist-Lock Cable Managers



High capacity twist-lock cable managers lock into place quickly without use of screws or mounting tools. They can be easily located in a wide range of mounting holes to customize cable management to your application.

Optional Vertical Cable Channels



Optional vertical cable management channels allow a high volume of patch cords to be routed between two racks or on a single rack.

Siemon's cable management rack system (RS) combines a 2.1 meter (7 ft.) x 19 inch black rack with cable management accessories to provide a complete cable management solution. Ideal for all size installations, the rack features fully usable 45 RMS capacity.

RS RACK SYSTEM

FOCUS

RS-07 . . . . . 7 ft. x 19 inch (2.1m x 482mm) aluminum cable management rack system. Includes: rack assembly hardware, 10 high-capacity cable managers, 10 hook and loop cable managers, grommets, and ground lug

height: 2.1m (7 ft.),
width: 609.6mm (24 in.),
depth: 457.2mm (18 in.)

Add "-S" for steel

Note: Aluminum racks are intended for use with connecting hardware and cable managers only. For mounting of active equipment, steel racks are recommended.

EXTENDED DEPTH RS RACKS

NEW

Siemon has developed a rack for managing extra large volumes of horizontal cable. The new extended depth rack features vertical channels which are 0.37m (14.5 in.) deep. These channels include multiple mounting holes allowing the user of Siemon's quarter-turn, twist-lock hook and loop cable managers for properly managing large individual bundles of cables. The footers have also been re-designed to retain the (0.61m) 24 in. footprint.

Part #	Description
RS-07E	7 ft. x 19 inch (2.1m x 482mm) aluminum extra-deep (0.37m [14.5 in]) cable management rack system. Includes rack assembly hardware, 19 high-capacity cable managers, 10 hook and loop managers, grommets and ground lug.

height: 2.1m (7 ft.), width: 609.6mm (24 in.), depth: 609.6mm (24 in.)

RACK ACCESSORIES

FOCUS PATENTED

RS-CNL. . . . . 2.1m x 152mm (7 ft. x 6 in.) vertical patching channel for mounting between 152mm (6 in.) deep racks (includes mounting hardware)

Compatible for use with Siemon XLBET frames (see pages 9.8 – 9.9)

RS-CNL3 . . . . . 2.1m x 76mm (7 ft. x 3 in.) vertical patching channel for mounting between 76mm (3 in.) deep racks (includes mounting hardware)

RS-P04 . . . . . 1.2m (4 ft.) power strip for rear of rack, 10 outlets (includes mounting hardware)

RS-CH . . . . . Box of 10 high capacity cable managers for front of rack

RS-CNL-MGR . . . . . Box of 10 channel retainers for RS-CNL and RS-CNL3

RS-VCM . . . . . Box of 10 quarter-turn (twist-lock) hook and loop cable managers [includes black 457.2mm (18 in.) manager]

2 RMS ZONE UNIT ENCLOSURE (ZU-2)

The 19 inch 2 RMS Zone Unit Enclosure is a durable, user-friendly enclosure designed to house connecting hardware under raised flooring systems. The unit houses a 2 RMS rotating hinge to support Siemon's HD,® CT,® or MAX® series patch panels. The ZU-2 is constructed of rugged 12 gauge aluminum and features brush guards on entry points to protect connections from dust and other contaminants. Siemon's quarter-turn hook and loop cable managers facilitate proper routing of cables entering and exiting the enclosure. The hinged covers have independent locks for added security.

Part #	Description
ZU-2	Zone unit enclosure, 2 RMS *height: 107mm (4.2 in.),* *width: 541mm (21.3 in.),* *depth: 508mm (20.0 in.)*

Note: 1 RMS = 44.5mm (1.75 in.)

RELATED PRODUCTS **HD Series Patch Panels pages 2.2 – 2.5, MAX Patch Panels pages 2.6 – 2.7, CT Patch Panels pages 2.8 – 2.9**

3 RMS ZONE UNIT ENCLOSURE (ZU-3)

Siemon's 19 inch 3 RMS Zone Unit Enclosure (ZU-3) provides additional capacity over our ZU-2, while maintaining all of its user-friendly features. The design allows the use of 3 RMS panels to provide additional port capacity necessary for higher density applications. The rotating hinge design provides easy access to both the front and rear of the panel for termination and patching.

Part #	Description
ZU-3	Zone unit enclosure, 3 RMS *height: 157mm (6.2 in.),* *width: 541mm (21.3 in.),* *depth: 508mm (20.0 in.)*

Note: 1 RMS = 44.5mm (1.75 in.)

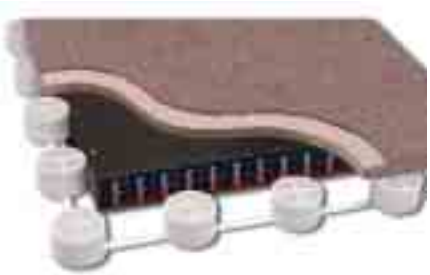
RELATED PRODUCTS **HD Series Patch Panels pages 2.2 – 2.5, MAX Patch Panels pages 2.6 – 2.7, CT Patch Panels pages 2.8 – 2.9**

MAX® ZONE UNIT ENCLOSURE

NEW

The MAX zone unit enclosure is an economical, high-density solution designed for use with low-profile sub-floor applications including Cablefloor and SMED. Enclosures are available to accommodate up to 48 ports of media using flat MAX series modules and feature a 44.5 x 101.6mm (1.8 x 4.08 in.) opening for cable entry. Cable tie anchor points (hook and loop cable managers included) and fiber managers are conveniently located within the enclosure for proper routing and securing of cabling.

The enclosures are constructed of durable 16 gauge steel and feature a simple two piece design with a base and cover secured by four #6-32 screws. There are four mounting holes in the base for securing the enclosure to a mounting surface. The 48-port version includes internal support posts to provide additional structural support.



Part #	Description
ZU-MX-48	48-port MAX zone unit enclosure *height: 44.5mm (1.8 in.),* *width: 254.0mm (10 in.),* *depth: 377.8mm (14.9 in.)*
ZU-MX-24-0515	24-port MAX zone unit enclosure *height: 44.5mm (1.8 in.),* *width: 114.3mm (4.5 in.),* *depth: 377.8mm (14.9 in.)*

RELATED PRODUCTS **MAX Modules pages 1.2 – 1.7**

CONSOLIDATION POINT ENCLOSURE

PATENTED

The Consolidation Point Enclosure (CPE) is an enclosure designed to house telecommunications termination hardware being utilized as a Consolidation Point (CP) per ANSI/TIA/EIA-568-B.1. It is designed to mount on a column or wall adjacent to the work area and has been aesthetically designed for use in an office environment. The enclosure features a smoked plexiglass window to view the connection while closed and a tamper proof lock prevents unauthorized access.

Part #	Description
CPEV-(XX)	S110/S210 vertical consolidation point enclosure, light ivory with window *height: 734.8mm (28.93 in.),* *width: 465.3mm (18.30 in.),* *depth: 193.6mm (7.62 in.)*

Use (XX) to specify enclosure color: 01 = black, 80 = light ivory

RELATED PRODUCTS **S210 Blocks pages 8.2 – 8.3, S110 Blocks pages 9.2 – 9.3, Binding Post Wrench page 12.9**

PANEL ACCESS HINGE

FOCUS

Siemon's panel access hinge allows 2 RMS wall or rack-mounted 19 inch patch panels to rotate forward, providing access to the termination field on the back of panels. Once mounted, the panel can be hinged in either the 90° or 120° position to facilitate the use of a single-position or multi-pair impact tool. The integrated 1 RMS cable manager has removable cable managers to prevent interference when hinging stacked units. This innovative design is compatible with 19 inch free standing racks, wall-mount racks and stand-off brackets.

Part #	Description
PH-3	3 RMS panel access hinge includes integral 1 RMS panel with 5 removable cable managers and accepts one 2 RMS or two 1 RMS patch panels

See Cable Management Capacity table on page 3.0

Note: 1 RMS = 44.5mm (1.75 in.)

PH-3 closed

PH-3 hinged open

STAND-OFF BRACKETS

FOCUS

Siemon hinged stand-off brackets can be mounted to a wall. With the hinge on either side for convenient access to the back of the panel and a series of cable tie holes provide internal wire management. The sides of the brackets will accept our S144 or S145 cable hangers (see page 3.9) for external cable management. The brackets can be used and accept any combination of Siemon patch panels and rack-mount cable management. Mounting hardware included.

Part #	RMS
SBH-2	2
SBH-3	3
SBH-4	4
SBH-6*	6

height: see RMS information, width: 483mm (19 in.), depth: 152mm (6 in.)

**Add -2 for (3) independent 2 RMS hinges (instead of a single 6 RMS)*

Note: 1 RMS = 44.5mm (1.75 in.)

RACK-IT™

NEW

Siemon's Rack-it vertical mounting brackets can be wall mounted to accommodate a wide range of rack mounted equipment. The brackets can also mount any combination of Siemon patch panels and rack-mount cable management. Slotted openings allow mounting of network equipment at various depths.

Part #	Description
HC-RI-5	Vertical mounting bracket, 5 RMS

Note: 1 RMS = 44.5mm (1.75 in.)

RACK HINGE

The Siemon rack hinges are designed to allow rack mounted patch panels to swing out (horizontally) from the rack. They mount directly to a standard EIA rack. The hinges are available in 2 and 3 RMS sizes which can be combined to mount 4 and 6 RMS panels. The 2 RMS hinge is capable of mounting one 2 RMS or two 1 RMS panels.

Part #	Description	RMS
RHNG-2	Rack hinge	2
RHNG-3	Rack hinge	3

Note: 1 RMS = 44.5mm (1.75 in.)

MULTI-ACCESS HORIZONTAL CABLE MANAGERS

The multi-access horizontal cable managers are designed to provide both front and rear cable management in a compact, 1 RMS size. The managers feature high capacity slots for entering and exiting cables, removable covers to hide excess patch cord length, and an innovative cable retention design to prevent patch cords from falling out when the covers are removed. There are also pass-through holes for routing cables between the front and rear of the managers. The rear of the RWM-1 features attachments for using Siemon's hook and loop cable managers (see page 3.11).

RWM-1

RWM-1DS

Part #	Description
RWM-1	Single-sided horizontal cable manager with cover
RWM-1DS	Double-sided horizontal cable manager with covers

Note: 1 RMS = 44.5mm (1.75 in.)

See Cable Management Capacity table on page 3.0

WM SERIES RACK MOUNT CABLE MANAGERS

FOCUS

The WM series cable managers provide increased strength and do not interfere with panels mounted above or below. They are a popular and economical solution for providing a clean and simple means of organizing small-to-large bundles of cables and patch cords.

WM-143-5

WM-144-5

WM-145-5

Part #	Description	RMS
WM-143-5	Cable manager with five S143 hangers	1
WM-144-5	Cable manager with five S144 hangers	2
WM-145-5	Cable manager with five S145 hangers	2

Note: 1 RMS = 44.5mm (1.75 in.)

See Cable Management Capacity table on page 3.0

CABLE HANGERS

The cable hanger design features structural integrity and sleek appearance. These cable hangers are ideal for routing small to very large quantities of cables. The durable plastic design ensures reliability for any application.

S143 *S146* *S144* *S145* *S147*

Part #	Height	Width	Depth
S143*	44mm (1.73 in.)	38mm (1.50 in.)	89mm (3.35 in.)
S144*	87mm (3.43 in.)	57mm (2.25 in.)	74mm (2.90 in.)
S145*	87mm (3.43 in.)	57mm (2.25 in.)	125mm (4.93 in.)
S146	151mm (5.95 in.)	63mm (2.5 in.)	130mm (5.15 in.)
S147	254mm (10.00 in.)	63mm (2.5 in.)	130mm (5.15 in.)

**Add "-A" for optional adhesive backing*

See Cable Management Capacity table on page 3.0

DOUBLE-SIDED HEAVY DUTY 19 INCH EQUIPMENT SHELF

Siemon's double-sided 19 inch equipment shelf is designed to support heavy equipment loads up to 68.1 kg (150 lbs.). The shelf is designed for use with any 152mm (6 in.) deep rack and is secured to the front and rear of the rack channels. Mounting holes conform to EIA specifications for 19 inch racks. Shelf accommodates equipment up to 432mm (17 in.) wide.

Part #	Description
SH-D19-01	19 inch double-sided equipment shelf for 152mm (6 in.) deep racks, solid, 3 RMS *height: 133mm (5.25 in.),* *width: 483mm (19 in.),* *depth: 457mm (18 in.)*

Note: 1 RMS = 44.5mm (1.75 in.)

SINGLE-SIDED 19 INCH EQUIPMENT SHELVES

These 19 inch single-sided solid or vented equipment shelves are ideal for mounting telecommunications devices in 19 inch racks or cabinets. The sturdy 2.5mm (0.1 in.) thick aluminum construction supports up to 22.7kg (50 lbs.). The vented design features air flow perforations to provide additional ventilation for telecommunications equipment. Mounting holes conform to EIA specifications for 19 inch racks (can also be wall mounted). Shelves accommodate equipment up to 438mm (17.25 in.) wide.

SH-S19-01

SH-S19V-01

Part #	Description
SH-S19-01	19 inch single-sided equipment shelf, solid, 3 RMS *height: 133mm (5.25 in.),* *width: 483mm (19 in.),* *depth: 381mm (15 in.)*
SH-S19V-01	19 inch single-sided equipment shelf, vented, 3 RMS *height: 133mm (5.25 in.),* *width: 483mm (19 in.),* *depth: 381mm (15 in.)*

Note: 1 RMS = 44.5mm (1.75 in.)

19 TO 23 INCH PANEL ADAPTERS

These adapters allow 19 inch panels to be mounted to 23 inch racks. The adapters are designed so the panels fit flush with other 23 inch products when mounted (screws included). The adapters can be end-stacked to support larger panel sizes.

Part #	Description
1923-(X)	19 to 23 inch panel adapter (set of 2)

Use (X) to specify adapter size: 2 = 2 RMS, 3 = 3 RMS, 4 = 4 RMS, 5 = 5 RMS, 6 = 6 RMS
Note: 1 RMS = 44.5mm (1.75 in.)

REAR CABLE MANAGERS

Siemon offers rear cable management products to encompass a wide range of rack sizes and cable routing methods. Rack-mounted cable managers provide strain relief anchor points and organization of horizontal cables being routed to the back of a patch panel.

WM-3A AND WM-6A

The WM-3A and WM-6A feature an innovative, angled "V-shaped" design which provides direct and smooth routing of cables to the patch panel from either above or below. There are cable eyelets for securing cable ties (included) and cutouts for inserting our hook and loop cable managers (available separately-see below). The designs keep the wire manager at an adequate distance from the panel to provide proper space to route the cables.

WM-BK

The WM-BK can be mounted to the back side of a double-sided 19 inch rack, or can be mounted to the front of a double-sided 19 inch rack, using the same screws that hold the patch panel to the rack using the hex nuts provided.

ANGLED REAR CABLE MANAGERS

WM-3A . . . . . Angled rear cable manager for 76mm (3 in.) channel racks

Includes eight 190mm (7.5 in.) cable ties and mounting hardware.

WM-6A . . . . . Angled rear cable manager for 152mm (6 in.) channel racks

Includes eight 190mm (7.5 in.) cable ties and mounting hardware.

FLAT REAR CABLE MANAGERS

WM-BK . . . . . Rear cable manager with mounting screws and hex nuts

REUSABLE HOOK AND LOOP CABLE MANAGERS

These cable managers are simple, yet extremely effective when used to bundle cables. To accommodate different sized bundles, they are available in 152mm (6 in.), 305mm (12 in.), or 457mm (18 in.) lengths. They can be easily loosened and removed to service cable and then tightened and reinstalled when the cables are rebundled. The handy dispenser rolls / spools are neat, convenient and quick. Adjustable tension prevents "over-cinched" conditions. A mounting hole in each hook and loop manager enables the manager to be mounted to a wall or rack.

Part#	Description
VCM-25-(XX)-(X)	Roll of 25 cable managers
VCM-250-(XX)-(X)	Spool of 250 cable managers

Use (XX) to specify length:
06 = 152mm (6 in.), holds 51mm (2 in.) diameter cable bundle
12 = 305mm (12 in.), holds 102mm (4 in.) diameter cable bundle
18 = 457mm (18 in.), holds 153mm (6 in.) diameter cable bundle

Use (X) to specify color: 1 = black, 2 = white, 3 = red, 4 = gray, 5 = yellow, 6 = blue, 7 = green, 9 = orange

See Cable Management Capacity table on page 3.0

Wrap-around cable managers offer a simplified approach to cable management... secure it to a single cable and then wrap it around the entire bundle.

Hook and Loop cable managers have a large head for added strength and a mounting hole is included for securing to a wall or rack.

19 INCH S110®/S210® CABLE MANAGERS

FOCUS

When mounted on a 19 inch rack-mount panel, the S110/S210 cable managers provide an economical, superior cable management solution in a compact space. Their 1 RMS and 2 RMS size and large capacity provide excellent cable management for 19 inch rack mount installations.

Covers are included with the cable managers to provide a clean patching appearance.

Part #	Description	RMS
S110-RWM-01	19 inch S110/S210 cable manager with covers, black	1
S110-RWM-02	19 inch S110/S210 cable manager with covers, white	1
S110-RWM2-01	19 inch S110/S210 cable manager with covers, black	2
S110-RWM2-02	19 inch S110/S210 cable manager with covers, white	2

See Cable Management Capacity table on page 3.0

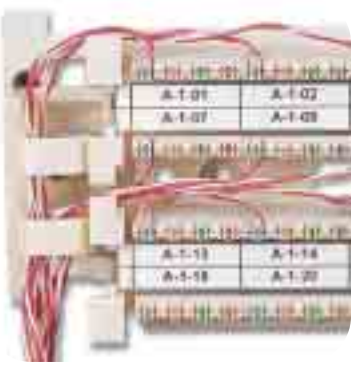
Note: 1 RMS = 44.5mm (1.75 in.)

S100A2 WIRE MANAGER

PATENTED

The S100A2 wire manager snaps onto the legs of the S110 or S210 blocks/legs to provide a channel for routing cross-connect wire or patch cords. One S100A2 is designed to be used with each 100-/64-pair leg (2 for 200-/128-pair, 3 for 300-/172-pair) to allow space to access the wires. The S100A2 can also be mounted side-by-side. The outside edges are flared and tapered for smoother wire entry and exit and preventing damage to the conductor insulation.

Part#	Description
S100A2	Snap-on S110/S210 wire manager, white
S100A2-01	Snap-on S110/S210 wire manager, black



WALL MOUNT S110®/S210® CABLE MANAGERS

PATENTED

The Siemon S110/S210 cable managers are the foundation of a series of cable management products that are designed to support S110 or S210 cross-connects and patch panel applications. They can be ordered individually for field assembly in wall-mount applications. The cable managers are manufactured with high-strength, flame-retardant thermoplastic, and have been designed for easy cable insertion or withdrawal. The 2 RMS cable manager provides additional capacity for high-density patching applications. Siemon S110/S210 covers can be snapped on to provide color-coding and keep cables hidden.

CABLE MANAGERS WITHOUT LEGS

S110B1RMS . . . . . .
1 RMS white cable manager without legs

S110B2RMS . . . . . .
2 RMS white cable manager without legs

S110B1RMS-01 . . . . . .
1 RMS black cable manager without legs

S110B2RMS-01 . . . . . .
2 RMS black cable manager without legs

CABLE MANAGERS WITH LEGS

S110A1RMS. . . . . .
1 RMS white cable manager with legs

S110A2RMS. . . . . .
2 RMS white cable manager with legs

S110A1RMS-01 . . . . . .
1 RMS black cable manager with legs

S110A2RMS-01 . . . . . .
2 RMS black cable manager with legs

See Cable Management Capacity table on page 3.0

RELATED PRODUCTS **S110/S210 Covers see below**

Note: 1 RMS = 44.5mm (1.75 in.)

S110/S210 COVERS

PATENTED

The Siemon Company S110/S210 covers are available in 50- and 100-pair sizes (32- and 64-pair for S210). The cover easily snaps on and off wiring blocks and S110/S210 cable managers, and enhances the appearance of the S110/S210 installation. Removable icon tabs provide color-coding on the front for compliance with the ANSI/TIA/EIA-606-A administration standard.

Part#	Description
S110-CVR-50-(XX)	50-pair S110 cover/32-pair S210 cover
S110-CVR-100-(XX)	100-pair S110 cover/64-pair S210 cover

Use (XX) to specify color: 00 = clear, 01 = black, 20 = ivory

MODULAR PATCH CORDS AND COMPONENTS




	MC® MODULAR CORDS (pages 4.2 – 4.4)	SOLID IC CABLE ASSEMBLIES (pages 4.3 – 4.4)	CABLE ASSEMBLY COMPONENTS (page 4.5)	OTHER CABLE ASSEMBLIES (page 4.6)
Product Applications	Work Area, Telecommunications Room	Consolidation Point, Telecommunications Room	Field Termination	Telecommunications Room, Work Area
Connector Type	Modular	Modular	Modular	Modular, 25-Pair
Media Types	UTP	UTP	UTP	UTP
Category	5e 6 6A	5e 6	3 5e	3 5e compatible
Conductor Types	Stranded	Solid	Stranded	Stranded
Cable Colors	Black, White, Red, Gray, Yellow, Blue, Green	Gray (non-plenum), Blue (plenum)	White	Varies by product

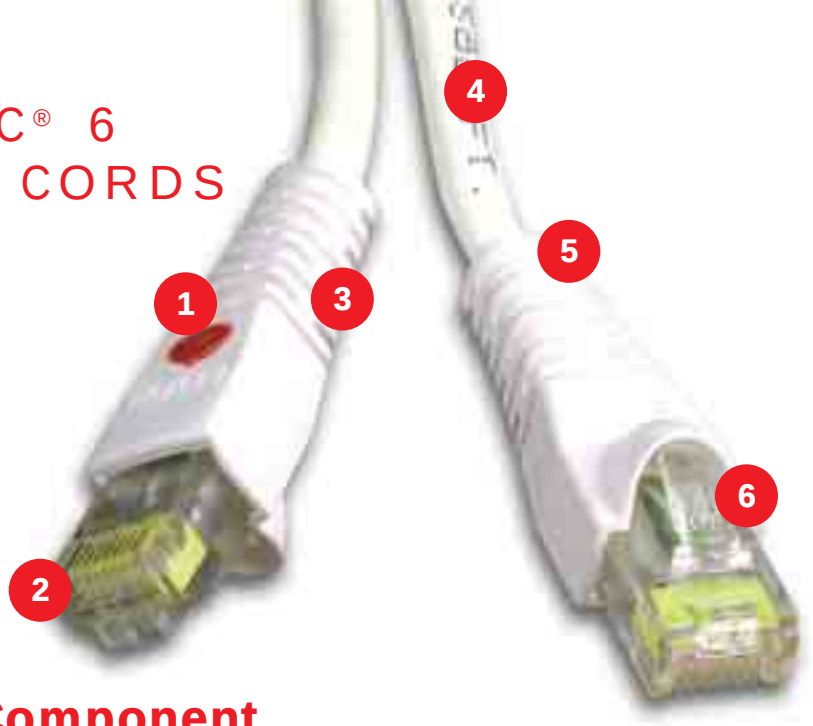
Section Contents

1920s – 1930s

In 1923, The Siemon Company recognized that the roaring twenties and society's new obsession with music entertainment made good business sense, and acquired the Bell Record Company. This was the first entry into the record business for Siemon, and although a departure from telecommunications, represented significant business in an increasingly difficult economy. It proved to be a very wise decision.

Combining its business savvy with its technological expertise, The Siemon Company was actively involved in the invention of a non-breakable plastic record to serve the needs of a booming entertainment industry. By 1934, Siemon was manufacturing records for five separate labels. Its association with Decca Records is most notable. With recording stars like swooning crooner Bing Crosby and his new "White Christmas" album, Siemon produced over one-million Decca records per month to meet the insatiable demand.

ULTRA™ MC® 6 MODULAR CORDS



Category 6 Component Compliant to 300 MHz

Siemon takes patch cord performance to the next level with our new Ultra MC 6 modular patch cords. These next generation cords exceed all category 6 component requirements out to 300 MHz*.

1 Easy Identification
Optional color-coded oval icons available for port identification

2 Durability
High quality modular plugs provide long-term resistance to corrosion, extreme temperatures and airborne contaminants

3 Superior Quality
Internal stranded cordage isolator provides extended flex life and maintains ideal pair geometry

4 Exceeds Category 6
Ultra 6 stranded cordage far exceeds category 6 performance specifications

5 Innovative Strain Relief
360° crimp provides excellent plug-to-cable strain relief without causing pair deformation

6 Latch Guard
Slide-on boots feature a latch guard to protect plug from snagging when pulling through pathways or cable managers

Metallic Isolator

Patented metallic isolator shields pairs inside plug for optimum NEXT performance

Exceeds Category 6

100% transmission testing ensures margin beyond category 6 modular cord specifications and guarantees optimum field performance

Excellent Bend Relief

37 mm (1.4 in.) boot ensures excellent bend relief, critical for category 6 performance

**Performance from 250-300 MHz based on extrapolated TIA/EIA limits.*

ULTRA™ MC® 6 MODULAR CORDS

FOCUS PATENTED

Part #	Description
MC6-8-T-(XX)-(XX)U	Ultra MC 6, double-ended, 4-pair stranded modular cord, T568A/B, color-matching jacket/boot

Use 1st (XX) to specify cord length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.),15 = 4.6m (15 ft.), 20 = 6.1m (20 ft.)

Use 2nd (XX) to specify color: 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07=green

Add "B" for bulk project pack of 100 modular cords

RELATED PRODUCTS **Ultra HD® 6 Patch Panels page 2.2 – 2.3, Ultra MAX® 6 Modules page 1.2 – 1.3**

MC 6 MODULAR CORDS

FOCUS PATENTED

Siemon's MC 6 modular cords are the key to unlocking the next generation performance of System 6® (MAX® 6, CT® 6, and HD® 6) products. MC 6 modular cords utilize patented, metallic isolator shields for optimum NEXT performance and a slide-on boot to ensure proper bend relief. All Siemon factory assembled MC 6 cords are 100% factory transmission tested to 250 MHz.

Part #	Description
MC6-8-T-(XX)-(XX)	MC 6, double-ended, 4-pair stranded modular cord, T568A/B, color matching jacket/boot

Use 1st (XX) to specify cord length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.),15 = 4.6m (15 ft.), 20 = 6.1m (20 ft.)

Use 2nd (XX) to specify color: 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07=green

Add "B" for bulk project pack of 100 modular cords

Custom lengths are available upon request. Contact our Customer Service Department for more information.

Technical Tip!

Factory terminated and tested modular cords are required to achieve consistent category 5e or 6 channel performance. Field termination is not recommended.

SOLID IC6 SINGLE-ENDED MODULAR CORDS

PATENTED

Siemon's IC6 solid single-ended modular cords are designed for use in System 6 applications requiring a consolidation point (CP) or cross-connect (as an equipment cord). The IC6 cords are 100% factory transmission tested to 250 MHz and feature the same plug construction used in MC 6 modular cords. These cords are available in plenum and non-plenum versions and are single-ended for direct termination.

Part #	Description
IC6-8A-(XX)-B(XX)	IC6, single-ended, non-plenum, 4-pair solid modular cord, T568B, gray jacket with colored boot
IC6-8T-(XX)-B(XX)	IC6, single-ended, non-plenum, 4-pair solid modular cord, T568A, gray jacket with colored boot
IC6-8A-(XX)-B(XX)P	IC6, single-ended, plenum, 4-pair solid modular cord, T568B, blue plenum jacket with colored boot
IC6-8T-(XX)-B(XX)P	IC6, single-ended, plenum, 4-pair solid modular cord, T568A, blue plenum jacket with colored boot

Use 1st (XX) to specify cord length: 10 = 3.1m (10 ft.), 20 = 6.1m (20 ft.), 30 = 9.1m (30 ft.), 40 = 12.2m (40 ft.), 50 = 15.2m (50 ft.), 60 = 18.3m (60 ft.)

Use 2nd (XX) to specify color of boot: 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07 = green

Custom lengths and jacket options are available upon request. Contact our Customer Service Department for more information.

MC® 5 MODULAR CORDS

FOCUS

All Siemon MC 5 modular cords are assembled using premium stranded cable that meets all category 5e specifications. MC 5 modular cords are available in several colors with or without a colored boot.

WITH BOOT

Part #	Description
MC5-8T-(XX)-B(XX)C	MC 5 Double-ended, 4-pair modular stranded cord, T568A / T568B, color matching jacket / boot,

WITHOUT BOOT

Part #	Description
MC5-8-T-(XX)-(XX)	MC 5 Double-ended, 4-pair modular stranded cord, T568A / T568B, no boot
MC-BOOT-(XX)-100	Color Boots (pack of 100)

Use 1st (XX) to specify cord length:
03 = 0.91m (3 ft.), 05 = 1.52m (5 ft.),
07 = 2.13m (7 ft.), 10 = 3.05m (10 ft.),
15 = 4.57m (15 ft.), 20 = 6.10m (20 ft.)

Use 2nd (XX) to specify boot color:
01 = black, 02 = white, 03 = red, 04 = gray,
05 = yellow, 06 = blue, 07 = green

Ⓑ Add "B" for bulk project pack of 100 modular cords

Custom lengths are available upon request.
Contact our Customer Service Department for more information.

Technical Tip!

Note: MAX® 6, CT® 6, and HD® 6 products are backward compatible with our MC 5 (category 5e compatible) modular cords. For example when a MC 5 modular cord is used in a System 6® channel with MAX 6 modules, Siemon guarantees category 5e system performance.

SOLID IC5 SINGLE-ENDED MODULAR CORDS

Siemon's solid, single-ended IC5 cable assemblies are designed for patching between the consolidation point and the work area (CMP) or as equipment cords in cross-connect applications (CMR). These assemblies are constructed using cable that exceeds all category 5e specifications.

Part #	Description
IC5-8T-(XX)	IC5, single-ended, 4-pair solid cable assembly, T568A, gray jacket, CMR, no boot
IC5-8A-(XX)	IC5, single-ended, 4-pair solid cable assembly, T568B, gray jacket, CMR, no boot
IC5-8T-(XX)-B(XX)P	IC5, single-ended, 4-pair solid cable assembly, T568A, blue jacket, CMP, with colored boot
IC5-8A-(XX)-B(XX)P	IC5, single-ended, 4-pair solid cable assembly, T568B, blue jacket, CMP, with colored boot

Use 1st (XX) to specify cord length:
10 = 3.1m (10 ft.), 20 = 6.1m (20 ft.), 30 = 9.1m (30 ft.),
40 = 12.2m (40 ft.), 50 = 15.2 (50 ft.), 60 = 18.3m (60 ft.)

Use 2nd (XX) to specify boot color: 02 = white, 06 = blue

Custom lengths and jacket options are available upon request. Contact our Customer Service Department for more information.

UNIVERSAL MODULAR PLUG

PATENTED

Our patented "universal" modular plug eliminates the need to stock more than one size modular plug. The UP-2468 permits field-termination of modular cords in 2-, 3-, or 4-pair increments and terminates twisted pair cable with 26-22 AWG (0.40mm to 0.64mm) solid or 7-strand conductors with insulated conductor diameter of 0.86–0.99mm (0.034–0.039 in.). Plug contacts have 50 microinches minimum of gold plating over nickel and meet FCC CFR 47 part 68 subpart F, and IEC 60603-7 specifications.

Part #	Description
UP-2468	"Universal" modular plug

RELATED PRODUCTS **AllPrep™ Cable Preparation Tool page 12.8, PT-908 Crimp Tool page 12.9, Stranded cable below**

MODULAR PLUGS

We offer modular plugs in standard configurations to terminate modular cords for patching or work area applications. Modular plugs can be terminated to the exact cable length needed in order to maintain a neater, more organized installation. The plugs terminate twisted-pair cable with 26-22 AWG (0.40mm to 0.64mm) solid or 7-strand conductors with an insulated conductor diameter of 0.86–0.99mm (0.034–0.039 in.). All plug contacts have 50 microinches minimum of gold plating over nickel and meet FCC CFR 47 part 68 subpart F, and IEC 60603-7 specifications.

P-8-8 . . . . . 8-position modular plug with 8 contacts (compatible with Siemon and Tyco crimp tools)

P-8-8SS . . . . . 8-position modular plug with 8 contacts (compatible with Siemon and Stewart crimp tools)

P-6-6 . . . . . 6-position modular plug with 6 contacts*

P-8-8K . . . . . 8-position keyed modular plug with 8 contacts (compatible with Siemon and Tyco crimp tools)

PS-8-8 . . . . . 8-position shielded modular plug with 8 contacts (compatible with Siemon and Tyco crimp tools)

P-6-4 . . . . . 6-position modular plug with 4 contacts*

**Siemon 6-position plugs provide empty slots in the outer positions to prevent deformation of jack pins 1 & 8 when inserted into an 8-position modular jack.*

Technical Tip!

Factory terminated and tested modular cords are required to achieve consistent category 5e or 6 channel performance. Field termination is not recommended.

RELATED PRODUCTS **AllPrep Cable Preparation Tool page 12.8, PT-908 Crimp Tool page 12.9, Stranded Cable below**

STRANDED CABLE

The same high-grade, stranded cable used to make Siemon modular cords is also available in dispenser packs for field termination. The cable is shipped in a "tangle-free" carton for hassle-free use in the field.

Part #	Description
9E6R4	Category 6 cable, 4-pair stranded, 24 AWG (7 strands @ 0.20mm), white jacket, 305m (1,000 ft.) dispenser pack
9E5R4	Category 5e cable, 4-pair stranded, 24 AWG (7 strands @ 0.20mm), white jacket, 305m (1,000 ft.) dispenser pack
9E5R2	Category 5e cable, 2-pair stranded, 24 AWG (7 strands @ 0.20mm), white jacket, 305m (1,000 ft.) dispenser pack
9E5R1	Category 5e cable, 1-pair stranded, 24 AWG (7 strands @ 0.20mm), white jacket, 305m (1,000 ft.) dispenser pack

RELATED PRODUCTS **S110® Patch Plugs page 9.11, S210® Patch Plugs page 8.9**

CATEGORY 5e AND 3 25-PAIR CABLE ASSEMBLIES

Our 25-pair cable assemblies are factory-tested for opens, shorts, and continuity. They feature FCC part 68 subpart F compliant gold plated contacts for extended reliability over time. Category 3 connector ends are available in single-ended male or female, double-ended male or female, or one male / one female configurations. All 25-pair cable assemblies are made with ANSI / TIA / EIA-568-B-2 category 5e or 3 compliant cable.

CATEGORY 5e CABLE ASSEMBLIES

QP25M-AA-(XX) . . . . . 25-pair, double ended 110-to-110, cable assembly with male connectors

CATEGORY 3 CABLE ASSEMBLIES

A25B-DE-(XX) . . . . . 25-pair, double-ended, cable assembly with female connectors

A25B-SE-(XX) . . . . . 25-pair, single-ended, cable assembly with one female connector

B25A-(XX) . . . . . 25-pair, double-ended, cable assembly with one male and one female connector

B25B-DE-(XX) . . . . . 25-pair, double-ended, cable assembly with male connectors

B25B-SE-(XX) . . . . . 25-pair, single-ended, cable assembly with one male connector

Use (XX) to specify length: 05 = 1.52m (5 ft.), 10 = 3.05m (10 ft.), 15 = 4.57m (15 ft.), 25 = 7.62m (25 ft.)

Category 5e

Category 3

EZ-TWIST® CONNECTOR

PATENTED

Dramatically reduce coax cable termination time with Siemon's new EZ-Twist connector. No tools or crimping are required. To terminate, simply twist the connector onto the cable for a secure, high performance connection. EZ-Twist also eliminates screw-on connections to outlets. Simply push the connector onto an outlet to lock it in place, pull to remove. This feature is ideal in high-density installations where space is limited and conventional connectors are difficult to secure to outlets.

Part #	Description
HC-EZ-(X)-(X)	EZ-Twist coax connector, bag of 50

Use 1st (X) to specify cable type: 5 = RG59, 6 = RG6

Use 2nd (X) to specify shield type: T = Tri-shield, Q = Quad-shield

RG6 F-TYPE COAX CONNECTOR

The RG6 connector is a high quality coaxial connector designed to terminate RG6 coaxial cable that has a standard diameter over jacket (DOJ) of 6.9mm (0.27 in). The connector meets SCTE and Bellcore specifications and is constructed of high quality brass with corrosion-resistant plating. The long ribbed ferrule ensures maximum connector / cable retention.

Part #	Description
RG6	RG6 F-type connector

RELATED PRODUCTS **Coaxial Crimp Tool page 12.9, AllPrep™ Cable Preparation Tool (CPT-RGTP) page 12.8**

CATEGORY 6 CROSS-CONNECT WIRE

Siemon's category 6 cross-connect is ideal for cross-connect applications up to 5 meters. It can be used for category 6 or category 5e installations using S66,™ S110® and S210® wiring blocks.

Part #	Description
CJ6-W4-1000	Category 6, 4-pair 24 AWG (0.51mm), cross-connect wire, pair colors blue/orange/green/brown, 305m (1,000 ft.) spool

RELATED PRODUCTS **Cross-Connect Wire Dispenser see below**

CATEGORY 5e CROSS-CONNECT WIRE

Siemon's cross-connect wire utilizes a unique "webbing" manufacturing process which binds conductors of a twisted-pair together to maintain consistent conductor spacing and pair twists that will not loosen during cross-connect installation. This high performance product exceeds category 5e specifications and is ideal for use with our S66 and S110 wiring blocks.

Part #	Description
CJ5-W4-1000	Category 5e, 4-pair 24 AWG (0.51mm) webbed cross-connect wire, pair colors blue/orange/green/brown, 305m (1,000 ft.) spool
CJ5-W2-1000	Category 5e, 2-pair 24 AWG (0.51mm) webbed cross-connect wire, pair colors blue/orange, 305m (1,000 ft.) spool
CJ5-W2-1000-07	Category 5e, 2-pair 24 AWG (0.51mm) webbed cross-connect wire, pair colors orange/green, 305m. (1,000 ft.) spool
CJ5-W1-1000-03	Category 5e, 1-pair 24 AWG (0.51mm) webbed cross-connect wire with red/white conductors, 305m (1,000 ft.) spool
CJ5-W1-1000-06	Category 5e, 1-pair 24 AWG (0.51mm) webbed cross-connect wire with blue/white conductors, 305m (1,000 ft.) spool

RELATED PRODUCTS **Cross-Connect Wire Dispenser see below**

Technical Tip!

Use the Siemon cable preparation tool CPT-WEB (see page 12.8) to quickly separate CJ5 webbed conductors prior to termination.

CROSS-CONNECT WIRE DISPENSER

NEW

Siemon's new cross-connect wire dispenser is designed to mount to standard EIA 19 in. (482.6mm) racks to facilitate quick and easy installation of cross-connect wire. The dispenser has 431.8mm (17.0 in.) of horizontal capacity for loading up to five (5) spools of 1-pair cross-connect wire and can also accommodate other configurations. The dispenser bar is supported by open-end brackets on each side for easy access when reloading spools.

Part #	Description
CWD-19	19 in. (482.6mm) cross-connect wire dispenser

FIBER PRODUCTS




	RACK MOUNT INTERCONNECT CENTER (RIC3) (pages 5.2 – 5.3)	WALL MOUNT INTERCONNECT CENTER (SWIC3) (pages 5.4 – 5.5)	FIBER CONNECT PANEL (FCP3) (page 5.8)	FIBER MANAGEMENT TRAY (FMT) (page 5.9)
Product Applications	High density, low-to-high fiber count, feature-rich rack mounting solution	High density, low-to-medium fiber count, wall mount	High density, low profile, economical enclosure ideal for low-to-medium fiber count, rack mount applications	Standard density low cost enclosure for use with CT® or MAX® patch panels to accommodate fiber or mixed media applications
Mounting Space	2-4 RMS	Wall	1 RMS	1-3 RMS
Adapters	Quick-Pack™ Adapter Plates	Quick-Pack Adapter Plates	Quick-Pack Adapter Plates	CT Couplers or MAX Modules

Note: 1 RMS = 44.5mm (1.75 in.)

Maximum Fiber Capacity

# Fibers per Quick-Pack	Adapter Options	FCP	SWIC3-M	SWIC3	RIC24	RIC36	RIC48	RIC72
6	ST, SC, ST/SC, FC	18	12	24	24	36	48	72
8	ST, SC, ST/SC, FC	24	16	32	32	48	64	96
12	ST, SC, MT-RJ, LC	36	24	48	48	72	96	144
16	MT-RJ, LC	48	32	64	64	96	128	192
24	MT-RJ, LC	72	48	96	96	144	192	288

Maximum Splicing Capacity

Splice Type	FCP	SWIC3-M	SWIC3	RIC24	RIC36	RIC48	RIC72
Fusion	72	N/A[1]	48	96	96	96	144
Mechanical	36	N/A[1]	24	48	48	48	72

[1] *SWIC3-M does not accept splice trays*

SECTION CONTENTS

1940s

With the onset of World War II and the ensuing post-war years, Siemon's reputation for excellence in molded plastics continued to grow. Contracted by the U.S. Navy, The Siemon Company began producing stackable plastic dinnerware that was used onboard ships and submarines. Virtually indestructible, these products carried a lifetime warranty and soon found their way into the general population as the Watertown Dinnerware Collection.

RACK MOUNT INTERCONNECT CENTER (RIC3)

The new, improved RIC3 provides the best overall value for fiber management available. The RIC3 enclosure offers superior fiber density (up to 288 fibers in just 4 RMS) without sacrificing fiber protection and accessibility. New features include a fully removable tray, improved labeling, standard front and rear door locks, and single-finger door latch. With better cable management, port identification, fiber accessibility and security, the RIC3 is the best way to protect valuable fiber connections.

1 Quick-Release Hinges
Spring loaded quick-release hinges enable easy removal of front and rear doors for complete access to fiber connections

2 Enhanced Labeling
Label virtually any port configuration with our improved labels. The new labels hang on the front door for improved visibility. When the door is opened, labels flip down letting the technician view the label and corresponding ports together

3 Rotating Grommets
Rotating grommets facilitate loading and retention of jumpers and fiber while minimizing microbending stress when using the sliding tray

4 Complete Access
Management tray has a positive stop in both front and rear working positions providing complete access to patch cords / connectors for moving adding, changing, or cleaning of fibers

5 Maximum Capacity
The RIC3 enables a maximum amount of fibers to be patched or patched and spliced in a 2, 3, and 4 RMS enclosure without compromising the accessibility of fibers / connectors / splices resulting in more efficient utilization of rack space

6 Superior Design
Top and bottom access holes located at the rear of the enclosure allow fibers to be routed between tandem enclosures without having to run fibers outside of the enclosure

New Removable Tray

The RIC3 cable management tray is now completely removable from the front or rear of the enclosure, allowing the entire tray to be moved to a work table for more convenient loading of adapter plates, pigtails and splice trays.

Improved Door Latching and Locking

The new RIC3 features a single-finger latch on both front and rear doors. Included door locks prevent unauthorized access for enhanced security.

Quick-Pack™ Adapter Plates

Never fumble with clumsy nylatches in a densely packed fiber enclosure again! Siemon Quick-Pack Adapter Plates can be inserted or removed with a single-finger for quick and easy access to fiber even in fully loaded enclosures.

RACK MOUNT INTERCONNECT CENTER (RIC3)

FOCUS ENHANCED PATENTED

Siemon RIC3 enclosures have been redesigned for enhanced fiber management and ease of use. They are compatible with an array of Siemon flat Quick-Pack™ adapter plates, which can be found on page 5.6

Part # **Description**

RIC3-24-(XX) . . . . . 24- to 96-port Rack Mount Interconnect Center, 2 RMS

height: 86.6mm (3.41 in.); width: 432mm (17.00 in.); depth: 380mm (14.95 in.)

Part # **Description**

RIC3-36-(XX) . . . . . 36- to 144-port Rack Mount Interconnect Center, 2 RMS

height: 86.6mm (3.41 in.); width: 432mm (17.00 in.); depth: 380mm (14.95 in.)

RIC3-48-(XX) . . . . . 48- to 192-port Rack Mount Interconnect Center, 3 RMS

height: 133mm (5.25 in.); width: 432mm (17.00 in.); depth: 380mm (14.95 in.)

RIC3-72-(XX) . . . . . 72- to 288-port Rack Mount Interconnect Center, 4 RMS

height: 178mm (7.00 in.); width: 432mm (17.00 in.); depth: 380mm (14.95 in.)

Use (XX) to specify color: 01 = black, 02 = white

Note: 1 RMS = 44.5mm (1.75 in.)

Note: All RIC products include laser-printable labels, cable ties, rack-mounting hardware, and pre-installed fiber management clips*

**Visit our web site or contact our Technical Support Department for labeling software.*

RELATED PRODUCTS **Quick-Pack Adapter Plates page 5.6, Splice Trays page 5.10**

FIBER STORAGE CENTER (FSC3)

ENHANCED

The Siemon 3 RMS rack mount Fiber Storage Center (FSC3) is typically utilized in tandem with a Rack Mount Interconnect Center (RIC). Fiber jumpers exiting the front of the RIC are routed into the FSC to store slack. The enhanced design features new bend radius compliant managers which facilitate loading of jumpers and a new single-finger latch on door for easier access.

Part # **Description**

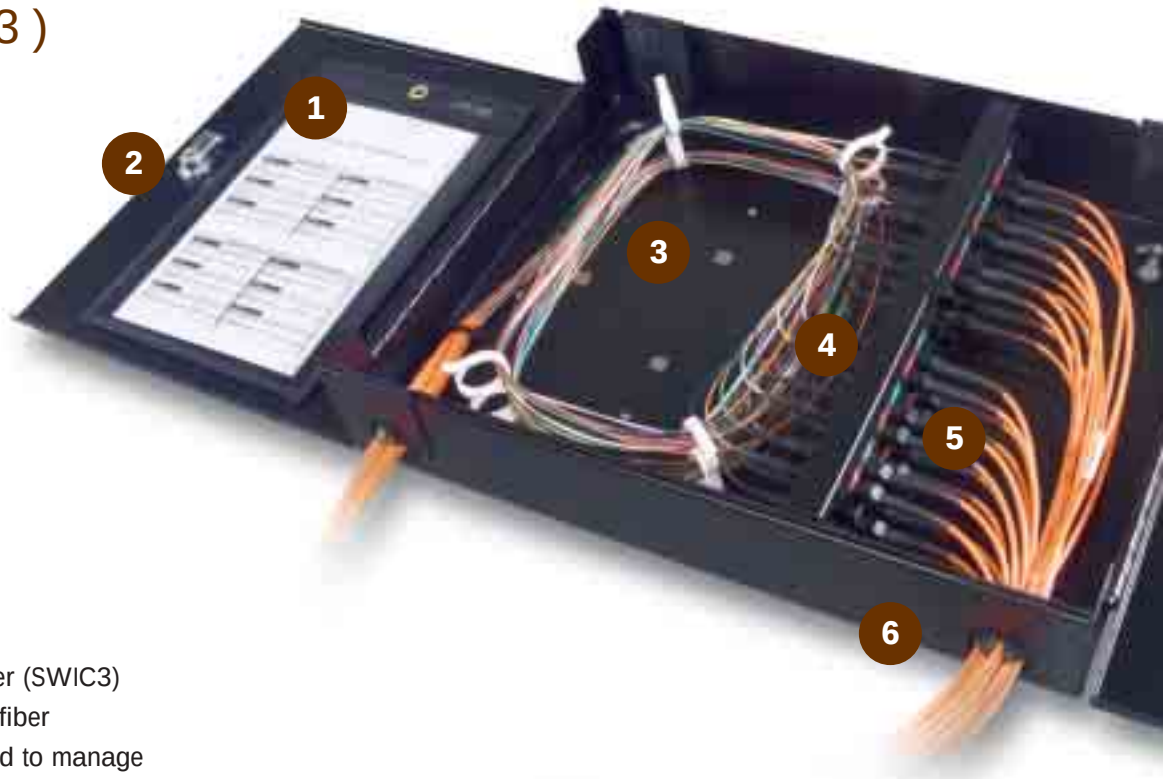
FSC3-(XX) . . . . . Fiber Storage Center, 3 RMS

height: 133mm (5.25 in.); width: 432mm (17.00 in.); depth: 380mm (14.95 in.)

Use (XX) to specify color: 01 = black, 02 = white

Note: 1 RMS = 44.5mm (1.75 in.)

WALL MOUNT INTERCONNECT CENTER (SWIC3)



The Wall Mount Interconnect Center (SWIC3) is a cost-effective fiber enclosure designed to manage and connect up to 96 fibers. The low-profile, compact design makes it ideal for telecommunications closets or other installation areas where wall space is at a premium. The adapter mounting method is standardized via the utilization of the same snap-in Quick-Pack™ adapter plates used in our family of Rack Mount Interconnect Centers (RICs).

1 Convenient Labeling
Convenient labeling system includes removable clear label holders for storing and protecting fiber documentation

2 Door Options
Doors on enclosure and jumper guard can be ordered with independent key lock or latching options

3 Optional Bracket
Optional splice tray bracket available for mounting multiple splice trays (not shown for clarity)

4 Available with Quick-Pack Adapter Plates
Quick-Pack adapter plates are available with SC, ST, FC, MT-RJ, or LC adapters

5 Fiber Guard
Integrated hinged fiber guard provides jumper protection and management

6 Accessories
Dust-proofing grommets included

Easy Access

Doors on enclosures and jumper guard swing open a full 180° to provide complete front and side access.

Dual-Level Fiber Managers

Incorporates two independent levels of storage to enable the fiber to be routed at levels that correspond to the adapters.

Snap-in Adapter Plates

Utilizes same Quick-Pack adapter plates as RIC enclosures with integrated latches for snap-in installation and single-finger removal.

WALL MOUNT INTERCONNECT CENTER (SWIC3)

FOCUS PATENTED

Part #	Description
SWIC3-(X)-(XX)	24- to 96-port Wall Mount Interconnect Center. Includes dual-level fiber managers, port designation labels and removable pocket, dust-proofing grommets, strain relief hardware, cable ties, and mounting hardware. *height: 311mm (12.25 in); width: 311mm (12.25 in); depth: 82.6mm (3.25 in)*

Use 1st (X) to specify type of lock on the enclosure: A = key lock A, C = thumb-turn latch

Use 2nd (XX) to specify color: 01 = black, 02 = white

Part #	Description
SWIC3G-(X)(X)-(XX)	24- to 96-port Wall Mount Interconnect Center with integrated jumper guard. Includes dual-level fiber managers, port designation labels and removable pocket, dust-proofing grommets, strain relief hardware, cable ties, and mounting hardware. *height: 311mm (12.25 in); width: 406mm (16 in); depth: 82.6mm (3.25 in)*

Use 1st (X) to specify type of lock on the enclosure (left) door: A = key lock A, C = thumb-turn latch

Use 2nd (X) to specify type of lock on the guard (right) door: A = key lock A, C = thumb-turn latch

Use (XX) to specify color: 01 = black, 02 = white

Part #	Description
TRAY-B-(XX)	Bracket for mounting up to 4 mini splice trays to SWIC3 base

Use (XX) to specify color: 01 = black, 02 = white

RELATED PRODUCTS **Fiber Adapter Plates page 5.6, Splice Trays page 5.10**

MINI WALL MOUNT INTERCONNECT CENTER (MINI-SWIC3)

FOCUS PATENTED

The Mini-SWIC3 enables the economical interconnection of fiber in locations where wall space is limited while still providing many of the popular, installer-friendly features of the SWIC3. By accepting two flat Quick-Pack™ adapter plates, the MINI-SWIC3 can accommodate from 6–48 fibers. Also included are dust-proofing grommets to provide protection from contaminants and bend radius guides to ensure proper storage of fiber slack.

Part #	Description
SWIC3-M-(XX)	12- to 48-port Mini Wall Mount Interconnect Center *height: 218.4mm (8.6 in.); width: 185.4mm (7.3 in.); depth: 82.6mm (3.25 in.)*

Use (XX) to specify color: 01 = black, 02 = white

FLAT QUICK-PACK™ ADAPTER PLATES

FOCUS PATENT PENDING

Siemon Quick-Pack adapter plates feature a patent pending integrated latch, which provides single-finger access to fiber even in fully populated enclosures. Choose from our wide variety of singlemode and multimode plate options.

RIC-F-SC6-(XX) . . . . . .
3 duplex SC adapters (6 fibers)

RIC-F-SC8-(XX) . . . . . .
4 duplex SC adapters (8 fibers)

RIC-F-SC12-(XX) . . . . . .
6 duplex SC adapters (12 fibers)

RIC-F-SCA6-(XX) . . . . . .
3 duplex SC / APC adapters (6 fibers)

RIC-F-SCA8-(XX) . . . . . .
4 duplex SC / APC adapters (8 fibers)

RIC-F-SCA12-(XX) . . . . . .
6 duplex SC / APC adapters (12 fibers)

RIC-F-SA6-(XX) . . . . . .
3 duplex ST adapters (6 fibers)

RIC-F-SA8-(XX) . . . . . .
4 duplex ST adapters (8 fibers)

RIC-F-SA12-(XX) . . . . . .
6 duplex ST adapters (12 fibers)

Only recommended for push-pull design connectors due to access constraints

RIC-F-LC12-(XX) . . . . . .
6 duplex LC adapters (12 fibers), beige adapters

RIC-F-LCU12-(XX) . . . . . .
6 duplex LC adapters (12 fibers), blue adapters

RIC-F-LC16-(XX) . . . . . .
8 duplex LC adapters (16 fibers), beige adapters

RIC-F-LCU16-(XX) . . . . . .
8 duplex LC adapters (16 fibers), blue adapters

RIC-F-LC24-(XX) . . . . . .
12 duplex LC adapters (24 fibers), beige adapters

RIC-F-LCU24-(XX) . . . . . .
12 duplex LC adapters (24 fibers), blue adapters

RIC-F-MT12-(XX) . . . . . .
6 duplex MT-RJ adapters (12 fibers)

RIC-F-MT16-(XX) . . . . . .
8 duplex MT-RJ adapters (16 fibers)

RIC-F-MT24-(XX) . . . . . .
12 duplex MT-RJ adapters (24 fibers)

RIC-F-AC6-(XX) . . . . . .
3 duplex ST-SC adapters (6 fibers, front side = SC)

RIC-F-AC8-(XX) . . . . . .
4 duplex ST-SC adapters (8 fibers, front side = SC) (not shown)

RIC-F-FC6-(XX) . . . . . .
6 FC adapters (6 fibers)

RIC-F-FC8-(XX) . . . . . .
8 FC adapters (8 fibers) (not shown)

RIC-F-BLNK-(XX) . . . . . .
Blank adapter plate

Use (XX) to specify adapter plate color: 01 = black, 02 = white

Each adapter plate with icon pockets includes red, blue, color-matching, and clear icons with paper labels.

All adapters are "universal" to support multimode and singlemode.

PRE-LOADED ENCLOSURES

Need to reduce backbone installation time yet maintain superior quality? Siemon offers the perfect solution with our pre-terminated RIC3 fiber enclosures. Choose from RIC3 enclosures with a variety of connector interfaces pre-loaded with adapters and pigtails for patch and splice applications. All solutions feature Siemon high quality factory fiber terminations, guaranteeing significant margin over TIA / EIA and ISO / IEC specifications. Siemon offers a choice of two grades of fiber for these pre-loaded enclosures – LightSystem® (for Gigabit Ethernet) or LightSystem XGLO™ (10 Gigabit Ethernet). To order pre-loaded RIC3 enclosures, use the part numbering matrix below, or call Customer Service for assistance.

R 2 4 - J B 0 2 4 J - 0 1

Enclosure:
24 = RIC3-24
36 = RIC3-36
48 = RIC3-48
72 = RIC3-72

Connector / Adapter type:

Singlemode
A = SCUPC
B = SCAPC
C = STUPC
D = LCUPC

Multimode
J = SC
K = ST
L = LC

Color:
B = Black
C = White

# of Fibers Terminated
for example:
024 = 24 fibers
036 = 36 fibers
048 = 48 fibers
144 = 144 fibers
See fiber enclosure capacity chart on page 5.0

Cable Type:

Singlemode
A = pigtail, buffered, XGLO
B = pigtail, jacketed, XGLO
D = pigtail buffered
E = pigtail, jacketed

Multimode
F = 50/125µm pigtail, buffered, XGLO
G = 50/125µm pigtail, jacketed, XGLO
H = 50/125µm pigtail, buffered
I = 50/125µm pigtail, jacketed
J = 62.5/125µm pigtail buffered
K = 62.5/125µm pigtail, jacketed

Pigtail Length in Meters:
for example:
05 = 5 meters
10 = 10 meters
99 = 99 meters
Contact Customer Service for lengths 100 meters or greater

RELATED PRODUCTS **Splice Trays page 5.10, Heat Shrink Sleeves page 5.10, ULTRAsplice® page 5.11, ULTRAsleeve® page 5.11**

FIBER CONNECT PANEL (FCP3)

PATENTED

High Density

FCP3 enclosures accommodate up to 72 fibers in only 1 RMS on a 19 inch rack.

Sliding Tray

The FCP3-DWR (drawer version) features a tray that slides out from the front or rear, providing easy access to fiber connections even on fully loaded racks and allowing for removal of the entire tray to be placed on a worktable for more convenient termination.

The Fiber Connect Panel (FCP3-DWR and FCP3-RACK) rack mount enclosures economically connect, protect, and manage up to 72 fibers within one Rack Mount Space (RMS). It accepts Siemon's Quick-Pack™ adapter plates with patented single-finger access. The FCP3-DWR makes access to the connections easy via a tray that slides out the front or the rear.

Part #	Description
FCP3-DWR	6- to 72-port Fiber Connect Panel with sliding tray. Includes mounting brackets, housing/tray, fiber managers, grommets, label holders, and labels *height: 43.2mm (1.7 in.); width: 482.6mm (19.0 in.); depth: 355.6mm (14.0 in.)*
FCP3-RACK	6- to 72-port Fiber Connect Panel with fixed tray. Includes mounting brackets, housing/cover, fiber managers and grommet *height: 43.2mm (1.7 in.); width: 482.6mm (19.0 in.); depth: 241.3mm (9.5 in.)*

FOCUS

FCP3-RACK

RELATED PRODUCTS **Quick-Pack Adapter Plates page 5.6, Compression Fittings page 5.9, Splice Trays page 5.10**

FIBER MANAGEMENT TRAY (FMT)

PATENTED

Siemon Fiber Management Trays (FMT) are an economical solution for managing fiber cable slack and splice trays. The management trays have been designed to easily retrofit any standard 1, 2, or 3 RMS CT® or MAX® Series Patch Panel and can organize up to 96 fibers. The tray is only 254mm (10 in.) deep, allowing it to readily fit into cabinet enclosures. Each enclosure can accept up to two fiber splice trays.

Part #	Description	RMS
CT-FMT-16	Fiber tray for 1 RMS CT or MAX Panels	1
CT-FMT-24	Fiber tray for 2 RMS CT or MAX Panels	2
CT-FMT-48	Fiber tray for 3 RMS CT Panels	3

Note: 1 RMS = 44.5mm (1.75 in.)

RELATED PRODUCTS **CT Panels pages 2.8 – 2.9, CT Couplers pages 1.14 – 1.19, MAX Panels pages 2.6 – 2.7, MAX Modules pages 1.2 – 1.7, Fiber Splice Trays page 5.10**

COMPRESSION FITTINGS

Compression fittings are utilized as an alternate method for securing cables to FCP3 fiber enclosures. Compression fittings resist water pressure up to 70psi. Acme threads on the body prevent skipping, allowing for faster installations of lock-nuts. Polymer material resists salt water, weak acids, gasoline, alcohol, oil, greases and common solvents.

Part #	Description
CF-(XX)	Compression fitting

Use (XX) to specify size: 40 = Used for 24-fiber cable; 51 = Used for 36-fiber cable; 60 = Used for 72-fiber cable; 70 = Used for 96-fiber cable

COMPRESSION FITTING CONVERSION KITS

Conversion kits provide a means of securing fiber in Siemon rack and wall mount enclosures. These fittings are liquid tight up to 70 psi water pressure and resist salt water, weak acids, gasoline, alcohol, oil, grease and common solvents.

Part #	Description
CF-(XX)-(X)P-(XX)	Compression fitting conversion kit

Use first (XX) to specify cable accommodation size:
40 = 24-fiber distribution cable, 51 = 36-fiber distribution cable,
60 = 72-fiber distribution cable (for RIC72 enclosures only)

Note: For 96-fiber distribution cable, use Siemon p/n CF-70 compression fitting and mount directly to RIC3 or SWIC3 enclosures.

Use (X) to specify enclosure type: R = kit for RIC3 rack mount enclosures, S = kit for SWIC3 and SWIC3G wall mount enclosures.

Use 2nd (XX) to specify color: 01 = black, 02 = white.

RELATED PRODUCTS **Rack Mount Interconnect Center pages 5.2 – 5.3, Wall Mount Interconnect Center pages 5.4 – 5.5**

CF-(XX)-SP-01

SWIC3 with conversion kit

CF-(XX)-RP-01

RIC24-F with conversion kit

BEND RADIUS GUIDE

PATENT PENDING

The Bend Radius Guide (BRG2) maintains optimal fiber bend radius and is divided into two sections for independent management of multiple fibers. the BRG2 locks into the bottom of Siemon enclosures via a quarter-turn post on the base.

Part #	Description
BRG2-02	Bend radius guide, white

SPLICE TRAYS

ENHANCED

These aluminum trays can be ordered with either fusion, mechanical or fusion with sleeve splice holders and come with a clear, snap-on polycarbonate cover. The standard tray holds up to 24 splices. For tight areas, a mini-tray is available which accommodates up to 12 splices. Trays can be stacked for high-density applications. The splice trays are compatible with RIC, SWIC, FCP and CT-FMT fiber enclosures.

Part #	Description
TRAY-1	Standard splice tray for up to 24 bare fusion splices
TRAY-2	Standard splice tray for up to 12 ULTRAsplice® mechanical splices
TRAY-3	Standard splice tray for up to 24 fusion splices with sleeve protection
TRAY-M-1	Mini splice tray for up to 12 bare fusion splices
TRAY-M-2	Mini splice tray for up to 6 ULTRAsplice mechanical splices
TRAY-M-3	Mini splice tray for up to 24 fusion splices with sleeve protection
TRAY-R-4	Mass or ribbon splice tray for up to 144 fibers Compatible with Siemon MASSsleeve® splice protectors
TRAY-R-4A	Mass or ribbon splice tray for up to 144 fibers Compatible with heat shrink sleeves

TRAY-3

TRAY-M-2

TRAY-R-4

Standard Tray Dimensions
height: 103mm (4.07 in.); width: 298mm (11.75 in.); depth: 8.13mm (0.32 in.)

Mini Tray Dimensions
height: 103mm (4.07 in.); width: 179mm (7.06 in.); depth: 8.13mm (0.32 in.)

Mass / Ribbon Tray Dimensions
height: 103mm (4.07 in.); width: 179mm (7.06 in.); depth: 8.13mm (0.32 in.)

Fusion with sleeve splice holders can accommodate sleeve diameters from 1.5mm (0.059 in.) to 3mm (0.117 in.). Standard Fusion splice holders are designed for 900 micron buffered fibers or 250 micron coated fibers.

HEAT SHRINK SLEEVES

Heat shrink sleeves provide a safe and efficient method for protecting fusion splices on either 250 or 900 micron coated fibers. Heat shrink sleeves are threaded on to fibers prior to fusion splicing and then positioned directly over splice and heated via oven or heat gun*.

Part #	Description
HT-40	40mm (1.57 in.) heat shrink sleeve
HT-60	60mm (2.36 in.) heat shrink sleeve

Technical Tip!
For cleave lengths greater than 12mm (0.47 in.), HT-60 sleeves are recommended.

**Heating times may vary depending on heat source*

ULTRASPLICE®

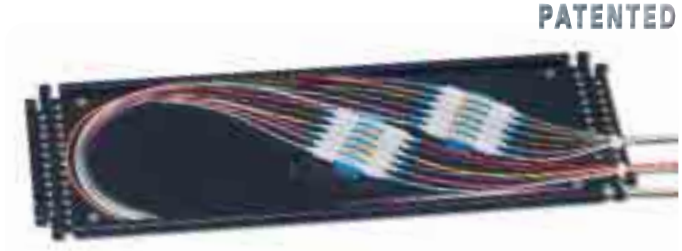
PATENTED

The patented ULTRAsplice is a high performance, cost effective, mechanical fiber optic splice that is reusable and easy to install for emergency or permanent installations. The splice features a patented glass capillary alignment tube, pre-loaded with index matching gel, to allow inspection of fiber location during installation. Additionally, the collet locking nuts allow users to tune and secure the fiber for optimum alignment and retention.

Part #	Description
US-126	Singlemode, yellow
US-128	Multimode, 125 micron, orange

By utilizing a VFL during installation, fiber misalignment can easily be detected and corrected

ULTRAsplice connectors accommodate fiber buffer sizes from 250-900 microns



The glass capillary allows inspection of fiber misalignments. Using the Visual Fault Locator (P/N: FT-VFL), a light will amplify the fiber misalignment point and allow the user to fine tune the splice

When fibers are properly aligned, no light will be visible. This feature allows the installer to obtain a low loss splice quickly and efficiently

ULTRASLEEVE®

PATENTED

Dramatically reduce fiber splicing installation time and cost with Siemon's innovative ULTRAsleeve splice cover. Simply load the fused fiber and close the sleeve – no heat shrink, curing, crimping or gluing required. ULTRAsleeve features an acrylic foam tape, which seals the sleeve and protects the splice from damage. The ULTRAsleeve fusion splice protector can accept a range of fiber buffer sizes from 250-900 microns for a single fiber or up to a 4 strand mass or ribbon fiber (singlemode or multimode).

Part #	Description
FS-40	40mm (1.57 in.) fusion splice protection sleeve
FS-60	60mm (2.36 in.) fusion splice protection sleeve
FSCT1	ULTRAsleeve closing tool
	length: 90mm (3.5 in.); width: 55mm (2.3 in.); height: 35mm (1.4 in.)

Technical Tip!

For cleave lengths greater than 12mm (0.47 in.), FS-60 sleeves are recommended.

Although the ULTRAsleeve splice protectors can be closed by hand the ULTRAsleeve closing tool is recommended for proper operation.

MASSSLEEVE®

PATENTED

The MASSsleeve provides the same time-saving advantages as the ULTRAsleeve, but for mass or ribbon fiber. This protective fusion splice sleeve can accept 2-12 strand mass or ribbon fiber (singlemode or multimode).

Part #	Description
MFS	40mm (1.57 in.), fusion splice protection cover for fused ribbon fiber
MFSCT	MASSsleeve closing tool
	length: 115mm (4.5 in.); width: 51mm (2.0 in.); height: 25mm (1.0 in.)

The MASSsleeve fusion splice protector can accept 2-12 fused ribbon fiber

MASSsleeve closing tool is required to insure proper installation. The tool's soft form holder and alignment pins assure accurate alignment

PLUG AND PLAY FIBER PRODUCTS

PATENT PENDING

Connectivity is completed by plugging 6- or 12-fiber MPO connectors in Plug and Play modules which can be snapped into wall or rack mount enclosures

Factory termination significantly reduces labor costs during installation and ensures 100% high performance and reliability of the installed system

Available in 50/125µm and 62.5/125µm fiber with either ST or SC interfaces

No connectors, termination kits or consumables required

Other options available. Contact Siemon Customer Service for availability.

Pre-Terminated Fiber

All fiber connections are factory terminated and tested, enabling faster installation to meet tight deadlines.

Plug and Play Modules

Modules feature integrated latches for snap-in installation and single-finger removal.

Rack Mount Solution

Siemon's Plug and Play modules can be use any Siemon enclosure (RIC3, SWIC3, FCP3).

The Siemon Company offers a solution for labor intensive fiber installation and termination — the fiber Plug and Play system. This system eliminates all of the labor and logistics of standard fiber installations by providing a pre-terminated, pre-tested fiber optic connection system.

PLUG AND PLAY MODULES

The Plug and Play modules snap into any Siemon enclosure (RIC3, SWIC3, FCP3) to provide individual port access when transitioning from MPO connectors at the rear. The modules are factory terminated and tested for 100% guaranteed performance with either ST or SC interfaces. Installer-friendly snap-in design ensures fast and reliable installation.

Part #	Description
PP6-SA(X)MM-(XX)	6-port, multimode ST Plug and Play module
PP6-SC(X)MM-(XX)	6-port, multimode SC Plug and Play module
PP12-SC(X)MM-(XX)	12-port, multimode SC Plug and Play module

Use (X) to specify fiber type: 5 = 50/125µm multimode; 6 = 62.5/125µm multimode
Use (XX) to specify module color: 01 = black, 02 = white

12-Port SC Module

6-Port ST Module

RELATED PRODUCTS **RIC3 Enclosures page 5.3, SWIC3 Enclosures page 5.5, FCP3 Enclosures page 5.8**

PLUG AND PLAY REEL AND EXTENDER SYSTEM

The cable for the Plug and Play system is provided on cable reels with 6- or 12-fiber MPO connectors on each end. The cable is available in 50/125µm or 62.5/125µm multimode riser grade fiber cable and can be ordered in any length. A cable pulling eye on one end protects the fiber during installation and facilitates fast installation. Cable extenders are also available to add onto existing Plug and Play reels and include an adapter to join the extender to the cable reel.

Part #	Description
FR6-(X)MMR-(XXX)	MPO-to-MPO Plug and Play reel, 6-fiber, with pulling eye
FR12-(X)MMR-(XXX)	MPO-to-MPO Plug and Play reel, 12-fiber, with pulling eye
FE6-(X)MMR-(XXX)	MPO-to-MPO Plug and Play fiber extender, 6-fiber, with adapter and pulling eye
FE12-(X)MMR-(XXX).	MPO-to-MPO Plug and Play fiber extender, 12-fiber, with adapter and pulling eye

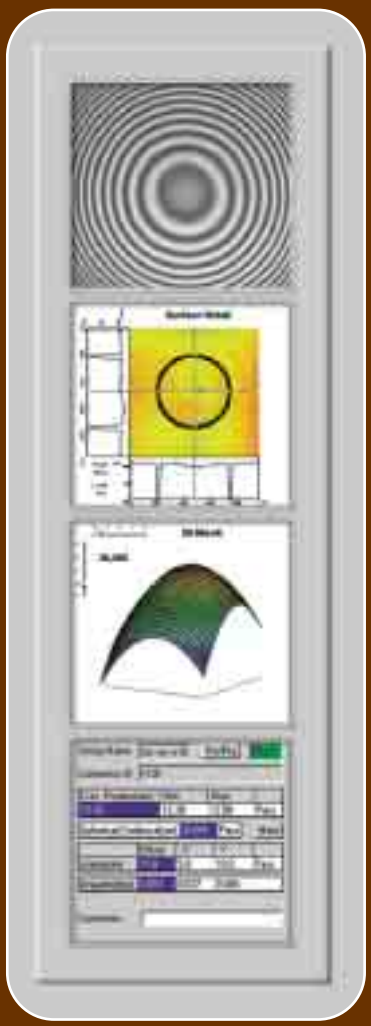
PARAMETER	62.5/125µm (850nm/1300nm)	50/125µm (850nm/1300nm)
Max. Attenuation (dB/Km)	3.5/1.0	3.5/1.0
Min. Bandwidth (MHz-Km)	200/500	500/500
Min. Gigabit Transmission Distance (m)	275/550	550/550

Use (X) to specify fiber type: 5 = 50/125µm multimode, 6 = 62.5/125µm multimode
Use (XXX) to specify length in meters (last X to be "0" or "5" only)

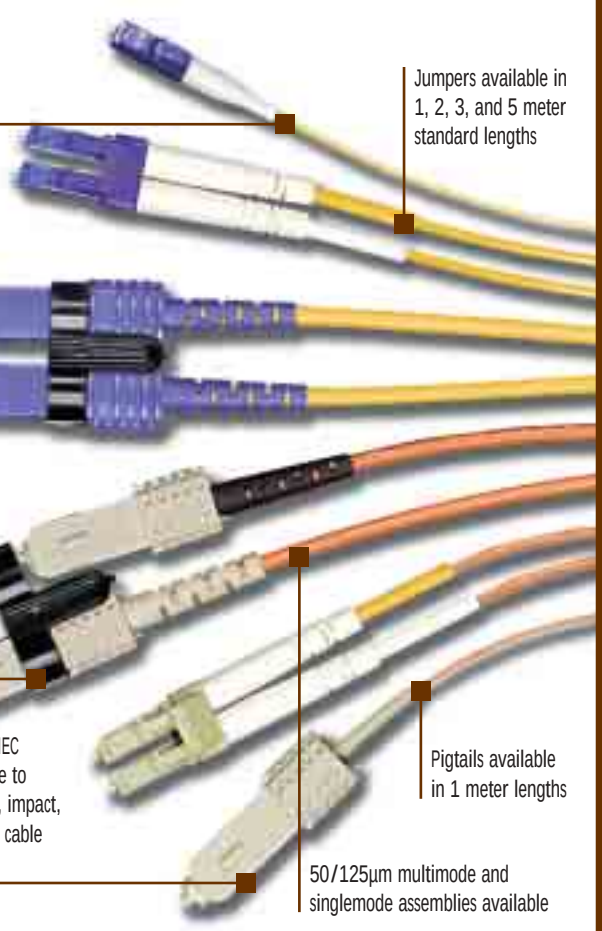
LIGHTSYSTEM® XGLO™ JUMPERS & PIGTAILS

10 Gigabit Ethernet

Superior Performance



LightSystem XGLO fiber optic cable assemblies meet all Telcordia and ISO/IEC specifications for ferrule end face geometry – including radius of curvature, apex offset, and spherical undercut. Compliance ensures minimum Return Loss, thereby reducing back reflection of laser energy which could degrade transmission performance or damage transceivers.



Laser bandwidth optimized cable reduces impurities in the core of fiber, ensuring robust 10 gigabit Ethernet transmission

Jumpers available in 1, 2, 3, and 5 meter standard lengths

Connectors color coded per ANSI/TIA/EIA-568-B.3

Dust caps included to protect polish from dirt and damage

SC duplexing clip allows for polarity correction

Exceeds ANSI/TIA/EIA and ISO/IEC requirements for aging, exposure to humidity, temperature extremes, impact, vibration, coupling strength, and cable resistance to stress and strain

Pigtails available in 1 meter lengths

50/125µm multimode and singlemode assemblies available

LIGHTSYSTEM® XGLO™ JUMPERS & PIGTAILS

FOCUS

Choose LightSystem XGLO fiber optic cable assemblies for next generation backbone or fiber-to-the-desk applications. XGLO cable assemblies feature premium fiber that meets IEEE 802.3 10 Gigabit Ethernet requirements as well as IEC-60793-2-10 and TIA-492AAAC specifications for laser bandwidth Differential Mode Delay (DMD) specifications. In addition, these assemblies offer a superior connector polish that meets stringent Telcordia and ISO / IEC specifications for end-face geometry and exceeds all ANSI / TIA / EIA and ISO / IEC insertion loss and return loss requirements.

These precision cable assemblies are warranted for 20 years and ensure optimum applications support for 10 Gigabit Ethernet serial transmission when installed in a qualified LightSystem XGLO system. 100% inspection ensures superior performance and quality.

LIGHTSYSTEM XGLO 50 / 125µm MULTIMODE DUPLEX JUMPERS

FJ2-SCSC5L-(XX) . . . . . SC-SC duplex jumper

FJ2-LCLC5L-(XX) . . . . . LC-LC duplex jumper

FJ2-LCSC5L-(XX) . . . . . LC-SC duplex jumper

Use (XX) to specify length: 01 = 1m (3.3 ft.), 02 = 2m (6.6 ft.), 03 = 3m (9.8 ft.), 05 = 5m (16.4 ft.)

LIGHTSYSTEM XGLO 50 / 125µm MULTIMODE SIMPLEX PIGTAILS

FP1B-SC5L-01 . . . . . SC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

FP1B-LC5L-01 . . . . . LC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

LIGHTSYSTEM XGLO SINGLEMODE DUPLEX JUMPERS

FJ2-SCUSCUL-(XX). . . . . SC-SC duplex jumper

FJ2-LCULCUL-(XX) . . . . . LC-LC duplex jumper

FJ2-LCUSCUL-(XX) . . . . . LC-SC duplex jumper

Use (XX) to specify length: 01 = 1m (3.3 ft.), 02 = 2m (6.6 ft.), 03 = 3m (9.8 ft.), 05 = 5m (16.4 ft.)

LIGHTSYSTEM XGLO SINGLEMODE SIMPLEX PIGTAILS

FP1B-SCUL-01 . . . . . SC simplex pigtail, buffered, 1m (3.3 ft.)

FP1B-LCUL-01 . . . . . LC simplex pigtail, buffered, 1m (3.3 ft.)

PERFORMANCE SPECIFICATIONS

	50 / 125µm Multimode			Singlemode
	850nm	1300nm	850nm*	n/a
Min. Cable Bandwidth (MHz km)	1500	500	2000	n/a
Max. Insertion Loss (dB)	0.50 (0.10 Typical)			0.40 (0.10 Typical)
Min. Return Loss (dB)	30 (35 Typical)			55 (60 Typical)

**Laser Bandwidth*

LIGHTSYSTEM® JUMPERS AND PIGTAILS

FOCUS

The Siemon Company offers a comprehensive line of fiber jumpers for connecting fiber links. Choose from simplex or duplex, multimode (62.5/125 or 50/125) or singlemode, SC or ST, jumpers, or pigtails. Assemblies are available in standard lengths of 1, 2, 3, and 5 meters. Custom lengths are also available. Each and every terminated connector is optically tested so that you can be assured that 100% of the Siemon-built cable assemblies meet the stringent performance specifications (shown below). All jumpers are manufactured using the finest quality connectors and OFNR riser grade fiber.

Gigabit Ethernet

MULTIMODE DUPLEX JUMPERS

FJ2-SCSC(X)MM-(XX) . . . . . SC-SC duplex jumper
FJ2-SASA(X)MM-(XX) . . . . ST-ST duplex jumper
FJ2-SASC(X)MM-(XX) . . . . . ST-SC duplex jumper
FJ2-LCLC(X)MM-(XX) . . . . . LC-LC duplex jumper
FJ2-LCSC(X)MM-(XX) . . . . . LC-SC duplex jumper
FJ2-LCSA(X)MM-(XX) . . . . . LC-ST duplex jumper
FJ2R-MTMT(X)MM-(XX) . . . MT-RJ-MT-RJ duplex jumper
FJ2R-MTSC(X)MM-(XX) . . . . MT-RJ-SC duplex jumper
FJ2R-MTSA(X)MM-(XX) . . . MT-RJ-ST duplex jumper

MULTIMODE SIMPLEX JUMPERS

FJ1-SCSC(X)MM-(XX) . . . . . SC-SC simplex jumper
FJ1-SASA(X)MM-(XX) . . . . ST-ST simplex jumper
FJ1-SASC(X)MM-(XX) . . . . . ST-SC simplex jumper
FJ1-LCLC(X)MM-(XX) . . . . . LC-LC simplex jumper
FJ1-LCSC(X)MM-(XX) . . . . . LC-SC simplex jumper
FJ1-LCSA(X)MM-(XX) . . . . . LC-ST simplex jumper

MULTIMODE SIMPLEX PIGTAILS

FP1B-SC(X)MM-01 . . . . . SC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)
FP1B-SA(X)MM-01 . . . . . ST simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)
FP1B-LC(X)MM-01 . . . . . LC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

SINGLEMODE DUPLEX JUMPERS

FJ2-SCUSCU-(XX) . . . . . SC-SC duplex jumper
FJ2-SCASCA-(XX) . . . . . SC-SC duplex jumper, APC*
FJ2-SAUSAU-(XX) . . . . . ST-ST duplex jumper
FJ2-SAUSCU-(XX) . . . . . ST-SC duplex jumper
FJ2-LCULCU-(XX) . . . . . LC-LC duplex jumper
FJ2-LCUSCU-(XX) . . . . . LC-SC duplex jumper
FJ2-LCUSAU-(XX) . . . . . LC-ST duplex jumper

SINGLEMODE SIMPLEX JUMPERS

FJ1-SCUSCU-(XX) . . . . . SC-SC simplex jumper
FJ1-SCASCA-(XX) . . . . . SC-SC simplex jumper, APC*
FJ1-SAUSAU-(XX) . . . . . ST-ST simplex jumper
FJ1-SAUSCU-(XX) . . . . . ST-SC simplex jumper
FJ1-LCULCU-(XX) . . . . . LC-LC simplex jumper
FJ1-LCUSCU-(XX) . . . . . LC-SC simplex jumper
FJ1-LCUSAU-(XX) . . . . . LC-ST simplex jumper

SINGLEMODE SIMPLEX PIGTAILS

FP1B-SCU-01 . . . . . SC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)
FP1B-SCA-01 . . . . . SC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.), APC*
FP1B-SAU-01 . . . . . ST simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)
FP1B-LCU-01 . . . . . LC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

PERFORMANCE SPECIFICATIONS

	50/125µm Multimode		62.5/125µm Multimode		Singlemode
	850nm	1300nm	850nm	1300nm	n/a
Min. Cable Bandwidth (MHz km)	500	500	200	500	n/a
Max. Insertion Loss (dB)	0.65 (0.40 Typical)				0.40 (0.25 Typical)
Min. Return Loss (dB)	20 (25 Typical)				50* (53 Typical)

Use (X) to specify multimode fiber type/jacket color: – = 62.5/125µm fiber, orange jacket, 6 = 62.5/125µm fiber, gray jacket, 5 = 50/125µm fiber, orange jacket

Use (XX) to specify cable length: 01 = 1m (3.3 ft.), 02 = 2m (6.6 ft.), 03 = 3m (9.8 ft.), 05 = 5m (16.4 ft.)

Custom lengths and jacket colors are available upon request. Contact our Customer Service Department for more information.

**APC Jumpers and Pigtails have a minimum return loss of 65dB*

VALULIGHT™ JUMPERS AND PIGTAILS

The Siemon Company is pleased to announce its new ValuLight line of fiber cable assemblies. These jumpers and pigtails provide exceptional value at a very competitive cost. ValuLight fiber cable assemblies meet TIA/EIA-568-B.3 and ISO/IEC 11801 specifications for insertion loss and return loss. They are ideal for commercial cabling data applications up to and including 1 gigabit. Cords are available in popular SC and ST connector types and in both multimode and singlemode fiber versions.

MULTIMODE DUPLEX JUMPERS

J2-SCSC(X)-(XX) . . . . . SC-SC duplex jumper

J2-SASA(X)-(XX) . . . . . ST-ST duplex jumper

J2-SASC(X)-(XX) . . . . . ST-SC duplex jumper

Use (X) to specify fiber type: 5 = 50/125µm, 6 = 62.5/125µm

Use (XX) to specify length: 01 = 1m (3.3 ft.), 02 = 2m (6.6 ft.), 03 = 3m (9.8 ft.), 05 = 5m (16.4 ft.)

MULTIMODE SIMPLEX PIGTAILS

P1B-SC(X)-01. . . . . SC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

P1B-SA(X)-01 . . . . . ST simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

Use (X) to specify fiber type: 5 = 50/125µm, 6 = 62.5/125µm

SINGLEMODE DUPLEX JUMPERS

J2-SCSCP-(XX) . . . . . SC-SC duplex jumper

J2-SASAP-(XX) . . . . . ST-ST duplex jumper

J2-SASCP-(XX) . . . . . ST-SC duplex jumper

Use (XX) to specify length: 01 = 1m (3.3 ft.), 02 = 2m (6.6 ft.), 03 = 3m (9.8 ft.), 05 = 5m (16.4 ft.)

SINGLEMODE SIMPLEX PIGTAILS

P1B-SCP-01 . . . . . SC simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

P1B-SAP-01 . . . . . ST simplex pigtail, 900 micron, buffered, 1m (3.3 ft.)

PERFORMANCE SPECIFICATIONS

	50/125µm Multimode		62.5/125µm Multimode		Singlemode
	850nm	1300nm	850nm	1300nm	n/a
Min. Cable Bandwidth (MHz km)	500	500	200	500	n/a
Max. Insertion Loss (dB)	0.75				0.75
Min. Return Loss (dB)	20				50

LC FIELD-INSTALLABLE CONNECTORS

Siemon LC products offer all the benefits of SC and ST connections in a Small Form Factor (SFF), high-density design. LC adapter products are compatible with our popular MAX,® CT,® FOB, and SM® work area and telecommunications room products, providing a wide variety of installation options. LC connectors take just 2 minutes to terminate, using the Siemon *LightSpeed*® Termination Kit.

Multimode

FC1-LC-MM-B80 . . . . . LC Simplex connector, multimode, buffered fiber, beige boot

FC2-LC-MM-J80 . . . . . LC Duplex connector, multimode, jacketed fiber, beige boots

Singlemode

FC1-LC-SM-B02 . . . . . LC Simplex connector, singlemode, buffered fiber, white boot

FC1-LC-SM-J02. . . . . LC Simplex connector, singlemode, jacketed fiber, white boot

Note: Siemon LC jacketed fiber connectors require the use of 1.6mm jacketed fiber cables.

Ⓑ *Add "-B" to the end of part number for bulk pack (simplex: 100/box; duplex: 50/box).*

RELATED PRODUCTS **_LightSpeed_ Termination Kit page 5.21, LC Upgrade Kit page 5.21**

MT-RJ FIELD-INSTALLABLE CONNECTORS

ENHANCED

Siemon MT-RJ connectors pack all the benefits of duplex fiber optic performance into a compact "RJ" style design. Terminations are quick and easy, utilizing a proven no epoxy / no polish method, which takes less than 2 minutes total — 1 minute per fiber! Siemon MT-RJ connectors feature two fibers factory-terminated to the ferrule with protruding stubs engaged within a pre-installed splice mechanism. Just prep the cable and insert the fibers into the connecter to complete termination. No epoxy or polish is necessary.

Two enhancements have been incorporated into the MT-RJ connector. The first enhancement is in the color of the 62.5 micron MT-RJ connector which has changed from a black body to a light beige color. To help distinguish between the two multimode versions. The second enhancement is the lead-in tube of both the 62.5 and 50 micron connectors which have changed from a single entrance tube to a dual entrance tube to facilitate routing or fibers into connector.

Part #	Description
FC2-MT6MM	MT-RJ duplex connector with pins (male), multimode 62.5/125µm, beige
FC2-MT5MM	MT-RJ duplex connector with pins (male), multimode 50/125µm, black

Note: Siemon MT-RJ connectors are compatible with 3.0mm round duplex jacketed or buffered fiber cables

RELATED PRODUCTS **MT-RJ Termination Kit page 5.21**

Technical Tip!

Ever reversed polarity on a duplex fiber termination? Siemon's hinged latch allows you to correct the mistake. Simply defeat the integrated latch, rotate the connector 180°, and re-insert into adapter.

ST AND SC CONNECTORS

FOCUS

SC DUPLEX CONNECTORS

SC connectors have a duplexing clip, which allows each connector to be removed individually. In the event fiber polarity is reversed during termination, there's no need to discard the connector. Simply remove connectors from the clip and switch to correct the mistake, saving valuable installation time and money. The duplexing clip also speeds troubleshooting. In the event there's a fault with a single connection, an individual connector can be removed from the clip and re-terminated without disturbing the adjacent connector.

Multimode

FC2-SC-MM-J . . . . . Duplex, jacketed fiber, one black boot and one beige boot

FC2-SC-MM-B80 . . . . . Duplex, buffered fiber, two beige boots

FC2-SC-MM . . . . . Duplex, jacketed/buffered fiber, one black and one beige jacketed boot; two beige buffered boots

Singlemode

FC2-SC-SM-J(XX) . . . . . Duplex, jacketed fiber

FC2-SC-SM-B(XX) . . . . . Duplex, buffered fiber

Use (XX) to specify boot color: 02 = white, 06 = blue

Ⓑ *Add "-B" to the end of part number for bulk pack (50/box).*

SC SIMPLEX CONNECTORS

SC simplex connectors employ an outer housing that is color-coded in accordance with TIA/EIA-568-B.3 and ISO/IEC 11801 Ed2.0 requirements (beige for multimode and blue for singlemode).

Multimode

FC1-SC-MM-J80 . . . . . Simplex, jacketed fiber, beige boot

FC1-SC-MM-J01 . . . . . Simplex, jacketed fiber, black boot

FC1-SC-MM-B80 . . . . . Simplex, buffered fiber, beige boot

FC1-SC-MM-01 . . . . . Simplex, jacketed/buffered fibers, one black jacketed boot and one beige buffered boot

FC1-SC-MM-80 . . . . . Simplex, jacketed/buffered fiber, one beige jacketed boot and one beige buffered boot

Singlemode

FC1-SC-SM-J(XX) . . . . . Simplex, jacketed fiber

FC1-SC-SM-B(XX) . . . . . Simplex, buffered fiber

FC1-SC-SM-(XX) . . . . . Simplex, jacketed/buffered fibers, one jacketed boots, one buffered boots

Use (XX) to specify boot color: 02 = white, 06 = blue

Ⓑ *Add "-B" to the end of part number for bulk pack (100/box).*

ST CONNECTORS

The ST connector employs a rugged metal bayonet coupling ring with radial ramps which facilitate engagement to the studs of the mating adapter. Two ST connectors are available for jacketed fiber, one with a beige boot and one with a black boot. The two colors enable easy identification of the fibers when terminating individual connectors to form a duplex jumper.

Multimode

FC1-SA-MM-J80 . . . . . Jacketed fiber, beige boot

FC1-SA-MM-J01 . . . . . Jacketed fiber, black boot

FC1-SA-MM-B80 . . . . . Buffered fiber, beige boot

FC1-SA-MM-01 . . . . . Jacketed/Buffered fiber, black jacketed boot and beige buffered boot

FC1-SA-MM-80 . . . . . Jacketed/Buffered fiber, beige jacketed boot and beige buffered boot

Singlemode

FC1-SA-SM-J(XX) . . . . . Jacketed fiber

FC1-SA-SM-B(XX) . . . . . Buffered fiber

FC1-SA-SM-(XX) . . . . . Jacketed/Buffered fiber, one jacketed boot, one buffered boot

Use (XX) to specify boot color: 02 = white, 06 = blue

Ⓑ *Add "-B" to the end of part number for bulk pack (100/box).*

TERMINATING FIBER IS FAST AND EASY WITH SIEMON'S *LIGHTSPEED*® TERMINATIONS

Terminate fiber faster and more accurately with Siemon's *LightSpeed* Termination process. Using Siemon's ST or SC Connectors, *LightSpeed* Fiber Termination Kit, and Automated Fiber Polisher, you can complete the entire fiber termination process in less than two minutes!

ST / SC Connectors

Siemon multimode ST and Duplex SC connectors feature design simplicity and exacting tolerances, which enable easy termination and precise fiber alignment. High quality connector components provide the accuracy and reliability needed for superior performance.

***LightSpeed*® Termination Kit**

The Siemon Fiber Termination Kit contains all the tools and consumables needed to terminate 200 ST or SC multimode connectors. It also includes a user-friendly, tinted adhesive which not only speeds the termination process, but also increases the reliability of the connection via improved resistance to environmental extremes.

Automated Fiber Polisher

The Siemon Company automated Fiber Polisher (FPOL) is battery operated and performs a high-quality, consistent polish on two multimode connectors in just 15 seconds! Saves critical installation time while providing optimum termination quality.

AUTOMATED FIBER POLISHER

The Siemon Company's Automated Fiber Polisher (FPOL) is designed to perform a high-quality polish in just 15 seconds (7.5 seconds per connector), reducing polishing time by 66% for two ST, SC, or FC multimode connectors. Even with the increased speed in polishing time, the insertion loss is typically 0.2dB or less. The FPOL is compact, lightweight, portable, and can complete a minimum of 250 polishing cycles (500 connectors) using a standard 9V alkaline battery (AC adapter also included).

Part #	Description
FPOL	Automated fiber polisher includes: one 9V battery, one spare 9V battery, 100 polishing discs, 10 air polishing sheets, work holder, water bottle, 120 volt AC adapter, hard shell carrying case, and instructions

ACCESSORIES

Part #	Description
FP-PFD	Polishing discs, 3µm, aluminum oxide 100 discs / bag
FP-PFD1	Super polishing discs, 1µm, diamond, 10 discs / bag
FP-APF	Air polishing sheets, 5µm, aluminum oxide 10 sheets / bag

LIGHTSPEED® ST, SC FIBER TERMINATION KITS

Achieve faster fiber terminations and higher performance with Siemon's *LightSpeed* Termination Kit. The Siemon fiber termination kit contains all the tools and consumables required for termination of up to 200 multimode ST or SC connectors — packaged in a rugged canvas carrying case. Use the optional LC Upgrade Kit (see below) for LC connector terminations. All consumables, tools and other termination products supplied with the kit can be ordered separately.

The termination kit includes Siemon's *LightSpeed* adhesive system, which features a 30-second cure time. The adhesive is tinted green to provide an easy visual indication during the termination process and has an extended 1-year shelf life.

Part #	Description
FTERM-L2	*LightSpeed* Fiber Termination Kit for ST and SC multimode connectors*
FT-CKIT-L2	Consumables Kit for FTERM-2L**

**All consumables including primer, adhesive and polishing films are contained in the consumables kit and must be ordered separately. Contents of FTERM Termination Kit are also available individually.*

***This product contains material with a time and temperature sensitive shelf life. Store between 40 – 100 degrees F (4.4 – 38.5°C) and verify expiration date marked on product prior to use.*

LC FIBER TERMINATION UPGRADE KIT

The Siemon LC upgrade kit is used in conjunction with the *LightSpeed* Termination Kit (FTERM-L2) and has all the accessories to terminate LC connectors using Siemon's exclusive *LightSpeed* adhesive. The kit includes an LC microscope head (that attaches to the microscope included with the FTERM-L2), an LC polishing puck and a micro-torch* (to shrink the color-coded LC crimp sleeve tubings).

Part #	Description
FTERM-LC	LC Fiber Termination Upgrade Kit (used in conjunction with FTERM-L2)

Note: Contents of FTERM-LC are also available individually.

Contact our Customer Service Department for more information.

**Butane fuel not included*

MT-RJ FIBER TERMINATION KIT

The Siemon MT-RJ termination kit makes field termination of MT-RJ connectors quick and easy. MT-RJ duplex connectors can be terminated in less than 2 minutes, which equates to less than 1 minute per fiber! The kit employs proven no-epoxy / no-polish termination technology. All tools required to terminate MT-RJ connectors are included in a durable canvas carrying case.

Part #	Description
FTERM-MT	MT-RJ Fiber Termination Kit

Note: Contents of FTERM-MT are also available individually.

Contact our Customer Service Department for more information.

INDUSTRIAL




	INDUSTRIAL MAX® OUTLETS pages 6.2 – 6.3	INDUSTRIAL MAX PLUGS pages 6.2 – 6.3	INDUSTRIAL PATCH CORDS page 6.4	INDUSTRIAL PCB MOUNT JACKS page 6.5
Media Types	UTP, ScTP	UTP, ScTP	UTP, ScTP	UTP, ScTP
Connector Type	RJ45	RJ45	RJ45	RJ45, PCB
Colors	Black	Black	Black	Black
Category	5e	5e	5e	5e

The International Protection (IP) code defines an interfaces resistance to both liquid and solid particles. Siemon's Industrial MAX connector features an IP67 rated seal ensuring continued operation in today's most demanding environments.

IP CODE

INDEX FIGURE	DEGREE OF PROTECTION		DEGREE OF PROTECTION		INDEX FIGURE
0	No Protection	No protection against accidental contact, no protection against foreign bodies	No Protection against water	No Protection	0
1	Protection against large foreign bodies	Protection against contact with a large area by hand and against large solid bodies Ø> 50mm	Protection against vertical water drips	Drip-Proof	1
2	Protection against medium sized foreign bodies	Protection against contact with fingers, protection against small foreign solid bodies with Ø> 12mm	Protection against water drips (up to a 15° angle)	Drip-Proof	2
3	Protection against small solid foreign bodies	Protection against tools, wires, or similar objects with 2.5 mm protection against small foreign bodies with Ø>2.5 mm	Protection against water drips (up to a 60° angle)	Spray-Proof	3
4	Protection against grainshaped foreign bodies	Protection against foreign bodies with Ø>1mm	Protection against splashed water from all directions	Spray-Proof	4
5	Protection against deposits of dust	Full protection against contact. Protection against interior equipment damage due to dust deposits	Protection against splashed water (out of a nozzle) from all directions	Hose-Proof	5
6	Protection against ingress of dust	Total protection against contact and protection against penetration of dust.	Protection against temporary flooding	Protected against flooding	6
			Protected against temporary immersion	Protected against immersion	7
			Protected against water pressure	Water-tight	8

SECTION CONTENTS

1950s

Carl M. Siemon had become the second president of the company and successfully steered the company through the economic hardships of the Great Depression to the economic expansion of the post-war years. Like his father before him, Carl M. was a shrewd businessman, and was responsible for re-locating the company in 1954 from its original home in Bridgeport, Connecticut to its current headquarters in Watertown, Connecticut.

But change was coming. In 1957, Carl M. turned over the helm to his son Carl. Now the third Carl Siemon to steer the Siemon ship, the decisions he would make in the next few years would lay the groundwork for unprecedented Siemon Company expansion.

INDUSTRIAL MAX® CONNECTIVITY

PATENT PENDING

Introducing another revolutionary cabling innovation from The Siemon Company — the new Industrial MAX product line. These products provide a reliable network connection in even the harshest environments — factory floors, hospital wash down rooms, food processing plants, chemical refineries, warehouses and much more. Industrial MAX protects connections from dust, moisture, vibration, temperature extremes, chemicals and electromagnetic interference (EMI). The Industrial MAX Connector has been specified by the Open DeviceNet Vendor Association (ODVA) and is recognized by both TIA/EIA TR 42.9 and IEC PAS 61076-3-111

1 Ensures Proper Seal
Bayonet-style mating ensures proper plug depth in the outlet and an IP67 rated seal (see chart on page 6.0)

2 Clear Identification
Clear identification for proper latch orientation

3 Easy Termination
The industrial plug can be terminated in the field with common tools, allowing custom lengths to be assembled quickly on site

4 Redundant Seal
Redundant gasketing ensures an IP67 seal

5 Excellent Strain Relief
Compression nut provides excellent strain relief and a superior seal to prevent ingress of liquids or dust, and accepts cables with an O.D. of 4.0 to 8.0mm (0.157 to 0.315 in.)

6 Superior Materials
Contact plating is 50 microinches minimum hard gold over nickel

Humidity Affects Typical Outlets

Humidity corrodes contact pins inside typical outlets. Repeated exposure can eventually destroy the contact pins, rendering the outlet unusable. The Industrial MAX outlet's special housing prevents this corrosion.

Vibration Causes Pitting in Typical Outlets

Seen under a microscope after exposure to extreme vibration, contact between a typical modular plug and outlet can pit the contact pins, causing intermittent transmission problems.

Meets Harsh Demands of the Environment

Specially designed Industrial MAX connectors can withstand humidity, dust, vibration, and extreme temperatures.

INDUSTRIAL MAX® OUTLETS

FOCUS PATENT PENDING

The Industrial MAX outlet features a category 5e MAX module housed in a protective shell. The outlet's outer housing is made of durable, chemical-resistant, industrial-grade thermoplastic and features Siemon's patent-pending bayonet-style mating design. Guaranteed category 5e performance even in the most punishing environments.

160 MHz
Featuring universal T568A/B wiring with component and channel performance to 160 MHz.*

Part #	Description
X5	Category 5e, UTP industrial outlet, T568A/B

Part #	Description
X5S	Category 5e, ScTP industrial outlet, T568A/B

** Performance from 100 – 160 MHz based upon extrapolated TIA/EIA limits.*

INDUSTRIAL MAX PLUGS

FOCUS PATENT PENDING

The Industrial MAX Plug features a category 5e modular plug contained in an industrial-grade housing with Siemon's patent-pending bayonet-style mating design. The industrial plug can be terminated in the field, allowing custom lengths to be assembled quickly on site in the event a cable is cut or damaged.

Part #	Description
XP85	Category 5e, industrial plug, 8 position, 8 contacts, UTP, field-terminated

Part #	Description
XP85S	Category 5e, industrial plug, 8 position, 8 contacts, ScTP, field-terminated

INDUSTRIAL MAX® DUST CAPS

FOCUS

The Industrial MAX dust caps are the ideal way to protect your investment in your industrial cabling system. Outlet dust caps can be used to protect unused outlets or to seal an outlet during wash down periods when the outlet and plug may be disconnected. Plug dust caps protect Industrial MAX patch cords from exposure to elements or accidental damage when not mated to an outlet.

Both caps are constructed of industrial grade thermoplastic for superior protection and durability. Additionally, both the outlet and plug dust caps feature a retention chain, which prevents them from being misplaced when not in use.

XP-CAP . . . . . .
Industrial plug dust cap, with chain

X-CAP . . . . . .
Industrial outlet dust cap, with chain

INDUSTRIAL MAX PATCH CORDS

FOCUS PATENT PENDING

Industrial modular patch cords combine the high performance and quality that Siemon cords are known for with a protective plug housing and industrial rated stranded cable designed to withstand the rigors of a factory floor environment.

Our industrial category 5e stranded cordage is petroleum and UV resistant, is not effected by common chemicals and water, operates in a wider temperature range, and provides a longer flex life than normal cords.

A variety of cord options are available to meet a variety of customer needs — UTP, ScTP, category 5e industrial plug to standard RJ45, and more. Choose the industrial modular cord that best suits your needs for a complete end-to-end Siemon channel solution.

Part #	Description
XC5-(XX)	Category 5e, UTP, industrial plug-to-industrial plug
XC5-(XX)-B05	Category 5e, UTP, industrial plug-to-modular RJ45 plug, yellow boot
XC5S-(XX)	Category 5e, ScTP, industrial plug-to-industrial plug
XC5S-(XX)-B05	Category 5e, ScTP, industrial plug-to-modular RJ45 plug, yellow boot

Use (XX) to specify length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.), 15 = 4.6m (15 ft.), 20 = 6.1m (20 ft.)

INDUSTRIAL MAX® STAINLESS STEEL FACEPLATES

FOCUS

Mount Siemon's Industrial MAX outlets into these stainless steel faceplates for a protective seal from moisture and debris. The faceplates are available in 1-, 2- and 4-port options with a rear sealing gasket and carry an IP44 rating.

XFP-S-01-SS . . . . . .
Single gang faceplate,
1-port, stainless steel

XFP-S-02-SS . . . . . .
Single gang faceplate,
2-port, stainless steel

XFP-D-04-SS. . . . . .
Double gang faceplate,
4-port, stainless steel

Faceplates include mounting screws with sealed screw head.

INDUSTRIAL PCB MOUNT JACKS

PATENT PENDING

The printed circuit board mounted Industrial outlet allows the jack to be used in a vast array of I/O devices and active equipment such as controllers, PCs, wireless nodes, switches, hubs, industrialized equipment, and more. Mounted on a PCB, the high-performance category 5e outlet provides equipment manufacturers with the RJ45-type connectivity needed to effectively run Ethernet applications now found in industrial environments.

Part #	Description
XMJ-88	Industrial PCB mount jack, 8 pins, 8 contact, UTP
XMJ-88-S.	Industrial PCB mount jack, 8 pins, 8 contact, ScTP

SCREENED AND SHIELDED PRODUCTS




	TERA™ (pages 7.2 – 7.4)	MAX® SERIES (pages 7.5 – 7.6)	TERA-MAX PATCH PANELS (pages 7.5 – 7.6)	HD5® SCREENED PATCH PANELS (pages 7.9)
Supported Applications	Broadband Video, Data, Voice	Data, Voice	Data, Voice Broadband Video	Data, Voice
Supported Media Types	SSTP	ScTP, SSTP	ScTP, SSTP	ScTP, SSTP
Category	7	5e 6	5e 6 7	5e compatible
Termination Types	Non-Impact	Tool-less	Non-Impact, Tool-less	S110®
Mounting Options	Flush, Surface, Rack	Flush, Surface, Rack	Rack	Rack
Capacity (Ports)	Single gang: 1-6 Double gang: 1-12	Single gang: 1-4 Double gang: 1-8	16-port 24-port	24-ports

SECTION CONTENTS

1960s

The 1960s offered expanding business opportunities. Although turbulent politically, population growth combined with steady economic expansion provided a solid foundation on which to grow The Siemon Company. Already a long-time supplier to Western Electric (AT&T), Siemon began expanding its "66" connecting block market to the independent telephone companies by selling through distributors — better serving the increasing demand for new and improved telecommunications. More people meant more telephones and the 1960s and '70s were rising times for telecommunication expansion. The "66" block quickly became the standard for installing new telephone systems.

TERA™

Once again The Siemon Company expands the boundaries of copper cabling performance with the revolutionary, fully shielded TERA connector. When installed as part of a System 7® solution, it delivers almost twice the bandwidth of proposed category 7/class F* specifications. This extra bandwidth is critical for demanding applications like broadband video, with an upper frequency requirement of 862 MHz. Broadband video, high speed data and voice applications can be supported using a single 4-pair fully shielded (SSTP) cable. TERA plugs come in 1-, 2-, and 4-pair options to support multiple applications in one 4-pair outlet. TERA outlets can be used in both the work area and in the telecommunication room.

1 Plug Identification
Plug-port identification available via colored boots

2 Fully Shielded
Terminates category 7/class F fully shielded (SSTP) cable – no additional crimping or processes required for grounding cable

3 Shield Termination
Connector assures proper termination of cable shield

4 Compact Design
Slim, compact design allows outlets to be side-stacked and inserted from either the front or rear of faceplates

5 Hinged Door
Outlets include a hinged door to prevent exposure to dust and other contaminates

6 Quadrant Isolation
Shielded quadrant design fully isolates pairs, virtually eliminating crosstalk

Easy Installation

CPT-T tool reduces preparation and termination time to approximately three minutes.

Mounting Options

Outlets are compatible with all MAX series mounting hardware.

TERA Plugs

TERA plugs are available in 1-, 2- and 4-pair options to support a variety of applications.

**At time of catalog printing category 7/class F specifications were under development by ISO/IEC*

TERA™ 4-PAIR OUTLET

PATENTED

TERA outlets are the key to System 7® performance. Outlets accept 1-, 2- and 4-pair plugs and terminate fully shielded category 7 / class F* cables. TERA outlets can be used in both the work area and in the telecommunications room.

Part #	Description
T7F-01-1	TERA outlet with black door, icon and boot

TERA 4-PAIR PLUGS

PATENTED

TERA 4-pair plugs can be used to assemble modular patch cords for use in the work area or telecommunications room. Plugs terminate fully shielded category 7 / class F* cable. 4-pair TERA plugs are designed specifically for the most demanding high-speed data applications.

Part #	Description
T7P4-B(XX)-(X)	4-pair TERA plug with colored boot

Use (XX) to specify boot color: 01=black, 02=white, 03=red, 05=yellow, 06=blue, 07=green

Use (X) to specify wire gauge: 1 = 0.64-0.55mm (22-23 AWG), 2 = 0.40mm (26 AWG)

TERA 2-PAIR PLUGS

PATENTED

TERA 2-pair plugs can be used for high-speed data applications in the work area or telecommunications room. Plugs terminate 2-pair fully shielded SSTP cable. Two 2-pair plugs or a combination of 1-pair and 2-pair plugs can fit in a single 4-pair TERA outlet, supporting multiple simultaneous applications.

Part #	Description
T7P2-B(XX)-2	2-pair TERA plug with colored boot

Use (XX) to specify boot color: 01=black, 02=white, 03=red, 05=yellow, 06=blue, 07=green

TERA 1-PAIR PLUGS

NEW PATENTED

TERA 1-pair UTP plugs can be used to support voice and fax applications. Plugs are designed to terminate standard 0.51mm to 0.40mm (24-26 AWG) UTP cable and the design has been optimized to allow for termination in less than one minute. A combination of 1-pair or 2-pair plugs can be used in a single 4-pair TERA outlet.

Part #	Description
T7P1-U-B(XX)-2	1-pair TERA UTP plug

Use (XX) to specify boot color: 01=black, 02=white, 03=red, 05=yellow, 06=blue, 07=green

TERA CABLE PREPARATION TOOL

The TERA cable preparation tool uses a patent pending process to significantly reduce the time required to prepare fully shielded (SSTP) cable. The tool includes an insert die with a blade, which is specifically designed to accurately strip the jacket and foil from 4-pair SSTP cable without damaging the conductors. A template is also included to pre-align cable pairs and ensure proper pair positioning during termination.

Part #	Description
CPT-T	TERA preparation tool. Includes CPT-DIE-T4 and TERA cable preparation template
CPT-DIE-T4	4-pair SSTP cable replacement die

PCB TERA™ OUTLET

PATENTED

A PCB version of the TERA outlet is available for manufacturers who wish to incorporate a category 7 / class F* outlet into active equipment. Please contact The Siemon Company for OEM opportunities for this product.

Part #	Description
T7-PCB-118	PCB mounted 4-pair TERA outlet with 3.00mm (0.118 in.) solder tails

Contact Siemon Customer Service for additional information.

**At the time of this catalog printing, category 7/class F specifications were under development by ISO/IEC.*

TERA PATCH CORDS

PATENTED 5e 6 7 compatible

Unleash the power and flexibility of your System 7® cabling with a variety of TERA patch cords designed to meet your bandwidth requirements today and tomorrow. Both TERA-to-TERA and TERA-to-modular plug cord options are available. 1- and 2-pair plug modularity allows multiple applications to be served from a single outlet.

Part #	Description
T4-(XX)M-B(XX)L	Category 7* compatible, 4-pair TERA-to-TERA LS0H cable assembly, ivory jacket, colored boot

Part #	Description
T4A-(XX)M-B(XX)L	Category 6, 4-pair TERA-to-shielded MC 6 modular plug, LS0H cable assembly, ivory jacket, colored boot, T568B
T4T-(XX)M-B(XX)L	Category 6, 4-pair TERA-to-shielded MC 6 modular plug, LS0H cable assembly, ivory jacket, colored boot, T568A

Part #	Description
T2E2-(XX)M-B(XX)L	Category 5e, 2-pair TERA-to-shielded MC 5 modular plug, LS0H cable assembly, ivory jacket, colored boot, 10BASE-T
T2UT-(XX)M-B(XX)L	Category 5e, 2-pair TERA-to-shielded MC 5 modular plug LS0H cable assembly, ivory jacket, colored boot, Token Ring

Part #	Description
T1U1-(XX)M-B(XX)L	1-pair TERA-to-6 position modular plug LS0H cable assembly, ivory jacket, colored boot, Voice

Use 1st (XX) to specify length: 01 = 1m (3.28 ft), 02 = 2m (6.56 ft.), 03 = 3m (9.84 ft.), 05 = 5m (16.4 ft.)

Use 2nd (XX) to specify boot color: 01 = black, 02 = white, 03 = red, 05 = yellow, 06 = blue, 07 = green

Note: Field termination of TERA-to-modular plug patch cords is not recommended and such cords are not compliant with Siemon System 7 warranties.

**At the time of this catalog printing, category 7/class F specifications were under development by ISO/IEC.*

50MM TERA™-MAX® FACEPLATES

Designed for markets where trunking Systems are used to route cables, the TERA-MAX faceplate mounts TERA outlets on an angle to maintain proper bend radius. The faceplate accepts either one or two TERA or shielded MAX series outlets. Screws, metal mounting plate, designation label and clear label cover included.

Part #	Description
T50-(XX)	50mm x 50mm 2-port faceplate

Use (XX) to specify color: 02 = white, 80 = light ivory, 82 = alpine white

45MM TERA-MAX ADAPTERS

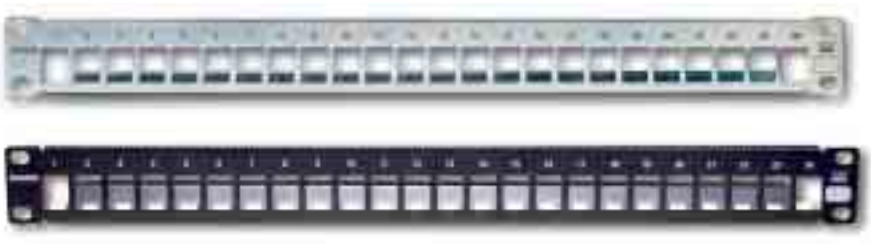
These adapters allow 2 TERA or shielded MAX modules to be mounted into standard 45mm faceplate openings.

Part #	Description
MX-45-01-(XX)	45mm x 45mm 1-port faceplate adapter
MX-45-02-(XX)	45mm x 45mm 2-port faceplate adapter

Use (XX) to specify color:
02=ivory, 25=bright white, 82=alpine white

TERA-MAX PATCH PANELS

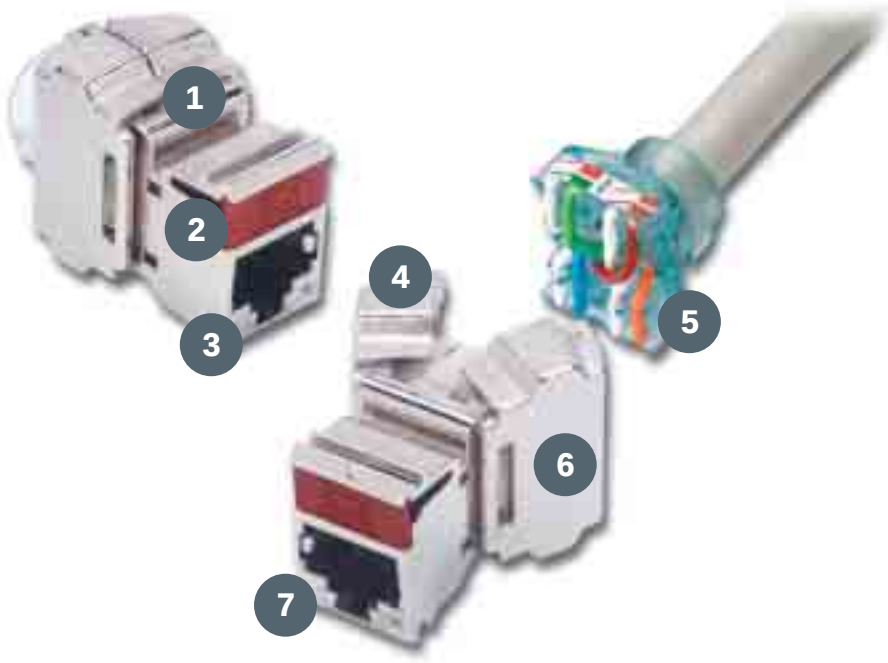
TERA-MAX 19 inch patch panels harness unprecedented performance and reliability in a shielded, high-density modular solution. Any combination of TERA and shielded MAX outlets can be configured in TERA-MAX panels. As outlets are snapped into place, resilient ground tabs and ground lugs assure that each outlet and cable is properly grounded for maximum protection from outside interference. No secondary grounding operations are required, reducing the overall termination time. Built-in cable management and strain relief are integrated onto the rear of panel.



Part #	Description
TM-PNL-16-01	16-Port TERA-MAX panel, black, 1 RMS
TM-PNL-16	16-Port TERA-MAX panel, metallic, 1 RMS
TM-PNL-24-01	24-Port TERA-MAX panel, black, 1 RMS
TM-PNL-24	24-Port TERA-MAX panel, metallic, 1 RMS

Panels include designation labels, cable ties and mounting hardware.
Note: 1 RMS = 44.5mm (1.75 in.)

SCREENED MAX® 6 MODULES



The screened MAX module is the cornerstone of our high performance screened cabling systems. This product not only meets all TIA/EIA and IEC 60603-7-5 (draft specifications) component requirements, but also exceeds ISO/IEC 11801 2nd edition and EN50173 2nd edition requirements for transfer impedance and shield effectiveness.

Category 6 component compliant to 250 MHz

1. **Fully Shielded**
   Fully shielded design optimizes shield effectiveness protection from EMI
2. **Easy Identification**
   Icons provided for port identification
3. **Variety**
   Angled, flat and keystone outlets available
4. **Rear Shield Protection**
   Robust rear shield protects IDC terminations and maintains shield effectiveness
5. **Easy Termination**
   Tool-less termination – makes termination quick and easy
6. **Universal Compatibility**
   Compatible with both T568A/B wiring schemes
7. **Grounding**
   Integrated grounding – no separate grounding tabs required

Slim Design

Use flat MAX ScTP modules in TERA-MAX patch panel (page 7.5) for telecommunications room applications.

International Faceplates

Screened MAX modules are compatible with most MAX mounting hardware.

SCREENED MAX® 6 MODULES

PATENTED

Beyond pure performance, the screened MAX module is packed with time saving features. Our innovative tool-less design allows all 4 pairs to be mass terminated with a pair of channel locks. Use our patented cable preparation tool (CPT-DIE-T4) and the end result is an outlet that can be terminated quickly and easily while maintaining full shielded connection for better Electromagnetic Compatibility (EMC) performance. Outlets terminate all shielded and foiled cable constructions 22-24 AWG (0.65mm [0.025 in.] size conductors).

Part #	Description
MX6-FS	Flat screened MAX 6 module, T568A/B wiring
MX6-S	Angled screened MAX 6 module, T568A/B wiring
MX6-KS	Keystone screened MAX module, T568A/B wiring

Technical Tip!

Category 5e and 6 screened MAX modules are not side-stackable. Use MAX blanks in work area faceplates as a spacer. (ie, four MX6-S and two MX-BL-(XX) are needed for a MX-FP-S-06-(XX) faceplate).

Modules include one red and one blue icon.

Note: Keystone version is designed for integration with various international mounting products and is not compatible with MAX mounting hardware.

Doors available separately see page 1.6

RELATED PRODUCTS **AllPrep™ Cable Preparation Tool page 12.8, TERA-MAX Patch Panels see page 7.5, TERA-MAX Faceplates and Adapters page 7.5**

SCREENED MC® 6 MODULAR PATCH CORDS

PATENTED

Siemon uses the highest quality components combined with stringent manufacturing processes to produce the best performing, most durable modular patch cords available. The end result is a cord that exceeds all TIA/EIA and ISO/IEC component specifications for transmission performance.

Choose Siemon screened MC modular cords for a perfectly matched, end-to-end channel solution with unparalleled performance.

Part #	Description
MC6S-(XX)M-(XX)L	Screened category 6, double-ended, 4-pair, stranded LSOH modular cord, T568A/T568B, color matching jacket/boot

Technical Tip!

Factory terminated and tested modular cords are required to achieve consistent category 5e or higher compatibility. Field termination is not recommended.

Use 1st (XX) to specify length: 01 = 1m (3.3 ft.), 02 = 2m (6.6 ft.), 03 = 3m (9.8 ft.), 5 = 5m (16.4 ft.)

Use 2nd (XX) to specify color: 01 = black, 02 = white, 03 = red, 05 = yellow, 06 = blue, 07 = green

Ⓑ Add "B" to end of part number for bulk project pack of 100 cords.

SCREENED MAX® 5e MODULES

PATENTED

Screened MAX 5e modules shatter category 5e performance specifications with 160 MHz of bandwidth while meeting industry standards for shield effectiveness. Modules can terminate any screened or fully shielded cable. Termination is quick and easy — both cable preparation and module termination can be completed in less than 2 minutes.

Part #	Description
MX5-FS	Flat screened MAX 5e module, T568A/B
MX5-S	Angled screened MAX 5e module, T568A/B
MX5-KS	Keystone screened MAX 5e module, T568A/B

Technical Tip!

Category 5e and 6 screened MAX modules are not side-stackable. Use MAX blanks in work area faceplates as a spacer. (ie, four MX6-S and two MX-BL-(XX) are needed for a MX-FP-S-06-(XX) faceplate).

Modules include one red and one blue icon.

Note: Keystone version is designed for integration with various international mounting products and is not compatible with MAX mounting hardware.

RELATED PRODUCTS

AllPrep™ Cable Preparation Tool page 12.8,
TERA™-MAX® Patch Panels page 7.5, TERA-MAX Faceplates and Adapters page 7.5

SCREENED MC® 5 MODULAR PATCH CORDS

Siemon's screened MC5 modular cords are manufactured using stranded ScTP cable that meets all category 5e specifications. Modular plugs have an overall shield and meet FCC CFR 47 part 68 subpart F and IEC 60603-7 specifications. T568A/T568B wired assemblies include colored strain-relief boots and are available in a wide range of lengths. Shielded modular plugs are also available separately (see page 4.5).

Part #	Description
MC5S-(XX)M-(XX)L	Screened category 5e, double ended, 4-pair, stranded LSOH modular cord, T568A/T568B, color matching jacket/boot

Technical Tip!

Factory terminated and tested modular cords are required to achieve consistent category 5 or higher compatibility. Field termination is not recommended.

Use 1st (XX) to specify length: 01 = 1m (3.3 ft.), 02 = 2m (6.6 ft.), 03 = 3m (9.8 ft.), 5 = 5m (16.4 ft.)

Use 2nd (XX) to specify color: 01 = black, 02 = white, 03 = red, 05 = yellow, 06 = blue, 07 = green

Ⓑ *Add "B" to end of part number for bulk project pack of 100 cords.*

HD5® SCREENED PATCH PANELS

PATENTED

The HD5 screened patch panel provides a high density modular solution for termination of 4-pair screened (ScTP) cable. The HD5 ScTP panel provides transmission performance that meets category 5e system requirements and is fully compliant with shielding effectiveness as defined by the CENELEC and ISO/IEC standards. Siemon compliant pin technology allows the use of Siemon's multi-pair impact tool to minimize termination time. Shield continuity can be achieved by using either ground clip or spade. Two ground lugs are provided (one on each side of panel) for attaching 4.115mm (6 AWG) ground wire to ground and connecting multiple panels together. Built-in cable management and strain relief are integrated on rear of panel. Optional rear cable management bracket is available to properly guide cables to and from the back side of panel (see page 2.3).

Screened HD5 patch panels are compatible with standard HD panel rear cable managers to provide additional management of cable routing.

Part #	Description	RMS
HD5-S-24	Screened 24-port HD5 panel, T568A/T568B	1

Panels include designation labels, cable ties and mounting hardware.
Note: 1 RMS = 44.5mm (1.75 in.)

Technical Tip!

TERA-MAX panels with screened MAX modules can also be used for modular patching solutions. See page 7.5

RELATED PRODUCTS **HD® Series Accessories page 2.3**

SCREENED 5e SM® MODULAR JACK COMPONENTS

PATENTED

Screened 5e SM modular jack components provide a screened category 5e surface mount solution when used with Siemon SM series surface mount boxes.

Part #	Description
SMC-5-A4-S	Screened category 5e compatible, T568B surface mount module
SMC-5-T4-S	Screened category 5e compatible, T568A surface mount module

RELATED PRODUCTS **SM Series Surface Mount Boxes pages 1.30 – 1.31**

S210® PRODUCTS




	S210 CONNECTION SYSTEM (pages 8.2 – 8.7)	VERTICALLY MOUNTED S210 BLOCKS (page 8.7)	S210 TOWER SYSTEM (pages 8.4 – 8.5)	S210 FIELD TERMINATED 19 INCH PANELS (pages 8.6 – 8.7)
Product Applications	High performance connectivity for telecommunications rooms or consolidation points.	Mounts on S89D brackets, ideal for system upgrades from S66 fields.	Medium to high density applications requiring superior cable management.	Rack mounting of blocks eliminates need for separate wall fields and enables patching to active equipment.
Mounting Options	Wall	89D Bracket (Wall)	Wall	19 inch Rack
Capacity	64-192 Pair	32-48 Pair	192-320 Pair	64-192 Pair

SECTION CONTENTS

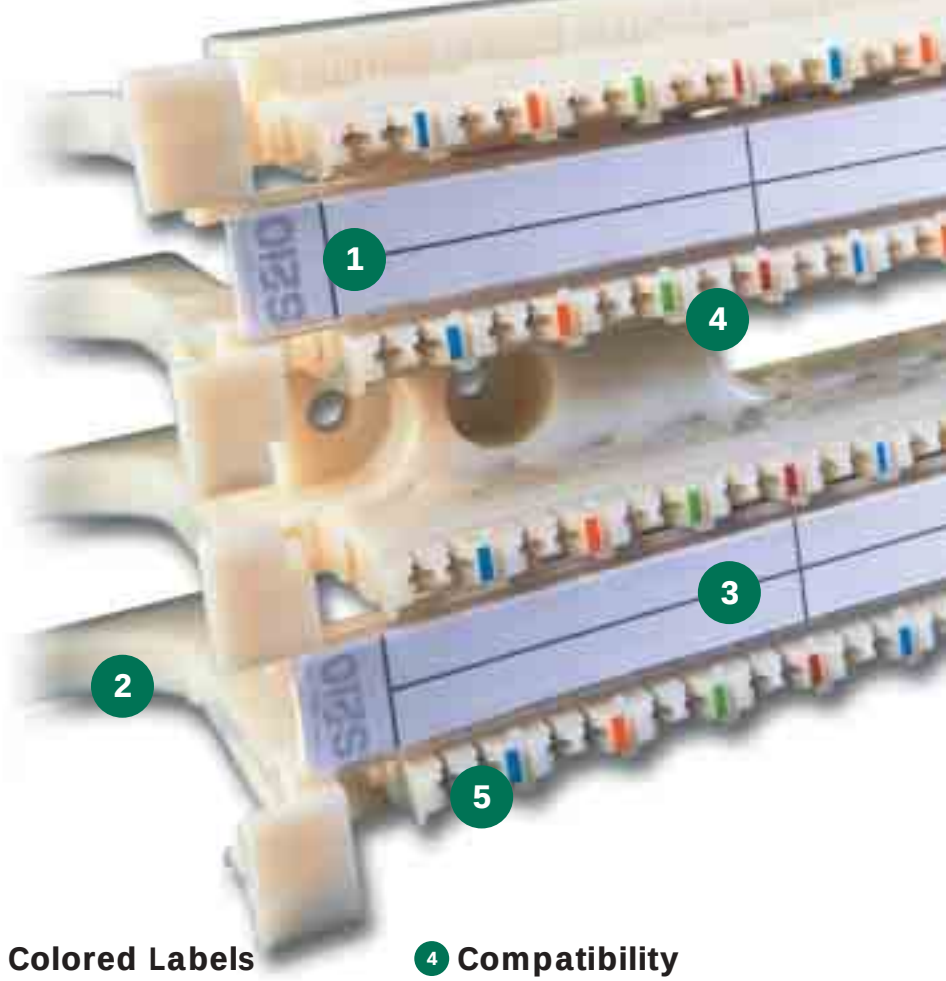
1970s

During the 1970s, The Siemon Company's "66" product line continued to grow, offering greater variety for the telecommunications industry. Siemon pioneered and patented the pre-wired block, reducing installation time, improving installation quality, and better serving the needs of its customers.

The 1970s was also a decade of significant growth in the interconnect industry, fueled by the mounting electronic PBX and key system revolution and contributing to Siemon's growth in the U.S. and expansion into Canada and Puerto Rico.

But something even more exciting was happening at The Siemon Company. Renowned for its manufacturing excellence, Siemon had essentially been an OEM (Original Equipment Manufacturer) supplier, that is, it manufactured products for other companies and received little or no brand recognition. All of this started to change in the late '70s, however, as "66" block sales and the company's reputation for high quality and innovation continued to increase. Customers now began to specify Siemon-made products. They wanted Siemon because they recognized the name and wanted the best.

S210® CONNECTION SYSTEM



The Siemon S210 offers the best connecting block performance in the telecommunications industry. Known as the stealth™ block, its NEXT performance is so good that it is virtually invisible when used as a consolidation point in a category 6 channel.

The Siemon S210 block is the ideal migration path for Voice over IP (VoIP) applications. It can be used to support existing cross-connects for standard phone systems today and enables upgrades to a category 6 rated solution for a seamless network transition. The S210's inherent high performance helps to maximize throughput, thereby improving the overall Quality of Service (QoS) required for VoIP.

1 Colored Labels
Designation strip with interchangeable colored labels can be mounted between each row of connecting blocks

2 Stand-Off Legs
Patented stand-off legs may be detached from the block before, during, or after installation on 64-pair version

3 Superior Design
Cable entering through access openings in base is concealed by designation labels

4 Compatibility
Utilizes same wiring base footprint as standard S110® products to be fully compatible with existing S110 mounting and cable management solutions

5 Easy Termination
Utilizes same termination practices as existing S110 product and is compatible with all single-position S110 termination tools

Internal Crosstalk Barriers

Provide superior NEXT performance (13dB NEXT margin over category 6 specifications) via 360° pair isolation.

Pyramid™ Wire Entry System

Separates paired conductors when lacing cables to simplify and reduce installation time.

Cable Access Openings

Allow cables to be routed through the rear of the block directly to the point of termination.

S210® FIELD TERMINATION KITS

FOCUS PATENTED

Complete S210 installation kits include S210 wiring blocks with detachable legs*, S210 connecting blocks, and label holders with white designation labels.

Part#	Description
S210AB2-64FT	64-pair, S210 field termination kit
	height: 45.7mm (1.80 in.), width: 272mm (10.71 in.), depth: 82.7mm (3.26 in.)
S210AB2-128FT	128-pair, S210 field termination kit
	height: 91.4mm (3.60 in.), width: 272mm (10.71 in.), depth: 82.7mm (3.26 in.)
S210AB2-192FT	192-pair, S210 field termination kit
	height: 275mm (10.81 in.), width: 272mm (10.71 in.), depth: 82.7mm (3.26 in.)

**Legs detachable on 64-pair version only*

RELATED PRODUCTS

S110®/S210 Multi-Pair Impact Tool, page 12.6,
S210 Cable Assemblies, page 8.9
S210 Patch Plug, page 8.8 – 8.9
Category 6 Cross-connect Wire, page 4.7

4-pair S210 impact tool seats S210 connecting blocks and terminates and trims wires on both the cable and cross-connect side of the connecting blocks.

S210 CONNECTING BLOCK

PATENTED

Siemon S210 blocks terminate 22-26 AWG (0.64mm – 0.40mm) solid or 7-strand wires. They also incorporate markings to designate tip and ring conductors, color-coded pairs on each block and Siemon's patent-pending Pyramid™ wire entry system to expedite lacing of pairs.

Part #	Description
S210C-4	4-pair, S210 connecting block

S210 DESIGNATION LABELS

Siemon S210 wiring blocks allow for designation labels to be mounted between each row of connecting blocks. S210 designation labels feature S210 listings on the side to clearly identify the termination type, 4-pair markings and can also be used for color-coding.

Part #	Description
S110-HLDR	Transparent plastic label holders, bag of six
S210-LBL-2	4-pair S210 marked white labels, bag of six

S110/S210 DESIGNATION LABEL SHEETS

Siemon's S110/S210 designation label sheets provide the ability to custom print labels used on S110 or S210 blocks.* The sheets can be used to print 2-, 3-, 4-, or 5-pair labels and eliminate the need to order separate sheets for different configurations. There are 20 labels per side and both sides are marked so they can be reversed and re-printed in case of an error.

Part #	Description
S110-SHT-(X)	S110/S210 Designation label sheets, package of six

Use (X) to specify color: 2 = white, 3 = red, 4 = gray, 5 = yellow, 6 = blue, 7 = green, 8 = violet, 9 = orange, 60 = brown

**Visit our web site or contact our Technical Support Department for labeling software.*

S210® TOWER® SYSTEM

Each Tower comes complete with the appropriate quantity of S210 connecting blocks and mounting hardware

Includes S110B1RMS cable managers with covers for horizontal cable distribution

Optional vertical cable managers can be mounted between towers and provide greater access to cables

Optional cable duct available for providing a single, large pathway at base of Tower for routing cables horizontally

Designation label holders with white designation strips are provided for circuit identification

S210 Block

Features Siemon's high performance S210 block for performance far exceeding category 6 specifications.

Vertical Cable Management

Tower assembly provides pathways for routing and protecting cables from entry all the way to the point of termination.

Robust Design

Screws are used to secure wiring bases and cable managers to Tower frame.

The S210 Tower System provides a modular, high-density, cross-connect, and cable management system. The Towers are available in 192-, 256-, and 320-pair sizes. Towers and vertical cable managers are completely modular and can be vertically stacked to accommodate a higher capacity in a single column. The modular design of the large-scale vertical cable managers allow a technician to easily install a high-density cross-connect system without spending valuable time laying out a termination field.

RELATED PRODUCTS **Designation Label Sheets page 8.3, S210 Cable Assemblies page 8.9**

S210® TOWER® FIELD TERMINATION KITS

PATENTED

Part #	Description
S210MB2-192FT	192-pair, S210 Tower field termination kit *height: 406mm (16 in.), width: 216mm (8.50 in.), depth: 152mm (6 in.)*
S210MB2-256FT	256-pair, S210 Tower field termination kit *height: 541mm (21.31 in.), width: 216mm (8.50 in.), depth: 152mm (6 in.)*
S210MB2-320FT	320-pair, S210 Tower field termination kit *height: 676mm (26.62 in.), width: 216mm (8.50 in.), depth: 152mm (6 in.)*

Each kit includes adequate connecting blocks to fully populate Tower

LARGE-SCALE VERTICAL CABLE MANAGERS

ENHANCED

The S188 large scale vertical cable manager for the S110®/S210 Towers has been enhanced to accommodate our quarter-turn RS-CH cable managers. With the RS-CH managers installed, additional vertical channels can be integrated into the main channel to better segregate cables and cross-connect wire.

Part #	Description
S188-300	Large-scale vertical cable manager for use with 192-pair S210 Tower *height: 406mm (16 in.), width: 216mm (8.50 in.), depth: 152mm (6 in.)*
S188-400	Large-scale vertical cable manager for use with 256-pair S210 Tower *height: 541mm (21.31 in.), width: 216mm (8.50 in.), depth: 152mm (6 in.)*
S188-500	Large-scale vertical cable manager for use with 320-pair S210 Tower *height: 676mm (26.62 in.), width: 216mm (8.50 in.), depth: 152mm (6 in.)*

RELATED PRODUCTS **RS-CH High Capacity Cable Managers page 3.5**

SMALL-SCALE VERTICAL CABLE MANAGERS

Part #	Description
S110M-WM-300	Small-scale vertical cable manager, for use with 192-pair S210 Tower *height: 406mm (16 in.), width: 76.2mm (3.0 in.), depth: 152mm (6 in.)*
S110M-WM-400	Small-scale vertical cable manager, for use with 256-pair S210 Tower *height: 541mm (21.31 in.), width: 76.2mm (3.0 in.), depth: 152mm (6 in.)*
S110M-WM-500	Small-scale vertical cable manager, for use with 320-pair S210 Tower *height: 676mm (26.62 in.), width: 76.2mm (3.0 in.), depth: 152mm (6 in.)*

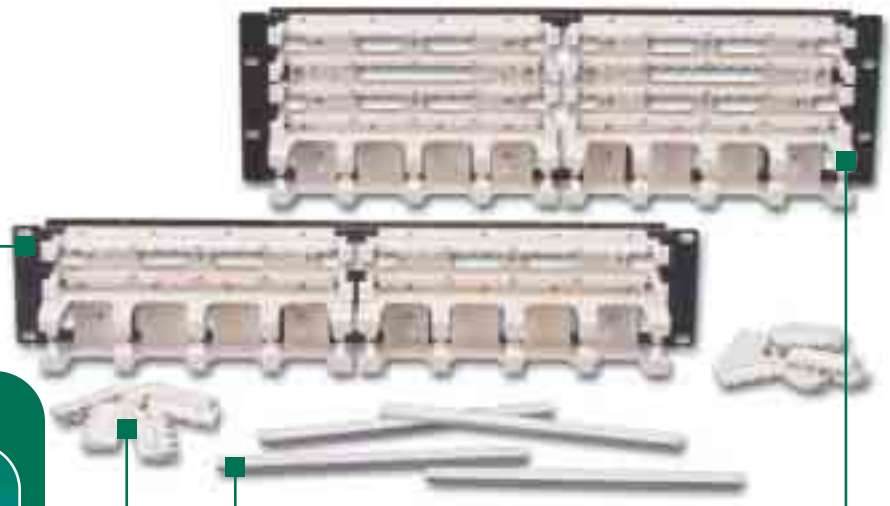
S210 TOWER OPTIONAL ACCESSORIES

S188-GND

S188-WD

Part #	Description
S188-WD	Metal duct for additional horizontal cable management at base of S210 Tower *height: 114.3mm (4.50 in.), width: 215.9mm (8.50 in.), depth: 203.2mm (8 in.)*
S188-GND	Ground kit consists of one, 3-position grounding busbar *height: 9.0mm (.35 in.), width: 50.8mm (2.0 in.), depth: 12.3mm (.49 in.)*

S210® FIELD TERMINATION 19 INCH PANELS



Black anodized panels can be mounted directly to a 19 inch EIA standard rack or cabinet

Each panel comes complete with the appropriate quantity of S210 connecting blocks, mounting hardware, and label holders with white designation labels

Field-terminated panels are available with or without S110®/S210 cable managers and covers

Features Siemon's S210 connecting blocks for ultimate performance far exceeding category 6 specifications

Covers Included

Panels with cable managers include covers to hide cables and provide a clean appearance.

Superior Cable Routing

Patented cable access openings in base allow cables to be routed from behind the panel directly to the point of termination.

Pyramid™ Wire Entry System

Separates paired conductors when lacing cables to simplify and reduce installation time.

S210 panels allow Siemon's S210 wiring blocks to be mounted directly to a 19 inch EIA rack. These panels represent the ultimate "universal" category 6 rack mount connecting hardware solution as they readily support both voice and data connectivity. Each location can be cross-connected for voice applications or patched to adjacently mounted active equipment to support either data or VoIP applications.

RELATED PRODUCTS Designation Label Sheets page 8.3, 19 inch S210 Cable Managers page 8.7

S210® FIELD-TERMINATED 19 INCH PANELS

PATENTED

Part #	Description	RMS
S210DB2-64RFT	64-pair, 19 inch S210 field termination kit	1
S210DB2-128RFT	128-pair, 19 inch S210 field termination kit	2
S210DB2-192RFT	192-pair, 19 inch S210 field termination kit	3

Note: 1 RMS = 44.5mm (1.75 in.)

Each kit includes adequate connecting blocks to fully populate panel.

S210 FIELD-TERMINATED 19 INCH PANELS WITH CABLE MANAGERS

PATENTED

Part #	Description	RMS
S210DB2-64RWM	64-pair, 19 inch S210 field termination kit with cable managers and covers	2
S210DB2-128RWM	128-pair, 19 inch S210 field termination kit with cable managers and covers	3

See Cable Management Capacity table on page 3.0

Note: 1 RMS = 44.5mm (1.75 in.)

Each kit includes adequate connecting blocks to fully populate panel.

VERTICALLY MOUNTED S210 FIELD TERMINATION KITS

PATENTED

These 32-pair or 48-pair S210 blocks can be mounted on the same S89B or S89D brackets that hold our S66™ blocks. The high density 48-pair kit provides category 6 performance in the same footprint as a standard M1-50 66 block. Field-terminated kits include the S210 connecting blocks, designation labels and label holders.

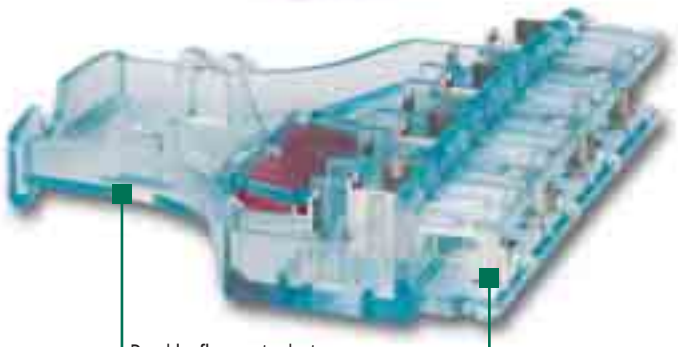
Part #	Description
S210DB1-48FT-89	48-pair S210 field termination kit on an 89-type retainer.*
S210DB1-32FT-89	32-pair S210 field termination kit on an 89-type retainer.*

S210DB1-48FT-89

S210DB1-32FT-89

**S89 brackets are not included and must be ordered separately (see page 10.8).*

S210® PATCH PLUGS



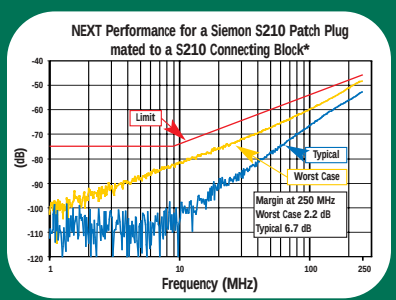
Technical Tip!

When S210 to MC® 6 cable assemblies are configured in the field, The Siemon Company recommends that Siemon MC 6 modular cords be purchased (see page 4.3) and cut in half. The cut end of the cord can then be field terminated to the S210P patch plug while the factory terminated and tested modular plug end remains undisturbed.

Field Installable

Siemon is the only company to offer a field installable category 6 patching solution.

Performance



The S210 4-pair plug provides unparalleled performance, with 6.7dB NEXT (typical) and 2.2dB NEXT (worst case) at 250 MHz.

Easy termination

Simply snap the base and cover together to mass terminate all conductors.

Siemon technology delivers the world's most advanced connection system. The S210 patch plug utilizes internal pair isolation, pair-to-pair compensation and layered contacts to improve crosstalk performance so that the mated plug and connecting block far exceed category 6 connecting hardware transmission requirements. The clear housing keeps the conductor colors / positions visible to aid matching termination positions on the other end.

S210® PATCH PLUGS

FOCUS PATENTED

S210 patch plugs can be field-terminated to 23 to 26 AWG (0.40mm to 0.51mm) solid or 7-strand twisted-pair cable

S210P4 . . . . . .
Category 6, 4-pair, field-terminated, S210 patch plug

S210P2 . . . . . .
2-pair, field-terminated, S210 patch plug

S210P1 . . . . . .
1-pair, field-terminated, S210 patch plug

RELATED PRODUCTS **4-Pair Stranded Cable page 4.5**

S210 CABLE ASSEMBLIES

PATENTED

The S210 cable assemblies utilize Siemon's S210P4 patch plugs for easy and reliable connections between S210 termination fields. These assemblies use high performance stranded cable which exceeds category 6 specifications and are 100% factory transmission tested to ensure optimum category 6 channel performance. Colored icons are available for color-coding S210 plugs.

Part #	Description
S210P4-P4-(XX)	Category 6, 4-pair, double-ended, S210 stranded cable assembly, white jacket
S210P2-P2-(XX)	2-pair, double-ended, S210 stranded cable assembly, white jacket
S210P1-P1-(XX)	1-pair, double-ended, S210 stranded cable assembly, white jacket

Use (XX) to specify cord length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.), 15 = 4.6m (15 ft.), 20 = 6.1m (20 ft.)

Custom lengths available upon request. Contact our Customer Service Department for more information.

S210 TO MC® CABLE ASSEMBLIES

PATENTED

The S210 to MC cable assemblies combine Siemon's latest and highest performing plugs for patching network equipment to S210 connecting blocks or providing test access to S210 termination fields. The combination of plugs, high performance cable and 100% factory transmission testing ensures performance is compatible with category 6 channel specifications.

Part #	Description
S210P4A4-(XX)-(XX)	Category 6, 4-pair, S210P4 to MC 6 stranded cable assembly, T568B wiring, color matching jacket/boot
S210P4T4-(XX)-(XX).	Category 6, 4-pair, S210P4 to MC 6 stranded cable assembly, T568A wiring, color matching jacket/boot
S210P2E2-(XX)-B(XX).	2-pair, S210P2 to MC 6 stranded cable assembly, 10Base-T wiring, white jacket with colored boot

Use 1st (XX) to specify cord length: 03 = 0.9m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.1m (7 ft.), 10 = 3.1m (10 ft.), 15 = 4.6m (15 ft.), 20 = 6.1m (20 ft.)

Use 2nd (XX) to specify color: 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07 = green

Custom lengths available upon request. Contact our Customer Service Department for more information.

ACCESSORIES

Part #	Description
ICON-OVAL-(XX)	25 Colored oval icons for 1-pair S210 patch plugs
CT-ICON-(XX).	25 Colored icon tabs for 2- and 4-pair S210 patch plugs (phone on one side, computer on reverse)
TAB-(XX).	25 Colored blank tabs for 2- and 4-pair S210 patch plugs

Use (XX) to specify color: 00 = clear (TAB-(XX) only), 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07 = green, 08 = violet, 09 = orange, 20 = ivory, 25 = bright white; 60 = brown, 80 = light ivory*

Ⓑ *Add "B" for bulk pack of 100* *Not available for ICON-OVAL-(XX)*

Laser-printed customized tabs now available. Contact our Customer Service Department for ordering information.

S110® PRODUCTS




	S110 KITS AND PATCHING (pages 9.2 – 9.11)	PRE-WIRED S110 BLOCKS (pages 9.12 – 9.13)	S110 MODULAR JACK BLOCKS (pages 9.14 – 9.15)	S110 DISCONNECT BLOCKS (pages 9.16 – 9.17)
Product Applications	Connectivity for horizontal, backbone and consolidation points.	Pre-wired blocks are ideal for connecting to equipment with 25-pair connectors.	Modular "RJ" style connections make these blocks ideal for applications requiring frequent changes.	Provides ability for bi-directional circuit testing without removing cables.
Category	5e	3	5 compatible	5e
Mounting	Wall, 89D, Tower, 19 in. Panel, XLBET	Wall	Wall, 89D, Tower, 19 in. Panel	Wall, Tower, 19 in. Panel
Capacity	25-10,800 Pair	25-300 Pair	6-36 Ports	50-150 Pair

SECTION CONTENTS

1980s

As the 1970s rolled into the '80s, Carl Siemon turned over leadership of the company to his son, Carl N. A graduate of Yale University, like his father and grandfather before him, Carl N. had a desire to build not only a respected manufacturer of high quality telecom products, but a world renowned producer

of brand-name products for the newly emerging structured cabling sector of the telecom industry.

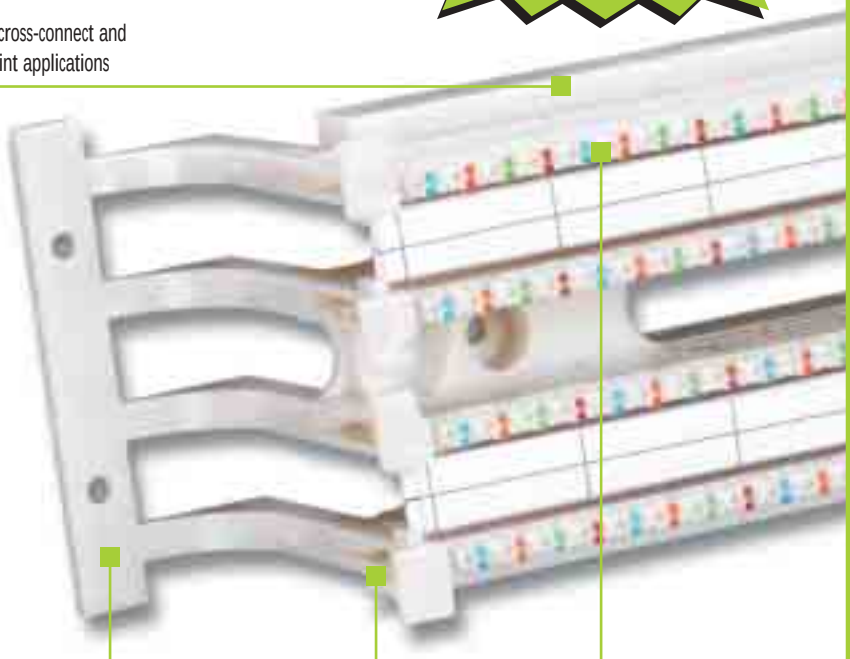
The Siemon Company leveraged its expertise in plastic injection molding, metal stamping, sheet metal forming and automation, and began designing and manufacturing network jacks, patch panels, tools, testers and much more for the new computer networking industry – all branded under its own name.

It was a decision that set the company on a path of unprecedented growth.

S110® WIRING BLOCKS

160 MHz
S110 Blocks mated to S110P4 Patch Plugs (page 9.10) deliver component and channel performance to 160 MHz.*

Ideal for use in cross-connect and consolidation point applications



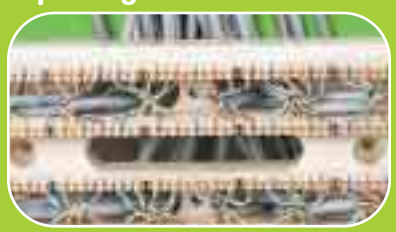
Detachable mounting legs

Rugged high impact, flame-retardant polycarbonate

Termination strips on the base are marked in 5-pair increments. Connecting blocks are color-coded

** Performance from 100 – 160 MHz based upon extrapolated TIA/EIA limits.*

Rear Cable Access Openings



Patented openings between rows allow horizontal cables to be routed from behind the panel and enter the block from the rear, helping to maintain cable geometry and cable jacket up to the point of termination ensuring optimum category 5e performance.

Detachable Blocks

Another patented Siemon innovation allows 50- and 100-pair wiring blocks to be detached from their mounting legs providing easy access to cables before, during or after installation.

Labeling

Designation strips with interchangeable colored labels can be mounted in the center and/or outside positions of the wiring block.

Siemon S110 field termination kits combine category 5e performance with unparalleled installation features. Each kit includes adequate connecting blocks to complete each 25-pair termination strip on the S110 wiring block (e.g. S110AB2-100FT includes five 4-pair and one 5-pair connecting block per 25-pair termination strip, or a total of twenty 4-pair and four 5-pair connecting blocks).

RELATED PRODUCTS

S110 Patch Plugs page 9.10 – 9.11,
S110 Cable Assemblies page 9.11,
S110 Covers page 9.21,
S110/S210® Designation Labels page 9.23

S110® FIELD TERMINATION KITS

FOCUS PATENTED

Complete S110 installation kits include S110 wiring blocks with detachable legs*, S110 connecting blocks, and clear label holders with white designation labels.

Part#	Description
S110A(X)1-50FT	50-pair S110 field termination kit *height: 45.7mm (1.80 in.), width: 272mm (10.71 in.), depth: 82.8mm (3.26 in.)*
S110A(X)2-100FT	100-pair S110 field termination kit *height: 91.4mm (3.60 in.), width: 272mm (10.71 in.), depth: 82.8mm (3.26 in.)*
S110A(X)2-300FT*	300-pair S110 field termination kit *height: 274mm (10.80 in.), width: 272mm (10.71 in.), depth: 82.8mm (3.26 in.)*

Use (X) to specify the connecting blocks: A = 5-pair, B = 4-pair

**Legs detachable on 50- and 100-pair version only*

S110 CONNECTING BLOCKS

FOCUS PATENTED

Siemon category 5e S110C blocks terminate 22-26 AWG (0.64mm-0.40mm) solid or 7-strand wires. They also offer markings to designate tip and ring conductors and color-coded pairs on each block and a patented single-piece, robust construction.

S110C-2A

2-pair connecting block, blue/orange

S110C-3

3-pair connecting block, blue/orange/green

S110C-4

4-pair connecting block, blue/orange/green/brown

S110C-5

5-pair connecting block, blue/orange/green/brown/slate

S110 WIRING BLOCKS

PATENTED

Wiring Blocks With Legs

S110AW1-50

50-pair, 110 wiring block with legs
height: 45.7mm (1.80 in.),
width: 272mm (10.71 in.),
depth: 82.8mm (3.26 in.)

S110AW2-100

100-pair, 110 wiring block with legs
height: 91.4mm (3.60 in.),
width: 272mm (10.71 in.),
depth: 82.8mm (3.26 in.)

S110AW2-200

200-pair, 110 wiring block with legs
height: 182.9mm (7.20 in.),
width: 272mm (10.71 in.),
depth: 82.8mm (3.26 in.)

S110AW2-300

300-pair, 110 wiring block with legs
height: 274.3mm (10.80 in.),
width: 272mm (10.71 in.),
depth: 82.8mm (3.26 in.)

Wiring Blocks Without Legs

S110DW1-25

25-pair, 110 wiring block without legs
height: 16.0mm (0.63 in.),
width: 216mm (8.50 in.),
depth: 35.8mm (1.41 in.)

S110DW1-50

50-pair, 110 wiring block without legs
height: 42.4mm (1.67 in.),
width: 216mm (8.50 in.),
depth: 35.8mm (1.41 in.)

S110DW2-100

100-pair, 110 wiring block without legs
height: 88.1mm (3.47 in.),
width: 216mm (8.50 in.),
depth: 35.8mm (1.41 in.)

S110® MODULAR TOWER® SYSTEM

Modular, Flexible Design

The S110 Tower Systems are modular and can be stacked to create 300- to 1000-pair (or larger) configurations. Additional blocks can be added as needed for growth.

Enclosed Cable Routing

Tower assembly provides pathways for routing and protecting cables from entry all the way to the point of termination.

Horizontal Cable Managers and Covers Included

All S110 Tower Systems include cable managers and covers to route and protect horizontal cables. S110 covers conceal horizontal cables for a clean appearance.

The S110 Tower System provides a modular high-density cross-connect cable management system. It is designed to be wall mounted and is available with S110 field-terminated blocks, modular jack panels, or disconnect blocks. (S110 Tower Systems are shipped unassembled to simplify field assembly and termination.)

RELATED PRODUCTS
Designation Labels page 9.23,
S110 Patch Plugs page 9.10 – 9.11,
S110 Cable Assemblies page 9.11

S110® TOWER FIELD TERMINATION KITS

Part #	Description
S110M(X)2-300FT	300-pair S110 Tower field termination kit *height: 406.4mm (16 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6 in.)*
S110M(X)2-400FT	400-pair S110 Tower field termination kit *height: 541.3mm (21.3 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6 in.)*
S110M(X)2-500FT	500-pair S110 Tower field termination kit *height: 676.1mm (26.6 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6 in.)*

Use (X) to specify the connecting blocks: A = 5-pair, B = 4-pair

S110 TOWER MODULAR JACK PANELS

Part #	Description
S110MB5-(XXX)JPA	S110 Tower modular jack panel kit, T568B wiring
S110MB5-(XXX)JPT	S110 Tower modular jack panel kit, T568A wiring

Use (XXX) to specify port counts:
300 = 36 ports, height: 406.4mm (16.0 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6.0 in.)
400 = 48 ports, height: 541.3mm (21.3 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6.0 in.)
500 = 60 ports, height: 676.1mm (26.6 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6.0 in.)

See page 9.14 for further information on S110 Modular Jack Blocks

S110 TOWER DISCONNECT BLOCKS

Part #	Description
S110MB2-(XXX)T	S110 Tower disconnect kit with 4-pair connecting blocks
S110MA2-(XXX)T	S110 Tower disconnect kit with 5-pair connecting blocks

Use (XXX) to specify pair counts:
150 = 150-pair capacity, height: 406.4mm (16.0 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6.0 in.)
200 = 200-pair capacity, height: 541.3mm (21.3 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6.0 in.)
250 = 250-pair capacity, height: 676.1mm (26.6 in.), width: 215.9mm (8.5 in.), depth: 152.6mm (6.0 in.)

See page 9.16 for further information on S110 Disconnect Block

S110 TOWER OPTIONAL ACCESSORIES

S188-300 . . . . . .

Large-scale vertical cable manager ENHANCED for use with 300-pair Tower
height: 406.4mm (16.0 in.), width: 215.9mm (8.5 in.), depth: 190.5mm (7.5 in.)

S188-400 . . . . . .

Large-scale vertical cable manager ENHANCED for use with 400-pair Tower
height: 541.3mm (21.3 in.), width: 215.9mm (8.5 in.), depth: 190.5mm (7.5 in.)

S188-500 . . . . . .

Large-scale vertical cable manager ENHANCED for use with 500-pair Tower
height: 676.1mm (26.6 in.), width: 215.9mm (8.5 in.), depth: 190.5mm (7.5 in.)

S188-WD . . . . . .

Metal duct for additional horizontal cable management at base of Tower units
height: 114.3mm (4.5 in.), width: 215.9mm (8.5 in.), depth: 203.2mm (8.0 in.)

S110M-WM-300 . . . . . .

Small-scale vertical cable manager for use with 300-pair Tower
height: 406.0mm (16.0 in.), width: 76.2mm (3.0 in.), depth: 153.0mm (6.1 in.)

S110M-WM-400 . . . . . .

Small-scale vertical cable manager for use with 400-pair Tower
height: 541.2mm (21.3 in.), width: 76.2mm (3.0 in.), depth: 153.0mm (6.1 in.)

S110M-WM-500 . . . . . .

Small-scale vertical cable manager for use with 500-pair Tower
height: 675.9mm (26.6 in.), width: 76.2mm (3.0 in.), depth: 153.0mm (6.1 in.)

S188-GND . . . . . .

Ground kit consists of one, 3-position grounding busbar
height: 9.0mm (0.4 in.), width: 50.8mm (2.0 in.), depth: 12.3mm (.5 in.)

S188

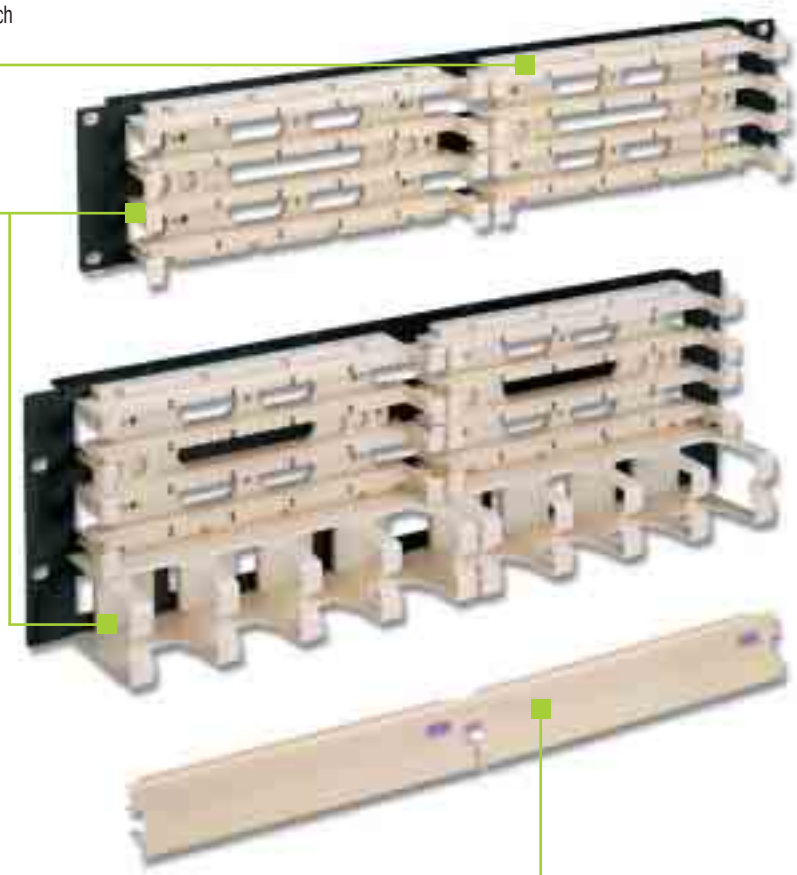
S188-WD

S110M-WM

S110® FIELD-TERMINATED 19 INCH PANELS

Color-coded pairs on each S110 connecting block

Field terminated panels can be ordered with or without S110 wire managers and covers



19 inch panels with cable managers include covers to provide a clean appearance for the patching environment

Mounts to 19" Racks

Black anodized panels can be mounted directly to 19" EIA racks or cabinets, ideal for installations where wall mounting space is not available.

Rear Cable Access Openings

Patented openings between rows allow horizontal cables to be routed from behind the panel and enter the block from the rear, helping to maintain cable geometry and outer jacket up to the point of termination ensuring optimum category 5e performance.

Horizontal Cable Managers and Covers

Panels are available with S110 cable managers and covers for superior horizontal cable management and a clean, neat appearance.

S110 panels allow wiring blocks to be mounted directly to a 19 inch EIA rack. Each panel includes adequate connecting blocks to complete each 25-pair termination strip on the S110 block (e.g. S110DB1-100RFT would include five 4-pair and one 5-pair connecting block per 25-pair termination strip, or a total of twenty 4-pair and four 5-pair connecting blocks)

RELATED PRODUCTS 19 Inch S110 Cable Managers page 9.20

S110® FIELD-TERMINATED 19 INCH PANELS

FOCUS PATENTED

Part #	Description	RMS
S110D(X)1-100RFT	100-pair, 19 inch panel, S110 field termination kit	1
S110D(X)1-200RFT	200-pair, 19 inch panel, S110 field termination kit	2
S110D(X)1-300RFT	300-pair, 19 inch panel, S110 field termination kit	3

Use (X) to specify the connecting blocks: A = 5-pair, B = 4-pair

Note: 1 RMS = 44.5mm (1.75 in.)

FIELD TERMINATED S110 19 INCH PANELS WITH CABLE MANAGERS

FOCUS PATENTED

Part #	Description	RMS
S110D(X)2-100RWM	100-pair, 19 inch panel, S110 field termination kit with cable managers and covers	2
S110D(X)2-200RWM	200-pair, 19 inch panel, S110 field termination kit with cable managers and covers	3

See Cable Management Capacity table on page 3.0

Use (X) to specify the connecting blocks: A = 5-pair, B = 4-pair

Note: 1 RMS = 44.5mm (1.75 in.)

VERTICALLY MOUNTED S110 BLOCKS

PATENTED

This 50-pair S110 block can be mounted on the same S89B or S89D brackets that hold our S66 blocks. The wiring base is available separately or as part of a field-terminated kit that includes the 4- or 5-pair connecting blocks and designation strips.

Part #	Description
S110DW1-50-89	50-pair S110 wiring base on an 89-type retainer.* S110 connecting blocks are not included

height: 254.0mm (10.0 in.),
width: 85.9mm (3.4 in.),
depth: 86.6mm (3.4 in.)
(dimensions include S89 bracket)

S110D(X)1-50FT-89	50-pair S110 field termination kit on an 89-type retainer.* Includes S110 connecting blocks and designation strips

height: 254.0mm (10.0 in.),
width: 85.9mm (3.4 in.),
depth: 86.6mm (3.4 in.)
(dimensions include S89 bracket)

Shown with optional S89D bracket

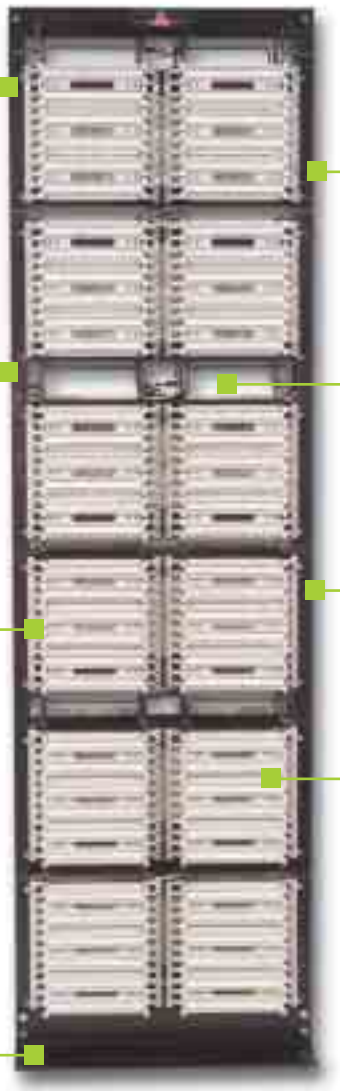
Use (X) to specify connecting blocks: A = 5-pair, B = 4-pair

**S89 brackets are not included and must be ordered separately (see page 10.8)*

XLBET FRAME

Standard rack mounting per ANSI/EIA-310-C

Frames can be ordered with or without S110® bases



Frames are 7 ft. (2.1m) high

Innovative horizontal and vertical cable managers provide cable paths for routing of large quantities of cross-connect wires

S110 bases can be mounted on one or both sides for additional capacity

Frames are available in 23 in. (.58m) or 35 in. (.89m) widths

Configurable up to 10,800-pairs

Concrete mounting kits are available for securing frames to concrete floors

Wide Vertical Channels

Vertical side channels are 6 in. (152mm) deep to accommodate large cable bundles.

Pre-installed Blocks

Frames can be ordered with standard S110 blocks factory mounted to save installation time.

Pre-wired and Custom Versions

Cut installation time with Siemon pre-wired XLBET frames. A wide variety of custom configurations are available. Contact our Technical Support Department for more information.

The Siemon XLBET (Extra Large Building Entrance Terminal) frames are designed to be used in large installations where space is at a premium. Compatible with Siemon's vertical cable management channels (RS-CNL).

RELATED PRODUCTS Vertical Cable Management Channels (RS-CNL) page 3.5

XLBET FRAME

FOCUS

Part #	Description
XL-(XX)00	7 ft. x 23 in. XLBET frame. Includes rack, wire management and mounting hardware. S110® wiring blocks not included *height: 2133.6mm (84.00 in.),* *width: 617.5mm (24.31 in.),* *depth: 406.4mm (16.00 in.)*

Use (XX) to specify pair count: 36 = 3600 pair, 72 = 7200 pair

Part #	Description
XL35-(XXX)00	7 ft. x 23 in. XLBET frame. Includes rack, wire management and mounting hardware. S110 wiring blocks not included *height: 2133.6mm (84.00 in.),* *width: 922.3mm (36.31 in.),* *depth: 406.4mm (16.00 in.)*

Use (XXX) to specify pair count: 54 = 5400 pair, 108 = 10,800 pair

XLBET FRAME WITH S110 WIRING BLOCKS

FOCUS

Part #	Description
XL-(XX)00-W	7 ft. x 23 in. XLBET frame. Includes rack, wire management, S110 wiring blocks, clear designation holders, labels, and mounting hardware (S110 connecting blocks not included)

Use (XX) to specify pair count: 36 = 3600 pair, 72 = 7200 pair

Part #	Description
XL35-(XXX)00-W	7 ft. x 35 in. XLBET frame. Includes rack, wire management, S110 wiring blocks, clear designation holders, labels, and mounting hardware (S110 connecting blocks not included)

Use (XXX) to specify pair count: 54 = 5400 pair, 108 = 10,800 pair

OPTIONAL ACCESSORIES

Part #	Description
XL-CK	Concrete mounting kit. Includes hardware to secure one 23 or 35 inch XLBET frame to a concrete floor
XL-(X)-3600	S110 connecting block kit. Includes the appropriate number of 4- or 5-pair connecting blocks to fully populate a 3600-pair frame. Two kits can be ordered for 7200-pair frames
XL-(X)-5400	S110 connecting block kit. Includes the appropriate number of 4- or 5-pair connecting blocks to fully populate a 5400-pair frame. Two kits can be ordered for 10,800-pair frames
XL-K23	23 in. (.58m) rack conversion kit. Converts one side of a standard 23 inch rack to an XLBET frame. Two kits are required to utilize both sides of a 23 inch rack. Includes wire managers, mounting bars and mounting hardware. Rack, S110 wiring blocks, clear designation holders and labels not included
XL-K35	35 in. (.89m) rack conversion kit. Converts one side of a standard 35 inch rack to an XLBET frame. Two kits are required to utilize both sides of a 35 inch rack. Includes wire managers, mounting bars and mounting hardware. Rack, S110 wiring blocks, clear designation holders and labels not included

Use (X) to specify connecting blocks: A = 5-pair, B = 4-pair

S110® PATCH PLUG

160 MHz
Mated 4-pair S110 patch plug and connecting block delivers component and channel performance to 160 MHz

Technical Tip!

When S110-to-modular plug cable assemblies are configured in the field, The Siemon Company recommends that Siemon MC® 5 modular cords be purchased (see page 4.4) and cut in half. The end of the cord can then be field terminated to the S110P patch plug while the factory terminated and tested modular end remains undisturbed.

Field Installable

Terminates 24 to 26 AWG (0.40mm to 0.51mm) solid or 7-strand twisted-pair cable.

Performance

Staggered contacts in bi-directional planes provide excellent pair-to-pair isolation, delivering component and channel performance to 160 MHz.

Easy Termination

Simply snap the base and cover together to mass terminate all conductors.

The first of its kind that is category 5e compliant and can be field-terminated to either solid or stranded cable. The S110 patch plug utilizes internal pair isolation to provide improved crosstalk performance so that the mated plug and connecting block far exceed category 5e transmission performance.

RELATED PRODUCTS Stranded cable page 4.5

S110® PATCH PLUGS

FOCUS PATENTED

The first of its kind that is both category 5e compliant and can be field-terminated to either solid or stranded cable. 4-pair S110 patch plugs employ a patented design to improve electrical isolation between pairs, enhancing crosstalk performance so that the mated plug and connecting block significantly exceed ANSI/TIA/EIA-568-B category 5e transmission requirements.

S110P4 . . . . . .
Category 5e, 4-pair, field-terminated, S110 patch plug

S110P2 . . . . . .
2-pair, field-terminated, S110 patch plug

S110P3 . . . . . .
3-pair, field-terminated, S110 patch plug

S110P1* . . . . . .
1-pair, field-terminated, S110 patch plug

Add "B" to end of part number for bulk project pack of 100 patch plugs.
**S110P1 includes protective insert for use with single pair cross-connect wire (see page 4.7)*
Colored icons are not included. See accessories below.

FACTORY-TERMINATED S110 PATCH CORDS

PATENTED

The patented S110P patch cords provide quick, simple connection to 110 connecting blocks and are manufactured to our stringent transmission performance standards ensuring category 5e compatibility. They can be used for patching network equipment to 110 connecting blocks, cross-connecting between 110 blocks or connecting test equipment to a 110 field. Cable jacket is white and colored icons are available for color-coding 2-, 3-, and 4-pair patch plugs.

Part #	Description
S110P4-A4-(XX)	Category 5e, 4-pair, S110-to-modular plug, T568B
S110P4-T4-(XX)	Category 5e, 4-pair, S110-to-modular plug, T568A
S110P4-P4-(XX)	Category 5e, 4-pair, double-ended S110 patch cord
S110P2-P2-(XX)	2-pair, double-ended S110 patch cord
S110P2-UT-(XX)	2-pair, S110-to-modular 8-position plug, Token Ring, T568A
S110P2-E2-(XX)	2-pair, S110-to-modular 8-position plug, 10BASE-T, T568B
S110P1-P1-(XX)	1-pair, double-ended S110 patch cord
S110P1-U1-(XX)	1-pair, S110-to-modular 6-position plug, USOC
S110P1-U4-(XX)	1-pair, S110-to-modular 8-position plug, USOC

Use 1st (XX) to specify length: 03 = 0.91m (3 ft.), 05 = 1.5m (5 ft.), 07 = 2.13m (7 ft.), 10 = 3.05m (10 ft.), 15 = 4.57m (15 ft.), 20 = 6.10m (20 ft.)
Custom lengths and wiring configurations are available upon request. Contact our Customer Service Department for more information.

ACCESSORIES

Part #	Description
ICON-OVAL-(XX)	25 Colored oval icons for 2 and 3-pair S110 patch plugs
CT-ICON-(XX)	25 Colored icon tabs for 4-pair S110 patch plugs (phone on one side, computer on reverse)
TAB-(XX).	25 Colored rectangular tabs for 4-pair S110 patch plugs

Use (XX) to specify color: 00 = clear (TAB-(XX) only), 01 = black, 02 = white, 03 = red, 04 = gray, 05 = yellow, 06 = blue, 07 = green, 08 = violet, 09 = orange, 20 = ivory, 25 = bright white, 60 = brown, 80 = light ivory
Other icon colors available. Contact our Customer Service Department for more information
*Add "B" for bulk pack of 100**
**Not available for ICON-OVAL-(XX)*

PRE-WIRED S110® BLOCKS

For quick, simple connection to phone equipment, the pre-wired S110 blocks provide connectorized 25-pair tails wired to 100- or 300-pair bases. The standard 6 in. (152mm) tails can be ordered extending from the top or bottom of the block with male or female connectors. Contact Customer Service for custom tail lengths.

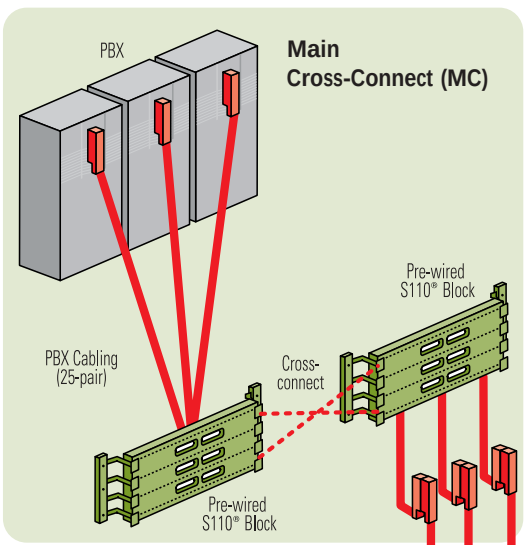
S110A(X)-100(XXX)-(X) . . .
100-pair S110 pre-wired block

S110A(X)-300(XXX)-(X) . . .
300-pair S110 pre-wired block

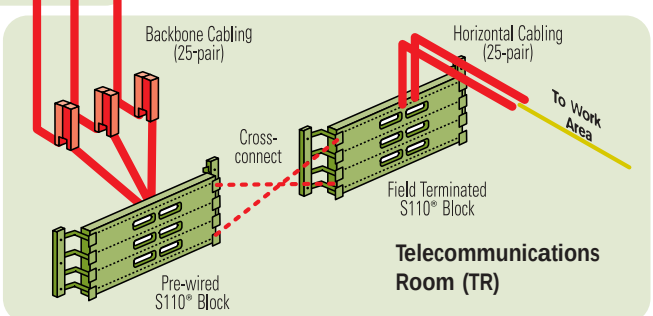
Use 1st (X) to specify connecting block subassembly: A = 5-pair, B = 4-pair

Use (XXX) to specify connector type:
CT = connectorized top (female),
CTM = connectorized top (male),
CB = connectorized bottom (female),
CBM = connectorized bottom (male)

Use 2nd (X) to specify cable length:
Blank = standard 152mm (6 in.) tail,
(X) = custom length, in feet



The pre-wired S110 block is ideal for use with phone systems due to its ability to easily accommodate connectorized 25-pair cables for fast and simple setup. In addition, the use of 25-pair cable for backbone cabling allows the pre-wired S110 block to provide an easy interface with your phone system all the way to the telecommunications room where connections can be made to the work area.



PRE-WIRED S110® BLOCKS

PATENTED

Siemon's S700 series blocks provide a simple method to interface between 25-pair assemblies and punchdown fields using easily accessible connections. The blocks feature both fields on the face of the block eliminating the need to trace cables or access the rear of the block when making connections. Each block comes with label holders and white designation labels as well as hook and loop holddowns to secure the 25-pair connectors.

Part #	Description
S700A110-B1-50	50-pair pre-wired S110 block with legs *height: 91.4mm (3.60 in.),* *width: 272mm (10.71 in.),* *depth: 82.8mm (3.26 in.)*

PRE-WIRED S110 PANELS

S110 pre-wired panels mount directly to a 19 inch EIA rack. The panels are available in either 100-, 200-, or 300-pair configurations pre-wired to female 25-pair connectors with black universal connector holddowns. For optimum transmission performance, pre-wired blocks can be ordered with the pair twisting maintained between the wiring block and the connector. Each panel comes complete with mounting hardware, label holders, and white designation labels.

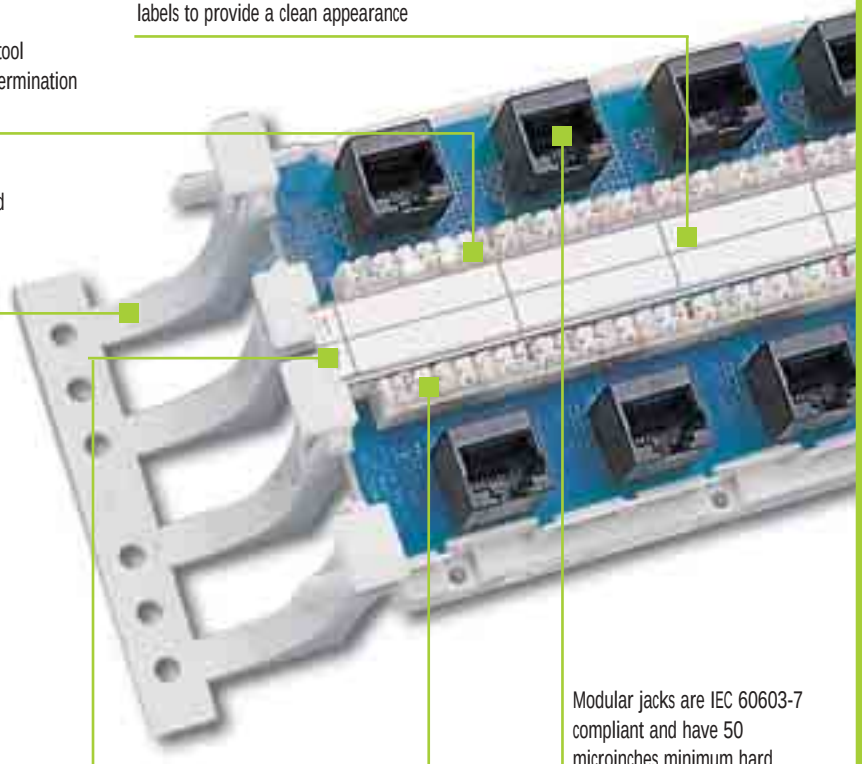
Part #	Description	RMS
S110D(X)(Y)-100RCT	100-pair pre-wired S110 panel, with 25-pair connectors	1
S110D(X)(Y)-200RCT	200-pair pre-wired S110 panel, with 25-pair connectors	2
S110D(X)(Y)-300RCT	300-pair pre-wired S110 panel, with 25-pair connectors	3

Use (X) to specify the connecting blocks: A = 5-pair, B = 4-pair

Use (Y) to specify twisted-pair option: 1 = without twisted-pairs, T = twisted-pairs

Note: 1 RMS = 44.5mm (1.75 in.)

S110® MODULAR JACK BLOCKS



Economical

Cost effective modular patching solution for small to medium size LANs.

Easy Port Access

Modular outlets and S110 terminations are located on front of panels for easy access.

Tower Option

Also available mounted to S110 Tower which includes cable managers and covers to route and protect horizontal cables for a clean appearance (see page 9.5).

The S110 modular jack block provides a pre-wired distribution solution for network applications. The modular jack block can be wall mounted and is typically used to connect horizontal cabling to network equipment. Connections are made by terminating 4-pair horizontal cables to S110D connecting blocks and by patching to active equipment.

RELATED PRODUCTS MC® 5 Patch Cords page 4.4

S110® MODULAR JACK WALL MOUNT BLOCKS

PATENTED

Part # **Description**

S110AB5-50JP . . . . . 6-port, T568A/B wiring, with detachable legs

height: 45.7mm (1.80 in.), width: 272mm (10.71 in.), depth: 82.8mm (3.26 in.)

Part # **Description**

S110AB5-100JP . . . . . 12-port, T568A/B wiring, with detachable legs

height: 91.4mm (3.60 in.), width: 272mm (10.71 in.), depth: 82.8mm (3.26 in.)

Technical Tip!

For labeling on the 6-port version, the S110-LBL-T-(X) can be ordered separately (see page 9.23).

Part # **Description**

S110AB5-200JP . . . . . 24-port, T568A/B wiring, with permanent legs

height: 183mm (7.20 in.), width: 272mm (10.71 in.), depth: 82.8mm (3.26 in.)

Part # **Description**

S110AB5-300JP . . . . . 36-port, T568A/B wiring, with permanent legs

height: 274.3mm (10.8 in.), width: 272mm (10.71 in.), depth: 82.8mm (3.26 in.)

RACK MOUNT PANELS

Part # **Description**

S110DB5-24RJP . . . . . 24-port jack panel, on a 19 inch panel, T568A/B wiring, 2 RMS

Note: 1 RMS = 44.5mm (1.75 in.)

VERTICAL MOUNT PANELS

Part # **Description**

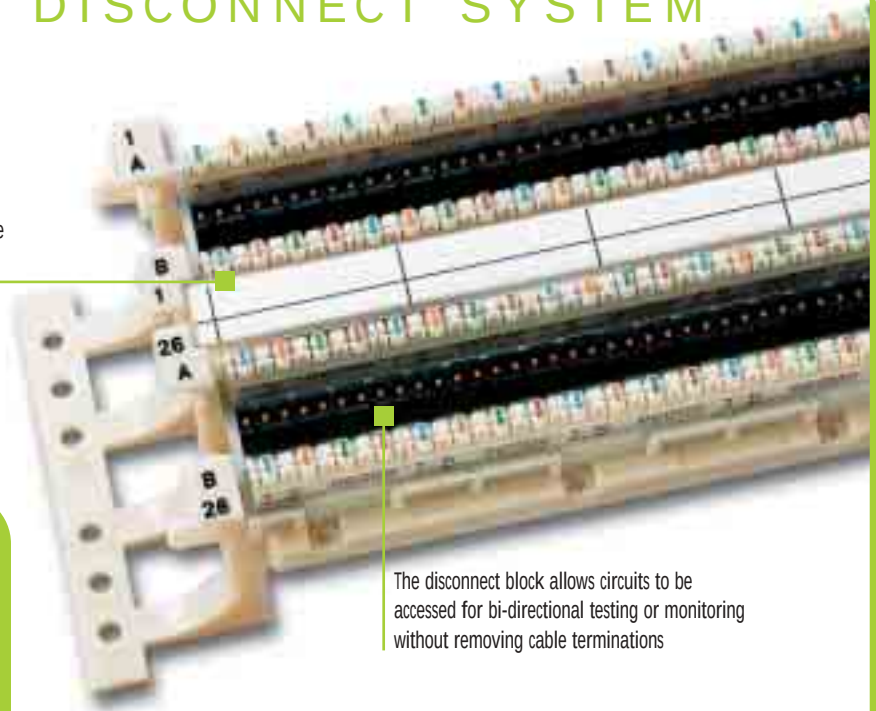
S110DB5-50JP89 . . . . . 6-port, T568A/B wiring for mounting on S89 bracket*

height: 254.0mm (10.00 in.),
width: 85.9mm (3.38 in.),
depth: 86.6mm (3.41 in.)
(dimensions include S89 bracket)

**S89 brackets are not included and must be ordered separately (see page 10.8)*

S110® DISCONNECT SYSTEM

Multi-pair punch-down tool can be used to reduce termination time (see page 12.6)



The disconnect block allows circuits to be accessed for bi-directional testing or monitoring without removing cable terminations

The disconnect test module allows circuits to be accessed for bi-directional testing or monitoring without removing cable terminations (see page 9.18)

1-, 2-, and 4-pair disconnect plugs open circuits to disconnect service (see page 9.19)

Durable and Reliable

High strength disconnect contacts provide superior reliability for years of service.

Test Without Interrupts

The S110T Disconnect System allows testing or monitoring of circuits without disrupting cable terminations or interrupting service.

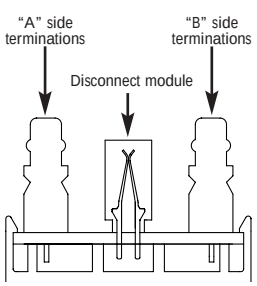
Tower Option

Also available mounted to S110 Tower (see page 9.5).

Siemon engineering innovation gives users category 5e performance plus the ability to isolate circuits for testing and monitoring without removing cable terminations. Through the use of patented reactance balancing technology, The Siemon Company offers the best of both worlds — a block that offers disconnect capability and compliance to category 5e transmission requirements. Ideal for use in consolidation point applications.

How the disconnect block works

The disconnect block is category 5e compliant in its "normal through" circuit state. S110 blocks and disconnect modules are mounted on a printed circuit board. "A" side terminations and "B" side terminations are electrically common until a test adapter monitor or disconnect plug is inserted into the disconnect module.



S110T DISCONNECT BLOCKS

PATENTED

Part #	Description
S110T(X)1-50	50-pair disconnect block without legs *height: 88.1mm (3.47 in.),* *width: 216mm (8.50 in.),* *depth: 35.8mm (1.41 in.)*
S110T(X)1-50L	50-pair disconnect block with detachable legs *height: 91.4mm (3.60 in.),* *width: 272mm (10.71 in.),* *depth: 82.8mm (3.26 in.)*
S110T(X)1-150L	150-pair disconnect block with permanent legs *height: 274.3mm (10.81 in.),* *width: 272mm (10.71 in.),* *depth: 82.8mm (3.26 in.)*

S110T(X)1-150L

S110T(X)1-50L

Use (X) to specify connecting blocks: A = 5-pair, B = 4-pair

S110T RACK MOUNT DISCONNECT PANELS

PATENTED

Part #	Description
S110T(X)1-50RFT	50-pair disconnect blocks on a 19 inch panel, 1 RMS
S110T(X)1-100RFT	100-pair disconnect blocks on a 19 inch panel, 2 RMS

S110T(X)1-100RFT

S110T(X)1-50RWM	50-pair disconnect blocks & two wire managers with covers on a 19 inch panel, 2 RMS
S110T(X)1-100RWM	100-pair disconnect blocks & two wire managers with covers on a 19 inch panel, 3 RMS

S110T(X)1-100RWM

Use (X) to specify connecting blocks: A = 5-pair, B = 4-pair

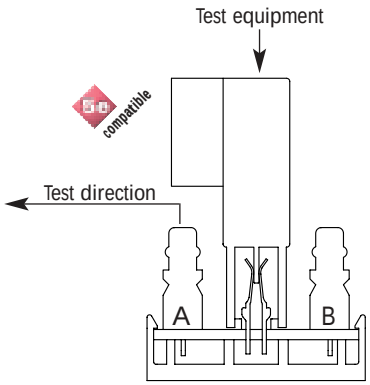
Note: 1 RMS = 44.5mm (1.75 in.)

S110T DISCONNECT TEST ADAPTERS

The disconnect and monitor test adapters offer the ability to isolate a circuit for testing or monitoring without removing cable terminations. The adapters are keyed and plug into the disconnect module located between the "A" side and "B" side connecting blocks.

"A" SIDE DISCONNECT TEST ADAPTERS

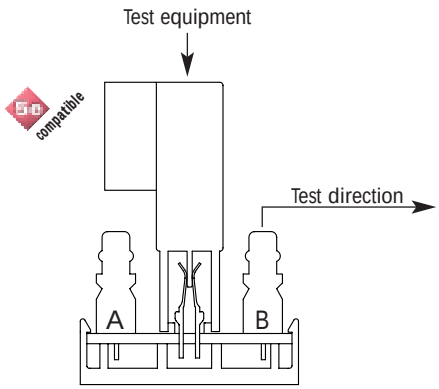
Part #	Description
S110T-T4-A	Category 5, 4-pair T568A, "A" side test adapter
S110T-A4-A	Category 5, 4-pair T568B, "A" side test adapter
S110T-U4-A	4-pair, USOC, "A" side test adapter



The "A" side test adapter opens the circuit and allows for testing of the "A" side terminations

"B" SIDE DISCONNECT TEST ADAPTERS

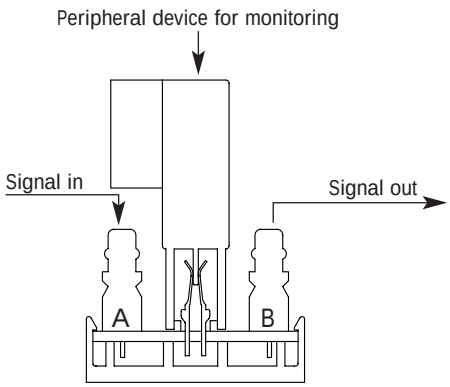
Part #	Description
S110T-T4-B	Category 5, 4-pair T568A, "B" side test adapter
S110T-A4-B	Category 5, 4-pair T568B, "B" side test adapter
S110T-U4-B	4-pair, USOC, "B" side test adapter



The "B" side test adapter opens the circuit and allows for testing of the "B" side terminations

ADDITIONAL DISCONNECT TEST ADAPTERS AND KITS

Part #	Description
S110T-1	1-pair modular test adapter
S110T-2	2-pair modular test adapter
S110T-T4-MON	4-pair T568A monitor test adapter
S110T-A4-MON	4-pair T568B monitor test adapter
S110T-T4-KIT	4-pair T568A test kit includes three adapters (monitor, "A" and "B" side test adapters)
S110T-A4-KIT	4-pair T568B test kit includes three adapters (monitor, "A" and "B" side test adapters)

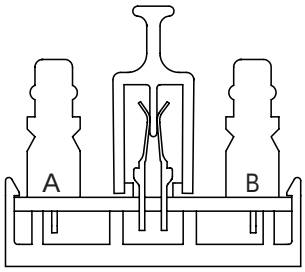


The monitor test adapter bridges the circuit and allows the circuit to be monitored

S110T DISCONNECT PLUGS

Part #	Description
S110T-DP-4	4-pair disconnect plug
S110T-DP-2	2-pair disconnect plug
S110T-DP-1	1-pair disconnect plug

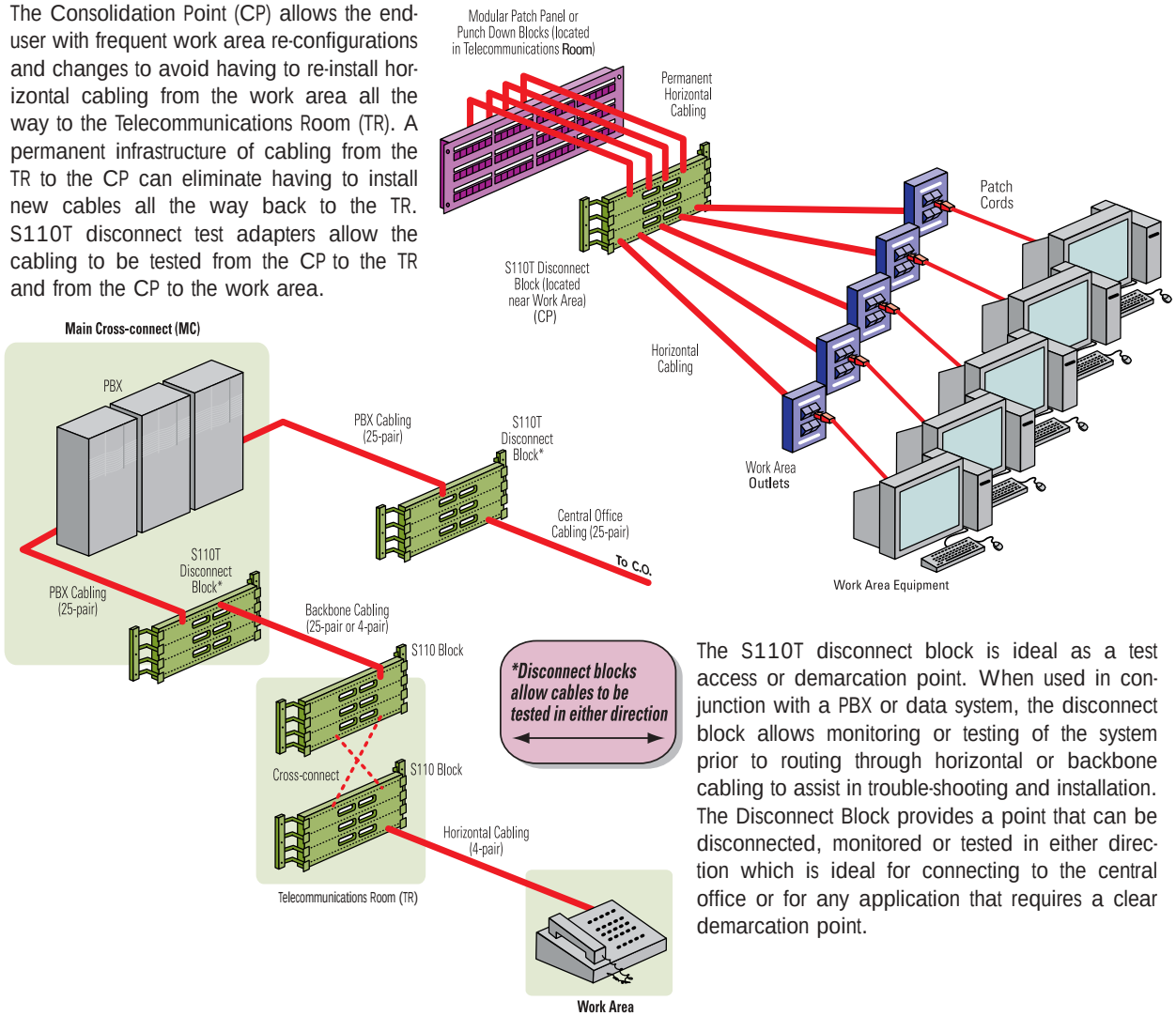
4-pair *2-pair* *1-pair*



The disconnect plug is inserted to open the circuit for maintenance or service disconnection. When inserted into the disconnect module, "A" side terminations are isolated from "B" side terminations.

TYPICAL APPLICATIONS

The Consolidation Point (CP) allows the end-user with frequent work area re-configurations and changes to avoid having to re-install horizontal cabling from the work area all the way to the Telecommunications Room (TR). A permanent infrastructure of cabling from the TR to the CP can eliminate having to install new cables all the way back to the TR. S110T disconnect test adapters allow the cabling to be tested from the CP to the TR and from the CP to the work area.



The S110T disconnect block is ideal as a test access or demarcation point. When used in conjunction with a PBX or data system, the disconnect block allows monitoring or testing of the system prior to routing through horizontal or backbone cabling to assist in trouble-shooting and installation. The Disconnect Block provides a point that can be disconnected, monitored or tested in either direction which is ideal for connecting to the central office or for any application that requires a clear demarcation point.

WALL MOUNT S110®/S210® CABLE MANAGERS

The Siemon S110 / S210 cable managers are the foundation of a series of cable management products that are designed to support S110 or S210 cross-connects and patch panel applications. They can be ordered individually for field assembly in wall-mount applications. The cable managers are manufactured with high-strength, flame-retardant thermoplastic, and have been designed for easy cable insertion or withdrawal. The 2 RMS cable manager provides additional capacity for high-density patching applications. Siemon S110 / S210 covers can be snapped on to provide color-coding and keep cables hidden.

Cable Managers Without Legs

S110B1RMS . . . . . .
1 RMS white cable manager without legs

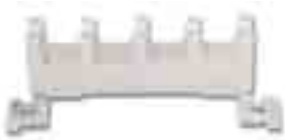
S110B1RMS-01 . . . . . .
1 RMS black cable manager without legs

S110B2RMS . . . . . .
2 RMS white cable manager without legs

S110B2RMS-01 . . . . . .
2 RMS black cable manager without legs

Cable Managers With Legs

S110A1RMS. . . . . .
1 RMS white cable manager with legs



S110A1RMS-01 . . . . . .
1 RMS black cable manager with legs

S110A2RMS. . . . . .
2 RMS white cable manager with legs

S110A2RMS-01 . . . . . .
2 RMS black cable manager with legs

Note: 1 RMS = 44.5mm (1.75 in.)

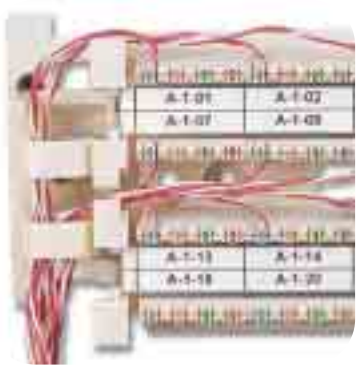
RELATED PRODUCTS **S210 Field-Termination Kits page 8.3, S110 Field-Termination Kits page 9.3, S110 / S210 Covers page 9.21**

See Cable Management Capacity table on page 3.0

S100A2 WIRE MANAGER

PATENTED

The S100A2 wire manager snaps onto the legs of the S110 or S210 blocks / legs to provide a channel for routing cross-connect wire or patch cords. One S100A2 is designed to be used with each 100- / 64-pair leg (2 for 200- / 128-pair, 3 for 300- / 172-pair) to allow space to access the wires. The S100A2 can also be mounted side-by-side. The outside edges are flared and tapered for smoother wire entry and exit and preventing damage to the conductor insulation.



Part#	Description
S100A2.	Snap-on S110 / S210 wire manager, white
S100A2-01	Snap-on S110 / S210 wire manager, black

19 INCH S110®/S210® CABLE MANAGERS

FOCUS

When mounted on a 19 inch rack-mount panel, the S110/S210 cable managers provide superior cable management in a compact space. Their 1 RMS and 2 RMS sizes allow for excellent cable management for 19 inch rack mount installations. Covers are included with the cable managers to provide a clean appearance.

Covers are included with the cable managers to provide a clean appearance.

Part #	Description	RMS
S110-RWM-01	19 inch S110/S210 cable manager with covers, black	1
S110-RWM-02	19 inch S110/S210 cable manager with covers, white	1
S110-RWM2-01	19 inch S110/S210 cable manager with covers, black	2
S110-RWM2-02	19 inch S110/S210 cable manager with covers, white	2

Note: 1 RMS = 44.5mm (1.75 in.)

RELATED PRODUCTS **Modular Patch Panels pages 2.2 – 2.9,**
S210 Field-Terminated 19 inch Panels page 8.7
S110 Field-Terminated 19 inch Panels page 9.7

See Cable Management Capacity table on page 3.0

S110/S210 COVERS

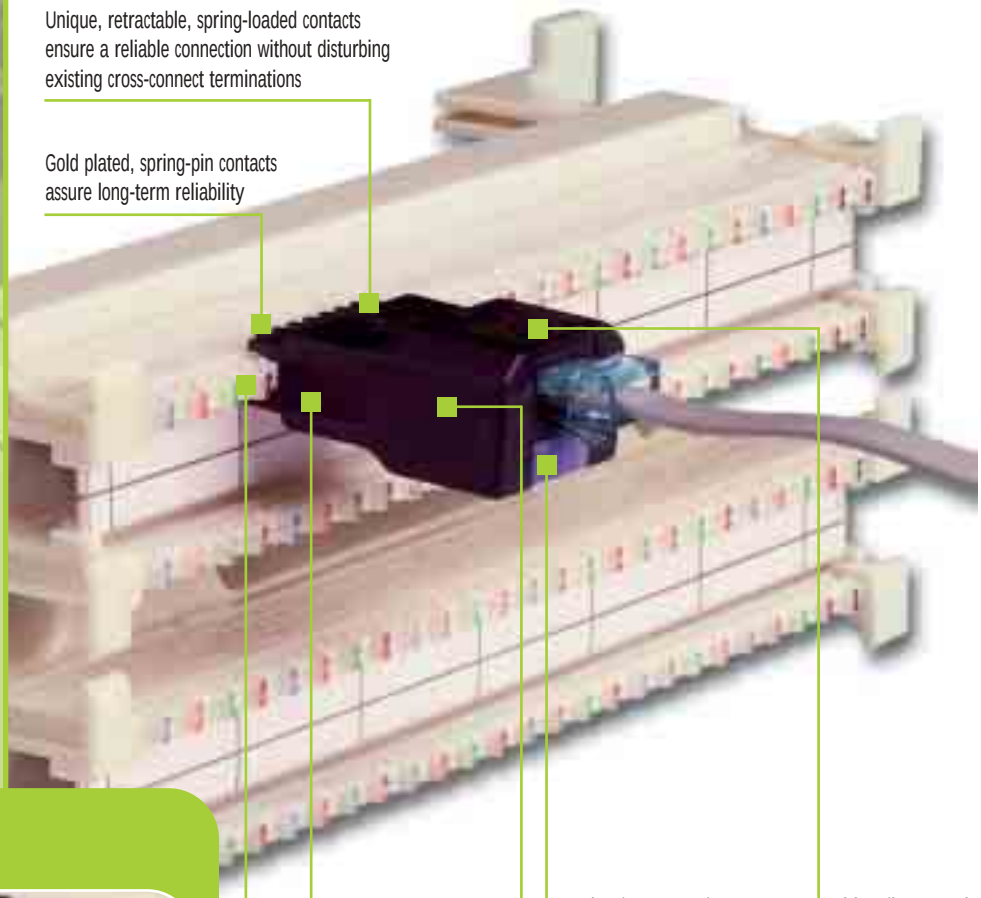
PATENTED

The Siemon Company S110/S210 covers are available in 50- and 100-pair sizes (32- and 64-pair for S210). The cover easily snaps on and off wiring blocks and S110/S210 cable managers, and enhances the appearance of the S110/S210 installation. Removable icon tabs provide color-coding on the front for compliance with the ANSI/TIA/EIA-606-A administration standard.

Part#	Description
S110-CVR-50-(XX)	50-pair S110 cover/32-pair S210 cover
S110-CVR-100-(XX)	100-pair S110 cover/64-pair S210 cover

Use (XX) to specify color: 00 = clear, 01 = black, 20 = ivory

S110® TEST ADAPTERS



110 Testing

The S110 Test Adapter can be used to test horizontal cabling terminated on 110-type connecting blocks.

Wiring Configurations

Available in 1-, 2-, 3- and 4-pair sizes and USOC, T568A, and T568B wiring configurations.

Siemon 1-, 2-, 3-, and 4-pair S110 test adapters provide a convenient way to test 110 connecting blocks. These adapters plug directly on any 110 connecting block and provide a modular jack for connection to test equipment or patch cords. It is the only 110 test adapter that can be attached to both terminated and unterminated 110 connecting blocks without disturbing the terminated conductors. All adapters (except for the one-pair version) are end-stackable.

S110® TEST ADAPTERS

PATENTED

Part #	Description
TAP-110-U1	1-pair, S110 test adapter, USOC wiring
TAP-110-UT	2-pair, S110 test adapter, Token ring/USOC
TAP-110-U3	3-pair, S110 test adapter, USOC wiring
TAP-110-U4	4-pair, S110 test adapter, USOC wiring
TAP-110-T4	4-pair, S110 test adapter, T568A wiring, category 5e compatible
TAP-110-A4	4-pair, S110 test adapter, T568B wiring, category 5e compatible

S110/S210® DESIGNATION LABEL SHEETS

Siemon S110/S210 designation label sheets provide the ability to custom print labels used on S110/S210 blocks. The sheets can be used to print 2-, 3-, 4-, or 5-pair labels and eliminate the need to order separate sheets for different pair configurations. There are 20 labels per side and both sides are marked so they can be reversed and re-printed in case of an error. They are available in nine colors and are compatible with all Siemon S110/S210 products.

Part #	Description
S110-SHT-(X)	S110/S210 designation label sheets (package of 6)

Visit our web site or contact our Technical Support Department for labeling software.

Use (X) to specify color: 2 = white, 3 = red, 4 = gray, 5 = yellow, 6 = blue, 7 = green, 8 = violet, 9 = orange, 60 = brown

S110 DESIGNATION LABELS

Siemon S110 wiring blocks allow for designation labels to be mounted between each row of connecting blocks. S110-LBL-T labels mount directly on top of connecting blocks and are ideal for use on S110T disconnect or S110 modular jack blocks where labeling area is at a premium. Each label has 2-, 3-, 4-, and 5-pair markings and can be used for color-coding.

Part #	Description
S110-HLDR	Clear plastic label holders, bag of 6
S110-LBL-(X)	2-, 3-, 4-, and 5-pair marked colored labels, bag of 6
S110-HLDR-T	Clear plastic label holders for mounting on top of connecting blocks, bag of 8
S110-LBL-T-(X)	2-, 3-, 4-, and 5-pair marked colored labels for use with S110-HLDR-T, bag of 8

Use (X) to specify color: 2 = white, 3 = red, 4 = gray, 5 = yellow, 6 = blue, 7 = green, 8 = violet, 9 = orange, 60 = brown

S66™ PRODUCTS

	M SERIES S66 (pages 10.2 – 10.6)	B SERIES S66 (page 10.7)
Product Applications	Voice and Data	Voice only
Category (Field-Terminated)	5e	5
Category (Connectorized)	3 with Twisted-Pair Wiring	N/A
Category (With Modular Jacks)	3	N/A
Mounting Options	Wall, Frame, Rack	Wall
Capacity	12-100 Pair	2-125 Pair
Accessories	Bridging Clips, Covers, Designation Strips, Labels, Test Adapters, Metal Housings, Over Voltage Protection, Brackets	Bridging Clips, Covers, Designation Strips, Stand-off Brackets, Metal Housings

SECTION CONTENTS

1990s

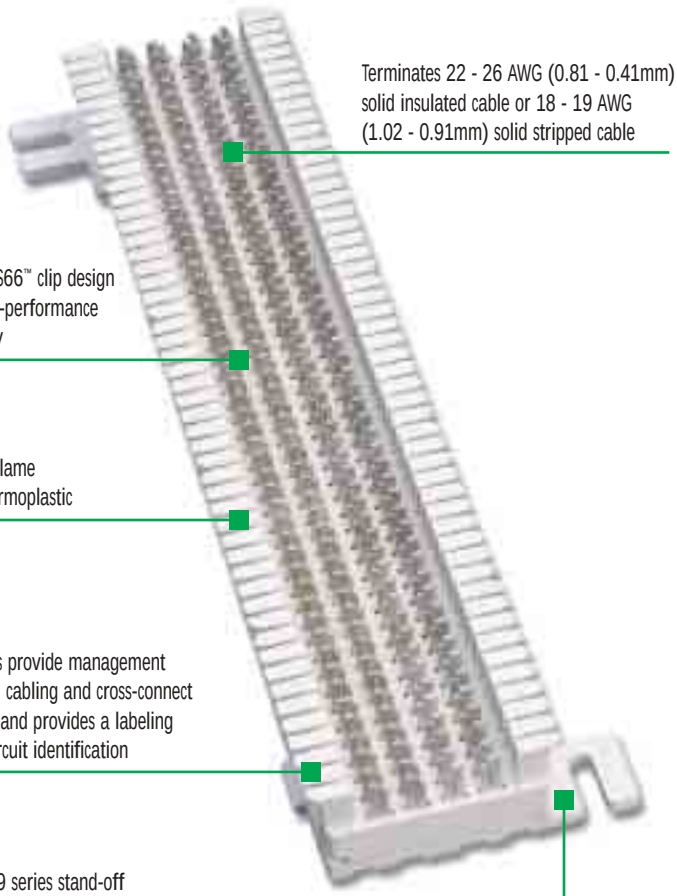
The 1990s was a decade like no other. Telecommunications deregulation and the proliferation of personal computers created a time of technological expansion unprecedented in history. It was also a time of great expansion for The Siemon Company.

During this decade, The Siemon Company grew from a respected OEM manufacturer to a world-class supplier of technologically advanced structured cabling systems. It became deeply involved in the telecommunications standards development activities, and broke the barriers of data transmission performance achievable by developing and applying new technology.

As such, The Siemon Company was the first manufacturer to develop a complete line of category 6 connecting hardware and quickly gained acceptance in many areas of the world including: US, Canada, Latin America, UK, China, Singapore and Australia.

S66M1-50 BLOCK

PATENTED



Terminates 22 - 26 AWG (0.81 - 0.41mm) solid insulated cable or 18 - 19 AWG (1.02 - 0.91mm) solid stripped cable

Category 5e S66™ clip design provides high-performance and durability

High impact flame retardant thermoplastic

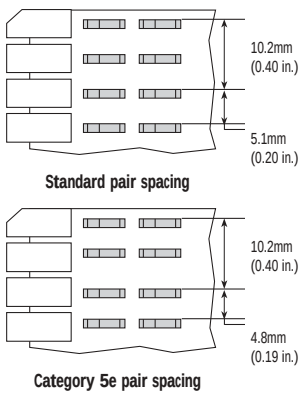
Fanning strips provide management for horizontal cabling and cross-connect jumper wires and provides a labeling surface for circuit identification

Mounts to S89 series stand-off brackets to provide space for routing cables behind each block

Compatible With All 66 Accessories

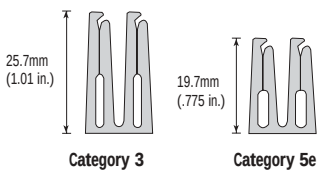
The category 5e S66 block uses the same center spacing between pairs as voice grade blocks and is fully compatible with all industry standard 66 accessories (such as tools, test adapters, mounting brackets, bridging clips, etc.).

Improved NEXT



Each pair of S66 clips is slightly closer together, creating additional space between conductors of adjacent pairs for reduced Near-End Crosstalk.

Patented Clip Design



Category 5e rated S66 quick clip reduces reactive coupling between positions, improving Near-End Crosstalk (NEXT) performance.

The S66M1-50 is fully compatible with all industry standard accessories while providing a proven, economical solution for terminating high performance UTP cable. A wide range of mounting accessories allows the S66M1-50 to be installed in almost any environment.

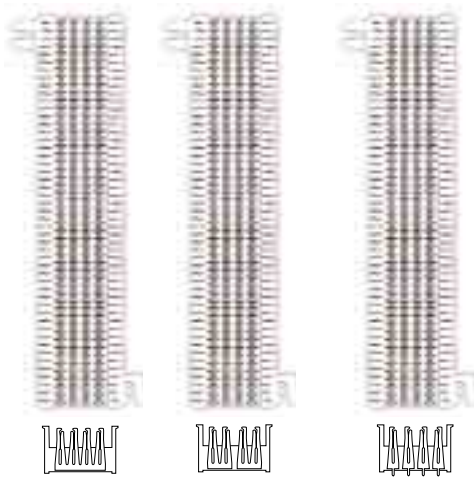
RELATED PRODUCTS
Stand-off Mounting Brackets page 10.8,
Lasting Hinge Covers page 10.12,
Pico Protector® page 10.16 – 10.17

FIELD-TERMINATED M SERIES S66™ BLOCKS

4 X 50 BLOCKS

Part #	Description
S66M1-25	Pair Capacity: 25, Quick Clip: 569
S66M1-50	Pair Capacity: 50, Quick Clip: 500
S66M1-100	Pair Capacity: 100, Quick Clip: 279MS*

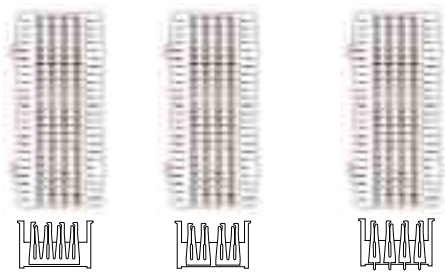
height: 254mm (10 in.), width: 86.4mm (3.4 in.), depth: 30.5mm (1.2 in.)



4 X 25 BLOCKS

Part #	Description
S66M4-12	Pair Capacity: 12, Quick Clip: 569
S66M4-24	Pair Capacity: 24, Quick Clip: 571
S66M4-50	Pair Capacity: 50, Quick Clip: 279MS*

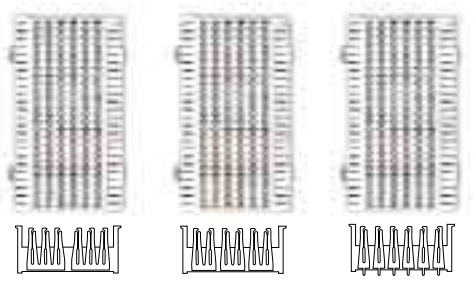
height: 127mm (5 in.), width: 53.3mm (2.1 in.), depth: 30.5mm (1.2 in.)



6 X 25 BLOCKS

Part #	Description
S66M6-24	Pair Capacity: 24, Quick Clip: 843
S66M6-36	Pair Capacity: 36, Quick Clip: 842
S66M6-75	Pair Capacity: 75, Quick Clip: 279MS*

height: 127mm (5 in.), width: 71.1mm (2.8 in.), depth: 30.5mm (1.2 in.)



**All connecting blocks that use the 279MS quick clip have a tail pin that protrudes 3.3mm (0.13 in.) below the retainer base.*
Note: Center-to-center vertical spacing between rows of clips is 6.4mm (0.25 in.)

PRE-WIRED M SERIES

PATENTED

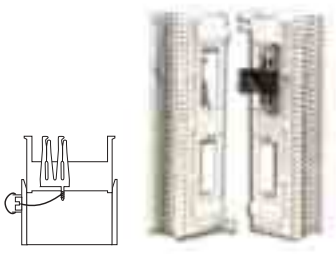
General Reference Information for all Siemon Pre-wired Blocks

- Female 25-pair connectors are oriented for top cable entry and male 25-pair connectors are oriented for bottom cable entry.
- All 25-pair connectors are equipped with Siemon's patented universal connector holddown. The connector holddown is black.
- Custom configurations available. Please contact our Customer Service Department for information and minimum order quantities.

PRE-WIRED M2 SERIES

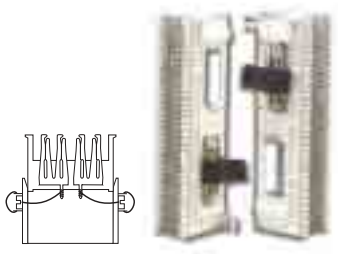
S66M2-3W . . . . . .

Pair capacity – 25
One female 25-pair connector



S66M2-5W . . . . . .

Pair capacity – 50
Two female 25-pair connectors



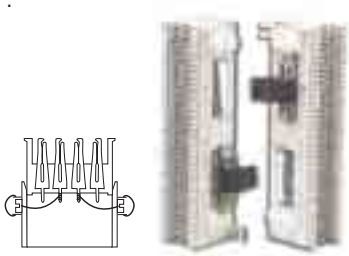
Add "B" for back mounted connector (not shown), Add "M" for male connector

Note: all connector options not available for all blocks.

PRE-WIRED M4 SERIES

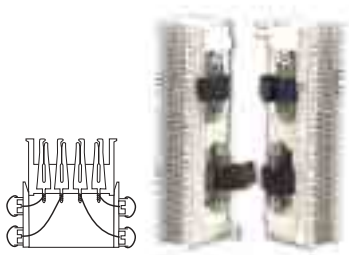
S66M4-2W . . . . . .

Pair capacity – 50 (bridged)
Two female 25-pair connectors



S66M4-4W . . . . . .

Pair capacity – 100 (unbridged)
Four female 25-pair connectors



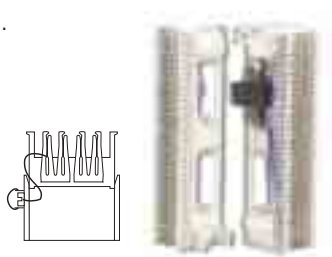
Add "B" for back mounted connector (not shown), Add "M" for male connector

Note: all connector options not available for all blocks.

PRE-WIRED 157 SERIES

157A. . . . . .

Pair capacity – 25
One male 25-pair connector

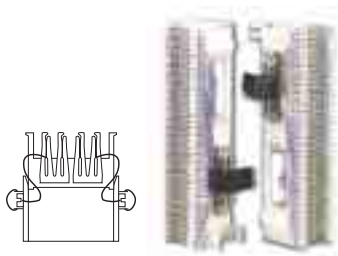


157B . . . . . .

Pair capacity – 50 (unbridged)
Two male 25-pair connectors

157C. . . . . .

Pair capacity – 50 (unbridged)
Two female 25-pair connectors



MODULAR JACK BLOCKS

S66M2-5T-68L . . . . . .

Six 8-position, 4-pair modular jacks, T568B wiring

S66M2-5T-84L . . . . . .

Eight 6-position, 2-pair modular jacks, USOC wiring

S66M2-5T-86L . . . . . .

Eight 6-position, 3-pair modular jacks, USOC wiring

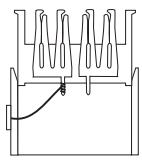
S66M2-5T-124LR . . . . . .

Twelve 6-position, 2-pair modular jacks, USOC wiring

S66M2-5T-128LR . . . . . .

Twelve 8-position, 4-pair modular jacks, T568B wiring

End view of blocks with modular jacks



PRE-WIRED MODULAR JACK BLOCKS

S66M2-5T-68L-125R . . . . .

Six 4-pair modular jacks, one 25-pair female connector, T568B wiring

S66M2-5T-84L-125R . . . . .

Eight 6-position, 2-pair modular jacks, one 25-pair female connector, USOC wiring

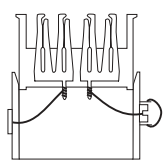
S66M2-5T-86L-125R . . . . .

Eight 6-position, 3-pair modular jacks, one 25-pair female connector, USOC wiring

S66M25T-124LR-125R. . . .

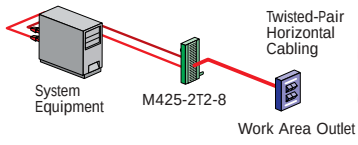
Twelve 6-position, 2-pair modular jacks, one 25-pair female connector, USOC wiring

End view of blocks with modular jacks and a 25-pair connector



S66M425-2T2-8

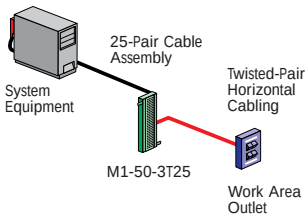
This block is pre-wired to eight 6-position, 2-pair modular cords, each 0.61m (2 ft) long, and it is also equipped with an S89E bracket, clear plastic cover, and designation labels. It is ideal for use with 2-pair key systems that have modular jacks. Two-pair station cables are punched down on the face of the block and the modular cords are plugged into the ports of the key service unit.



S66M1-50-3T25

Designed for use with key systems that have a 25-pair male connector, this block is also ideal for 10BASE-T hubs that have a 25-pair male connector. It provides a 0.91m (3 ft) long, high-performance 25-pair cable (female) that is category 3 compliant, punched down to Row D. Also comes with a protective cover and labels for 2- and 3-pair systems.

Add "M" for male connector



NETWORK INTERFACE BLOCKS

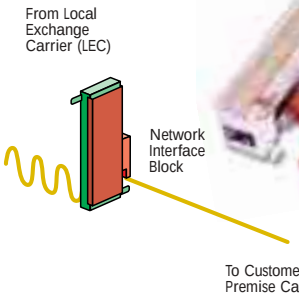
S66M1-50R

The M1-50 block with one female 25-pair connector is oriented for bottom cable entry and pre-wired to Row D. Uses S89D bracket (included) and blue / white wiring between 25-pair connector and S66 quick clip. Orange hinged cover included.

Add "M" for male connector

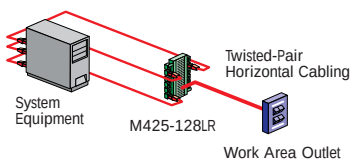
700A-66-B1-25

Same as S66M1-50R except it uses S89B bracket and color-coded 25-pair cable between 25-pair connector and S66™ quick clips.



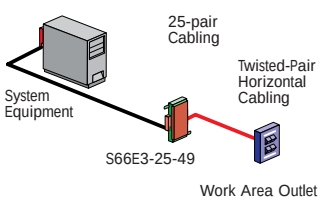
S66M425-128LR

Designed for use with 4-pair key systems with modular jack connectors on the equipment. This block has twelve, 4-pair modular jacks wired to T568B specifications. It is also useful for 10BASE-T systems that use modular jack outputs. Jacks and the S66 block are mounted on a printed circuit board and are clearly labeled. The block is mounted on an S89E bracket and can be removed for cable management.



S66E3-25-49

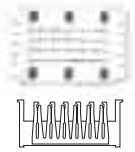
Originally designed to connect 1A2-type 6- or 10-button phones to horizontal wiring, this block is also suitable for use with systems that have a 25-pair connector output (e.g., key systems). This 25-pair block comes with a gray cosmetic plastic cover for wall-mounting in public areas.



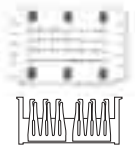
FIELD-TERMINATED B SERIES S66™ BLOCKS

6 X 4 BLOCKS

S66B4-2 . . . . . .
Pair Capacity: 2
Quick Clip: 848



S66B3-4 . . . . . .
Pair Capacity: 4
Quick Clip: 843



height: 48.3mm (1.9 in.),
width: 71.1mm (2.8 in.),
depth: 30.5mm (1.2 in.)

6 X 6 BLOCKS

S66B4-3 . . . . . .
Pair Capacity: 3
Quick Clip: 848

S66B3-6 . . . . . .
Pair Capacity: 6
Quick Clip: 843
Includes CV-6 cover
(see page 10.12)

height: 61.0mm (2.4 in.),
width: 71.1mm (2.8 in.),
depth: 30.5mm (1.2 in.)

6 X 12 BLOCKS

S66B1-6 . . . . . .
Pair Capacity: 6
Quick Clip: 848

S66B1-12. . . . . .
Pair Capacity: 12
Quick Clip: 843

height: 99.1mm (3.9 in.),
width: 71.1mm (2.8 in.),
depth: 30.5mm (1.2 in.)

6 X 50 BLOCKS

height: 340.0mm (13.4 in.),
width: 71.1mm (2.8 in.),
depth: 30.5mm (1.2 in.)

S66B4-25. . . . . .
Pair Capacity: 25
Quick Clip: 848

S66B3-50. . . . . .
Pair Capacity: 50
Quick Clip: 843

S66B3-75 . . . . . .
Pair Capacity: 75
Quick Clip: 842

Note: Center-to-center vertical spacing between rows of clips is 6.4mm (0.25 in.).

STAND-OFF BRACKETS FOR S66™ BLOCKS

All of our brackets are designed to create clean, efficient, and space-saving installations when used with S66 connecting blocks. They are open-ended to enable installers to lay in cable before snapping a block into place. 25-pair connectors and / or modular components can be mounted on the sides or back of the brackets. The brackets are molded from flame retardant thermoplastic.

Which bracket do you need?

It depends on the block you're ordering ...

Block Type	Bracket
M4 X 50*	S89B or S89D
M4 X 25	S89E
M6 X 25	S89F
B6 X 50	SB6
All other B-type	SB8-10

**The M1-100 can only be used with the S89D bracket*

The stand-off brackets (S89D shown) allow cables to be routed behind blocks and provide a means to route cables to the front of the block for termination.

S89D . . . . . .

Use with all M4 X 50 blocks. Can mount two 25-pair connectors on each side and four on the back

PATENTED

S89B . . . . . .

Use with M1-25 or M1-50 blocks. Can mount one 25-pair connector on each side

PATENTED

S89E . . . . . .

Use with all M4 X 25 blocks. Can mount one 25-pair connector on each side and two on the back

S89F . . . . . .

Use with all M6 X 25 blocks. Can mount one 25-pair connector on each side and three on the back

SB6 . . . . . .

Use with all B6 X 50 series blocks. Can mount three 25-pair connectors on each side and six on the back

SB8-10 . . . . . .

Use for mounting all sizes of S66B blocks

Technical Tip!

When mounting blocks end-to-end using SB8-10 brackets, use three brackets for two blocks, four brackets for three blocks and so on.

METAL HOUSINGS

Metal housings protect blocks and connections from damage when installed in "high risk" areas such as on a wall in a warehouse or factory. Our housings are manufactured from durable 18 gauge steel with a gray or beige finish. We provide two options—you can purchase housings with the blocks already assembled or just the housings to install your own blocks. These metal housing are not weatherproof and are recommended for indoor use only.

Part #	Description
MH-25-49	Housing for one 6 X 50 B block or one 4 X 50 M block, gray height: 442mm (17.40 in.), width: 137mm (5.40 in.), depth: 45.7mm (1.80 in.)
MH-50-49	Housing for two 6 X 50 B blocks or two 2 X 50 M blocks, gray height: 442mm (17.40 in.), width: 229mm (9.03 in.), depth: 45.7mm (1.80 in.)

HOUSING WITH BLOCKS **(Blocks shown on pages 10.3 and 10.7)**

Part #	Description
S66M1-25MH-49	One S66M1-25 block in a MH-25 gray metal housing
S66M1-50MH-49	One S66M1-50 block in a MH-25 gray metal housing
S66M1-100MH-49	Two S66M1-50 blocks in a MH-50 gray metal housing
S66B4-25MH-49	One S66B4-25 block in a MH-25 gray metal housing
S66B4-50MH-49	Two S66B4-25 blocks in a MH-50 gray metal housing
S66B3-50MH-49	One S66B3-50 block in a MH-25 gray metal housing
S66B3-100MH-49	Two S66B3-50 blocks in a MH-50 gray metal housing

WIRE DISTRIBUTION SPOOLS

All of these high-impact plastic spools are used to neatly guide and retain cable or jumper wires. Cabling is held in place by the spool's rim to allow easy access for changes or modifications. The S20A and S20B are white and can be used with either a main cross-connect frame or backboard. The S20C is black to match our CC frames (see page 10.11) and modular patch panels, and screws directly into the mounting holes of a standard 19 or 23 inch relay rack.

S20A

White spool without screw

height: 42.7mm (1.68 in.), width: 42.7mm (1.68 in.), depth: 74.9mm (2.95 in.)

S20B

White spool with captive (# 10) wood screw

height: 42.7mm (1.68 in.), width: 42.7mm (1.68 in.), depth: 74.9mm (2.95 in.)

S20C

Black spool with captive (#12-24) machine screw

height: 42.7mm (1.68 in.), width: 42.7mm (1.68 in.), depth: 74.9mm (2.95 in.)

Technical Tip!

We recommend a (#10) wood screw for wall mount applications and a (#12-24) machine screw for rack mount applications.

ORGANIZER RINGS

These plastic rings snap directly onto the side of an S89-type mounting bracket to organize, position, and retain cable and cross-connect wire. They also work well as a patch cord manager when used with our Modular Patch Blocks (see page 2.11).

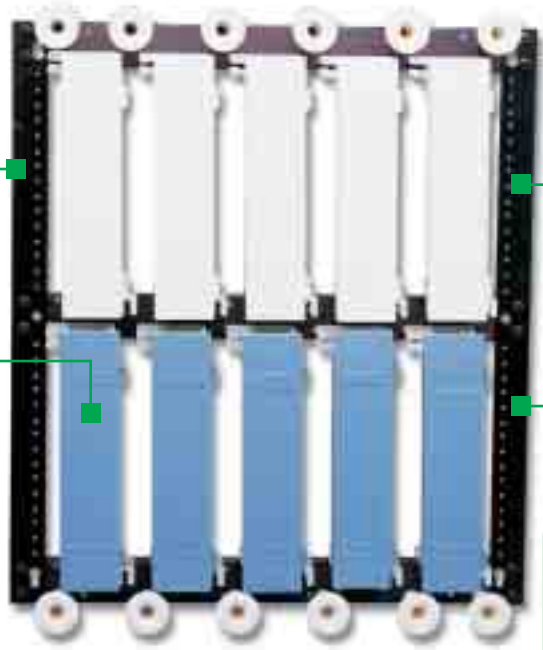
Part #	Description
S606P	Organizer Ring

CROSS-CONNECT FRAMES FOR S66™ BLOCKS

PATENTED

Frames are constructed of lightweight, high-strength aluminum and have a black anodized finish to match our patch panels

Mounts all standard S66 connecting blocks and wire management accessories



Frames are end-stackable on EIA 19 inch relay racks, maximizing the use of available space

Frames mount on 19 inch relay racks or walls (mounting hardware is provided for both)

CC-2015-TB-DC . . . . . .
height: 311.2mm (12.25 in.), width: 514.4mm (20.25 in.), depth: 94.0mm (3.70 in.)

CC-2025-TB-DC . . . . . .
height: 577.9mm (22.75 in.), width: 514.4mm (20.25 in.), depth: 94.0mm (3.70 in.)

Technical Tip!

Use high-density prewired S66 blocks with rear-mounted connectors and CC Frame stand-off brackets to get the highest density and best cable management.

Higher Density

Frames designed for five blocks across accept field terminated or prewired blocks with connectors mounted on the back.

Easier Access

Frames designed for four blocks across accept prewired blocks or our Modular Patch Blocks with two side-mounted connectors (e.g. S66M2-5W or 157C, see page 10.4). Spacing provided between blocks to enable better access.

Optional Stand-off Brackets

Stand-off brackets are available to provide 152.4mm (6 in.) of additional space behind the frame for enhanced cable access and management.

Siemon preassembled cross-connect (CC) frames are versatile in design to allow mounting of either S66 blocks or cable management products. Cross-connect frames for S66 blocks are available with optional stand-off brackets and wire distribution spools.

CC FRAME STAND-OFF BRACKETS

Constructed of the same lightweight, high-strength black anodized aluminum as the CC Frames, these stand-off brackets mount on the back of the CC Frame to allow 152.4mm (6 in.) clearance for cable feeds.

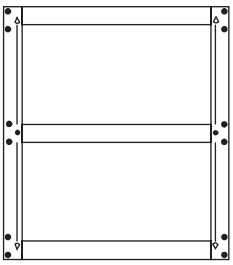
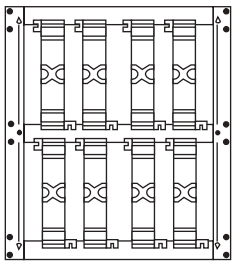
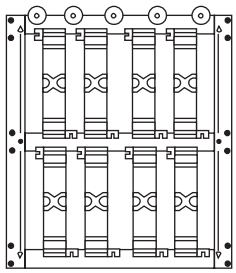
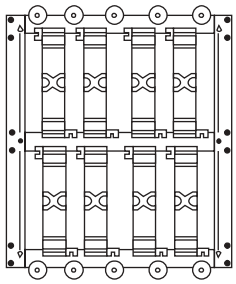
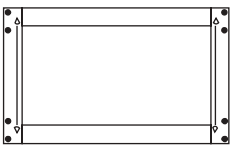
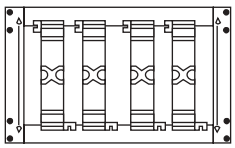
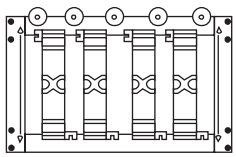
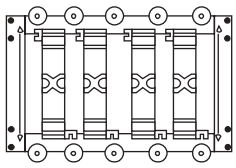
SOB-CC . . . . . .

Stand-off bracket kit (two brackets) for CC Frames. Two kits are required to mount half-size frame, three kits to mount full-size frame and one kit for the wire hanger assembly. Includes mounting hardware.

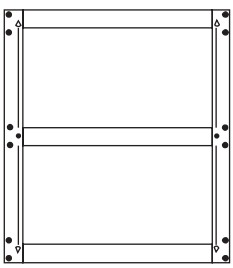
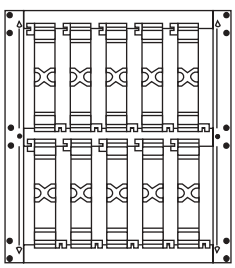
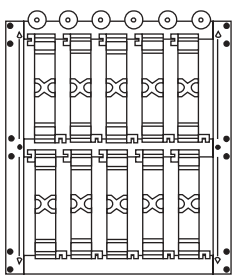
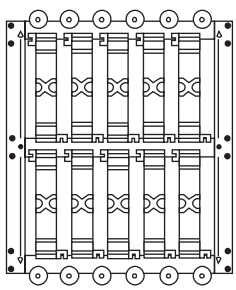
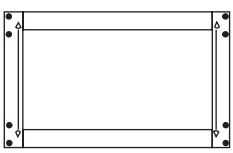
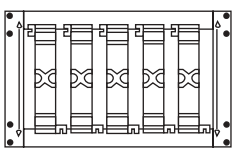
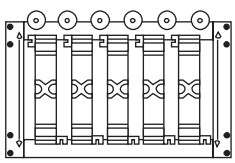
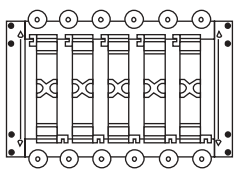
Technical Tip!

Use stand-off brackets to get higher density and improved cable management.

CROSS-CONNECT (CC) FRAMES

Frames Only	Frames with Brackets	Frames with Brackets and Top Spools	Frames with Brackets Top and Bottom Spools
			
CC-2024-NS-NB	*CC-2024-NS-DC*	*CC-2024-TS-DC*	*CC-2024-TB-DC*
			
CC-2014-NS-NB	CC-2014-NS-DC	CC-2014-TS-DC	CC-2014-TB-DC

Bracket type: DC = S89D; NB = No Bracket
Spool location: NS = No Spool; TS = Top Spool; TB = Top & Bottom
Frame size: 2014 = Half size frame (4 Bracket capacity);
2024 = Full size frame (8 Bracket capacity)

			
CC-2025-NS-NB	CC-2025-NS-DC	CC-2025-TS-DC	CC-2025-TB-DC
			
CC-2015-NS-NB	CC-2015-NS-DC	CC-2015-TS-DC	CC-2015-TB-DC

Bracket type: DC = S89D; NB = No Bracket
Spool location: NS = No Spool; TS = Top Spool; TB = Top & Bottom
Frame size: 2015 = Half size frame (5 Bracket capacity);
2025 = Full size frame (10 Bracket capacity)

CC FRAME CABLE MANAGER ASSEMBLIES

For mid-to-large cross-connect installations these wire manager assemblies provide an efficient means for wire management on the CC Frames. They can be mounted either flush to a wall or on a relay rack. To order individual cable managers see page 3.9.

Part #	Description	RMS
CC-2005-144	Cable manager with five S144 managers.	2
CC-2005-145	Cable manager with five S145 managers.	2
CC-2005-146	Cable manager with five S146 managers.	2

Note: 1 RMS = 44.5mm (1.75 in.)

LASTING HINGE COVERS

Use these lasting hinge covers and you'll save up to 90% of the cost of a colored backboard system — and with colored covers, the planner or installer can color-code individual blocks instead of working in groups of four or eight.

Made from flame-retardant thermoplastic, the covers protect the quick clips and provide a convenient surface for marking circuit designations.

Each cover is hinged and can be easily removed and replaced. There are two depths for the covers; the standard-profile allows for standard plug-on accessories, and the high-profile cover allows for larger accessories such as the Line Status Indicator (see next page).

Part #	Description
MC425LH-(X)	Cover for M425-type block.

Use (X) to specify color: 6 = blue, 9 = orange

MC4LH-(X) . . . . . Cover for M450-type block.

Use (X) to specify color: 2 = white, 3 = red, 4 = gray, 5 = yellow, 6 = blue, 7 = green, 8 = violet, 9 = orange

MC4LH-HP-9 . . . . . High-profile orange cover for M450-type block.

SNAP-ON COVERS

These economical snap-on covers protect S66™ quick clips while providing a clear view of the wiring terminations. Made of flame-retardant plastic.

Part #	For Use With
MC4	M4 X 50
MC425	M4 X 25

Part #	For Use With
BC612	B6 X 12
BC6	B6 X 50

BC612

BC6

DESIGNATION STRIPS

Designation strips mount quickly and easily on the fanning strips of both M and B series S66 blocks. The strips provide a convenient labeling surface for circuit identification.

For M Blocks

D10. . . . . White lined designation strip

For B Blocks

D13. . . . . White lined designation strip

LABELS

These adhesive backed, lined labels allow technicians to write and maintain circuit information on the MC4 plastic snap-on cover.

Part #	Description
MC4-LBL-25	Label for MC4 cover numbered 1-25

BRIDGING CLIPS

PATENTED

These industry standard bridging clips are used to connect adjacent quick clips on S66™ blocks. The clips are easy to remove (see page 12.7 for information on our handy PROBE-PIC) for isolating and testing incoming pairs from outgoing pairs and are reusable. Available in either tin-plated grade A copper alloy (voice and data) or stainless steel (voice only).

Tin-plated Copper Alloy Clips		Stainless Steel Clips*	
SA1-(XXXX)	2-position clip	SA1-SS-(XXXX)	2-position clip, stainless steel

Use (XXXX) to specify quantity; 100 = 100/bag, 1000 = 1000/bag

**Not recommended for use with data applications.*

COLORED BRIDGING CLIPS

PATENTED

Designed to fit the 66M type connecting block, each of these plug-on adapters contain two standard SA-1 bridging clips, so they actually bridge a complete pair when installed, not just a single wire. The plastic housings are color-coded and serve to protect the quick clip. Technicians can test lines with the clips in place by using our TPE in-line test probe.

Part #	Description
SMBC-2-(X)	Bridging clip
TPE	Test Probe/Extractor

Use (X) to specify color: 2 = white, 3 = red, 5 = yellow, 6 = blue, 7 = green, 8 = violet

LINE STATUS INDICATOR

This dual-element diode indicator plugs directly onto S66 quick clips to provide bridging and a visual indication of the line status. It allows a technician to avoid interrupting an active line while performing tests at the cross-connect field. The indicator flashes red and green when a line is ringing, and it lights continuously red or green (depending on which direction the LED is facing) to signify that a line is in use.

Part #	Description
STA-2	Line Status Indicator

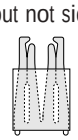
RED SPECIAL SERVICE MARKERS

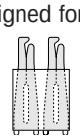
These red plastic markers slide over S66 quick clips and terminated wires and are ideal for marking special circuits on blocks.

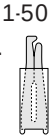
Part #	Description
S-857-916	2-position red marker

CAPACITY EXPANDING ADAPTERS

These adapters create additional capacity on S66 blocks by plugging directly onto the S66 quick clips — with or without wires punched down. The adapters come with either one or two additional quick clips. Use a high-profile lasting hinge cover to fit over the adapters (see previous page). The adapters are top and bottom stackable, but not side-by-side stackable. Not designed for use on category 5e S66M1-50 blocks.

SA2 . . . . . Adapter with 1 double quick clip 

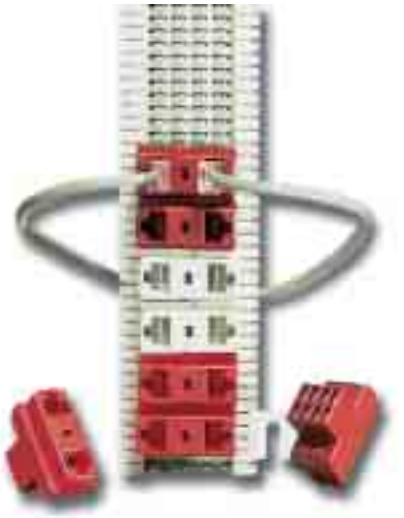
SA2-1 . . . . . Adapter with 2 single quick clips 

SA3 . . . . . Adapter with 1 single quick clip 

TYPE 1 DUAL TAP®

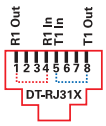
The Type 1 Dual Tap utilizes internal shorting bars that bridge together the left and right side of a split 66M block until a modular plug is inserted into the jack. Insertion of a modular plug separates the internal shorting bars. This enables an electronic device such as an automatic dialer to be connected in series or in parallel with both the input and output side of each line pair.

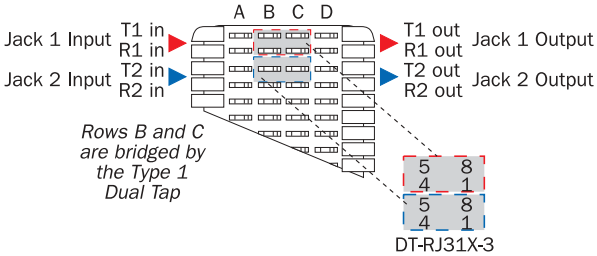
All Type 1 Dual Tap applications are defined by FCC Universal Service Order Codes (USOC) which determine how registered terminal equipment must be connected to the public switching network. The arrangement of the jack's internal connections are different for each illustrated below. Dotted lines indicate the location of shorting bars.



Part #	Description
DT-RJ31X-3	Red adapter with 2 RJ31X jacks

PATENTED





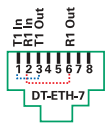
Application

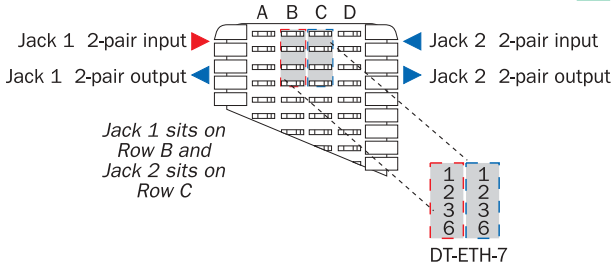
Provides network connection of automatic dialers, alarm dialers, and automatic answering machines.

TYPE 2 DUAL TAP

The Type 2 Dual Tap provides modular access for two 2-pair voice / data circuits on a split 66M block. Horizontal wiring punches down on S66™ clips, and the DT-ETH-7 Dual Tap plugs onto the center rows. System equipment plugs directly into the Dual Tap jacks.

Part #	Description
DT-ETH-7	Green adapter with two 2-pair 8-position jacks, 10BASE-T wiring





Application

Horizontal cabling is punched down onto the outside columns of a split S66M block. The DT-ETH-7 Dual Tap plugs onto the center columns and provides two modular interfaces to connect to 10BASE-T equipment.

SMAK® KIT

PATENTED

Our SMAK Kits allow you to add modular components to a S66™ block in the field. Designed to mount on the sides of S66 stand-off brackets (see page 10.8), each kit contains a one-piece plastic yoke, two self-tapping screws, and three or four modular components.

Part #	Description
SMAK-2	Four, 1-pair 6-position modular jacks and 1 yoke
SMAK-4	Four, 2-pair 6-position modular jacks and 1 yoke
SMAK-6	Four, 3-pair 6-position modular jacks and 1 yoke
SMAK-8	Three, 4-pair modular jacks and 1 yoke

25-PAIR TEST ADAPTER

PATENTED

The 25-pair test adapter is designed for accessing all 25 pairs on a 66M block. A positive connection with the quick clip ensures accurate testing, and our dual-handled design makes for easy installation and removal. It can also be used to field-connectorize 66M blocks. Available with either male or female 25-pair connectors.

Part #	Description
TAP-50F	Adapter with female 25-pair connector
TAP-50M	Adapter with male 25-pair connector

TESTAR®

PATENTED

The TESTAR provide easy test access to S66 quick clips. It plugs directly onto a 66M block, establishing a positive connection and provides a modular jack interface for plugging in test equipment. To utilize equipment requiring alligator clips, our Modapt® adapter (page 12.4) can be plugged into the TESTAR.

Part #	Description
TESTAR-8T-C5	Category 5e compatible, 4-pair, TESTAR with T568A wiring
TESTAR-8A-C5	Category 5e compatible, 4-pair, TESTAR with T568B wiring
TESTAR-2	1-pair adapter, USOC wiring
TESTAR-4	2-pair adapter, USOC wiring
TESTAR-6	3-pair adapter, USOC wiring
TESTAR-8R1	4-pair adapter, USOC wiring
TESTAR-8T	4-pair adapter, T568A wiring
TESTAR-8	4-pair adapter, T568B wiring

TAP® 2, 4, 6, 8

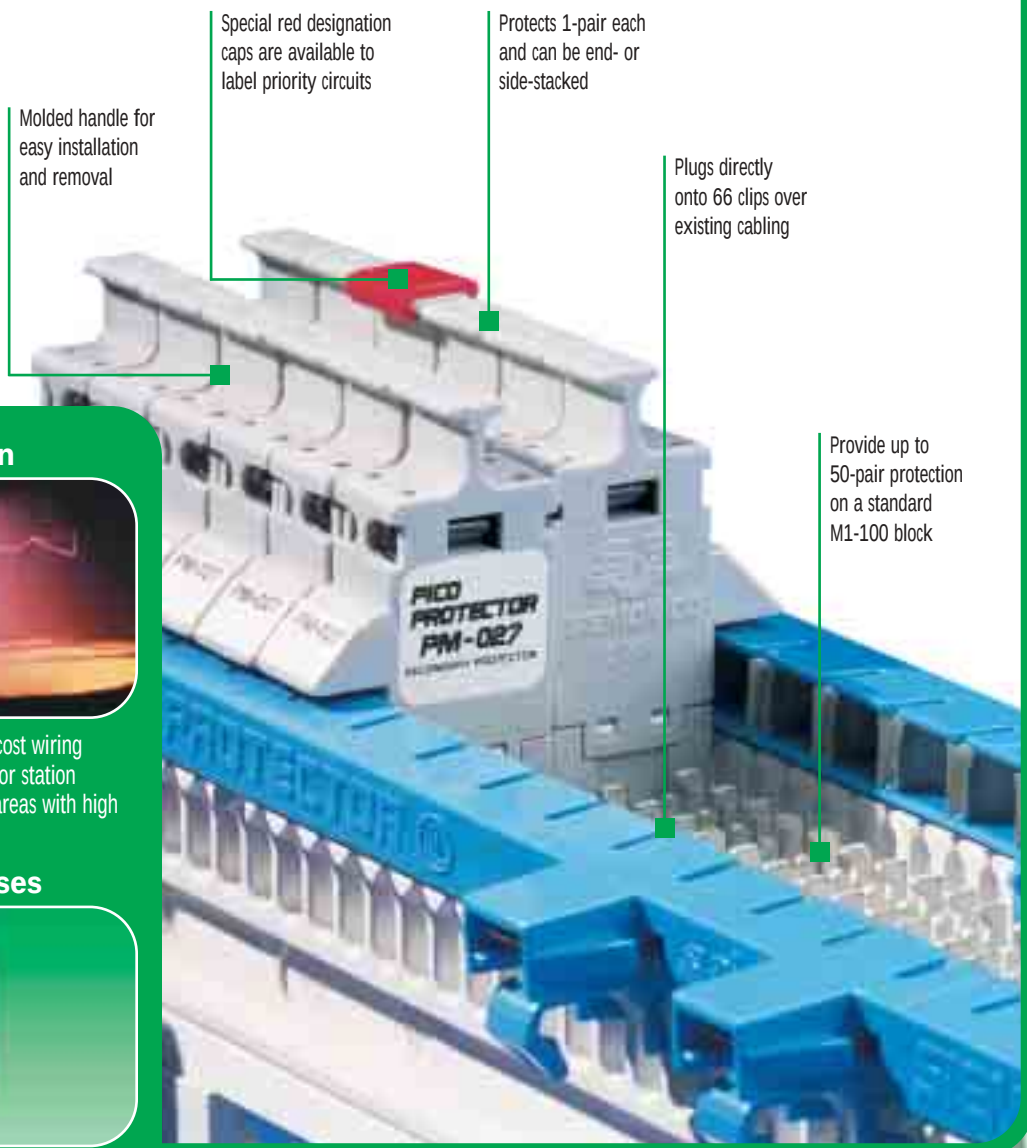
PATENTED

The TAP is a flexible modular connecting adapter designed to access 66M connecting blocks. When installed, the TAP permits customer administration of moves and changes using modular cords, and provides test access. The TAP is designed in 1-, 2-, 3-, and 4-pair configurations and can be end-stacked (except TAP-2) or mounted side by side on a 66M block.

Part #	Description
TAP-2	1-pair, 6-position adapter, USOC wiring
TAP-4	2-pair, 6-position adapter, USOC wiring
TAP-6	3-pair, 6-position adapter, USOC wiring
TAP-8	4-pair, 8-position adapter, T568B

Other wiring schemes are available upon request. Contact our Customer Service Department for information.

PICO PROTECTOR® MODULE



Surge Protection

Pico Protector provides low cost wiring surge protection for system or station equipment. A necessity for areas with high electric storm activity.

Replaceable Fuses

Fuses can be easily replaced if necessary, eliminating costs of replacement modules.

In-Line Testing

TP-4P test probe allows you to attach test equipment to the 66 block without removing the Pico Protector. This handy adapter can also be used to easily remove protector modules from quick clips.

Designed for use as secondary protection (to supplement primary protection). Each Pico® module provides both overvoltage and "sneak current" protection on 66M blocks in one pair increments. The Pico uses very high-speed, solid-state technology for voltage protection and fuses for current protection. The Pico Protector provides an effective and economical way to protect expensive and sensitive electronic equipment.

The system consists of two components: a protector module and a ground kit. Ground kits are available and consist of a snap-on ground plate or "bus bar" and jumpers to safely divert surge energy to ground.

Guidelines for choosing the correct voltage level for Pico Protectors®

1 Measure the operating DC signal voltage of your equipment.
For example: 48Vdc

2 Measure the peak AC voltage of your equipment, (RMS voltage x 1.41).
For example:
90Vac x 1.41 = 127Vpeak

3 Add together the voltage values determined by steps 1 and 2 above:
48Vdc + 127V = 175Vpeak

4 Select the Pico® module rated for the stand-off voltage nearest to, but not below, the value determined by step 3. For this example: the PM-230 module is the best selection since its stand-off voltage is 180V

PICO PROTECTOR MODULE

PATENTED UL

Part #	DC Breakover Voltage (±15%)	Stand-off Voltage (Vso)
PM-007	7.0 volts	5.4 volts
PM-027	27.0 volts	19.0 volts
PM-068	68.0 volts	50.0 volts
PM-140	140.0 volts	102.0 volts
PM-180	180.0 volts	131.0 volts
PM-230*	230.0 volts	180.0 volts

** For protecting equipment that is connected to Central Office (voice, fax, modem, etc.) lines, the PM-230 module is always recommended.*

Technical Tip!

You can retrofit Pico Protectors on an installed M1-50 block. The ground bar mounts inside the fanning strip (as shown here) allowing the Pico module to be plugged into the center rows of an M1-50 block.

DEFINITIONS

DC breakover voltage: *The voltage range at which a given module will activate to divert surge energy to ground.*

Stand-off voltage: *The maximum voltage level of the Pico® module under no-surge conditions that will keep it from interfering with normal operation of the circuit.*

Note: Frequency bandwidth limitations may apply. Contact our Technical Support Department.

GROUND KITS

UL

Part #	Description
PG-06	6-pair kit includes snap-on ground plate and six 203mm (8 in.), female-ended, quick-connect jumpers
PG-25	25-pair retrofit kit for a pre-installed M1-50 block includes bus bar assembly, snap-on ground plate, and two 102mm (4 in.), female-ended, quick-connect jumpers
PG-50	50-pair retrofit kit for a pre-installed M1-100 block includes two bus bar assemblies, snap-on ground plate, two 102mm (4 in.) and two 203mm (8 in.) female-ended, quick-connect jumpers
PK-25	25-pair kit includes M1-50 block, S89D bracket, snap-on ground plate, two 102mm (4 in.) female-ended, quick-connect jumpers, and one bus bar assembly
PK-50	50-pair kit includes M1-100 block, S89D bracket, snap-on ground plate, two 102mm (4 in.) female-ended, quick-connect jumpers, two 203mm (8 in.) quick-connect jumpers, and two bus bar assemblies

ACCESSORIES

Part #	Description
SF-035	Replacement fuse
CP-675-C	Red designation caps

Part #	Description
TP-4P	Adapter for test access and removing Pico and CPM-2PLUS protection modular. See page 10.18 for more details.

CURRENT PROTECTION MODULE

PATENTED

Our CPM-2PLUS® prevents cable and equipment damage due to "sneak currents" (continuous foreign current levels exceeding 0.350 amperes). Sneak currents are not high enough to trigger overvoltage protectors but can pose fire hazards and cause damage to sensitive electronic equipment. They may be caused by direct or indirect contact with power lines, a low impedance connection to earth ground, or by a short circuit somewhere on the line.

Each Current Protection Module contains two fuses in a clear plastic carrier. They are installed across two adjacent pairs of 66 quick clips, establishing solid contact with the clips. When the module is activated, the fuse opens, cutting off the flow of excessive current, preventing fire risk and shock hazards on data and voice transmission lines.

The modules are side- and end-stackable, allowing up to 50-pair protection on a standard M1-100 block or 25-pair protection in a standard M1-50 block. Use Siemon part number TP-4P (see below) to test block wiring without removing the protection module. Also use the TP-4P to easily extract CPM-2PLUS modules from the block. Red plastic caps are available to designate priority circuits.

Part #	Description
CPM-2PLUS	Current Protection Module with two replaceable fuses
SF-035	Replacement fuse
CP-675-C	Red designation caps

RELATED PRODUCTS **S66 Blocks page 10.2 – 10.7**

TP-4P

PATENTED

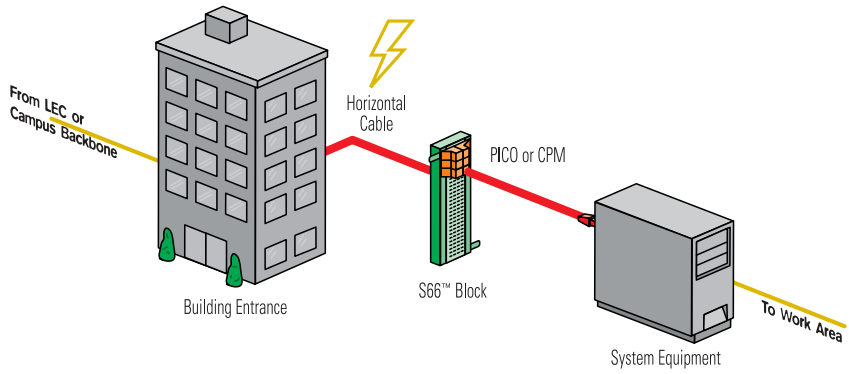
This handy adapter allows you to attach test equipment to the S66™ block without removing the protection. It works with either Pico modules or the CPM-2PLUS (see above). The TP-4P can also be used to easily remove protector modules from the S66 block. It contains a fuse remover to change the fuses on protection modules.

Part #	Description
TP-4P	Adapter for test access and removing Pico and CPM-2PLUS protector modules

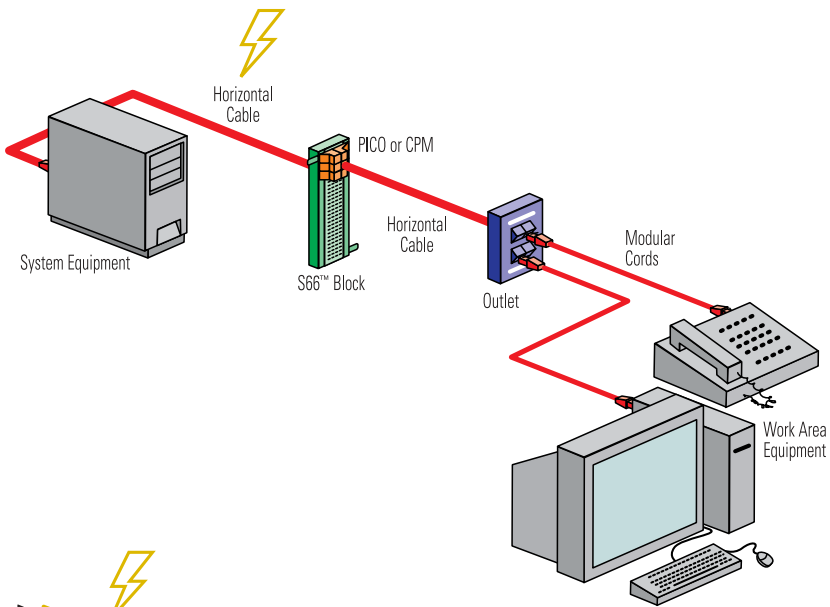
PROTECTION SOLUTIONS FROM THE SIEMON COMPANY

The Siemon Company's solid-state and sneak current secondary protection products can save your voice and data equipment from damage caused by direct or indirect contact with lightning, power lines, or electrostatic discharge. Primary protection devices are designed to protect people and buildings and are usually installed on the regulated side of a network by the local exchange carrier. Primary protection activates when lightning strikes, power lines cross, or when other situations that create high voltage occur, triggering the device to divert the surge energy to ground. However, primary protection devices do not respond fast enough and their clamping levels are not exact enough to protect today's sensitive electronic equipment. Secondary protection installed behind primary protection will stop any damaging surges or currents that get past your primary protection.

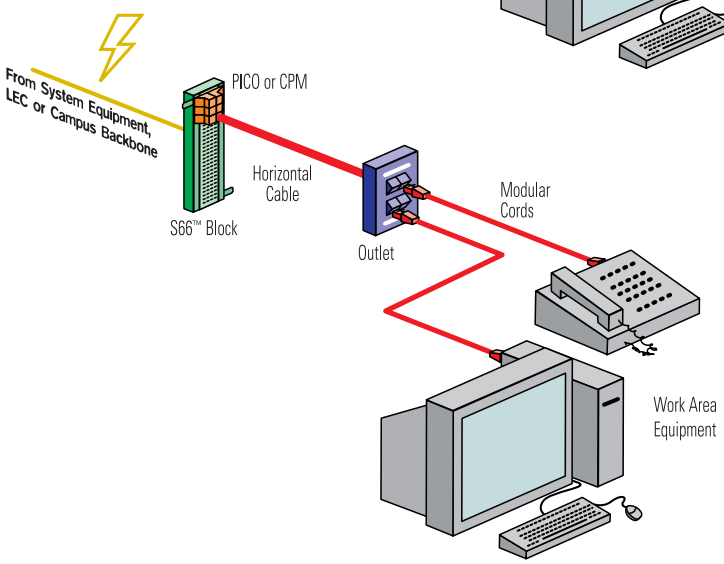
1. To protect the system equipment from surges introduced between the building entrance and the system equipment, install the Pico Protector® or CPM-2PLUS® between those two points and as close as possible to the equipment being protected.



2. To protect the system equipment from surges introduced between the system equipment and the work area, install the Pico Protector or CPM-2PLUS between those two points and as close as possible to the equipment being protected.



3. To protect the work area equipment that is connected to the Local Exchange Carrier (eg. Centrex Lines), Campus Backbone Cabling or System Equipment. If the work area equipment operates over more than one-pair, install the Pico Protector or CPM-2PLUS as close as possible to the equipment being protected.



RESIDENTIAL



	10 INCH COMMAND CENTER® ENCLOSURE (page 11.2)	20 INCH COMMAND CENTER ENCLOSURE (page 11.2)	36 INCH COMMAND CENTER ENCLOSURE (page 11.2)
Hub Accommodation	Not Recommended	Yes	Yes
Kit Option	Yes	Yes	No
Center Rail	No	Yes	Yes
Solution Type	Smaller residential installations, compact solution	Mid-sized residential installations, functional and economical solution	Large residential installations, custom solution
Size (Dimensions)	Width: 368mm (14.5 in.) Height: 254mm (10 in.) Depth: 119.4mm (4.7 in.)	Width: 368mm (14.5 in.) Height: 508mm (20 in.) Depth: 119.4mm (4.7 in.)	Width: 368mm (14.5 in.) Height: 914mm (36 in.) Depth: 119.4mm (4.7 in.)
Enclosure Lock	Included	Available separately	Available separately
Power Cutouts	One	One	Two

SECTION CONTENTS

TODAY

Today, The Siemon Company is the world-recognized technology leader in the structured cabling industry. In addition to being the first company to deliver a Category 6 cabling solution, Siemon was the first company in the world to have a commercially available Category 7 solution, the TERA connector. An innovative new connector, the TERA-style interface was accepted as the non-RJ45 interface for category 7 by the ISO/IEC in the summer of 2002.

The Siemon Company continues to make major strides in all areas of telecommunications technology. Two examples of this engineering excellence are the new Siemon XGLO fiber optic solution which provides 10 Gigabit transmission performance and beyond, and the industrial MAX which provides a reliable foundation on which to safely run Ethernet applications to industrial environments.

COMMAND CENTER® ENCLOSURES

10 INCH COMMAND CENTER

HC-ENCL-10-80 . . . . . 10 inch enclosure with factory-installed lock, cover, and provisions for a single gang electrical box. Light ivory

Width: 368mm (14.5 in.)
Height: 254mm (10 in.)
Depth: 119.4mm (4.7 in.)

HC-K1-CK-80 . . . . . 10 inch enclosure kit. Includes:
HC-ENCL-10-80
HC-110-JP6-80 (page 11.3)
HC-RF-8VS-80 (page 11.4)

20 INCH COMMAND CENTER

HC-ENCL-20-80 . . . . . 20 inch enclosure with cover and provisions for a single gang electrical box. Light ivory

Width: 368mm (14.5 in.)
Height: 508mm (20 in.)
Depth: 119.4mm (4.7 in.)

HC-K2-AJLN-80 . . . . . 20 inch enclosure kit. Includes:
HC-ENCL-20-80
HC-110-80 (page 11.3)
HC-MOD12-80 (page 11.3)
HC-MX5-FK-01 (page 11.5)
HC-RF-8HS-80 (page 11.4)

36 INCH COMMAND CENTER

HC-ENCL-36-80 . . . . . 36 inch enclosure with cover and provisions for two single gang electrical boxes. Light ivory

Width: 368mm (14.5 in.)
Height: 914mm (36 in.)
Depth: 119.4mm (4.7 in.)
Customized for your individual needs

COMMAND CENTER LOCK KIT

HC-LOCK . . . . . Lock, latch, and keys for 20 and 36 inch Command Center Enclosures

RACK-IT™

NEW

Siemon's Rack-it vertical mounting brackets can be wall mounted to accommodate a wide range of rack mounted equipment. The brackets can also mount any combination of Siemon patch panels and rack-mount cable management. Slotted openings allow mounting of network equipment at various depths.

Part #	Description
HC-RI-5	Vertical mounting bracket, 5 RMS

Note: 1 RMS = 44.5mm (1.75 in.)

COMMAND CENTER® PANELS

VOICE DISTRIBUTION PANELS

HC-110-80 . . . . . Siemon 100-pair S110® field termination block distributes 4 CO lines to 23 locations. Includes RJ31X/ADO Jacks;* and an ADO patch cord. Mounting, connecting, and labeling hardware included. Light ivory

HC-110-80

HC-110T-80 . . . . . Disconnect Phone Bridge, distributes up to 4 CO lines to 12 locations (disconnect feature allows blocking of any CO line to any one location). Includes RJ31X/ADO jack* and an ADO patch cord. Mounting and labeling hardware included. Light ivory

HC-110T-80

**RJ31X interfaces with security systems while the ADO jack allows disconnecting and testing of incoming service.*

VOICE/DATA DISTRIBUTION PANELS

HC-110-JP6-80 . . . . . The combination of a Siemon 50-pair S110 field termination block and a Siemon S110 6-port T568A wired modular jack panel functions as a pre-wired distribution block for voice and data applications. Includes RJ31X/ADO jack*and an ADO patch cord. Mounting and labeling hardware included. Light ivory

HC-110-JP6-80

HC-110-JP12-80 . . . . Siemon 12-port T568A wired S110 modular jack panel functions as a pre-wired distribution block for data and/or voice network applications. Mounting and labeling hardware included. Light ivory

HC-110-JP12-80

**RJ31X interfaces with security systems while the ADO jack allows disconnecting and testing of incoming service.*

DATA DISTRIBUTION PANELS

HC-MOD12-80 . . . . . Distributes data to up to 12 locations when fully populated with flat MAX® modules and hub* (hub not supplied). For use in the 20 and 36 inch Command Centers. Mounting and labeling hardware included. Light ivory

HC-MOD12-80

(For MAX module kits see page 11.5)
**Accommodates hubs up to 127mm (5 in.) long x 76.2mm (3 in.) wide x 50.8mm (2 in.) high*

HC-MOD36-80 . . . . . Distributes data to up to 36 locations when fully populated with flat MAX modules and hub* (hub not supplied). Mounting and labeling hardware included. Light ivory

HC-MOD36-80

(For MAX modules, see page 11.5)
**Accommodates hubs up to 304.8mm (12 in.) long x 76.2mm (3 in.) wide x 50.8mm (2 in.) high*

COMMAND CENTER® PANELS

MAX® UTILITY PANEL

HC-MAX36-80 . . . . . 36-port MAX utility panel. Distributes data to up to 36 locations when fully populated with flat MAX modules. Mounting and labeling hardware included. Light ivory

(For MAX module kits, see page 11.5)

HC-MAX36-80

BLANK SHELF PANEL

HC-SHLF-80 . . . . . Blank shelf panel for mounting active equipment (i.e., hubs, cable modems, amplifiers, etc.). Mounting hardware included. Light ivory

Accommodates equipment up to 304mm (12 in.) long x 76.2mm (3 in.) wide x 50.8mm (2 in.) high

HC-SHLF-80

RF DISTRIBUTION PANELS

HC-RF-FP-80. . . . . Full size blank RF distribution panel. (Accommodates up to 4 HC-RF-8NS splitters to achieve desired RF distribution capacity, or 36 HC-FB coaxial bulkheads). Mounting and labeling hardware included. Light ivory

HC-RF-8HS-80 . . . . . Half size panel distributes 1 RF signal to up to 8 locations. Six open ports available for other applications. For use in the 20 and 36 inch Command Centers. Mounting and labeling hardware included. Light ivory

HC-RF-8VS-80 . . . . . Half size vertical panel distributes 1 RF signal to up to 8 locations. For use in the 10 inch Command Center only. Mounting and labeling hardware included. Light ivory

HC-RF-FP-80

HC-RF-8HS-80

RF AMPLIFIER PANELS

HC-RF-4HA-80 . . . . . 1 x 4 distribution amplifier with half panel, used to amplify inputs to up to four 1 x 8 splitters. For use when cable runs or multiple splits require increased input signal strength. For use in the 20 and 36 inch Command Centers. Mounting hardware and label included. Light ivory

HC-RF-1HA-80 . . . . . 1 x 1 amplifier with half panel. For use when longer cable runs or multiple splits require increased input signal strength. For use in the 20 and 36 inch Command Centers. Mounting hardware and label included. Light ivory

HC-RF-4HA-80

HC-RF-1HA-80

RF SPLITTER

HC-RF-8NS. . . . . Siemon 1 x 8 RF splitter operates from 5 MHz to 1 GHz. All threaded F-type ports are two-way power passing. Printed circuit board design ensures consistent RF performance and high port-to-port isolation. (For use with HC-RF-FP-80)

HC-RF-8NS

RF ACCESSORIES

HC-RF-TC . . . . . 75 ohms termination caps (bag of 25) for unused RF ports

HC-FB . . . . . 2GHz 75 ohms coaxial bulkheads (bag of 25) for applications requiring higher bandwidths

HC-FB

MAX® MODULE KITS

MAX modules are for use with 12- and 36-port Data Distribution Panels and the 36-port MAX Utility Panel. The kits include 12 black, flat MAX modules with T568A/B wiring, termination caps, 4 modular cords, and black, blue, and red tabs for color coding.

Part #	Description
HC-MX5-FK-01	Punch-Down category 5e module kit

FACEPLATES AND KITS

MAX TAMPER-PROOF FACEPLATE KITS

HC-MX-TFP6-2-(XX)

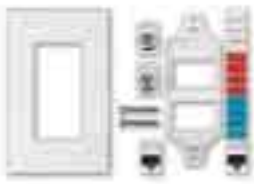
MAX Tamper-Proof Grade II kit includes: One single gang 6-port tamper-proof faceplate and cover, two angled category 5e modules, two angled F-type modules, two blank modules, four blue, four red, and four color-matching icons

HC-MX-TFP6-2-(XX)

MAX DESIGNER® MOUNTING FRAME KITS

HC-MM-2-(XX)

MAX Designer Mounting Frame Grade II Kit includes: One 4-port Designer Mounting Frame, one single gang Designer faceplate, two flat category 5e modules, two flat F-type modules, four blue, four red, and four color-matching icons



HC-MM-2-(XX)

Use (XX) to specify color: 25 = bright white, 80 = light ivory

EZ-TWIST® CONNECTOR

PATENTED

Dramatically reduce coax cable termination time with Siemon's new EZ-Twist connector. No tools or crimping are required. To terminate, simply twist the connector onto the cable for a secure, high performance connection. EZ-Twist also eliminates screw-on connections to outlets. Simply push the connector onto an outlet to lock it in place, pull to remove. This feature is ideal in high-density installations where space is limited and conventional connectors are difficult to secure to outlets.

Part #	Description
HC-EZ-(X)-(X)	EZ-Twist coax connector, bag of 50

Use 1st (X) to specify cable type: 5 = RG59, 6 = RG6

Use 2nd (X) to specify shield type: T = Tri-shield, Q = Quad-shield

TOOLS

STM-8 CABLE TESTER

HC-STM-8

UTP cable tester for testing length, opens, shorts, reversals, miswires and split pairs. Comes with carrying case, four remotes "A, B, C & D", five universal plug-ended modular cords, wiring guide, 9v alkaline battery, instructions, and warranty card

MOUNT-IT™ WALL BOX LOCATOR

HC-MNT

Mount-it wall box locator. Provides an easy and accurate means for installing plastic and metal electrical boxes. See page 12.9 for more information.

ENHANCED

ALLPREP™

HC-CPT-EZTP

Siemon's AllPrep Cable preparation tool for use with EZ-Twist Connector; includes EZ-Twist and UTP dies

TOOLS AND TESTERS

	STM-8 AND STM-8-S (pages 12.2-12.3)	MT-5000 (page 12.4)
Media Types	UTP, ScTP	UTP
Cable Size	1-4 Pair	1-4, 25-Pair
Distance	900m (2950 ft.)	762m (2500 ft.)
Additional Accessories	Identifiable Passive Remotes, Active Remotes	Universal Plug-Ended Modular Cords

SECTION CONTENTS

The Siemon Company 100 1903-2003

AND BEYOND...

Pioneers in plastics, pioneers in technology, an industry leader for the future. In the year 2003 the Siemon Company is celebrating its remarkable 100 year history, yet it continues to position itself for the future. 20th century values, 21st century vision, The Siemon Company is living proof that hard work, dedication and a dream can take you far.

STM-8

PATENTED

A low battery status indication is provided, as well as automatic shut-off to extend battery life

Test cable runs up to 900m (2950 ft.)

Indications for 6- and 8-position jacks

The presence of line voltage is indicated on the display to help prevent accidental damage to the unit

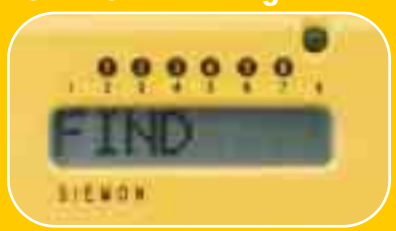
Additional remotes can be purchased separately

The UTP modular cords are equipped with patented "universal" plugs, (see page 4.5) that fit into any standard 6- or 8-position modular jack

Tests All Wiring Configurations

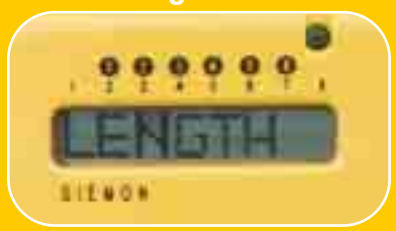
Tests T568A, T568B, USOC, 10BASE-T, Token Ring, and TP-PMD wiring configurations.

Determines Unknown Wiring



In FIND mode, the STM-8 will detect and identify which wiring scheme is present in the cable being tested.

Determines Cable Length



In the LENGTH mode, the STM-8 will determine the distance measurements on any given cable up to 900m (2950 ft.). This feature may be used with all four identifiable remotes.

The STM-8 is an economical and versatile hand-held tester designed for the testing of UTP and screened (ScTP) cable for opens, shorts, reversals, miswires, split pairs and cable length. Its rugged, state-of-the-art construction, easy-to-read LCD display and multiple remotes allow one person to quickly test and identify up to four different cable runs from one location.

RELATED PRODUCTS Modapt® page 12.4
S110® Test Adapter page 12.5, TESTAR® page 12.5

STM-8 AND STM-8-S

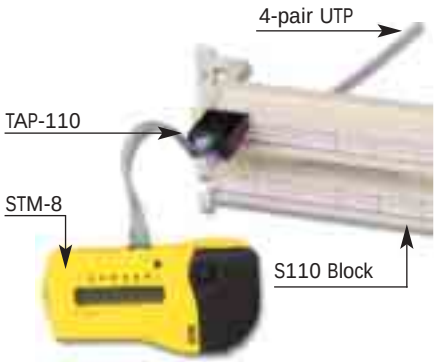
PATENTED

Part # **Description**

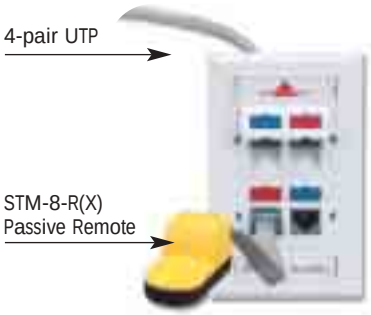
STM-8 . . . . . UTP (unshielded, twisted-pair) cable tester. Includes carrying case, remote "A", two universal plug-ended modular cords, wiring guide, 9V alkaline battery, instructions, and warranty card

Horizontal Cross-Connect

The S110® Test Adapter can be used to test horizontal cabling that is terminated on 110-type connecting blocks

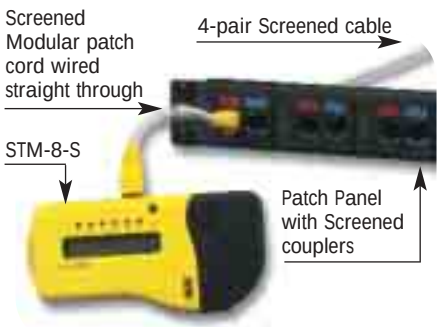


Work Area Outlet

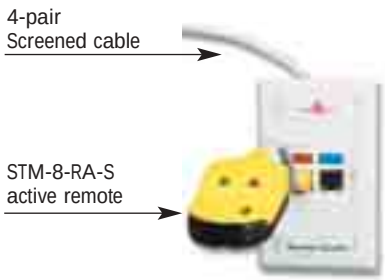


STM-8-S. . . . . Screened twisted-pair cable tester. Includes carrying case, active remote, two screened universal plug-ended modular cords, wiring guide, 9V alkaline battery, instructions, and warranty card

Horizontal Cross-connect



Work Area Outlet



ACCESSORIES

PATENTED CE

Siemon's active remote utilizes a shielded jack for testing both UTP and shield continuity of screened (ScTP) cabling. LEDs on remote indicate test results after each test cycle; solid green LED flash for pass and solid red LED flash for fail. Identifiable passive remotes are also available for testing multiple locations.

STM8-RA-S. . . . . .

Active remote for UTP/ScTP with two screened modular cords, instructions, 3V lithium battery, and warranty card

STM8-R(X) . . . . . .

Additional identifiable UTP passive remotes

Use (X) to specify remote identity:
A = remote A,
3 = kit of remotes B, C, and D

MT-5000

The MT-5000 is a versatile, hand-held cable tester — it is fast, reliable, and durable. It tests opens, shorts, and miswires from 1- to 25-pairs and can accommodate a combination of 25-pair and modular jack terminations. For instance, using the 25-pair test adapter (see below), the remote unit can be attached to a 66 block that is connected to multiple horizontal cable runs in the equipment closet. Then, using the modular jack in the master unit, one person can test up to six 4-pair station cables in the work area. Cable runs of up to 762m (2,500 ft.) can be tested with accuracy.

The MT-5000 tests individual conductors, not pairs. This allows testing of all wiring configurations including USOC, T568A, and T568B.

The MT-5000 consists of a master and a remote unit. The master controls all of the test functions, so one person can perform testing. Test results are reported on a large, easy-to-read LCD display. Each unit has both male and female 25-pair connectors, one 6-position (1-, 2- or 3-pair) modular jack, and one 8-position (4-pair) keyed modular jack. The unit also features a low-battery status indicator, a power input jack, and a power saving auto-off switch. It comes in a padded, nylon carrying case with batteries included.

Part #	Description
MT-5000	Cable tester (master and remote) with case and two universal plug-ended modular cords

25-PAIR TEST ADAPTERS

PATENTED

Siemon 25-pair test adapters are designed for accessing all 25 pairs on a 66M connecting block. A positive connection ensures accurate testing with easy installation and removal. They can also be used to field-connectorize 66M blocks. Available with either male or female 25-pair connectors.

TAP-50

Part #	Description
TAP-50F	25-pair S66™ test adapter with female connector
TAP-50M	25-pair S66 test adapter with male connector

MODAPT®

PATENTED

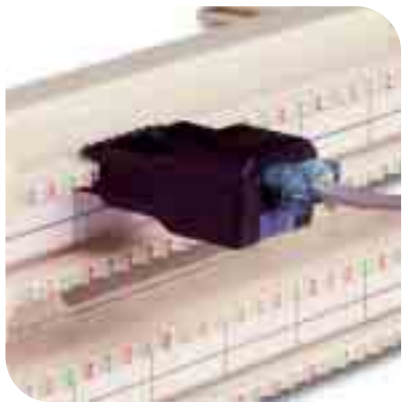
This modular adapter allows in-line testing for any plug / jack combination. It includes two 4-pair jacks plus a 152mm (6 in.) modular cord terminated with our patented 4-pair "universal" plug for accessing any standard 6- or 8-position jack (see page 4.5). Individual conductors are broken out by pin number and correspond to eight separate test pads. Test equipment can be securely attached to the test pads using alligator clips. For quick reference in the field, USOC, T568A, and T568B wiring charts are printed right onto the Modapt body. When used with Siemon's TESTAR® adapter, S110® test adapter (see next page), and S110T disconnect test adapters (see page 9.18) the Modapt can be used to test connections on S66M, S110 blocks, and S110T disconnect blocks.

Part #	Description
MODAPT	Test adapter with one 152mm (6 in.) 4-pair universal plug-ended modular cord

S110® TEST ADAPTERS

PATENTED

Siemon's 1-, 2-, 3-, and 4-pair S110 test adapters provide a convenient way to test 110-type connecting blocks. These adapters plug directly onto any 110-type connecting block and provide a modular jack for connection to test equipment or patch cords. It is the only 110 style test adapter that can be attached to both terminated and unterminated 110-type connecting blocks. The 2-, 3-, and 4-pair adapters are end-stackable, and are polarized to prevent incorrect insertion.



The 4-pair test adapters have an area for a colored icon (a blue and red icon are included) for additional identification. The 4-pair adapter is available in T568A and T568B wiring configurations and is category 5e compatible for high-performance link testing.

Part #	Description
TAP-110-U1	1-pair, 6-position, test adapter, USOC wiring
TAP-110-UT	2-pair, 8-position, test adapter, Token Ring/USOC wiring
TAP-110-U3	3-pair, 6-position, test adapter, USOC wiring
TAP-110-U4	4-pair, 8-position, test adapter, USOC wiring
TAP-110-T4	Category 5e compatible, 4-pair, 8-position, test adapter, T568A wiring
TAP-110-A4	Category 5e compatible, 4-pair, 8-position, test adapter, T568B wiring

Technical Tip!

The adapters utilize a unique, spring-loaded contact design to ensure a reliable connection without disturbing existing cross-connect terminations. This also extends the life-cycle of the test adapter.

1-pair 2-pair 3-pair 4-pair

TESTAR®

PATENTED

The TESTAR creates easy test access to 66 quick clips. It plugs directly onto the S66™ block, establishing a positive connection and providing a 4-pair modular jack for plugging in test equipment. The body is molded in blue plastic and has molded-in finger grips for easy handling.

Part #	Description
TESTAR-8T-C5	Category 5e compatible, 4-pair, 8-position, TESTAR, T568A wiring
TESTAR-8A-C5	Category 5e compatible, 4-pair, 8-position, TESTAR, T568B wiring

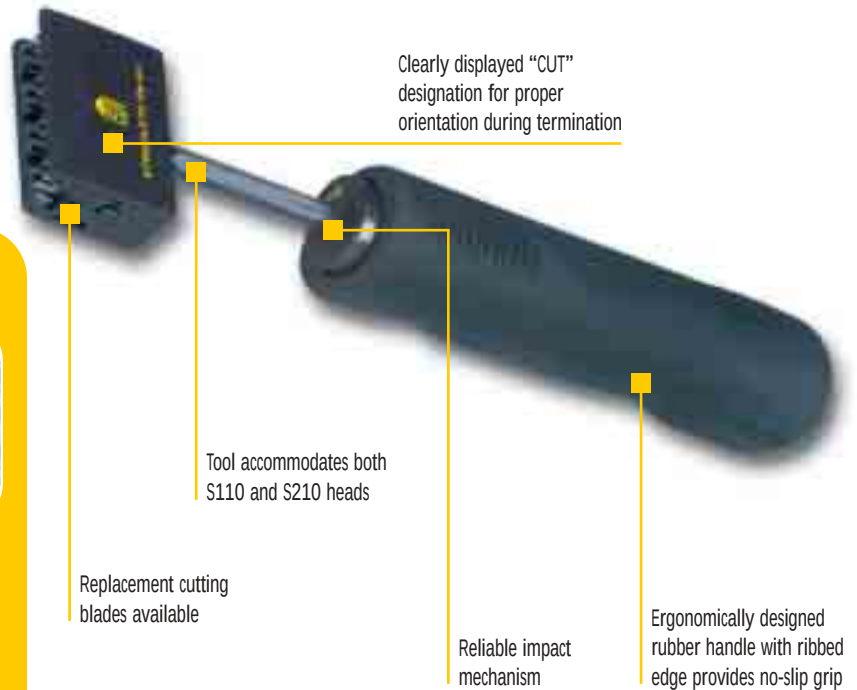
OTHER TESTARS

The positive connection made by the TESTAR eliminates possible problems associated with handling alligator clips or test probes such as accidental shorting across terminals or intermittent test connections. Test equipment is inserted into the TESTAR through a 1-, 2-, 3-, or 4-pair modular jack. To utilize equipment requiring alligator clips, our Modapt® adapter (see previous page) can be plugged into the TESTAR.

Part #	Description
TESTAR-2	1-pair, 6-position, TESTAR, USOC wiring
TESTAR-4	2-pair, 6-position, TESTAR, USOC wiring
TESTAR-6	3-pair, 6-position, TESTAR, USOC wiring
TESTAR-8R1	4-pair, 8-position, TESTAR, USOC wiring
TESTAR-8	4-pair, 8-position, TESTAR, T568B wiring
TESTAR-8T	4-pair, 8-position, TESTAR, T568A wiring

1-pair 2-pair 3-pair 4-pair

S110®/S210® MULTI-PAIR TERMINATION TOOL



Multi-Function Tool

Seats conductors and trims wires on both the cable side and the cross-connect side of connecting blocks. It also seats S110 or S210 clips onto base.

Use in Work Area and Telecommunication Room

The 4-pair S110 multi-pair tool can also be used with dual, flat 5e CT® couplers and HD5® patch panels.

Compatible with All S110 Products

Slimmer termination tool head works with S110T disconnect blocks and S110 modular jack panel products.

Technical Tip!

Termination blades for Siemon punch down tools are reversible — one end terminates and cuts off the excess wire, the other end terminates without cutting.

The Siemon S110/S210 multi-pair termination tool is a versatile impact tool designed to terminate and cut UTP cable, and seat connecting blocks. The impact mechanism and termination blades have been designed to reliably terminate and cut UTP cable the first time, every time. The tool features an easy to hold, ergonomically designed handle that helps reduce fatigue when trimming wire or seating connecting blocks to the wiring base.

PATENTED

Part #	Description
S788J4-210	4-pair S210 termination tool
S788J4B-210	4-pair S210 replacement cutting blade and insertion assembly
S788J4H-210	4-pair S210 replacement head for impact tool, including housing, cutting blade and insertion assembly
S788J4	4-pair S110 termination tool
S788J4B	4-pair S110 replacement cutting blade and insertion assembly
S788J4H	4-pair S110 replacement head for impact tool, including housing, cutting blade and insertion assembly
S788J5	5-pair S110 termination tool
S788J5B	5-pair S110 replacement cutting blade and insertion assembly
S788J5H	5-pair S110 replacement head for impact tool, including housing, cutting blade and insertion assembly

S814 IMPACT TOOL

The S814 impact tool terminates wires on 66 and 110 clips. The tool is spring-loaded and fully adjustable; a helpful feature when working with wires of varying thicknesses. The bayonet-style mount allows the blades to be changed quickly and easily, and a compartment in the handle stores an extra blade.

Part #	Description
S814	Tool body only
S814-66	Tool body with 66 termination blade
S814-110	Tool body with 110 termination blade
S81401-66	66 termination blade
S81401-110-88	110 termination blade

Technical Tip!

Termination blades for Siemon punch down tools are reversible — one end terminates and cuts off the excess wire, the other end terminates without cutting.

PALM GUARD

PATENTED

The Siemon palm guard has been ergonomically designed to provide a safe and convenient means of terminating our UTP and screened flat or angled CT® couplers and MAX® modules. The palm guard absorbs the impact of termination while securing the connector to prevent movement. Includes an adjustable elastic strap and a removable insert, which can be used to hold MAX modules while terminating on flat surfaces.

Part #	Description
PG	Palm guard with MAX insert
PG-MX6	Palm guard insert for all punch-down MAX modules

Note: The PG-MX6 insert is included with each standard pack of 20 punch-down MAX modules.

PG

PG with PG-MX6

PG-MX6

CI-KIT AND CI-KIT2

The CI-KIT provides all the tools that a telecommunications technician needs for day-to-day activities. Included in the kit is an S814 impact tool with 66 and 110 termination blades, a probe pic, electrician's scissors, mini flathead screwdriver, and a CPT-WEB cable preparation tool. These tools are stored in a handy, lightweight clip-on pouch which allows the installer to cut, strip, and terminate cabling without having to carry separate tools or larger tool kits.

Part #	Description
CI-KIT	Clip-on tool kit with S814 impact tool (with 66 and 110 termination blades), probe pic, electrician's scissors, mini flathead screwdriver and CPT-WEB tool
CI-POUCH	Clip-on CI-KIT tool pouch only

Siemon's CI-KIT2 includes all the components of the standard CI-KIT, with the addition of our popular AllPrep™ cable preparation tool (see next page) in place of the CPT-WEB tool. Also, a "D-Ring" has been added to carry additional tools. These tools are stored in a handy, lightweight, clip-on pouch which allows the installer to cut, strip and terminate cabling without having to carry separate tools or larger tool kits.

Part #	Description
CI-KIT2	Clip-on tool kit with S814 impact tool, (with 66 and 110 termination blades), probe pic, electrician's scissors, mini flathead screwdriver, and AllPrep cable preparation tool
CI-POUCH2	Clip-on CI-KIT2 tool pouch only
CI-CUTTER	Straight diagonal cutter (flush cut) especially useful for trimming conductors laced into Tool-less or screened MAX modules and S110®/S210® patch plugs
CI-SCISSORS	All purpose electrician's scissors
PROBE-PIC	Multi-use wire tool

"D-Ring"

ALLPREP™ CABLE PREPARATION TOOL

PATENTED

The AllPrep cable preparation tool provides a simple and effective method of preparing both coaxial and twisted-pair cable for termination. The tool features two reliable, color-coded dies that are interchangeable for each media type. The coaxial die strips RG59 and RG6 coaxial cable and the twisted-pair die strips a wide variety of UTP, screened and fiber cables.

Part #	Description
CPT-RGTP	AllPrep cable preparation tool for coax/twisted pair cables
CPT-DIE-RG	Replacement coax die (black)
CPT-DIE-TP	Replacement twisted-pair die (yellow)
CPT-DIE-EZ	Replacement EZ Twist die (blue)

TERA™ CABLE PREPARATION TOOL

PATENTED

The TERA cable preparation tool uses a patent pending process to significantly reduce the time required to prepare fully shielded (SSTP) cable. The tool includes an insert die with a blade, which is specifically designed to accurately strip the jacket and foil from 4-pair SSTP cable without damaging the conductors. A template is also included to pre-align cable pairs and ensure proper pair positioning during termination.

Part #	Description
CPT-T	TERA preparation tool. Includes CPT-DIE-T4 and TERA cable preparation template
CPT-DIE-T4	4-pair SSTP replacement cable die (red)

RELATED PRODUCTS **TERA Outlets and Plugs page 7.2 – 7.3**

CPT

The CPT provides a simple and effective method to remove the outer cable jacket from 2-, 3-, or 4-pair cables without damaging the inner conductor insulation. The CPT is recommended for use with any round cable with an exterior diameter from 2.54 – 6.35mm (0.100 – 0.250 in.) and an outer jacket thickness from 0.380 – 0.635mm (0.015 – 0.025 in.).

Part #	Description
CPT	Cable preparation tool

CPT-WEB

PATENTED

The CPT-WEB is designed to easily strip the outer cable jacket, flatten and separate the webbed conductors of Siemon's category 5 cross-connect jumper wire and other UTP cable with webbed conductor pairs.

Part #	Description
CPT-WEB	Webbed cable preparation tool

PT-908 CRIMP TOOL

This 3-in-1 ratchet-style crimp tool cuts, strips, and crimps modular plugs on either round or flat cables. The parallel action design maintains accurate alignment of the die with the plug for a precision crimp every time. The PT-908 comes with a padded carrying case which includes a storage compartment for carrying spare dies, replacement stripper blades, and modular plugs, and will attach to a technician's belt.

Part #	Description
PT-908	Crimp tool with built-in round cable cutter/stripper, 8-position die set and padded nylon carrying case
PT-908-D	Crimp tool with built-in round cable cutter/stripper, 8-position die set packaged in a clear plastic display case
PT-DIE-8	8-position die set
PT-DIE-6	6-position die set
PT-BLD	Standard replacement blade (long) with screws and allen wrench
PT-BLD-F	Optional blade (short) required to strip flat cable; includes screws and allen wrench

Technical Tip!

The Siemon Company does not recommend field termination of modular cords. We recommend the use of factory-terminated and tested modular cords for any category 5e or higher application.

COAXIAL CRIMP TOOL

The RG-T coax crimp tool's dual crimp design allows for the proper termination of both RG59, 8.2mm (0.32 in.) and RG6, 9.1mm (0.36 in.) F-type connectors onto coaxial cable without having to change the crimping jaws. The ratchet design ensures proper crimping of the connector without damage to the cable. The tool is constructed using high carbon steel and features an ergonomically designed handle for a comfortable grip.

Part #	Description
RG-T	Coax crimp tool
RG-T-DIE	Replacement RG59/RG6 die

RELATED PRODUCTS **Coaxial Connector page 4.6, AllPrep™ Cable Preparation Tool page 12.8**

BINDING POST WRENCH

Siemon's binding post wrench is designed for accessing 9.5mm (3/8 in.) or 110mm (7/16 in.) recessed bolts used for securing enclosures including Siemon's Consolidation Point Enclosures (CPEs) (see page 3.7). The wrench features an easy-gripping handle and is constructed of heavyweight, durable materials for long-lasting service.

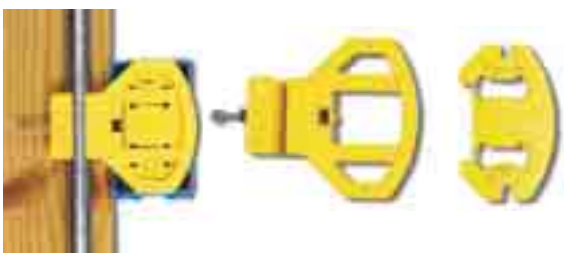
Part #	Description
CI-WRENCH	9.5mm (3/8 in.) or 11.1mm (7/16 in.) binding post wrench

MOUNT-IT™ WALL BOX LOCATOR

ENHANCED

The Mount-it wall box locator provides an easy and accurate means for installing plastic and metal electrical boxes. Thumb screw allows the height of the box to be easily adjusted. Mount-it attaches to a standard 12.7mm (0.5 in.) EMT conduit to set a reference height, making it ideal for both residential and commercial applications. Depth can be set using provided mounting plate.

Part #	Description
HC-MNT	Wall box locator



WEB RESOURCES

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Access point to the World of Siemon

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www.siemon.com.sg
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SYSTEM DESIGN GUIDE

SIEMON SYSTEM DESIGN TOOL

The purpose of this design tool is help customers design horizontal channels for different LAN environments and configurations. The channel model to be installed is based upon a number of factors including cost (short term and long term), flexibility and performance.

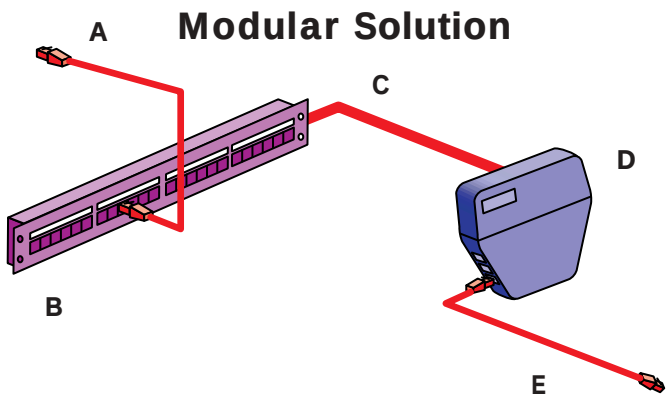
Model	Cost	Flexibility	Performance
2-Connector	Lowest	Lowest	Highest
3-Connector w/CP	Medium	Medium	Medium
3-Connector w/CC	Medium	Medium	Medium
4-Connector	Highest	Highest	Lowest

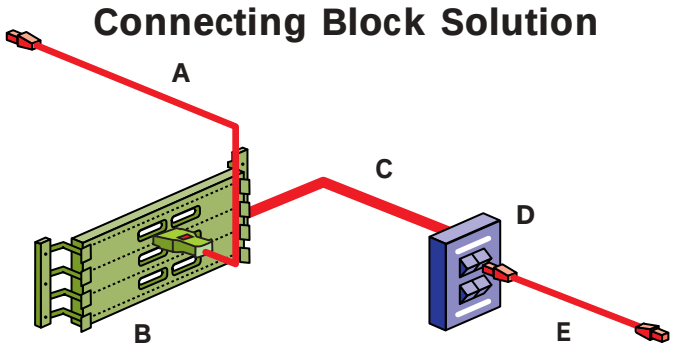
When designing a cabling infrastructure, a single factor (i.e. – initial cost) is often the deciding characteristic of the channel selected. However, once all elements are considered, a design with higher initial cost may have a lower overall cost of ownership to a company that does a lot of Move, Add or Change (MAC) activity. The most important concern is that designers are familiar with all aspects of the different configurations available to make the best selection possible.

SECTION CONTENTS

2-CONNECTOR CHANNEL

This channel will typically consist of a modular outlet at the work area and a connecting hardware component in the Telecommunications Room (TR). In some cases a Multi-user Telecommunications Outlet (MUTOA) may be introduced at the work area. A modular cord is connected at the work area and routed directly into the work area equipment. The 2-connector channel is the least complex, lowest initial cost solution that provides the highest performance margins.





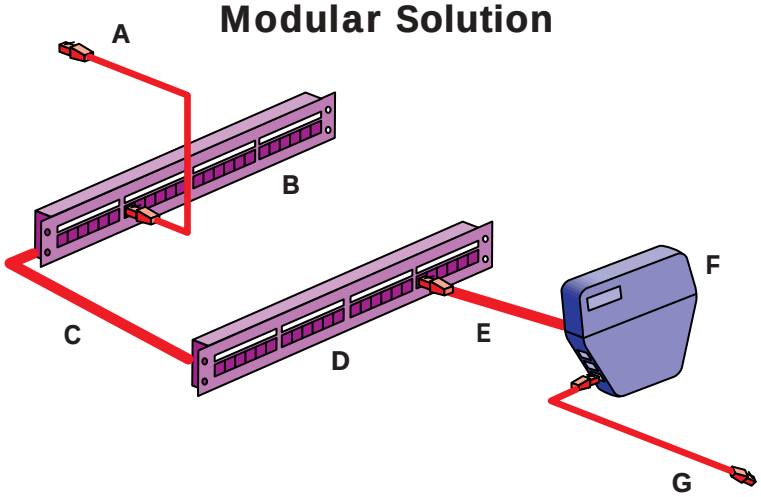
2-CONNECTOR CHANNEL

	6 Solution		5e Solution	
Channel Product	**Modular**	**Connecting Block**	**Modular**	**Connecting Block**
(A) Equipment Cord	MC6-8-T-10-02	S210P4T4-10-02	MC5-8-T-10-02	S110P4T4-10-B02
(B) Interconnect Hardware	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(C) Horizontal Cable	Customer Supplied Category 6 Cable		Customer Supplied Category 5e Cable	
(D) Work Area Outlet Assembly	MX-FP-S-02-02 & MX6-02		MX-FP-S-02-02 & MX5-02	
(D) MuTOA	MX-MMO-02 & MX6-02		MX-MMO-02 & MX5-02	
(E) Equipment Cord	MC6-8-T-10-02		MC5-8-T-10-02	

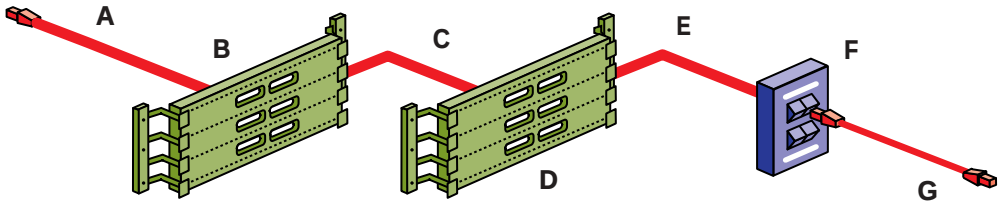
3-CONNECTOR CHANNEL WITH CONSOLIDATION POINT

The 3-connector channel is identical to the 2-connector channel but it includes a Consolidation Point (CP). The CP is an interconnection in the horizontal channel, providing flexibility for moves, adds and changes (MACs) that occur in modular furniture environments. Although the addition of the CP increases the initial installation cost, it reduces the long-term costs if there are high MAC volumes.

Modular Solution



Connecting Block Solution



3-CONNECTOR CHANNEL WITH CONSOLIDATION POINT

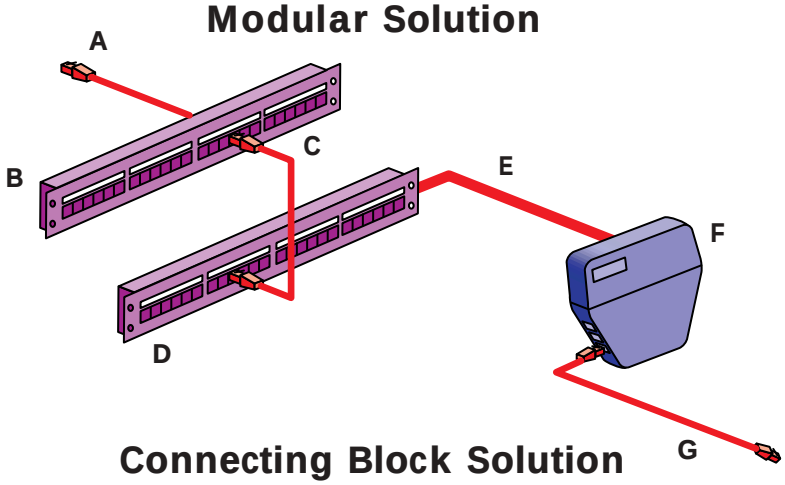
	6 Solution		5e Solution	
Channel Product	**Modular**	**Connecting Block**	**Modular**	**Connecting Block**
(A) Equipment Cord	MC6-8-T-10-02	S210P4T4-10-02	MC5-8-T-10-02	S110P4T4-10-B02
(B) Interconnect Hardware	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(C) Horizontal Cable	Customer Supplied Category 6 Cable		Customer Supplied Category 5e Cable	
(D) Consolidation Point	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(E) Horizontal Cable	IC6-8T-50-B02	Customer Supplied Category 6 Cable	IC5-8T-50-B02	Customer Supplied Category 5e Cable
(F) Work Area Outlet Assembly	MX-FP-S-02-02 & MX6-02		MX-FP-S-02-02 & MX5-02	
(F) MuTOA	MX-MMO-02 & MX6-02		MX-MMO-02 & MX5-02	
(G) Equipment Cord	MC6-8-T-10-02		MC5-8-T-10-02	

* Consolidation Point enclosures can be viewed in the Racks and Cable Management chapter.

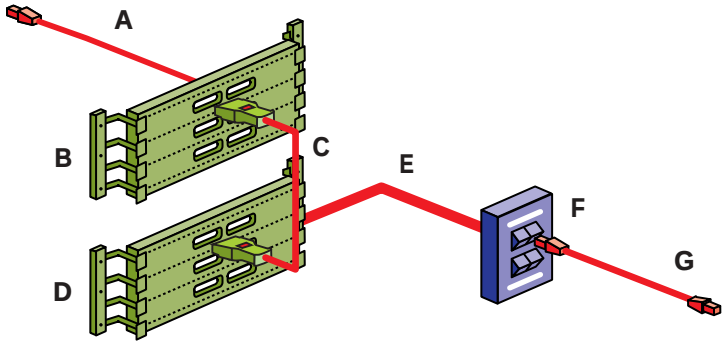
3-CONNECTOR CHANNEL WITH CROSS-CONNECT

In this channel the CP is not included. However, there is the addition of the cross-connect (CC) in the TR. The cross-connect is a connection scheme using patch cords or cross-connect wire that attach to two separate connecting hardware components. The added cross-connect provides the end user the ability to administer, route and identify channels more efficiently. The introduction of a cross-connect also moves the patching activities away from the active equipment. This allows equipment cords to be properly routed into the active equipment minimizing exposure to potential disruption facilitating easy maintenance.

Modular Solution



Connecting Block Solution

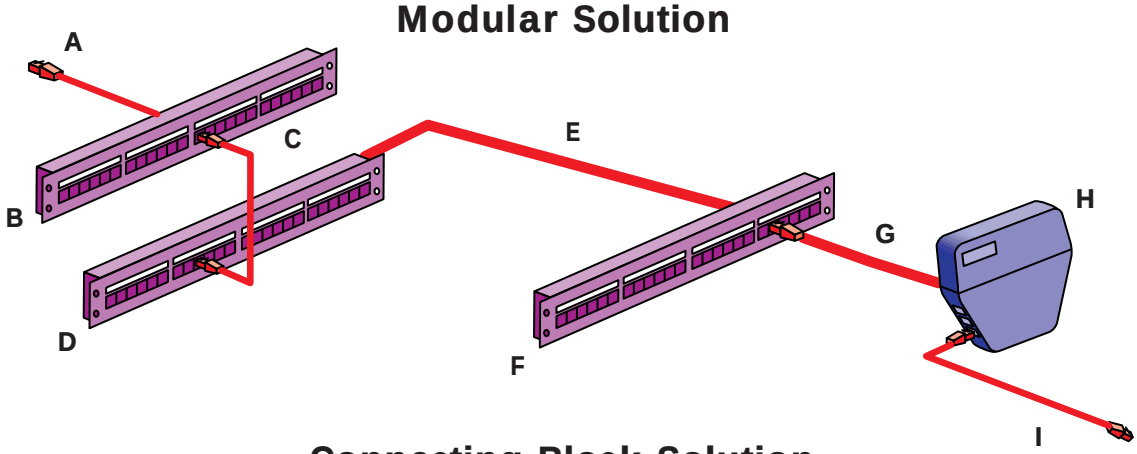


3-CONNECTOR CHANNEL WITH CROSS-CONNECT				
	Solution		Solution	
Channel Product	**Modular**	**Connecting Block**	**Modular**	**Connecting Block**
(A) Equipment Cord	MC6-8-T-10-02	S210P4T4-10-02	MC5-8-T-10-02	S110P4T4-10-B02
(B) Cross-Connect Component	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(C) Patch Cord	MC6-8-T-10-02	S210P4T4-10-02	MC5-8-T-10-02	S110P4T4-10-B02
(D) Cross-Connect Component	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(E) Horizontal Cable	Customer Supplied Category 6 Cable		Customer Supplied Category 5e Cable	
(F) Work Area Outlet Assembly	MX-FP-S-02-02 & MX6-02		MX-FP-S-02-02 & MX5-02	
(F) MuTOA	MX-MMO-02 & MX6-02		MX-MMO-02 & MX5-02	
(G) Equipment Cord	MC6-8-T-10-02		MC5-8-T-10-02	

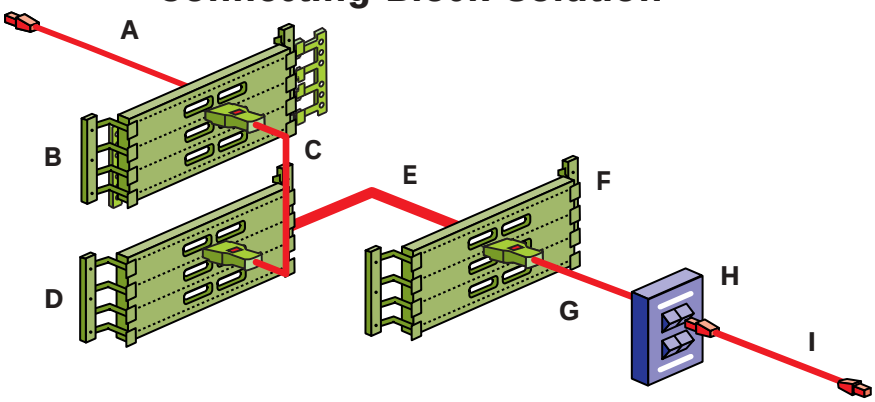
4-CONNECTOR CHANNEL

The 4-connector channel utilizes the benefits of both the CP and the CC. The 4-connector channel has the highest initial installation costs, typically the lowest performance but it provides the highest level of flexibility for administration and MACs.

Modular Solution



Connecting Block Solution



4-CONNECTOR CHANNEL

	6 Solution		5e Solution	
Channel Product	**Modular**	**Connecting Block**	**Modular**	**Connecting Block**
(A) Equipment Cord	MC6-8-T-10-02	S210P4T4-10-02	MC5-8-T-10-02	S110P4T4-10-B02
(B) Cross-Connect Component	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(C) Patch Cord	MC6-8-T-10-02	S210P4T4-10-02	MC5-8-T-10-02	S110P4T4-10-B02
(D) Cross-Connect Component	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(E) & (G) Horizontal Cable	Customer Supplied Category 6 Cable		Customer Supplied Category 5e Cable	
(F) Consolidation Point*	HD6-48	S210AB2-192FT	HD5-48	S110AB2-100FT
(H) Work Area Outlet Assembly	MX-FP-S-02-02 & MX6-02		MX-FP-S-02-02 & MX5-02	
(H) MuTOA	MX-MMO-02 & MX6-02		MX-MMO-02 & MX5-02	
(I) Equipment Cord	MC6-8-T-10-02		MC5-8-T-10-02	

* Consolidation Point enclosures can be viewed in the Racks and Cable Management chapter.

STANDARDS UPDATE

SIEMON GUIDELINES TO INDUSTRY STANDARDS

Since the first release of the Commercial Building Telecommunications Cabling Standard (ANSI / TIA / EIA-568 in 1991), the volume of standards information available to the end-user community has increased substantially. As a result, The Siemon Company has focused efforts on educating our customers on the importance of generic, standards-based components and system requirements. The following information has been condensed from a compilation of relevant national and international telecommunications standards and provides a reference to the most commonly used information. Our active involvement in standards development provides us with advance information on emerging standards requirements for both the premises cabling and the applications that the cabling is intended to support. We have also included a preview of pending standards projects.

SECTION CONTENTS

SECTION CONTENTS

AN OVERVIEW OF CABLING STANDARDS

ANSI/TIA/EIA-568-B AND ISO/IEC 11801:2002 2ND EDITION, IEC 61156-5, -6

The latest edition of the Commercial Building Telecommunications Cabling Standard is ANSI/TIA/EIA-568-B. The Telecommunications Industry Association (TIA) TR42 Technical Committee has broken the standard into a series of documents known as B.1, B.2 and B.3. The B.1 document contains the information needed for designing, installing, and field testing a generic structured cabling system. The B.2 and B.3 documents contain manufacturing and component reliability test specifications for cable, patch cords and connecting hardware. The B.3 document was published in April 2000 dealing with optical fiber. The B.2 document addresses electrical and mechanical requirements of balanced twisted-pair UTP and ScTP. Both B.1 and B.2 were published in June 2001.

Also, the International Organization for Standardization (ISO) JTC1 SC 25/WG 3 Working Group on telecommunications cabling has published the second edition of the ISO/IEC 11801:2002 standard. The publication of this standard replaces Edition 1.2. The second edition of the standard addresses class E and F cabling as well as category 6 and 7 connecting hardware and cables. Items of interest are the work area interface for category 7 and coupling attenuation for copper systems. In optical fiber, the document has standardized on three classes of optical fiber cabling to service existing and future networking applications for channel lengths of 300m, 500m and 2000m.

For cabling requirements, '11801:2002 references the IEC cable specifications for horizontal (IEC 61156-5) and work area (IEC 61156-6). With a few exceptions detail in the cable clause of '11801:2002, all requirements for cable can be found in these two specifications.

Following are highlights of the '568-B series standard which has incorporated Telecommunications System Bulletins (TSB's) TSB 67, TSB 72, TSB 75, TSB 95, Addendum's TIA/EIA-568-A-1, '-2, '-3, '-4, and '-5 and TIA/EIA/IS-729. For clarity and consistency, '568-B based terminology is used in the following overview with notes on differences in terminology and technical requirements with respect to '11801:2002.

Purpose

- To specify a generic telecommunications cabling system that will support a multi-product, multi-vendor environment.
- To provide direction for the design of telecommunications equipment and cabling products intended to serve commercial enterprises.
- To enable the planning and installation of a structured cabling system for commercial buildings that is capable of supporting the diverse telecommunications needs of building occupants.
- To establish performance and technical criteria for various types of cable and connecting hardware and for cabling system design and installation.

Scope

- Specifications are intended for telecommunications installations that are "office oriented".
- Requirements are for a structured cabling system with a usable life in excess of 10 years.
- Specifications addressed:
  - Recognized Media
  - Cable and Connecting Hardware
  - Performance
  - Topology
  - Cabling Distance
  - Installation Practices
  - User Interfaces
  - Channel Performance

Cabling Elements:

- Horizontal Cabling:
  - Horizontal Cross-connect (HC)
  - Horizontal Cable
  - Consolidation Point (optional)
  - Telecommunications-Outlet/Connector (TO)
- Backbone Cabling:
  - Main Cross-connect (MC)
  - Interbuilding Backbone Cable
  - Intermediate Cross-connect (IC)
  - Intrabuilding Backbone Cable
- Work Area (WA)
- Telecommunications Room (TR)
- Equipment Room (ER)
- Entrance Facility (EF)
- Administration*

**Although administration is addressed to a limited extent, the governing specification on telecommunications administration is ANSI/TIA/EIA-606-A and ISO/IEC 14763-1*

ANNEX INFORMATION

B.1

A. Centralized optical fiber cabling (Normative).

B. Shared sheath guidelines for multi-pair UTP cables (Informative).

C. Other cable specifications (Informative)

D. Category 5 cabling transmissions (Informative).

E. Optical fiber applications support information (Informative).

F. Bibliography (Informative).

B.2

A. Reliability testing of connecting hardware used for 100 Ω balanced twisted-pair cabling (Normative).

B. Test equipment overview (Normative).

C. Testing of cable (Normative).

D. Testing of connecting hardware (Normative).

E. Testing of cabling (Normative).

F. Testing of patch cords (Normative).

G. Multi-port measurement considerations (Normative).

H. Measurement accuracy (Informative).

I. Test instruments (Normative).

J. Comparison measure procedures (Normative).

K. 100 Ω screened twisted-pair (ScTP) cabling (Normative).

L. Derivation of propagation delay from insertion loss equation (Informative).

M. 150 Ω shielded twisted-pair cabling (Normative).

N. Category 5 cabling (Informative).

O. Development of channel and component return loss limits (Informative).

P. Bibliography (Informative).

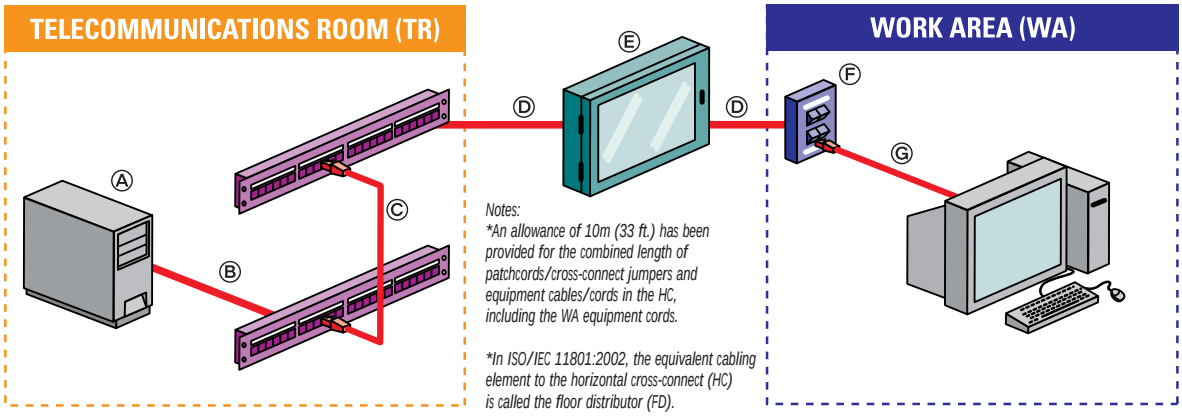
B.3

A. Optical fiber connector performance specifications (Normative).

B. Bibliography and references (Informative).

HORIZONTAL CABLING SYSTEM STRUCTURE

The horizontal cabling system extends from the telecommunications outlet in the work area to the horizontal cross-connect in the telecommunications room. It includes the telecommunications outlet, an optional consolidation point or transition point connector, horizontal cable, and the mechanical terminations and patch cords (or jumpers) that comprise the horizontal cross-connect.



A Customer Premises Equipment

B HC Equipment Cord

C Patchcords / cross-connect jumpers used in the HC, including equipment cables / cords, should not exceed 5m (16 ft.)

Note: ISO / IEC 11801:2002 specifies a max. patchcord / cross-connect length of 5m (16.4 ft.), which does not include equipment cables / cords.

D Horizontal cable 90m (295 ft.) max. total

E TP or CP (optional)

F Telecommunications outlet / connector (TO)

G WA Equipment cord

Note: An allowance is made for WA equipment cords of 5m (16 ft.)

Some points specified for the horizontal cabling subsystem include:

- Recognized Horizontal Cables:

4-pair 100 Ω unshielded twisted-pair or screened twisted-pair

2-fiber (duplex) 62.5 / 125µm or 50 / 125µm multimode optical fiber

- Multi-unit cables are allowed, provided that they satisfy the hybrid / bundled cable requirements of TIA / EIA-568-B.2, ISO / IEC 11801:2002.
- Grounding must conform to applicable building codes, as well as ANSI-J-STD-607-A.
- A minimum of two telecommunications outlets are required for each individual work area.

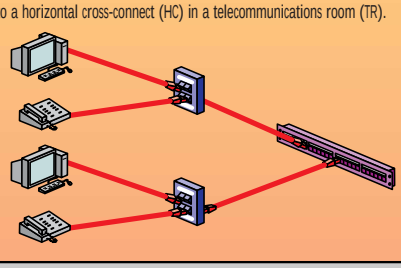
  First outlet: 100 Ω twisted-pair (category 5e is recommended).

  Second outlet: 100 Ω twisted-pair category 5e, or two-fiber multimode optical fiber either 62.5 / 125µm or 50 / 125µm.

- One transition point (TP) or Consolidation Point (CP) is allowed. The term “transition point” was removed from the second edition of ISO / IEC 11801:2002. Under carpet cabling is no longer covered by that standard.
- Additional outlets may be provided. These outlets are in addition to, and may not replace, the minimum requirements of the standard.
- Bridged taps and splices are not allowed for copper-based horizontal cabling. (Splices are allowed for fiber.)
- Application specific components shall not be installed as part of the horizontal cabling. When needed, they must be placed external to the telecommunications outlet or horizontal cross-connect (eg. splitters, baluns).
- The proximity of horizontal cabling to sources of electromagnetic interference (EMI) shall be taken into account.

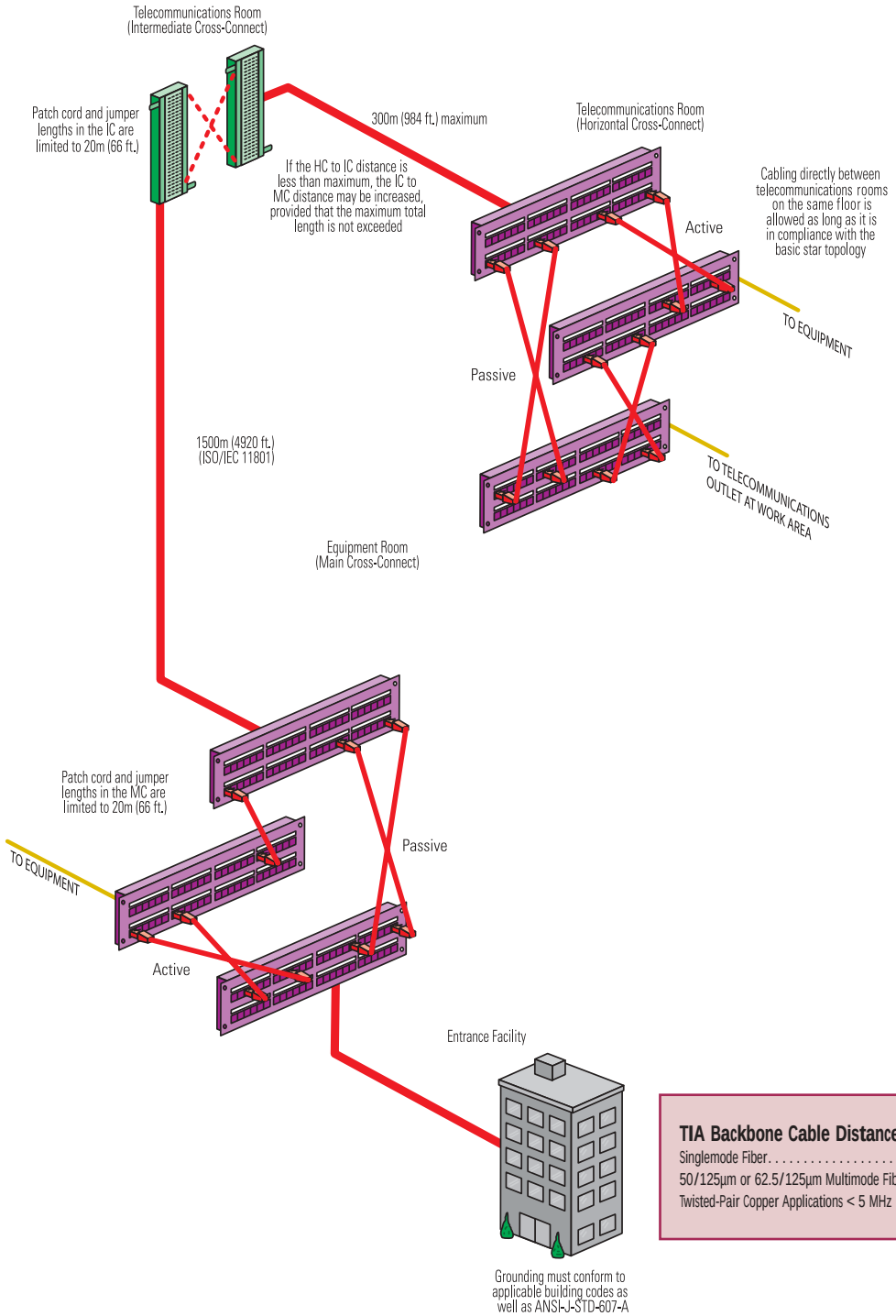
Topology

The horizontal cabling shall be configured in a star topology; each work area outlet is connected to a horizontal cross-connect (HC) in a telecommunications room (TR).



BACKBONE CABLING SYSTEM STRUCTURE

The backbone cabling system provides interconnections between telecommunications rooms, equipment rooms, main terminal space, and entrance facilities. It includes backbone cables, intermediate and main cross-connects, mechanical terminations, and patch cords or jumpers used for backbone-to-backbone cross-connections. The backbone also extends between buildings in a campus environment.



TIA Backbone Cable Distances (MC to HC)

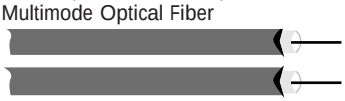
Singlemode Fiber . . . . . 3000m (9840 ft.)
50/125µm or 62.5/125µm Multimode Fiber . . . . . 2000m (6560 ft.)
Twisted-Pair Copper Applications < 5 MHz . . . . . 800m (2625 ft.)

SOME POINTS SPECIFIED FOR THE BACKBONE CABLING SUBSYSTEM INCLUDE:

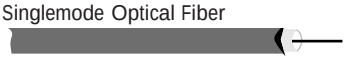
- Equipment connections to backbone cabling should be made with cable lengths of 30m (98 ft.) or less.
- The backbone cabling shall be configured in a star topology. Each horizontal cross-connect is connected directly to a main cross-connect or to an intermediate cross-connect, then to a main cross-connect.
- The backbone is limited to no more than two hierarchical levels of cross-connects (main and intermediate). No more than one cross-connect may exist between a main and a horizontal cross-connect and no more than three cross-connects may exist between any two horizontal cross-connects.
- A total maximum backbone distance of 90m (295 ft.) is specified for high bandwidth capability over copper. This distance is for uninterrupted backbone runs. (No intermediate cross-connect).
- The distance between the terminations in the entrance facility and the main cross-connect shall be documented and should be made available to the service provider.
- Recognized media may be used individually or in combination, as required by the installation. Quantity of pairs and fibers needed in individual backbone runs depends on the area served. Recognized backbone cables are:

100 Ω Twisted-Pair

50/125µm or 62.5/125µm Multimode Optical Fiber



Singlemode Optical Fiber

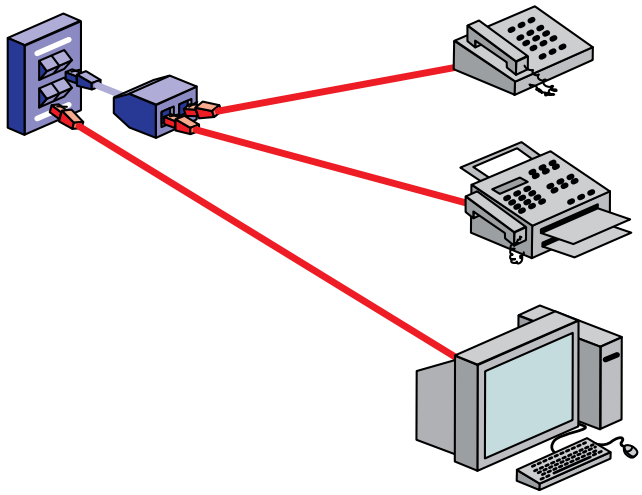


- Multi-pair cable is allowed, provided that it satisfies the power sum crosstalk requirements.
- The proximity of backbone cabling to sources of electromagnetic interference (EMI) shall be taken into account.
- Cross-connects for different cable types must be located in the same facilities.
- Bridged taps and splitters are not allowed.

Notes: In ISO/IEC 11801:2002, the equivalent cabling elements to the main cross-connect (MC) and intermediate cross-connect (IC) are called the campus distributor (CD) and building distributor (BD) respectively.

WORK AREA

The telecommunications outlet serves as the work area interface to the cabling system. Work area equipment and cables used to connect to the telecommunications outlet are now included within the scope of ’568-B.1 and ’11801:2002.



SOME SPECIFICATIONS RELATED TO WORK AREA CABLING INCLUDE:

- Equipment cords are assumed to have the same performance category as the horizontal cable to which they connect.
- When used, adapters are assumed to be compatible with the transmission capabilities of the equipment to which they connect.
- Horizontal cable lengths are specified with the assumption that a maximum cable length of 5m (16 ft.) is used for equipment cords in the work area.

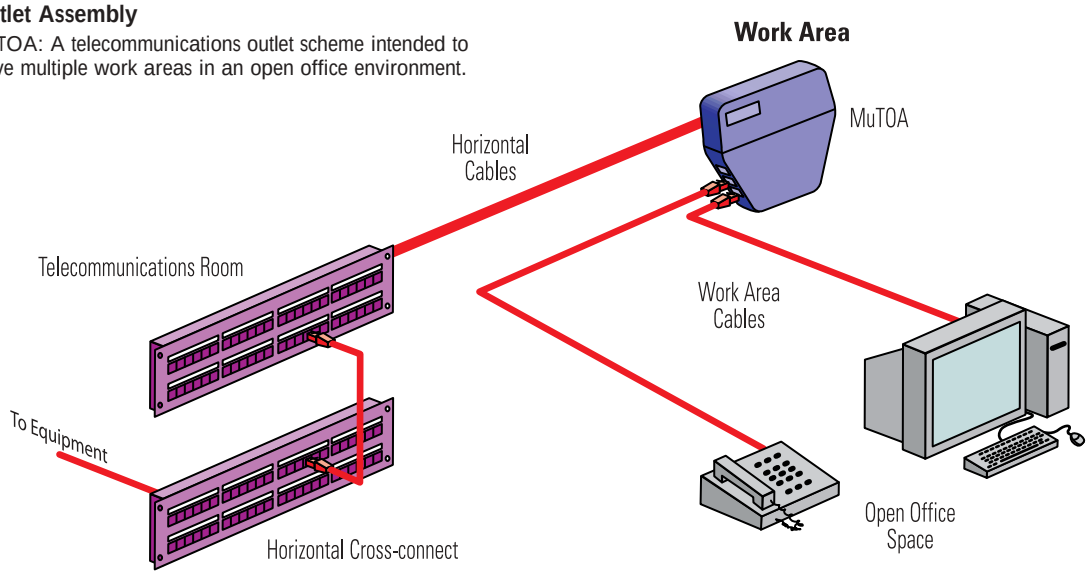
Note: For establishing maximum horizontal link distances, a combined maximum length of 10m (33 ft.) is allowed for patch cables (or jumpers) and for equipment cables in the work area and the telecommunications room.

OPEN OFFICE CABLING

Additional specifications for horizontal cabling in areas with moveable furniture and partitions have been included in TIA / EIA-568-B.1. Horizontal cabling methodologies are specified for "open office" environments by means of multi-user telecommunications outlet assemblies and consolidation points. These methodologies are intended to provide increased flexibility and economy for installations with open office work spaces that require frequent reconfiguration.

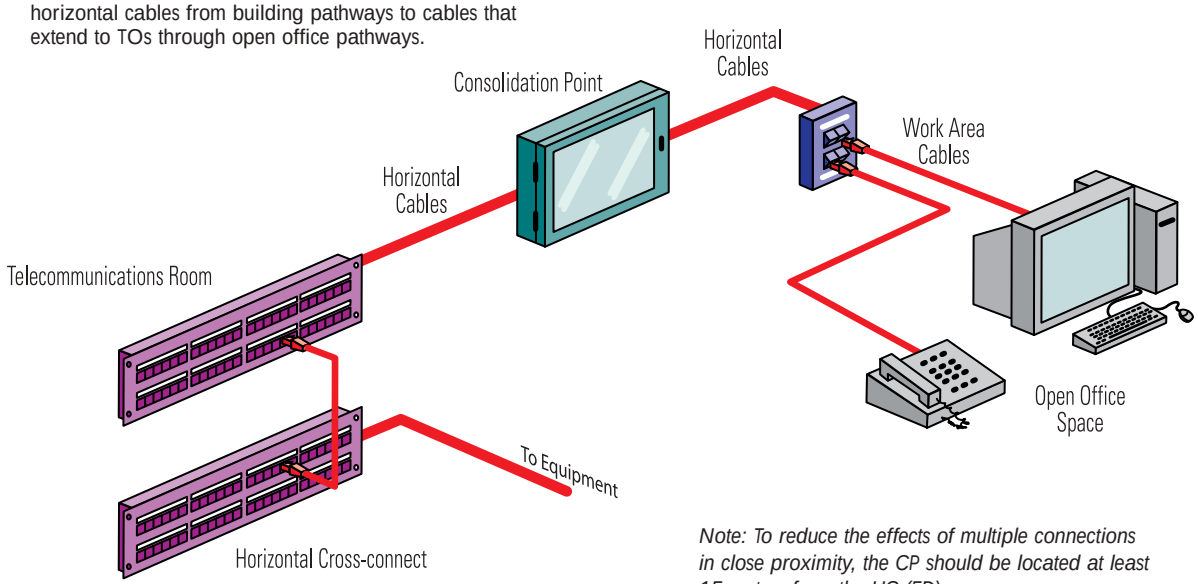
This is an example of Open Office Implementation using the MuTOA — Multi-user Telecommunications Outlet Assembly

MuTOA: A telecommunications outlet scheme intended to serve multiple work areas in an open office environment.



This is an example of Open Office Implementation using a Consolidation Point Connector

Consolidation Point: An interconnection scheme that connects horizontal cables from building pathways to cables that extend to TOs through open office pathways.



Note: To reduce the effects of multiple connections in close proximity, the CP should be located at least 15 meters from the HC (FD).

HORIZONTAL DISTANCES OF COPPER LINKS (OPEN OFFICE)

Copper work area cables connected to a MuTOA, shall meet the requirements of '568-B.1. The maximum length of copper work area cables shall be determined according to:

C = (102 – H) / 1.2*

W = C – 5 ≤ 22m(72 ft.)

Where:

C is the maximum combined length (m) of the work area cable, equipment cable, and patch cord (m).

W is the maximum length (m) of the work area cable.

H is the length (m) of the horizontal cable.

The above equations assume that there is a total of 5m (16 ft.) of patch and equipment cables in the telecommunications room. Table 1 shows the application of these formulae assuming the use of 24AWG cable. The length of work area cables shall not exceed 22m (72 ft.), 20m (66 ft.) per ISO/IEC 11801:2002. The MuTOA shall be marked with the maximum allowable work area cable length.

Length of Horizontal Cable	Maximum Length of Work Area Cable	Maximum Combined Length of Work Area Cables, Patch Cords, and Equpment Cable
H m (ft.)	W m (ft.)	C m (ft.)
90 (295)	5 (16)	10 (33)
85 (279)	9 (30)	14 (46)
80 (262)	13 (44)	18 (59)
75 (246)	17 (57)	22 (72)
70 (230)	22 (72)	27 (89)

Table 1 — Maximum Length of Work Area Cables

**Note: The preceding equation and table are based on patch cables having 20% more attenuation than horizontal cables. If higher gauge (e.g. 26 AWG) cables are used that have 50% higher attenuation than solid, as allowed by ISO/IEC 11801:2002, these lengths must be reduced accordingly.*

HORIZONTAL DISTANCES OF OPTICAL FIBER LINKS (LONG WORK AREA CABLES)

For optical fiber cables, any length combination of horizontal cables and work area cables is acceptable, as long as the total combined length of the horizontal channel does not exceed 100m (328 ft.). When deploying a centralized fiber cabling topology, the general guidelines of 568-B.1 shall be followed.

ADVANTAGES AND FEATURES

- It is preferable to use MuTOAs only when the entire length of the work area cord is accessible to facilitate tracing and to prevent erroneous disconnection. Up to 22m (72 ft.) of work area cable are allowed.
- MuTOAs are subject to the same interface requirements specified for each media type.
- Consolidation point requirements are performance based. There is no physical interface requirement for the CP except those required to meet functional requirements.
- Implementations using either MuTOAs or CPs are subject to the same end-to-end UTP/ScTP performance requirements.
- Consolidation points have the advantage that they deliver dedicated TOs to individual work areas and do not require provisions for extended cord lengths.

TELECOMMUNICATIONS ROOM

Telecommunications Rooms (TR) are generally considered to be floor serving facilities for horizontal cable distribution. They may also be used for intermediate and main cross-connects.

SOME SPECIFICATIONS RELATED TO THE TELECOMMUNICATIONS ROOM:

- (TR's) shall be designed and equipped in accordance with ANSI/TIA/EIA-569-A.
- Cable stress from tight bends, cable ties, staples, and tension should be avoided by well-designed cable management.
- Only standards-compliant connecting hardware shall be used.
- Application-specific electrical components shall not be installed as part of the horizontal cabling.
- Horizontal cable terminations shall not be used to administer cabling system changes. Instead, jumpers patch cords, or equipment cords are required for re-configuring cabling connections.

The two types of schemes used to connect cabling subsystems to each other and to equipment are known as interconnections and cross-connections.

Note: A "cross-connect" (a.k.a. distributor) is a facility, whereas a "cross-connection" is a connection scheme. Cross-connections are typically used to provide a means of configuring individual port connections between the cabling and equipment with multiport outputs (i.e., 25-pair connectors). Interconnections may be used with equipment that has individual output ports. A cross-connect facility (a.k.a. distributor) may house interconnections, cross-connections, or both.

TIA WORKING GROUP TR42.1.1 NETWORK DISTRIBUTION NODES

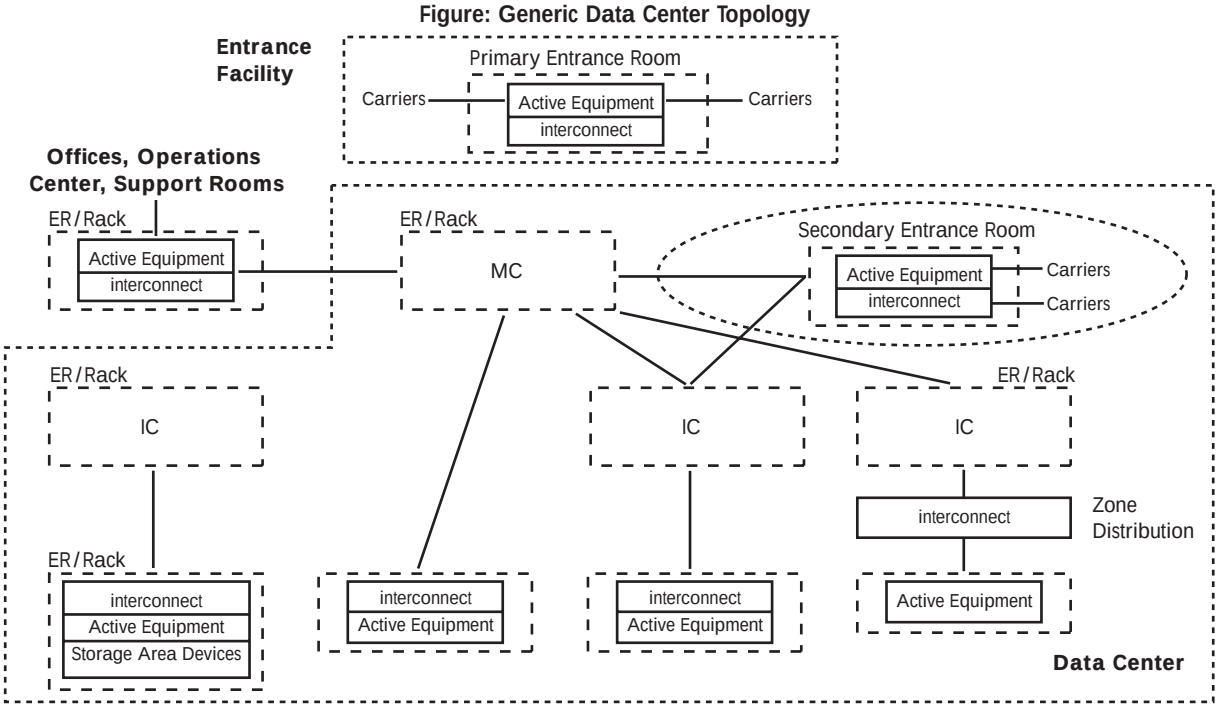
TR42.1.1 was tasked to create a new standard for Application Spaces such as Internet Data Centers, Service Distribution Nodes, and Storage Area Networks. The scope of the group was to develop cabling topology, recognized media types, cabling requirements, and requirements for pathways & spaces for the above application spaces and inter/intra-node connections.

TIA-TR42.1.1 is expected to release a PN ballot on "Telecommunications Infrastructure Standard for Data Centers" draft 1.0 at the February 2003 TIA meeting.

The standard will address infrastructure standards for data centers and computer rooms of all types and sizes, including small server rooms within an office building to large multi-floor data centers. The standard will be constructed so that the topology described will be adaptable to any size data center.

The standard will recognize two categories of data centers. The private domain ("enterprise") consists of private corporations, government agencies, or the establishment of other intranets or extranets, while public domain ("internet") consists of traditional telephone service providers, unregulated competitive service providers and related commercial operators.

Figure: Generic Data Center Topology



TWISTED-PAIR (BALANCED) CABLING

The categories of transmission performance specified by Siemon for cables, connecting hardware links and channels are:

Designation	Transmission Characteristics	Description
3	Transmission characteristics are specified up to 16 MHz.	Meets applicable category 3 and class C requirements of ISO/IEC 11801:2002, ANSI/TIA/EIA-568-B.1 & B.2. Requirements are specified to an upper frequency limit of 16 MHz.
5e	Transmission characteristics are specified up to 100 MHz.	Performs to category 5e of '568-B.1 & B.2 and additional class D requirements of ISO/IEC 11801:2002. Requirements are specified to an upper frequency limit of 100 MHz.
6	Transmission characteristics are specified up to 250 MHz.	Performs to category 6 of '568-B.2-1 and class E requirements of ISO/IEC 11801:2002. Requirements are specified to an upper frequency limit of 250 MHz. This classification is a superset of 5e.
7	Transmission characteristics will be specified up to 600 MHz.	Performs to category 7 and class F requirements of ISO/IEC 11801:2002. Requirements are specified to an upper frequency limit of 600 MHz. This classification is an electrical superset of 6.

Notes:

Terminology and classifications specified in ISO/IEC 11801:2002 for cabling links differ slightly from TIA categories (See page 15.20 in this catalog).

Components and installation practices are subject to all applicable building and safety codes that may be in effect.

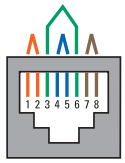
INDUSTRIAL ETHERNET CONNECTIVITY AND APPLICATIONS

There are several standards bodies around the world currently working towards Industrial premise cabling standards. Some of the more prominent committees are the TIA (Telecommunications Industry Association), IEC (International Electrotechnical Commission), and the ODVA (Open DeviceNet Vendor Association).

These committees are establishing the standards for both connectivity requirements that are needed within harsh industrial environments, as well as the applications that will need to be supported. The TIA and the ODVA are recommending an Ethernet platform for easier integration of information into the office environment. The IEC has released a Publicly Available Specification (IEC/PAS 61076-3-111 ED.1) covering connectors to 250 MHz in the Industrial environment. The Siemon Industrial MAX® plug and outlet are specified as connector variant 1.

UTP AND ScTP TELECOMMUNICATIONS OUTLET/CONNECTOR

- 8-position modular jack per IEC 60603-7 ('568-B.1 states that all 4 pairs must be connected).
- Pin/pair assignment: T568A (US federal government publication NCS, FTR 1090-1997 recognizes designation T568A only).
- Optional assignment to accommodate certain systems: T568B.
- Durability rating 750 mating cycles minimum.
- Backward compatibility and interoperability is required.

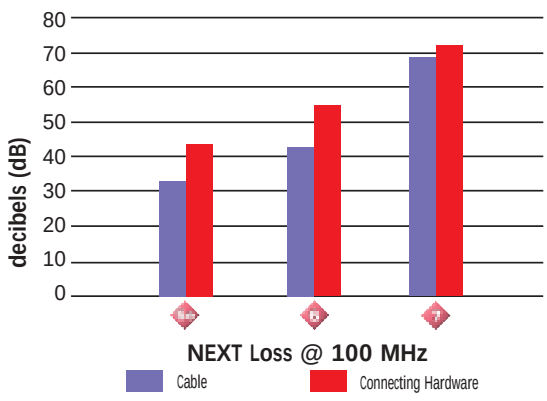


FULLY SHIELDED TELECOMMUNICATIONS OUTLET/CONNECTOR

- Entirely new interface design to support class F cabling per IEC/PAS 61076-3-104.
- Will require a new wiring pin/pair assignment.
- Transmission measurement methods for category 7 and class F specified by ISO/IEC 11801:2002.
- Durability rating 750 mating cycles minimum.

CONNECTING HARDWARE vs. CABLE NEXT PERFORMANCE

- Specifications cover all types of connectors used in the cabling system including the telecommunications outlet/connector.
- Does not cover work area adapters, baluns, protection, MAUs, filters, or other application-specific devices.
- Temperature range: -10°C (14°F) to 60°C (140°F).
- Outlets shall be securely mounted. Outlet boxes with unterminated cables must be covered and marked.
- Transmission requirements are more severe than cable of a corresponding category. (See graph)
- Performance markings should be provided to show the applicable transmission category and should be visible during installation (for example) in addition to safety markings.
- Installed connectors shall be protected from physical damage and moisture.



UTP LINK PERFORMANCE MARKING AND IDENTIFICATION

- Link category marking should be clearly visible on both ends (component markings are not sufficient).
- Labeling, markings, and color-coding shall be provided in accordance with ANSI/TIA/EIA-606-A.

SCREENED CABLING (ScTP)

As a result of the release of TIA/EIA/IS-729 and the maturity of the '568-B and '11801:2002 standards, telecommunications groups recognize the presence of an overall shield over four twisted-pairs; a media termed Screened Twisted-Pair or ScTP cabling.

ScTP Cable:

- Color-coding:
  - Pair 1 = White/Blue – Blue
  - Pair 2 = White/Orange – Orange
  - Pair 3 = White/Green – Green
  - Pair 4 = White/Brown – Brown
- 0.51mm (24 AWG) 100 Ω 4-pair enclosed by a foil shield.
- A copper conductor drain wire of .040mm (26 AWG) or larger shall be provided.
- Should be marked "100 Ω ScTP", in addition to any safety markings required by local or national codes.
- Same mechanical and transmission requirements apply to backbone and horizontal cables.
- Additional performance requirements, including surface transfer impedance, is specified in TIA/EIA-568-B.2 and ISO/IEC 11801:2002.

ScTP Connectors:

- Interface and pair assignments same as IEC 60603-7 ('568-B.1 states that all 4 pairs must be connected).
- Additional transfer impedance and shield mating interface requirements specified in IEC 60603-7-3 and IEC 60603-7-5.

ScTP Patch Cords:

- Specifications call for 26 AWG (7 strands @ 0.15mm) or 24 AWG (7 strands @ 0.20mm) stranded conductors.
- Allows for an overall shield.
- Allows for 50% more attenuation than horizontal cable.

ScTP Installation Practices:

- Shield shall be bonded at both ends at the "Telecommunication Grounding Busbar".
- The difference between the two grounds shall be no more than 1.0 V RMS.

FULLY SHIELDED CABLING (SSTP)

Fully shielded cabling requirements have been developed by ISO and IEC. Cable and connector specifications extend to 600 MHz and support class F cabling requirements.

Fully Shielded Cable:

- Color-coding:
  - Pair 1 = White/Blue – Blue
  - Pair 2 = White/Orange – Orange
  - Pair 3 = White/Green – Green
  - Pair 4 = White/Brown – Brown
- Four 0.51mm (24 AWG) or larger 100 Ω twisted-pairs each enclosed by an individual foil shield with an overall shield provided over the four-pairs.
- Mechanical and transmission requirements developed by ISO and IEC.

Fully Shielded Connectors:

- Cabling interface and pair assignments specified by ISO/IEC 11801:2002.
- Mechanical and transmission requirements specified in IEC 60603-7-7 and IEC/PAS 61076-3-104.

Fully Shielded Patch Cables:

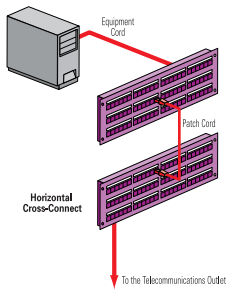
- Mechanical and transmission requirements are specified in IEC 61156-5 and IEC 61156-6.

Fully Shielded Installation Practices:

- Installation Practices developed by ISO/IEC.

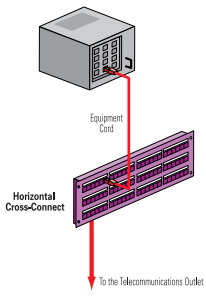
CROSS-CONNECTION:

A connection scheme using patch cords or jumpers that attach to connecting hardware on each end.



INTERCONNECTION:

A connection scheme that provides for direct connections to building cabling from equipment without a patch cord.



TRANSMISSION PERFORMANCE SPECIFICATIONS FOR FIELD TESTING OF BALANCED CABLING SYSTEMS

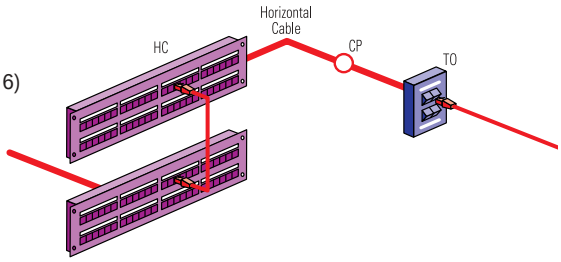
This document provides users with the opportunity to use comprehensive test methods to validate the transmission performance characteristics of installed category 7, 6, 5e and lower grade twisted-pair cabling systems. The categories of balanced cabling systems in this bulletin correspond with the balanced cabling categories of ANSI/TIA/EIA-568-B.1, ANSI/TIA/EIA-568-B.2-1, and ISO/IEC 11801:2002.

Horizontal Channel (Copper)

Performance Specified in:

TIA/EIA-568-B.1 (category 5e) and TIA/EIA-568-B.2-1 (category 6)

ISO/IEC 11801:2002 2nd Edition (classes D, E and F)



Transmission Performance Comparison @ 100 MHz

Cabling Type	Channel Insertion Loss (dB)	Channel NEXT (dB)	Channel ELFEXT (dB)	Channel Return Loss (dB)	Channel *ACR (dB)
Category 5e/Class D (@ 100 MHz)	24.0	30.1	17.4	10.0	6.1
Category 6 Class E (@ 100 MHz)	21.7	39.9	23.3	12.0	18.2
Class 7/Class F (@ 100 MHz)	20.8	62.9	44.4	12.0	42.1

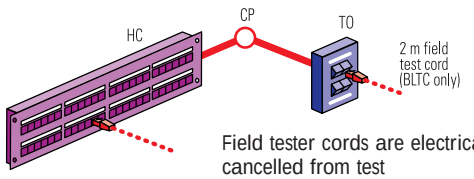
**Not specified by TIA*

Link Test Configuration

Performance Specified in:

TIA/EIA-568-B.1 (category 5e) and TIA/EIA-568-B.2-1 (category 6)

ISO/IEC 11801:2002 2nd Edition (classes D, E and F)



Field tester cords are electrically cancelled from test

Transmission Performance Comparison @ 100 MHz

Cabling Type	Permanent Link Insertion Loss (dB)	Permanent Link NEXT (dB)	Permanent Link ELFEXT (dB)	Permanent Link Return Loss (dB)	Permanent Link *ACR (dB)
Category 5e/Class D (@ 100 MHz)	20.4	32.3	18.6	12.0	11.9
Category 6 Class E (@ 100 MHz)	18.5	41.8	24.2	14.0	23.3
Class 7/Class F (@ 100 MHz)	17.7	65.0	46.0	14.0	47.3

**Not specified by TIA*

Class D attenuation values are calculated based on 90 meters horizontal cable plus two connectors (no flexible cord contribution) that meet ISO/IEC 11801:2002. Class D NEXT values are based on voltage summation of the near-end connector and horizontal cable.

SOME POINTS SPECIFIED FOR TRANSMISSION FIELD TESTING FOR TWISTED-PAIR CABLING SYSTEMS

- Twisted-Pair cabling systems are comprised of cables and connecting hardware specified in TIA/EIA-568-B.2 and ISO/IEC 11801:2002.
- Required test parameters include wire-map, length, insertion loss, and pair-to-pair NEXT loss, powersum NEXT loss, ELFEXT, powersum. ELFEXT, return loss, propagation delay, and delay skew.
- Two levels of pass or fail are indicated, depending on measured margin compared to minimum specifications. Testing of NEXT loss is required in both directions.
- Requirements are intended for performance validation and are provided in addition to '568-B.1 & B.2 requirements on components and installation practices. Level III field test accuracy required for category 6/class D.

OPTICAL FIBER CABLING

The '568-B.3 specification on optical fiber cabling consists of one recognized cable type for horizontal subsystems and two cable types for backbone subsystems:

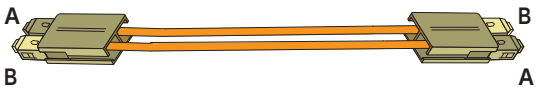
Horizontal – 50/125µm or 62.5/125µm multimode (two fibers per outlet).

Backbone – 50/125µm or 62.5/125µm multimode or singlemode.

All optical fiber components and installation practices shall meet applicable building and safety codes.

Optical Fiber Patch Cords:

- Shall be a two-fiber (duplex) cable of the same type as the cables to which they connect.
- Shall be configured so that "A" connects to "B" and "B" connects to "A".



Installation of Optical Fiber Connecting Hardware:

- Connectors shall be protected from physical damage and moisture.
- Optical fiber cable connecting hardware should incorporate high-density termination to conserve space and provide for ease of optical fiber cable and patch cord management upon installation.
- Optical fiber cable connecting hardware should be designed to provide flexibility for mounting on walls, in racks, or on other types of distribution frames and standard mounting hardware.

Optical Fiber Cabling Installation:

- The Siemon Company recommends that a minimum of 1m (3.28 ft.) of two-fiber cable (or two buffered fibers) be accessible for termination purposes.
- Testing is recommended to assure correct polarity and acceptable link performance. Clause 11 of '568-B.1 provides recommended optical fiber link performance testing criteria.

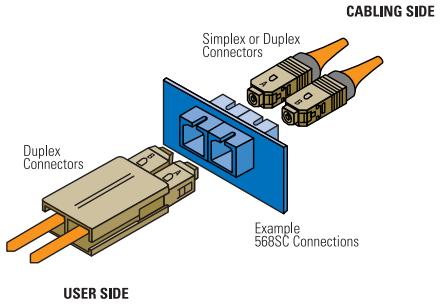
Optical Fiber Connections:

- Connector designs shall meet the requirements of the corresponding TIA FOCIS documents
- Telecommunications outlet/connector boxes shall be securely mounted at planned locations.
- The telecommunications outlet/connector box shall have:
  - Cable management means to assure a minimum bend radius of 25mm (1 in.) and should have slack storage capability.
  - Provisions for terminating and housing a minimum of two optical fibers.
- Identification of fiber types:
  - Multimode connector or a visible portion of it and adapters shall be identified with the color beige.
  - Singlemode connector or a visible portion of it and adapters shall be identified with the color blue.
- The two positions in a duplex connector are referred to as "position A" and "position B".

Small Form Factor (SFF) Connectors:

- Qualified SFF duplex and multi-fiber connector designs may be used in the main cross-connect, intermediate cross-connect, horizontal cross-connect, consolidation points and work area.
- A TIA Fiber Optic Connect Intermateability Standard (FOCIS) shall describe each SFF design.
- The SFF design shall satisfy the requirements specified in Annex A of the '568-B.3 standard.
- Some advantages of SFF connectors include compact size, modular compatibility with the eight position modular copper interface, and adaptability to high-density network electronics.

See page 5.19 for information on optical fiber cabling classes OF-300, OF-500 and OF-2000, as specified in ISO/IEC 11801:2002.

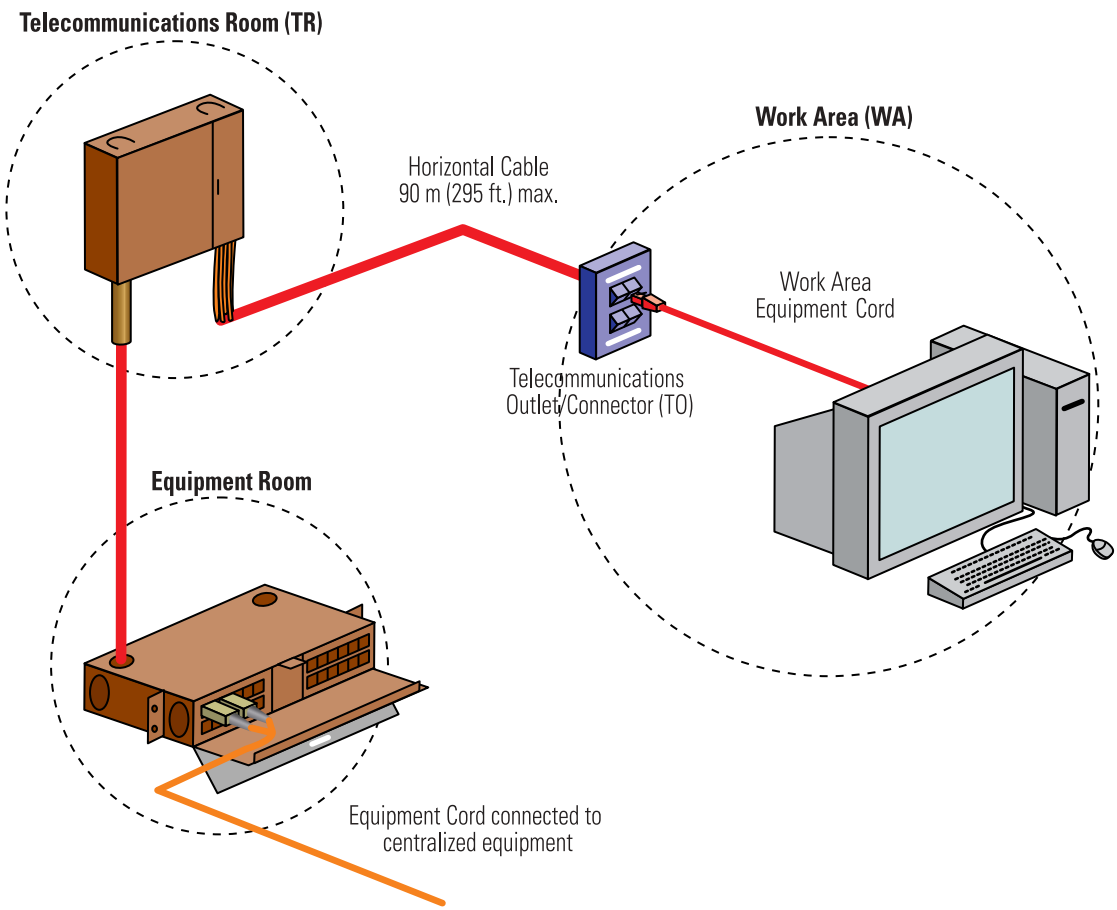


568-B.1 AND ISO/IEC 11801:2002

CENTRALIZED OPTICAL FIBER CABLING

Centralized optical fiber cabling provides the user with the flexibility of designing an optical fiber cabling system for centralized electronics in single tenant buildings. It contains information and guidelines for design and installation requirements.

Typical schematic for centralized optical fiber cabling using an interconnection.



SOME POINTS SPECIFIED FOR A CENTRALIZED OPTICAL FIBER CABLING SYSTEM INCLUDE:

- Intended for single-tenant users who desire centralized vs. distributed electronics.
- Implementation allows cables to be spliced or interconnected at the telecommunications room such that cables can be routed to a centralized distributor for total channel lengths of 300m (984 ft.) or less, including patch cords or jumpers.
- Allows for migration from an interconnection or splice to a cross-connection scheme that can also support distributed electronics.
- Pull-through implementations are allowed when total length between the telecommunications outlet/connector and centralized cross-connect is 90m (295 ft.) or less.
- Connecting hardware required to:
  - join fibers by re-mateable connectors or splices,
  - provide for simplex or duplex connection of optical fibers,
  - provide means of circuit identification,
  - allow for addition and removal of optical fibers.

Note: Some multimode fiber implementations may be limited to an operating range of 220m to support 1000BASE-SX.

PROPAGATION DELAY AND DELAY SKEW

Propagation delay and delay skew requirements for all compliant 4-pair 100 Ω cables have been added for testing category 5e cable. Propagation delay and delay skew requirements of multipair cables are subject to additional study.

Propagation delay is equivalent to the amount of time that passes between when a signal is transmitted and when it is received at the other end of a cabling channel. Delay skew is the difference between the pair with the least delay and the pair with the most delay. Transmission errors that are associated with excessive delay and delay skew include increased jitter and bit error rates.

The maximum propagation delay skew requirement for 4-pair 100 Ω cables is frequency dependent and is specified by the following equation:

Cable delay skew shall not exceed 45 ns/100m between 1 MHz and the highest referenced frequency for a given category.

The requirements of propagation delay and delay skew are also applicable to category 6 cable specifications while more stringent performance criteria are specified for category 7 cables.

ADDITIONS TO TIA/EIA-568-B.1, B.2, AND B.3

1. TIA/EIA TSB72 centralized optical fiber cabling is incorporated as an alternative to the optical cross-connection located in the telecommunications room when deploying 62.5/125µm and 50/215µm optical fiber cable in the horizontal.

2. ANSI/ICEA S-90-661-1994 for specifying the physical and mechanical requirements of recognized cables was updated.

3. The 568SC optical fiber connector axial pull off strength requirement was decreased to 19.4 N (4.4 lb*f*).

4. Globally, the word “polarization” was replaced with “polarity”.

5. A provision for common mode terminations for testing connecting hardware was incorporated. This revision accommodates telecommunications networking implementations that may employ common mode terminations in the active equipment.

HYBRID AND BUNDLED CABLES

As a result of the demand for open office architecture and the need to support multiple telecommunications applications in a shared sheath, performance specifications for hybrid cables have been revised. A new term called “bundled cables” has been introduced to describe 4-pair cable assemblies that are not covered by an overall sheath (as specified for hybrid cables), but by any generic binding method such as “speed-wrap” or “cable-ties.”

The new hybrid and bundled cable requirements state that power sum NEXT loss between all non-fiber cable types within the cable shall be 3 dB better than the specified pair-to-pair NEXT loss for each cable type. See figure 1.

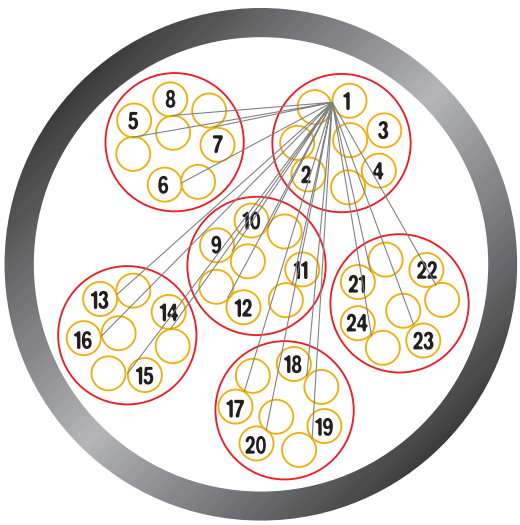
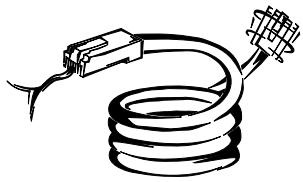


Figure 1:
Pair-to-Pair measurements required to calculate power sum NEXT for pair 1 of a 24-pair cable.

PRODUCTION MODULAR CORD NEXT LOSS TEST METHOD AND REQUIREMENTS FOR UNSHIELDED TWISTED PAIR CABLING

TIA/EIA-568-B.2 defines a generic and non-destructive methodology for NEXT loss testing of modular plug cords. NEXT loss performance requirements for category 5e modular plug cords, when measured with the particular test head specified in the Standard, are provided. The methodology described in the Standard contains the detailed NEXT loss calculations (which are based upon patch cable NEXT loss, test head NEXT loss, and cable and connector attenuation contributions) for the determination of the NEXT loss limits for any category patch cord and suitably designed test head.



TRANSMISSION PERFORMANCE SPECIFICATIONS FOR 4-PAIR 100 Ω ENHANCED CATEGORY 5e CABLING

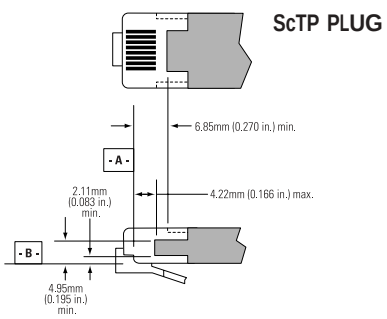
'568-B.1 & B.2 specifies enhanced category 5 (category 5e) performance requirements. Category 5e has become the de facto minimum standard for cabling. These documents address the minimum equal level far-end crosstalk (ELFEXT) and return loss requirements necessary to support developments in applications technology and defines the minimum performance needed for a worst case, four-connector channel to support applications that utilize full-duplex transmission schemes, such as Gigabit Ethernet. To ensure additional crosstalk headroom for robust applications support, this document also specifies power sum performance requirements for category 5e cables and cabling.

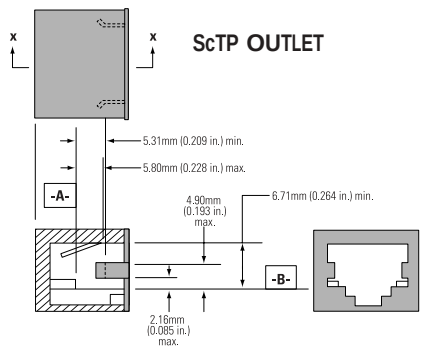
ADDITIONAL TRANSMISSION PERFORMANCE GUIDELINES FOR 4-PAIR 100 Ω CATEGORY 5 CABLING

Annex "D" of TIA/EIA-568-B.1 and Annex I of ISO/IEC 11801:2002 outlines minimum recommendations for the new channel parameters of return loss and equal level far-end crosstalk (ELFEXT). These return loss and ELFEXT recommendations are specified to ensure the support of Gigabit Ethernet over installed or "legacy" category 5 cabling and were derived from worst case performance of channels with only two connection points. The two-connector channel topology is consistent with the IEEE committee's assumption that cabling used to support Gigabit Ethernet systems will most likely utilize an interconnect instead of a cross-connect field and will not include a consolidation or transition point connection. Existing installed category 5 cabling should be verified to ensure that performance meets the minimum recommendations of this document. Channel configurations with three or four connectors that meet the specified ELFEXT and return loss recommendations will also support Gigabit Ethernet. The specifications of this Annex are applicable for the qualification of existing installed cabling only.

TECHNICAL SPECIFICATIONS FOR 100 Ω SCREENED TWISTED PAIR CABLING INCLUDED IN B.1 AND B.2

Screened twisted-pair cabling specifications have additional technical requirements on the outlet interface, shield effectiveness, installation practices, and performance relative to ScTP links and components.





ISO / IEC 11801:2002 2ND EDITION

AMENDMENT 2 TO ISO / IEC 11801:2002

The performance specifications in ISO 2nd Edition provide new requirements for return loss and ELFEXT loss to complement the existing ISO class D requirements. The new specified return loss and ELFEXT loss requirements are in harmony with the values in '568-B.1 & B.2. 2nd Edition also includes propagation delay and delay skew requirements for channels and permanent links that are in harmony with the requirements of TIA / EIA-568-B.1.

The requirements of 2nd Edition to ISO / IEC 11801 are normative and this document has become the governing international standard for cabling installations.

NEXT GENERATION CABLING

CATEGORY 6 / CLASS E ('568-B.2-1 AND '11801:2002)

Category 6 / class E standards describe a new performance range for unshielded and screened twisted-pair cabling. Category 6 / class E specifies the best performance that UTP and ScTP cabling solutions can be designed to deliver based on current technology. Category 6 / class E is specified in the frequency range of at least 1-250 MHz. For category 6 / class E, the 8-position modular jack interface will be mandatory at the work area. Category 6 / class E is backward compatible meaning that applications running on lower categories / classes will also be supported. If different category / class components are to be mixed with category 6 / class E components, the combination shall meet the transmission requirements of the lowest performing category / class component.

TIA, ISO, CENELEC, and others have collaborated closely on the development of category 6 and class E standards and their requirements are well harmonized.

CATEGORY 7 / CLASS F ('11801:2002)

Category 7 / class F describes a new performance range for fully shielded (i.e., overall shield and individually shielded pairs) twisted-pair cabling. Category 7 / class F is specified in the frequency range of 1-600 MHz. Even though these requirements are supported by a new interface design, category 7 / class F will be backward compatible meaning that applications running on lower categories / classes will also be supported.

IEC 60603-7-7 and IEC / PAS 61076-3-104 specify two compliant interface designs. TIA is not actively developing a standard for category 7 / class F.

COMPARISON OF '568-B SERIES VERSUS '11801:2002 2ND EDITION FIBER CABLING PERFORMANCE SPECIFICATIONS

OPTICAL FIBER CABLING AND COMPONENT SPECIFICATIONS

'568-B Series

Horizontal Link Insertion Loss ≤ 2.0 dB at 850nm or 1300nm

Horizontal Link Insertion Loss With/CP ≤ 2.75dB @ 850nm or 1300nm

Centralized Link Insertion Loss ≤ 3.3 dB @ 850nm or 1300nm based on three connector pairs

Centralized Plus Open Office CP Link Insertion Loss ≤ 4.1 dB @ 850 or 1300nm based on three connector pairs

Backbone Link Insertion Loss = Cable Atten + Connector Insertion Loss + Splice Insertion Loss

Connector Insertion Loss ≤ 0.75 dB

Splice Insertion Loss ≤ 0.3 dB

Cable Atten ≤ 3.5 dB/km at 850nm for 62.5/125µm and 50/125µm

Cable Atten ≤ 1.5 dB/km at 1300nm for 62.5/125µm and 50/125µm

Cable Atten ≤ 0.5 dB/km for singlemode outside plant cable

Cable Atten ≤ 1.0 dB/km for singlemode inside plant cable

'11801:2002 2nd Edition

Channel Attenuation dB				
Channel	Multimode		Singlemode	
	850nm	1300nm	1310nm	1550nm
OF-300	2.55	1.95	1.80	1.80
OF-500	3.25	2.25	2.00	2.00
OF-2000	8.50	4.50	3.50	3.50

Connector Atten ≤ 0.75 dB

Splice Atten ≤ 0.3 dB

Cable Atten ≤ 3.5 dB/km at 850nm for 62.5/125µm and 50/125µm

Cable Atten ≤ 1.5 dB/km at 1300nm for 62.5/125µm and 50/125µm

Cable Atten ≤ 1.0 dB/km for singlemode (no differentiation between inside and outside plant cables)

MULTIMODE OPTICAL FIBER MODAL BANDWIDTH (OVERFILLED LAUNCH)

'568-B Series

Bandwidth ≥ 160 MHz-km at 850nm for 62.5/125µm

Bandwidth ≥ 500 MHz-km at 850nm for 50/125µm

Bandwidth ≥ 500 MHz-km at 1300nm for 62.5/125µm and 50/125µm

Note: Additional performance specifications for 50/125µm cables are provided in ANSI/TIA/EIA-568-B.3-1. These requirements are harmonized with fiber type 'OM3' as specified in ISO/IEC 11801:2002 2nd Edition.

'11801:2002 2nd Edition

Bandwidth ≥ 200 MHz-km at 850nm for 62.5/125µm and 50/125µm (OM1)

Bandwidth ≥ 500 MHz-km @ 850nm for 62.5/125µm and 50/125µm (OM2)

Bandwidth ≥ 1500 MHz-km @ 850nm for 62.5/125µm and 50/125µm (OM3)

Bandwidth ≥ 500 MHz-km at 1300nm for 62.5/125µm and 50/125µm (OM1, OM2 and OM 3)

Note: Fiber type OM3 specified in ISO/IEC 11801:2002 2nd Edition, requires laser launch bandwidth of 2000 MHz-km at 850nm. This requirement is assured by testing differential modal delay (DMD).

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CABLING SPECIFICATIONS CROSS-REFERENCE CHART (ANSI/TIA/EIA-568-B SERIES AND ISO/IEC 11801) 2ND EDITION

ANSI/TIA/EIA-568-B SERIES	ISO/IEC 11801:2002 2ND EDITION
Commercial Building Telecommunications Cabling Standard	**Generic Cabling for Customer Premises**
Terminology	**Terminology**
Cross-connect (a facility enabling the termination of cable elements and their connection by patch cord or jumper).	Distributor (a facility enabling the termination of cable elements and their connection by patch cord or jumper).
MC (Main Cross-connect)	CD (Campus Distributor)
IC (Intermediate Cross-connect)	BD (Building Distributor)
HC (Horizontal Cross-connect)	FD (Floor Distributor)
TO (Telecommunications Outlet/connector)	TO (Telecommunications Outlet)
CP (Consolidation Point) An interconnection scheme that connects horizontal cables that extend from building pathways to horizontal cables that extend into work area pathways.	Consolidation Point, a location in the horizontal cabling where a cable may end, which is not subject to moves and changes, and another cable starts leading to the TO which adapts to changes *- or-* a location for interconnection between horizontal cables extending from building pathways and horizontal cables extending into furniture pathways
Intrabuilding Backbone	Campus Backbone
Interbuilding Backbone	Building Backbone
Horizontal Media Choices	**Horizontal Media Choices**
4-pair 100 Ω unshielded twisted-pair UTP/ScTP	4-pair 100 Ω balanced cable (UTP or ScTP)
Two fiber, 50/125µm or 62.5/125µm optical fiber	Optical fiber (50µm, 62.5µm or singlemode permitted)
Backbone Media Choices	**Backbone Media Choices**
100 Ω unshielded twisted-pair UTP/ScTP	100 Ω balanced cable
50/125µm or 62.5/125µm optical fiber	62.5/125µm or 50/125µm optical fiber
Singlemode optical fiber	Singlemode optical fiber
Bend Radius	**Bend Radius**
Horizontal ≥ 4 times cable O.D. no load for UTP, 8 times cable O.D. for ScTP no load* Backbone ≥ 10 times cable O.D.	Horizontal ≥ 4 times cable O.D. Backbone ≥ 6 times cable O.D. ≥ 8 times cable O.D. while pulling cables

*See ANSI/TIA/EIA-568-B.1-1 for specifications on patch cable band radius.

ANSI/TIA/EIA-568-B SERIES	ISO/IEC 11801:2002 2ND EDITION
Commercial Building Telecommunications Cabling Standard	**Generic Cabling for Customer Premises**
Engineering Approach	**Engineering Approach**
Not applicable. Field testing for verification only.	Link performance determines compliance.
Design Approach	**Design Approach**
Design constraints, component specifications, and installation methods determine compliance.	Design constraints, component specifications, and installation methods determine an alternate means of compliance.
Connector Termination	**Connector Termination**
All pairs shall be terminated at the outlet.	Partial termination at the 100 Ω or 120 Ω outlet is permitted.
Pair untwist shall not exceed 13mm (0.5 in.) for category 5e or higher cables. Pair-untwist for category 3 shall be within 75mm (3 in.) from the point of termination.	In accordance with manufacturer's guidelines.
Categories of Cabling Performance	**Categories of Cabling Performance**
Category 3 is specified to 16 MHz.	Class C is specified to 16 MHz.
Category 5e is specified to 100 MHz.	Class D is specified to 100 MHz. An Optical Class is also specified.
Category 6 is specified to 250 MHz	Class E is specified to 250 MHz. Class F is specified to 600 MHz.
Performance Specification	**Performance Specification**
Stranded Cable Attenuation = 20% worse than solid requirements for UTP, 50% worse for ScTP.	Stranded Cable Attenuation = 50% worse than solid requirements for both UTP and ScTP.
Hybrid requirements call for power sum margin + 3dB over pair-to-pair limit.	Hybrid requirements call for 6 dB better PSNEXT between cable units than the PSNEXT specified for the cable.

Note: For TIA standards, the term "category" is used to specify both components and cabling performance. For ISO/IEC, CENELEC and other cabling standards outside of the U.S. and Canada, the term "category" is used to describe component performance (i.e., cable and connecting hardware). The term "class" is used to describe cabling (i.e., link and channel) performance.

HORIZONTAL TWISTED-PAIR CABLE

- Solid 4-pair 0.51mm (24 AWG) specified [0.64mm (22 AWG) solid also allowed]. An overall shield (ScTP) is optional.
- Performance marking should be provided to show the applicable performance category. These markings do not replace safety markings.

- Color-coding:

white/blue – blue
white/orange – orange
white/green – green
white/brown – brown

HYBRID AND BUNDLED CABLES

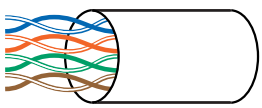
Hybrid/Bundled Cables:

- Hybrid/bundled cables that contain multiple units of recognized horizontal copper cables are subject to additional NEXT loss requirements between cable units. These requirements assure a minimum additional power sum crosstalk isolation (3 dB for TIA, 6 dB for ISO/IEC) between applications that may operate on adjacent binder groups.
- All detailed specifications for the individual cable units used in the hybrid assembly still apply.
- Hybrid bundled cables shall meet the transmission requirements specified in TIA/EIA-B.2.

TWISTED-PAIR PATCH CORDS AND CROSS-CONNECT JUMPERS

- Patch cords should use stranded cable for adequate flex-life.
- Stranded cables must meet the minimum performance requirements for horizontal cable except that 20 percent more attenuation for UTP is allowed by '568-B.2 and 50 percent more attenuation is allowed by '11801:2002 for UTP and ScTP.
- Color-code for cross-connect jumpers: One conductor white, the other a visibly distinct color such as red or blue.
- Performance markings should be provided to show the applicable transmission category in addition to safety markings.
- Insulated O.D. of stranded wires should be 0.8mm (0.032 in.) to 1mm (0.039 in.) to fit into a modular plug.
- Production performance specifications for plug cord assemblies are addressed in B.2.
- Color Codes for Stranded, 100 Ω Patch Cord:

Option 1		Option 2
white/blue–blue	**pair 1**	green–red
white/orange–orange	**pair 2**	black–yellow
white/green–green	**pair 3**	blue–orange
white/brown–brown	**pair 4**	brown–slate



Note: Because of their identical pair groupings, patch cords terminated with either T568A or T568B pair assignments may be used interchangeably, provided that both ends are terminated with the same pin/pair scheme.

MULTI-PAIR CABLE

- Performance markings should be provided to show the applicable performance category. These markings do not replace safety markings.
- Services with incompatible signal levels should be partitioned into separate binder groups. Guidelines for shared sheaths are provided in Annex B of '568-B.1.
- Transmission requirements are equivalent to horizontal cables except that hybrid requirements apply when multiple cable units are contained within the same sheath.
- Note: Tip conductors have colored insulation that corresponds to that of the binder group. Ring conductors have colored insulation that corresponds to that of the pair.
- Backbone twisted-pair cables consist of solid 0.51mm (24 AWG) cables that contain more than four pairs (typically multiples of 25-pairs are used). An overall shield is optional.
- Color-coding (specified by reference to ICEA: see chart to right).

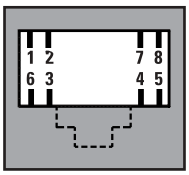
Color-coding (specified by reference to ICEA)

TIP		RING
white/blue	pair 1	blue/white
white/orange	pair 2	orange/white
white/green	pair 3	green/white
white/brown	pair 4	brown/white
white/slate	pair 5	slate/white
red/blue	pair 6	blue/red
red/orange	pair 7	orange/red
red/green	pair 8	green/red
red/brown	pair 9	brown/red
red/slate	pair 10	slate/red
black/blue	pair 11	blue/black
black/orange	pair 12	orange/black
black/green	pair 13	green/black
black/brown	pair 14	brown/black
black/slate	pair 15	slate/black
yellow/blue	pair 16	blue/yellow
yellow/orange	pair 17	orange/yellow
yellow/green	pair 18	green/yellow
yellow/brown	pair 19	brown/yellow
yellow/slate	pair 20	slate/yellow
violet/blue	pair 21	blue/violet
violet/orange	pair 22	orange/violet
violet/green	pair 23	green/violet
violet/brown	pair 24	brown/violet
violet/slate	pair 25	slate/violet

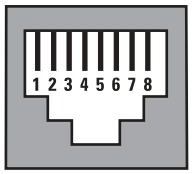
MODULAR WIRING REFERENCE

Modular Jack Styles:

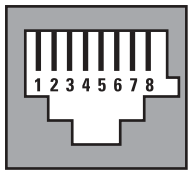
There are four basic modular jack styles. The 8-position modular outlets are commonly and incorrectly referred to as "RJ45". The 6-position modular jack is commonly referred to as an RJ11. Using these terms can sometimes lead to confusion since the RJ designations actually refer to very specific wiring configurations called Universal Service Order Code (USOC). The designation 'RJ' means Registered Jack. Each of these basic jack styles can be wired for different RJ configurations. For example, the 6-position jack can be wired as an RJ11C (1-pair), RJ14C (2-pair), or RJ25C (3-pair) configuration. An 8-position jack can be wired for configurations such as RJ61C (4-pair) and RJ48C. The keyed 8-position jack can be wired for RJ45S, RJ46S, and RJ47S.



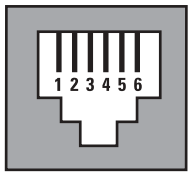
8-position class F



8-position



8-position keyed

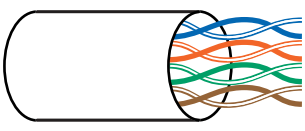


6-position

Note: The Siemon Company has developed a guide to modular hardware pin/pair assignments. Visit our website for a free copy.

MODULAR PLUG PAIR CONFIGURATIONS

It is important that the pairing of wires in the modular plug match the pairs in the modular jack as well as the horizontal and backbone wiring. If they do not, the data being transmitted may be paired with incompatible signals. Modular cords wired to the T568A color scheme on both ends are compatible with T568B systems and vice versa.



white/blue–blue
white/orange–orange
white/green–green
white/brown–brown

UTP Horizontal Cable (solid 24 AWG)

8-position
T568A/T568B

8-position
USOC

6-position
USOC

STRAIGHT-THROUGH OR REVERSED?

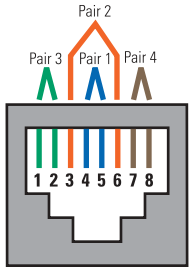
Modular cords are used for two basic applications. One application uses them for patching between modular patch panels. When used in this manner modular cords should always be wired "straight-through" (pin 1 to pin 1, pin 2 to pin 2, pin 3 to pin 3, etc.). The second major application uses modular cords to connect the workstation equipment (PC, phone, FAX, etc.) to the modular outlet. These modular cords may either be wired "straight-through" or "reversed" (pin 1 to pin 6, pin 2 to pin 5, pin 3 to pin 4, etc.) depending on the system manufacturer's specifications. This "reversed" wiring is typically used for voice systems. The following is a guide to determine what type of modular cord you have.

HOW TO READ A MODULAR CORD

Align the plugs side-by-side with the contacts facing you and compare the wire colors from left to right. If the colors appear in the same order on both plugs, the cord is wired "straight-through". If the colors appear reversed on the second plug (from right to left), the cord is wired "reversed".

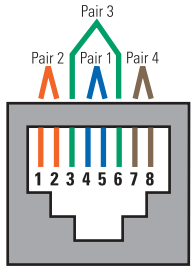
COMMON OUTLET CONFIGURATIONS

Two wiring schemes have been adopted by the '568-B.1 and '11801:2002 standards. They are nearly identical except that pairs two and three are reversed. T568A is the preferred scheme because it is compatible with 1 or 2-pair USOC systems. Either configuration can be used for Integrated Services Digital Network (ISDN) and high speed data applications. Transmission categories 3, 5e, and 6 are only applicable to this type of pair grouping.



T568A

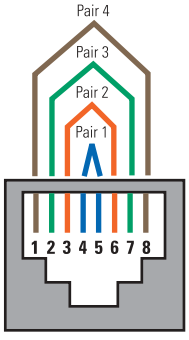
Pair ID	PIN #
T1	5
R1	4
T2	3
R2	6
T3	1
R3	2
T4	7
R4	8



T568B

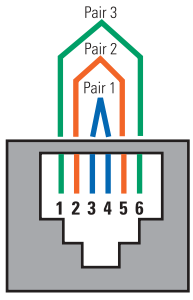
Pair ID	PIN #
T1	5
R1	4
T2	1
R2	2
T3	3
R3	6
T4	7
R4	8

USOC wiring is available for 1-, 2-, 3-, or 4-pair systems. Pair 1 occupies the center conductors, pair 2 occupies the next two contacts out, etc. One advantage to this scheme is that a 6-position plug configured with 1, 2, or 3 pairs can be inserted into an 8-position jack and still maintain pair continuity. A note of warning though, pins 1 and 8 on the jack may become damaged from this practice. A disadvantage is the poor transmission performance associated with this type of pair sequence. None of these pair schemes is cabling standard compliant.



USOC 4-pair

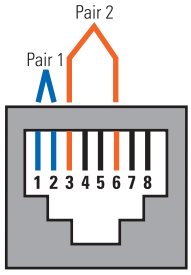
Pair ID	PIN #
T1	5
R1	4
T2	3
R2	6
T3	2
R3	7
T4	1
R4	8



USOC 1-, 2- or 3-pair

Pair ID	PIN #
T1	4
R1	3
T2	2
R2	5
T3	1
R3	6

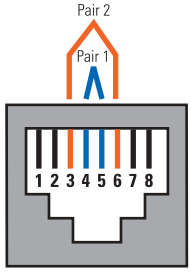
10BASE-T and 100BASE-TX wiring specifies an 8-position jack but uses only two pairs. These are pairs two and three of T568A and T568B schemes.



10BASE-T (802.3)

Pair ID	PIN #
T1	1
R1	2
T2	3
R2	6

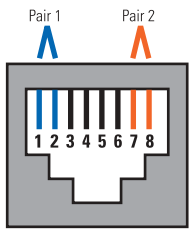
Token Ring wiring uses either an 8-position or 6-position jack. The 8-position format is compatible with T568A, T568B, and USOC wiring schemes. The 6-position is compatible with 1- or 2-pair USOC wiring.



Token Ring (802.5)

Pair ID	PIN #
T1	5
R1	4
T2	3
R2	6

ANSI X3T9.5 TP-PMD uses the two outer pairs of an 8-position jack. These positions are designated as pair 3 and pair 4 of the T568A wiring scheme. This wiring scheme is also used for ATM.



TP-PMD (X3T9.5) **and ATM**

Pair ID	PIN #
T1	1
R1	2
T2	7
R2	8

RECOMMENDED CABLING PRACTICES

Do's:

- ✔ Terminate each horizontal cable on a dedicated telecommunications outlet.
- ✔ Locate the main cross-connect near the center of the building to limit cable distances.
- ✔ Maintain the twist of horizontal and backbone cable pairs up to the point of termination.
- ✔ Tie and dress horizontal cables neatly and with a minimum bend radius of 4 times the cable diameter.

Don'ts:

- ✘ Do not use connecting hardware that is of a lower category than the cable being used.
- ✘ Do not create multiple appearances of the same cable at several distribution points (called bridged taps).
- ✘ Do not over-tighten cable ties, use staples, or make sharp bends with cables.
- ✘ Do not place cable near equipment that may generate high levels of electromagnetic interference.

TWISTED-PAIR CONNECTOR TERMINATIONS

- Pair twists shall be maintained as close as possible to the point of termination.
- Untwisting shall not exceed 75mm (3.0 in) for category 3 links, 13mm (0.5 in) for category 5e, and 6mm (0.25 in.) category 6 links.
- Connecting hardware shall be installed to provide well-organized installation with cable management and in accordance with manufacturer's guidelines.
- Strip back only as much jacket as is required to terminate individual pairs.

APPLICATION-SPECIFIC PAIR ASSIGNMENTS FOR THE 100 OHM CABLING, ISO/IEC 8802

Application	Pins 1-2	Pins 3-6	Pins 4-5	Pins 7-8
ISDN	Power	TX	RX	Power
Analog Voice	—	—	TX/RX	—
802-3 (10BASE-T)	TX	RX	—	—
802-5 (Token Ring)	—	TX	RX	—
FDDI (TP-PMD)	TX	Optional[1]	Optional[1]	RX
ATM User Device	TX	Optional[1]	Optional[1]	RX
ATM Network Equip.	RX	Optional[1]	Optional[1]	TX
1000BASE-T (802.3ab)	Bi	Bi	Bi	Bi
100BASE-VG (802.12)	Bi	Bi	Bi	Bi
100BASE-T4 (802.3u)	TX	RX	Bi	Bi
100BASE-TX (802.3u)	TX	RX	—	—

**Bi = bi-directional*
TX = Transmit
RX = Receive

[1] Optional terminations may be required by some manufacturers' active implementations.

RECOMMENDED COLOR-CODING SCHEME

Siemon Color #	Color Code	
02	white	1st Level Backbone (MC/IC or MC/TC Terminations)
03	red	Key Telephone Systems
04	gray	Second Level Backbone (IC/TC Terminations)
05	yellow	Miscellaneous (Auxiliary, Security, Alarms, etc.)
06	blue	Horizontal Cable Terminations (a.k.a. Station Cable)
07	green	Network Connections (customer side of demarc)
08	purple	Common Equipment (PBX, Host, LANs, Muxes)
09	orange	Demarcation Point (Central Office Terminations)
60	brown	Interbuilding Backbone (Campus Cable Terminations)

TWISTED-PAIR CABLING INSTALLATION PRACTICES

- To avoid stretching, pulling tension should not exceed 110N (25 lbf) for 4-pair cables.
- Installed bend radii shall not exceed:
  - 4 times the cable diameter for horizontal UTP cables under no load conditions.
  - 8 times the cable diameter for horizontal ScTP cables.
  - 10 times the cable diameter for multi-pair backbone twisted-pair cables under no load conditions.
- Horizontal cables should be used with connecting hardware and patch cords (or jumpers) of the same performance category or higher.
- Avoid cable stress, as caused by:
  - cable twist during pulling or installation
  - tension in suspended cable runs
  - tightly cinched cable ties or staples
  - tight bend radii
- Important Note: Installed twisted-pair cabling shall be classified by the least performing component in the link.

ANSI/TIA/EIA-569-A

COMMERCIAL BUILDING STANDARD FOR TELECOMMUNICATIONS PATHWAYS AND SPACES

The TIA TR42.3 Working Group on Telecommunications Pathways & Spaces published the ANSI/TIA/EIA-569-A ('569-A) Standard in 1998.

Following are highlights of the '569-A Standard:

Purpose

- Standardize design and construction practices.
- Provides a telecommunications support system that is adaptable to change during the life of the facility.

Scope

- Pathways and spaces in which telecommunications media are placed and terminated.
- Telecommunications pathways and spaces within and between buildings.
- Commercial building design for both single and multi-tenant buildings.

Elements

- Horizontal
- Backbone
- Work Area
- Telecommunications Room
- Equipment Room
- Main Terminal Space
- Entrance Facility

Annex Information

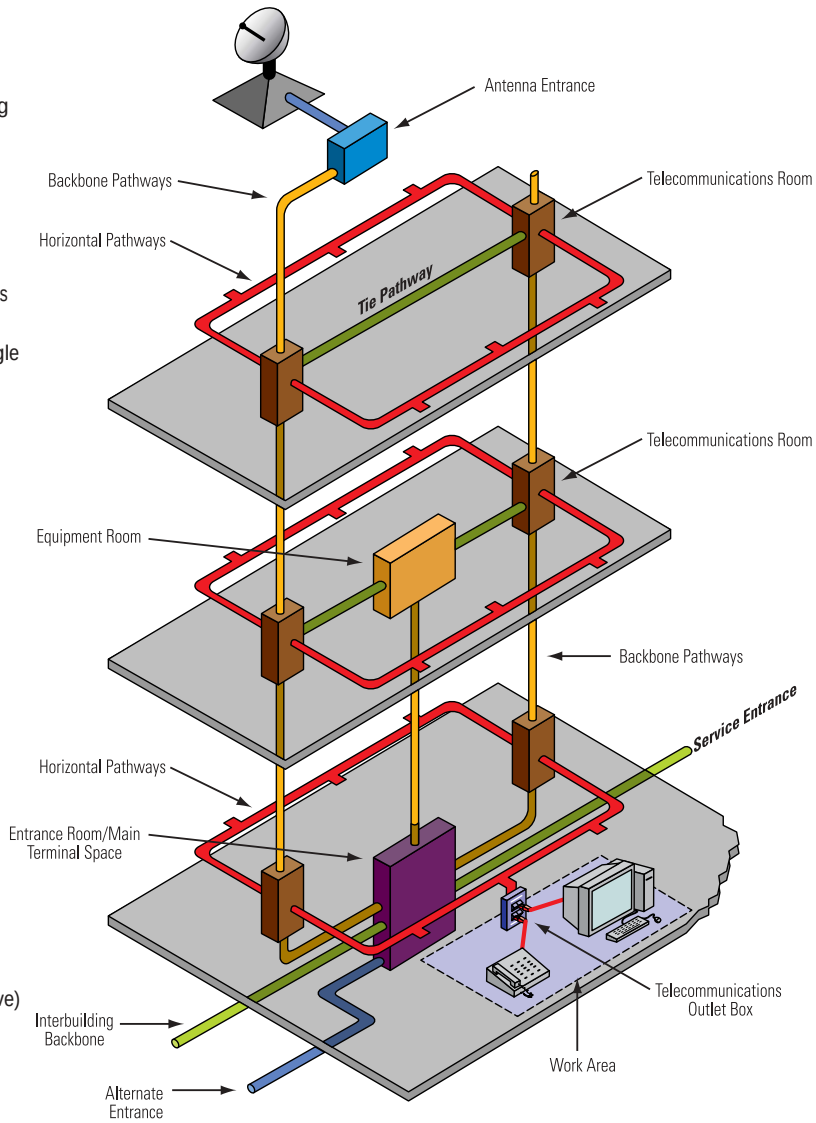
The following normative and informative annexes are provided in ANSI/TIA/EIA-569-A:

A. Firestopping (Normative)

B. Additional section information (Informative)

C. Interbuilding Backbone Pathways and Related Spaces (Normative)

D. References (Informative)



HORIZONTAL

Pathways from telecommunications room to work area.

INCLUDES:

Pathway Types:

- Underfloor — Network of raceways embedded in concrete consisting of distribution and header ducts, trenches, and cellular systems.
- Access Floor — Raised modular floor tile supported by pedestals, with or without lateral bracing or stringers.
- Conduit — Metallic and nonmetallic tubing of rigid or flexible construction permitted by applicable electrical code.
- Tray & Wireway — Prefabricated rigid structures for pulling or placing cable.
- Ceiling — Open environment above accessible ceiling tiles and frame work.
- Perimeter — Surface, recessed, molding, and multi-channel raceway systems for wall mounting around rooms or along hallways.

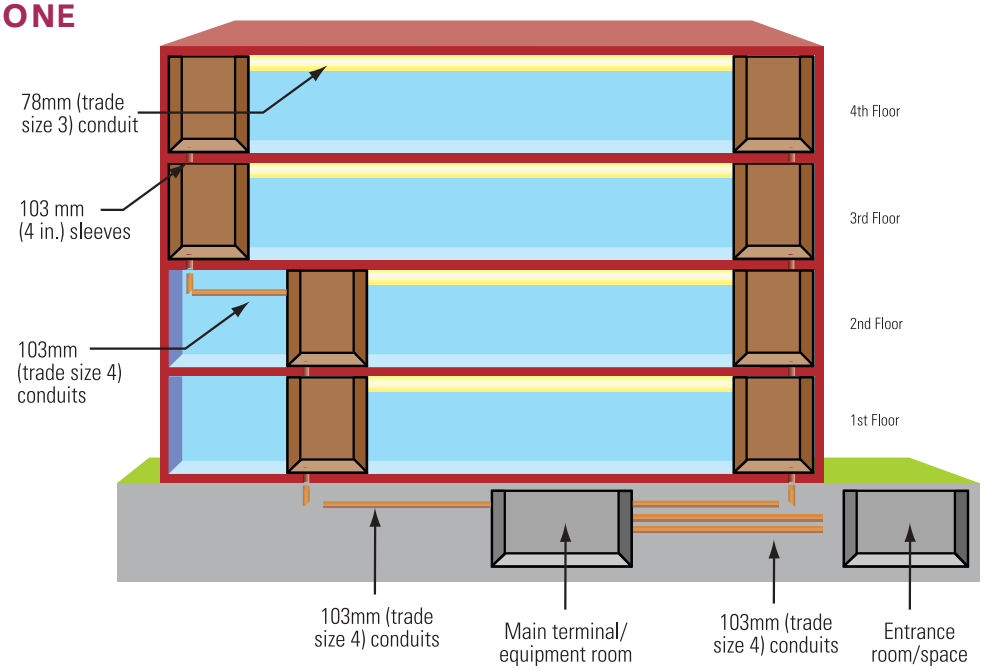
Space Types:

- Pull Boxes — Used in conjunction with conduit pathway systems to assist in the fishing and pulling of cable.
- Splice Boxes — A box, located in a pathway run, intended to hold a cable splice.
- Outlet Boxes — Device for mounting faceplates, housing terminated outlet/connectors, or transition devices.

Design Considerations:

- Grounded per code and ANSI-J-STD-607-A ('607-A)
- Designed to handle recognized media as specified in ANSI/TIA/EIA-568-B series
- Not allowed in elevator shafts
- Accommodate seismic zone requirements
- Installed in dry locations

BACKBONE



PATHWAYS ROUTED FROM CLOSET-TO-CLOSET.

Building Backbone Types:

- Ceiling
- Conduit
- Sleeves — An opening, usually circular, through the wall, ceiling, or floor.
- Slots — An opening, usually rectangular, through the wall, ceiling, or floor.
- Trays

Typically the most convenient and cost effective backbone pathway design in multi-story buildings, is to have stacked closets located one above the other, connected by sleeves or slots.

Design Considerations:

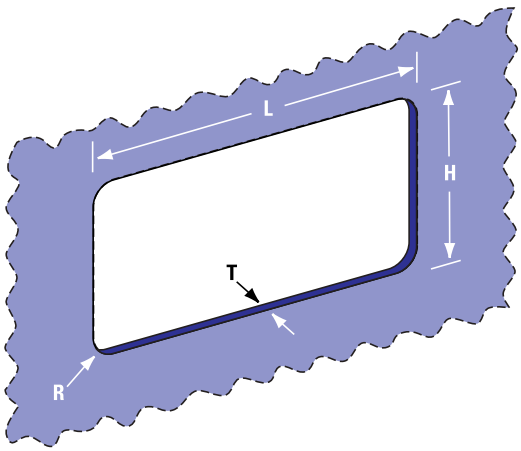
- Grounded per code and '607-A
- Accommodate seismic zone requirements
- Water should not penetrate the pathway system
- Tray, conduits, sleeves, slots penetrate closets minimum 25mm (1 in.)
- Designed to handle all recognized media (as specified in '568-A)
- Integrity of all fire stop assemblies shall be maintained

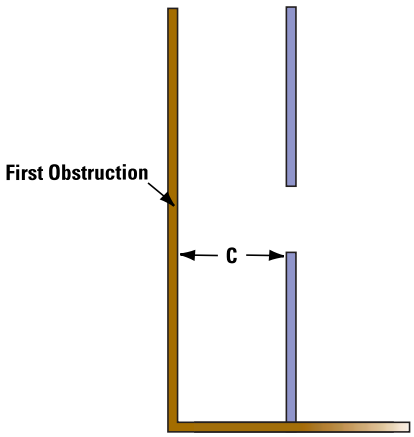
WORK AREA

Primary location where the building occupants interact with dedicated telecommunications equipment.

Design Considerations:

- At least one telecommunication outlet box location shall be planned for each work area.
- This location should be coordinated with the furniture plan. A power outlet should be nearby.
- Control center, attendant, and reception areas shall have direct and independent pathways to the serving telecommunications room.
- Furniture System Design:
  - Cable access via walls, columns, ceilings, or floors. Fittings that transition between building and furniture pathways require special planning.
  - Furniture pathway fill capacity is effectively reduced by furniture corners, and connectors mounted within the furniture pathway systems.
  - Furniture pathways bend radius shall not force the installed cable to a bend radius of less than 25mm (1 in.).
  - Furniture spaces designed to house slack storage, consolidation points, or multi-user telecommunications outlet assemblies shall provide space for strain relieving, terminating, and storing slack for the horizontal cables.
  - Slack storage and furniture pathway fill, shall not affect the bend radius and termination of the cable to the connector.
  - Furniture pathway openings shall comply with either of two sizes:
- Standard NEMA opening (NEMA OS 1 [Ref D.14], WD-6 [Ref D.15])
- Alternate opening:



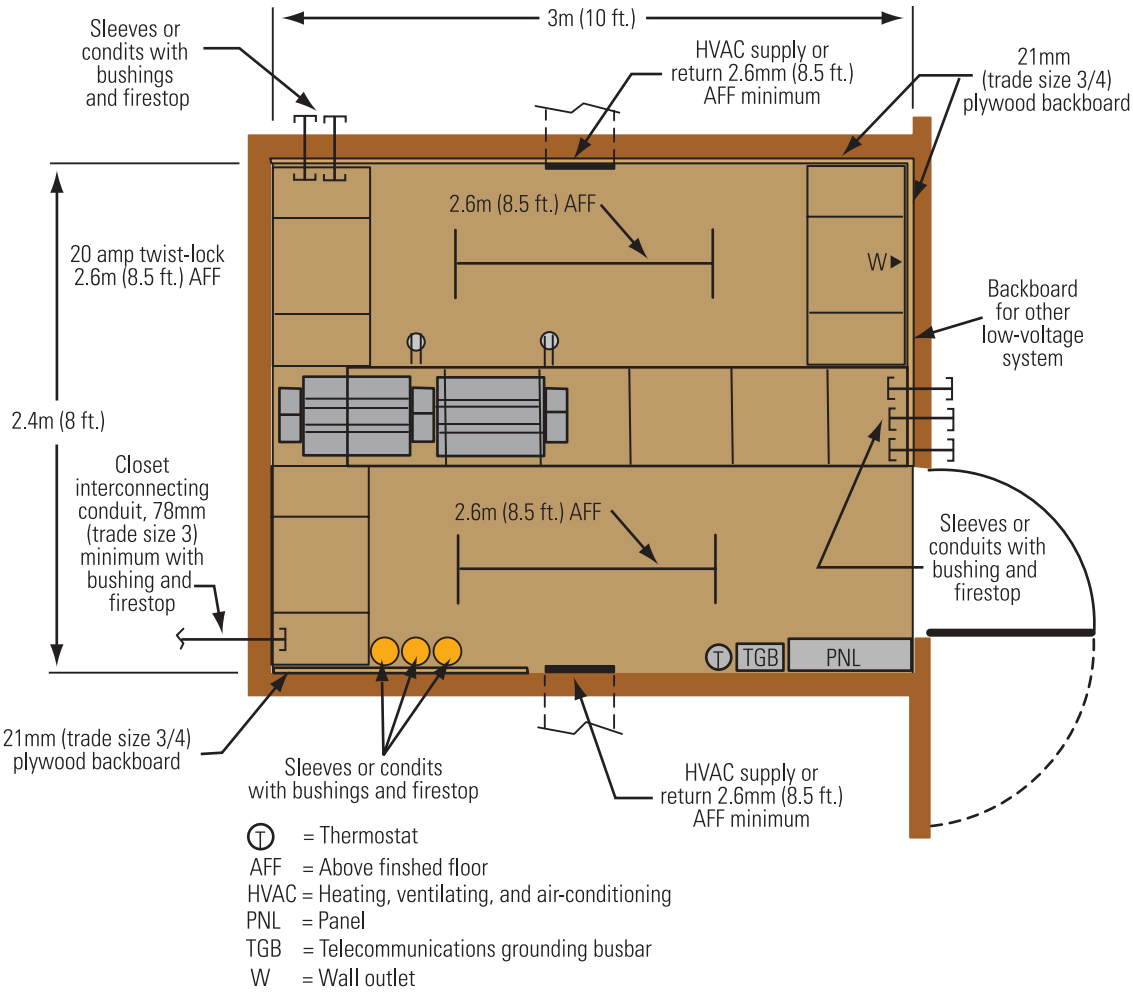


	Dimension	Tolerance
L (length)	68.8mm (2.71 in.)	1.02mm (0.040 in.)
H (height)	35.1mm (1.38 in.)	0.90mm (0.035 in.)
T (depth)	1.40mm (0.055 in.)	0.64mm (0.025 in.)
R (corner radius)	4.06mm (0.160 in.) max.	—
C (distance to 1st obstruction)	30.5mm (1.2 in.) min.	—

  - Power / telecommunication separation requirements are governed by applicable electrical code for safety. Minimum separation requirements of Article 800-52 of ANSI / NFPA 70 (National Electric Code) shall be applied.

TELECOMMUNICATIONS ROOM

Recognized location of the common access point for backbone and horizontal pathways.



T = Thermostat
AFF = Above finshed floor
HVAC = Heating, ventilating, and air-conditioning
PNL = Panel
TGB = Telecommunications grounding busbar
W = Wall outlet

Design:

- Dedicated to telecommunications function.
- Equipment not related to telecommunications shall not be installed, pass through or enter the telecommunications room.
- Multiple closets on the same floor shall be interconnected by a minimum of one 78mm (trade size 3) conduit, or equivalent pathway.
- Minimum floor loading 2.4 kPA (50 lbf/ft2).

Design Considerations:

- Minimum one closet per floor to house telecommunications equipment/cable terminations and associated cross-connect cable and wire.
- Located near the center of the area being served.
- Horizontal pathways shall terminate in the telecommunications room on the same floor as the area served.
- Accommodate seismic zone requirements.
- Two walls should have 21mm (0.75 in.) A-C plywood 2.4m (8 ft.) high.
- Lighting shall be a minimum of 500 lx (50 foot candles) and mounted 2.6m (8.5 ft.) above floor.
- False ceilings shall not be provided.
- Minimum door size 910mm (36 in.) wide and 2000mm (80 in.) high without sill, hinged to open outwards, or slide side-to-side or removable, and fitted with a lock.
- Minimum of two dedicated, non-switched, duplex electrical outlet receptacles or equivalent, each on separate branch circuits.
- Additional convenience duplex outlets placed at 1.8m (6 ft.) intervals around perimeter, 150mm (6 in.) above floor.
- Access to the telecommunications grounding system as specified by ANSI-J-STD-607-A.
- HVAC requirements to maintain temperature the same as adjacent office area. A positive pressure shall be maintained with a minimum of one air change per hour or per code.

EQUIPMENT ROOM

A centralized space for telecommunications equipment that serves specific occupants of the building. Any or all of the functions of a telecommunications room or entrance facility may alternately be provided by an equipment room.

Location

- Site locations should allow for expansion.
- Accessible to the delivery of large equipment.
- Not located below water level.
- Away from sources of EMI.
- Safeguards against excessive vibration.
- Sizing shall include projected future as well as present requirement.
- Equipment not related to the support of the equipment room shall not be installed in, pass through, or enter the equipment room.

Design Considerations

- Minimum clear height of 2.4m (8 ft.) without obstruction.
- Protected from contaminants and pollutants.
- Access to backbone pathways.
- HVAC provided on a 24 hours-per-day, 365 days-per-year basis.
- Temperature and humidity controlled range 18° C (64° F) to 24°C (75° F) with 30% to 55% relative humidity measured 1.5m (5 ft.) above floor level.
- Separate power supply circuit shall be provided and terminated in its own electrical panel.
- Minimum lighting 500 lx (50 foot candles). Switch location shall be near entrance door to room.
- Minimum door same as telecommunications room. Double doors without center post or sill is recommended.
- Access to ground per ANSI-J-STD-607-A.

MAIN TERMINAL SPACE

Centralized space that houses the main cross-connect. Commonly used as a separate space in multi-tenant buildings to serve all tenants.

- Location considerations are as specified for equipment room.
- Provisioning area as specified for telecommunications closets except power is reduced to convenience receptacles.

ENTRANCE FACILITY

Consists of the telecommunications service entrance to the building and backbone pathways between buildings.

Location

- Providers of all telecommunications services shall be contacted to establish requirements.
- Location of other utilities shall be considered in locating the entrance facility.
- Alternate entrance facility should be provided where security, continuity or other special needs exist.
- Equipment not related to the support of the entrance facility should not be installed in, pass through, or enter the telecommunications entrance facility.
- Dry location not subject to flooding and close as practicable to building entrance point and electrical service room.

Design Considerations

- Accommodate the applicable seismic zone requirements.
- A service entrance pathway shall be provided via one of the following entrance types: Underground, Buried, Aerial, Tunnel.
- Minimum one wall should be covered with rigidly fixed 21mm (0.75 in.) A-C plywood.
- Minimum lighting same as telecommunication room.
- False ceilings shall not be provided.
- Minimum door same as telecommunications room.
- Electrical power same as telecommunications room. No convenience receptacles mentioned.
- Grounding same as telecommunications room.

MISCELLANEOUS

- Fire stopping per applicable code
- Horizontal pathway separation from Electromagnetic interference (EMI) sources:
  - Separation between telecommunications and power cables (Article 800.52 of ANSI/NFPA 70)
  - Building protected from lightning (ANSI/NFPA 780 (Ref D.4)
  - Surge protection (Article 280 of ANSI/NFPA 70 and 9.11 of ANSI/IEEE 1100 [Ref D.1])
  - Grounding (ANSI/TIA/EIA-607)
  - Corrected faulty wiring (Section 7.5 of ANSI/IEEE 1100)
- Reducing noise coupling:
  - Increase separation from noise sources
  - Electrical branch circuit line, neutral, and grounding conductors should be maintained close together
  - Use of surge protectors in branch circuits
  - Use fully enclosed grounded metallic raceway or locate cabling near grounded metallic surface

TIA/EIA-569-A-1

Perimeter Pathway Addendum

This addendum deals with the constriction, applications, premises design and installation of perimeter pathways also known as surface raceway systems.

It describes both single and multi channel systems mounted on walls at a variety of heights and directions. The sizing of such pathways are based on 40% fill for initial installations but allows up to 60% fill for moves adds or changes to the installed cabling system during its life cycle. Fittings for Perimeter raceway systems must allow for the band radius requirements of the installed cable.

TIA/EIA-569-A-2

Furniture Pathway Fill Addendum

The sizing of such pathways are based on 40% fill for initial installations but allows for up to 60% fill for moves, adds and changes to the installed cabling system during its life cycle. Furniture fittings such as outlets and connectors used to terminate the installed cables need to be considered when determining the percentage of fill. Fish and pull techniques may result in reduced capacity of the pathway as compared to furniture manufacturers which allow placing cables into the pathways.

TIA/EIA-569-A-3

Revision to subclause 4.3, "Access Floor" of TIA/EIA-569-A

Introduces low profile floors as compared to standard height floors. Low profile floors are 6" or lower while standard height floors are 6" or greater. This revision describes the use of access floors as it refers to guidelines and installation.

TIA/EIA-569-A-4

Addendum 4 to ANSI/TIA/EIA-569-A Poke-Thru Devices

A poke-thru is a device for routing cables through a floor while maintaining the fire-rating integrity of the floor. These devices are an option for routing horizontal cables when other pathway types are not practical. Types include flush floor mount and those that rise up above floor level, also known as pedestal, raised, tombstone or monument.

TIA/EIA-569-A-5

Addendum 5 to ANSI/TIA/EIA-569-A

This addendum revisits underfloor systems including cells, trenches, and ducts to replace subclause 4 of the ANSI/TIA/EIA-569-A standard.

TIA/EIA-569-A-6

Addendum 6 Multi-Tenant Pathways and Spaces

This addendum deals with the growing trend of building owners installing telecommunications backbone cabling for use by tenants. This addendum names pathways and spaces used by these backbone cables.

TIA/EIA-569-A-7

Addendum 7 Cable Trays and Wireways

This addendum replaces sub-clause 4.5 of ANSI/TIA/EIA-569-A. It was modified to clarify industry issues with cable fill for cable tray systems.

GLOSSARY

Air Blown Fiber (ABF) Small, flexible plastic microduct tubing installed prior to the installation of individual or multiple optical fibers that are "blown in" through the microduct using compressed air.

Asynchronous Transfer Mode (ATM) Technology selected by the International Telecommunications Union (ITU, formerly CCITT) for broadband ISDN. This communications protocol is also specified by the ATM Forum (Foster City, CA) for 155 Mb/s transmission over twisted-pair cable and various bit rate optical fiber cabling applications.

Attenuation A reduction in power or amplitude of the transmitted signal. In cables, it is generally expressed in decibels per unit length.

Attenuation to Crosstalk Ratio (ACR) The difference between attenuation and crosstalk measured in decibels.

Auxiliary Disconnect Outlet (ADO) A device usually located within the tenant or living unit used to terminate the ADO cable or backbone cable.

Auxiliary Disconnect Outlet (ADO) Cable In residential applications, the cable from the auxiliary telecommunications disconnect outlet/connector or the distribution device in a customer's premises to the backbone facility or the point of demarcation.

Backbone Cabling Cable and connecting hardware that comprise the main and intermediate cross-connects, as well as cable runs that extend between telecommunications rooms, equipment rooms and entrance facilities.

Balance An indication of signal voltage equality and phase polarity on a conductor pair. Perfect balance occurs when the signals across a twisted-pair are equal in magnitude and opposite in phase with respect to ground.

Balanced Signal Transmission Two voltages, equal and opposite in phase with respect to each other, across the conductors of a twisted-pair (commonly referred to as tip and ring).

Balun An impedance matching transformer used to convert unbalanced coaxial signals to balanced signals.

Bandwidth A range of frequencies, usually the difference between the upper and lower limits of the range, typically expressed in megahertz (MHz). It is used to describe the information-carrying capacity of a medium. In copper and optical fibers, the bandwidth decreases with increasing length. Optical fiber bandwidth is specified in megahertz kilometers (MHz-km).

Basic link test configuration Horizontal cable of up to 90m (295 ft.) plus up to 2m (6.5 ft.) of test equipment cord from the main unit of the tester to the local connection, and up to 2m (6.5 ft.) of test equipment cord from the remote connection to the remote unit of the tester. Maximum length is 94m (308 ft.).

Bonding The permanent joining of metallic parts to form an electrically conductive path that will assure electrical continuity and the capacity to conduct safely any current likely to be imposed on it.

Break Test Access Method of disconnecting a circuit that has been electrically bridged to allow testing on either side of the circuit without disturbing cable terminations. Devices that provide break test access include: disconnect blocks, bridge clips, plug-on protection modules, and plug-on patching devices.

Bridged Tap The multiple appearances of the same cable pair or fiber at several distribution points. Also known as parallel connections.

Bridging A means of providing through connections between conductors or pairs that are terminated on connecting blocks. These through connections are commonly provided by means of individual metallic "bridging" clips or multiple "bridging" clips that are housed in a plastic insulator.

Building Distributor (BD) The international term for intermediate cross-connect. A distributor in which the building backbone cable(s) terminates and at which connections to the campus backbone cable(s) may be made.

Bundled Cable An assembly of two or more cables continuously bound together to form a single unit prior to installation (sometimes referred to as loomed, speed-wrap or whip cable constructions).

Bus Topology A linear configuration where all network devices are placed on a single length of cable. It requires one backbone cable to which all network devices are connected.

Cabling A combination of cables, wire, cords and connecting hardware used in the telecommunications infrastructure.

Campus Backbone Cabling between buildings that share telecommunications facilities.

Campus Distributor (CD) The international term for main cross-connect. The distributor from which the campus backbone cable emanates.

Category

1. ANSI/TIA/EIA-568-B series of documents, the North American standards for cabling describes mechanical properties and transmission characteristics of unshielded twisted-pair (UTP) cables and screened twisted-pair (ScTP) cables and assigns a unique number classification (category 3, category 5, category 5e, category 6 and category 7).

2. ISO/IEC IS 11801 2nd edition, the international standard for cabling and local standardization documents define cabling component categories based on transmission performance parameters such as attenuation and NEXT loss, over a specified frequency range.

Channel The end-to-end transmission path connecting any two points at which application specific equipment is connected. Equipment and work area cables are included in the channel.

Classification Application classes for cabling have been identified for the purpose of the ISO/IEC 11801 standard;

- Class A: cabling is characterized up to 100 kHz
- Class B: cabling is characterized up to 1 MHz
- Class C: cabling is characterized up to 16 MHz
- Class D: cabling is characterized up to 100 MHz
- Class E: cabling is characterized up to 250 MHz
- Class F: cabling is characterized up to 600 MHz
- Optical Class: optical fiber links are characterized up to 10 MHz and above.

Collapsed Backbone A centralized network contained in one device. The network is said to be collapsed and made to fit into a box. Individual networks are connected to this central device and can then communicate with one another.

Common Mode Transmission A transmission scheme where voltages appear equal in magnitude and phase across a conductor pair with respect to ground. May also be referred to as longitudinal mode.

Consolidation Point (CP) A location for interconnection between horizontal cables that extend from building pathways and horizontal cables that extend into work area pathways.

Cross-connect A facility enabling the termination of cables as well as their interconnection or cross-connection with other cabling or equipment. Also known as a distributor.

Cross-connection A connection scheme between cabling runs, subsystems and equipment using patch cords or jumpers that attach to connecting hardware on each end.

Crosstalk Noise or interference caused by electromagnetic coupling from one signal path to another. Crosstalk performance is generally expressed in decibels.

Decibel (dB) A standard unit for expressing transmission gain or loss as derived from a ratio of signal voltages or power.

Delay Skew The difference in propagation delay between the fastest and slowest pair in a cable or cabling system.

Demarcation Point (DP) A point at which two services may interface and identify the division of responsibility.

Differential Mode Transmission A transmission scheme where voltages appear equal in magnitude and opposite in phase across a twisted-pair with respect to ground. May also be referred to as balanced mode.

Distributor The term used for the functions of a collection of components (e.g. patch panels, patch-cords) used to interconnect cables.

Ducting See Pathway.

Electromagnetic Compatibility (EMC) The ability of a system to minimize radiated emissions and maximize immunity from external noise sources.

Electromagnetic Interference (EMI) The interference in signal transmission or reception caused by the radiation of electrical and magnetic fields.

Electronic Industries Alliance (EIA) An organization that sets standards for interfaces to ensure compatibility between data communications equipment and data terminal equipment.

Electronic Industries Association A standards organization that specializes in the electrical and functional characteristics of interface equipment. The organization sets standards for interfaces to ensure compatibility between data communications equipment and data terminal equipment.

Entrance Facility (EF) An entrance to a building for both public and private network service cables (including antennae), including the entrance point at the building wall and continuing to the entrance room or space. Entrance facilities are often used to house electrical protection equipment and connecting hardware for the transition between outdoor and indoor cable.

Entrance Facility, Telecommunications An entrance to a building for both public and private network service cables (including antennae) beginning with the entrance point at the building wall and continuing to the entrance room or space.

Entrance Point, Telecommunications The point of emergence of telecommunications conductors through an exterior wall, a concrete floor slab, or from a rigid metal conduit or intermediate metal conduit.

Equal Level Far-end Crosstalk (ELFEXT) Crosstalk measured at the opposite end from which the disturbing signal is transmitted, normalized by the attenuation contribution of the cable or cabling.

Equipment Cable A cable or cable assembly used to connect telecommunications equipment to horizontal or backbone cabling.

Equipment Room (ER) A centralized space for telecommunications equipment that serves the occupants of the building or multiple buildings in a campus environment. An equipment room is considered distinct from a telecommunications room because it is considered to be a building or campus serving (as opposed to floor serving) facility and because of the nature or complexity of the equipment that it contains.

Equipment Room, Telecommunications A centralized space for telecommunications equipment that serves the occupants of the building. An equipment room is considered distinct from the telecommunications room because of the nature and complexity of the equipment it houses.

Far-end Crosstalk (FEXT) Crosstalk measured at the opposite end from which the disturbing signal is transmitted.

FC Connector A type of optical fiber connector identifiable by its round, screw-operated locking nut. It is usually metal. Its ruggedness leads it to be widely used in test equipment.

Fiber Distributed Data Interface (FDDI) Operates at 100 megabits per second (Mb/s). Developed by the ANSI X3T9.5 committee. This is a token-passing, dual-ring architecture that provides redundancy using fiber optic cable with transmission up to 2 kilometers.

Fiber Optic Transmission A communications scheme whereby electrical data is converted to light energy and transmitted through optical fibers.

Firestop A material, device, or assembly of parts installed in a cable pathway at a fire-rated wall or floor to prevent passage of flame, smoke or gases through the rated barrier (e.g., between cubicles or separated rooms or spaces).

Floor Distributor (FD) The international term for horizontal cross-connect. The distributor used to connect between the horizontal cable and other cabling subsystems or equipment.

Ground A conducting connection, whether intentional or accidental, between an electrical circuit (telecommunications) or equipment and earth, or to some conducting body that serves in place of the earth.

Hertz (Hz) A measure of frequency as defined in units of cycles per second.

Home-run Cabling A distribution method in which individual cables are run directly from the horizontal cross-connect to each telecommunications outlet. This configuration is also known as star topology.

Horizontal Cabling The cabling between and including the telecommunications outlet and the horizontal cross-connect.

Horizontal Cross-connect (HC) A cross-connect of horizontal cabling to other cabling, e.g., horizontal, backbone, or equipment.

Hub Equipment that serves as the centralized connection point for a network or portion thereof. Hubs are used for multiplexing, multi-port bridging functions, switching and test access. They can be either passive or active and are not considered to be part of the cabling infrastructure.

Hybrid cable An assembly of two or more cables, of the same or different types or categories, covered by one overall sheath.

Insertion loss

1. The loss resulting from the insertion of a device in a transmission line, expressed as the reciprocal of the ratio of the signal power delivered to that part of the line following the device to the signal power delivered to that same part before insertion.

2. In an optical fiber system, the loss of optical power caused by inserting a component, such as a connector, coupler or splice, into a previously continuous optical path.

Insulation Displacement Connection (IDC) A wire connection device that penetrates the insulation of a copper wire when it is being inserted (punched-down) into a metal contact, allowing the electrical connection to be made.

Intelligent Hub A hub that performs bridging and routing functions in a collapsed backbone environment.

Interbuilding Backbone Telecommunications cable(s) that are part of the campus subsystem that connect one building to another.

Interconnection A connection scheme that provides direct access to the cabling infrastructure and the ability to make cabling system changes using equipment cords.

Intermediate Cross-Connect (IC) The connection point between a backbone cable that extends from the main cross-connect (first-level backbone) and the backbone cable from the horizontal cross-connect (second-level backbone).

Intermediate Distribution Frame (IDF) In a central office or customer premises, a frame that (a) cross connects the user cable media to individual user line circuits and (b) may serve as a distribution point for multipair cables from the main distribution frame (MDF) to individual cables connected to equipment in areas remote from these frames.

Intrabuilding Backbone Telecommunications cable(s) that are part of the building subsystem that connect one equipment room to another.

Jumper Wire An assembly of twisted-pairs without connectors on either end used to join telecommunications links at a cross-connect.

Link An end-to-end transmission path provided by the cabling infrastructure. Cabling links include all cables and connecting hardware that comprise the horizontal or backbone subsystems. Equipment and work area cables are not included as part of a link.

Local Area Network (LAN) A geographically limited data communications system for a specific user group consisting of a group of interconnected computers, sharing applications, data and peripheral devices such as printers and CD-ROM drives intended for the local transport of data, video, and voice.

Local Exchange Carrier (LEC) The local regulated provider of public switched telecommunications services.

Longitudinal Conversion Loss (LCL) A measure (in dB) of the differential voltage induced on a conductor pair as a result of subjecting that pair to longitudinal voltage. LCL is considered to be a measure of circuit balance.

Main Cross-connect (MC) A cross-connect for first level backbone cables, entrance cables, and equipment cables.

MAU

1. Multi-station Access Unit in reference to Token Ring.
2. Medium Attachment Unit in reference to Ethernet A wiring concentrator used in Local Area Networks. A device that allows terminals, PCs, printers, and other devices to be connected in a star-based configuration to Token Ring or Ethernet LANs. MAU hardware can be either active or passive and is not considered to be part of the cabling infrastructure.

Modular Jack A telecommunications outlet/connector for wire or cords as defined in the FCC Part 68 Subpart F. Modular jacks can have 4, 6 or 8 contact positions, but not all the positions need be equipped with contacts.

Modular Plug A telecommunications connector for wire or cords as defined in the FCC Part 68 Subpart F. Modular plugs can have 4, 6 or 8 contact positions, but not all the positions need be equipped with contacts.

Multimedia

1. An application that communicates to more than one of the human sensory receptors.
2. Applications that communicate information by more than one means or cabling media.

Multimode Optical Fiber An optical fiber that will allow many bound modes to propagate. The fiber may be either a graded-index or step-index fiber. Multimode optical fibers have a much larger core than singlemode fibers. See also Optical Fiber Cable.

Multi-user Telecommunications Outlet Assembly (MuTOA) A grouping in one location of several telecommunications/outlet connectors.

Nanosecond (ns) One billionth of a second (10^{-9} seconds).

Near-end Crosstalk (NEXT Loss) The undesired coupling of a signal from one pair of wires to another. Signal distortion as a result of signal coupling from one pair to another at various frequencies.

Network Demarcation Point The point of interconnection between the local exchange carrier's telecommunication facilities and the telecommunications systems wiring and equipment as the end user's facility. This point shall be located on the subscriber side of the telephone company's protector or the equivalent thereof in cases where a protector is not required.

Open Office Cabling The cabling that distributes from the telecommunications closet to the open office area utilizing a consolidation point or multi-user telecommunications outlet assembly.

Outlet, Telecommunications A fixed connecting device where the horizontal cable terminates. The telecommunications outlet provides the interface to the work area cabling. Sometimes referred to as a telecommunications outlet/connector.

Outlet/Connector, Telecommunications A connecting device in the work area on which horizontal cable terminates.

Patch Cord A length of cable with connectors on one or both ends used to join telecommunications links at a cross-connect.

Patch Panel Connecting hardware that typically provides means to connect horizontal or backbone cables to an arrangement of fixed connectors that may be accessed using patch cords or equipment cords to form cross-connections or interconnections.

Pathway A facility (i.e., conduit) for the placement and protection of telecommunications cables. Same as raceway or ducting.

Plenum A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system.

Private Branch Exchange (PBX) A private switching system usually serving an organization, such as a business, located on the customer's premises. It switches calls both inside a building or premises and outside to the telephone network, and can sometimes provide access to a computer from a data terminal.

Propagation Delay The amount of time that passes between when a signal is transmitted and when it is received at the opposite end of a cable or cabling.

Punch Down A method for securing wire to a quick clip in which the insulated wire is placed in the terminal groove and pushed down with a special tool. As the wire is seated, the terminal displaces the wire insulation to make an electrical connection. The punch down operation may also trim the wire as it terminates. Also called cut down.

Quick Clip An electrical contact used to provide an insulation displacement connection to telecommunications cables.

Raceway See Pathway.

Return Loss Noise or interference caused by impedance discontinuities along the transmission line at various frequencies. Return loss is expressed in decibels.

Ring Conductor A telephony term used to describe one of the two conductors in a cable pair used to provide telephone service. This term was originally coined from its position as the second (ring) conductor of a tip-ring-sleeve switchboard plug.

Screened twisted-pair (ScTP) A balanced twisted-pair cable surrounded by metallic braid, foil (screen) or both and bound in a single cable sheath.

Shielded twisted-pair (SSTP) A cable surrounded by a metallic braid, foil or both and bound in a single plastic sheath containing balanced twisted-pair conductors that are individually shielded.

Singlemode Optical Fiber An optical fiber that will allow only one mode to propagate; this fiber is typically a step-index fiber.

Small Form Factor An optical fiber connector and adapter that provide for two strands of fiber in a surface area similar to an unshielded twisted-pair (RJ-style) plug and socket.

Sneak Current A low-level current that is of insufficient strength to trigger electrical surge protectors and, therefore, is able to pass through them undetected. These currents may result from contact between communications lines and AC power circuits or from power induction, and may cause equipment damage unless secondary protection is used.

Star Topology

1. A method of cabling each telecommunications outlet/connector directly to a cross-connect in a horizontal cabling subsystem.

2. A method of cabling each cross-connect (HC and IC) to the main cross-connect (MC) in a backbone cabling subsystem.

Surge A rapid rise in current or voltage, usually followed by a fall back to a normal level. Also referred to as transient.

Telecommunications Any transmission, emission or reception of signs, signals, writings, images, sounds or information of any nature by cable, radio, visual, optical or other electromagnetic systems.

Telecommunications Room (TR) An enclosed space for housing telecommunications equipment, cable terminations and cross-connect cabling used to serve work areas located on the same floor. The telecommunications closet is the typical location of the horizontal cross-connect and is considered distinct from an equipment room because it is considered to be a floor serving (as opposed to building or campus serving) facility.

Telecommunications Industry Association (TIA) An organization that sets standards for cabling, pathways, spaces, grounding, bonding, administration, field testing and other aspects of the telecommunications industry.

Tip Conductor A telephony term used to describe the conductor of a pair that is grounded at the central office when the line is idle. This term was originally coined from its position as the first (tip) conductor of a tip-ring-sleeve switchboard plug.

Topology The physical or logical layout of links and nodes in a network. These include star, ring and bus configurations.

Transfer Impedance A measure (in Ω) of shield effectiveness.

Transition Point (TP) A location in the horizontal cabling subsystem where flat under carpet cabling connects to round cabling.

Trunk A communication line between two switching systems. The term "switching systems" typically includes equipment in a central office (the telephone company) and PBXs. A tie trunk connects PBXs. Central office trunks connect a PBX to the switching system at the central office.

Twisted-Pair Physical Media Dependent (TP-PMD) Technology under review by the ANSI X3T9.5 working group that allows 100 Mb/s transmission over twisted-pair cable. Also referred to as CDDI or TPDDI.

Twisted-Pair Distributed Data Interface (TP-DDI) Trademark of 3COM Corporation. (See Twisted-pair Physical Media Dependent.)

Unshielded Twisted-Pair (UTP) A cable with multiple pairs of twisted insulated copper conductors bound in a single sheath.

Webbed Conductors The manufacturing process that physically binds the conductor insulation of the wire pairs of an unshielded twisted-pair cable.

Work Area The area where horizontal cabling is connected to the work area equipment by means of a telecommunication outlet. A station/desk which is served by a telecommunications outlet. Sometimes referred to as a work station.

Work Area Cable A cable assembly used to connect equipment to the telecommunications outlet in the work area. Work area cables are considered to be outside the scope of cabling standards.

Acronyms & Abbreviations

ACR	Attenuation-to-crosstalk ratio
ADO	Auxiliary disconnect outlet
ADSL	Asynchronous Digital Subscriber Line
ANSI	American National Standards Institute
ATM	Asynchronous transfer mode
AWG	American wire gauge
BD	Building distributor
BER	Bit Error Rate
BFOC	Bayonet Fiber Optic Connector
b/s	Bits per second
CD	Campus distributor
CDDI®	Copper Distributed Data Interface
CM	Common mode
CP	Consolidation point
CPE	Customer premises equipment
CSA	Canadian Standards Association
dB	Decibel
DD	Distribution device
EF	Entrance facility
EIA	Electronic Industries Alliance
ELFEXT	Equal level far-end crosstalk
EMC	Electromagnetic compatibility
EMI	Electromagnetic interference
EMR	Electromagnetic radiation
ER	Equipment room
FCC	Federal Communications Commission
FD	Floor distributor
FDDI®	Fiber Distributed Data Interface
ft.	Feet
FEXT	Far-end crosstalk
FIPS PUB	Federal Information Processing Standard Publication
FTP	Foil twisted-pair
Gb/s	Gigabit per second
GHz	Gigahertz
HC	Horizontal cross-connect
HVAC	Heating, ventilation and air conditioning
Hz	Hertz
IC	Intermediate cross-connect
IDC	Insulation displacement connection
IDF	Intermediate Distribution Frame
IEC	International Electrotechnical Commission
IEEE®	Institute of Electrical and Electronic Engineers®
ISDN	Integrated Services Digital Network
ISO	International Standards Organization
JTC	Joint technical committee
Kb/s	Kilobit per second
Km	Kilometer
KTS	Key telephone system
LAN	Local area network
lbf	Pounds force
lx	Lux
LEC	Local exchange carrier
LED	Light emitting diode
m	Meter
µm	Micron; one millionth of a meter (0.000001); also micrometer

Mb/s . . . . . Megabits per second
MC . . . . . Main cross-connect
MDF . . . . . Main distribution frame
MHz . . . . . Megahertz
MHz*km . . . . . Megahertz kilometer
mm . . . . . Millimeter
MT-RJ . . . . . Mechanical Transfer Registered Jack
MuTOA . . . . . Multi-user Telecommunications Outlet Assembly
NEC® . . . . . National Electrical Code®
NEMA® . . . . . National Electrical Manufacturers Association®
NEXT . . . . . Near-end crosstalk
NFPA® . . . . . National Fire Protection Association®
Ω . . . . . Ohm
nm . . . . . Nanometer
PBX . . . . . Private branch exchange
PVC . . . . . Polyvinyl chloride
RF . . . . . Radio frequency
RMS . . . . . Rack mount space
SC . . . . . Subscriber connector
ScTP . . . . . Screened twisted-pair
SOHO . . . . . Small office home office
STP . . . . . Shielded twisted-pair
TIA . . . . . Telecommunications Industry Association
TO . . . . . Telecommunications outlet
TP . . . . . Transition point
TP-PMD . . . . . Twisted-Pair Physical Media Dependent
TPDDI® . . . . . Twisted-Pair Distributed Data Interface
TSB . . . . . Telecommunications System Bulletin
UL® . . . . . Underwriters Laboratories Inc.®
UPS . . . . . Uninterruptible power supply
USOC . . . . . Universal Service Order Code
UTP . . . . . Unshielded twisted-pair
Vrms . . . . . Volts root mean square
WA . . . . . Work area

METRIC CONVERSION CHART

English-to-Metric . . . . . Metric-to-English

DISTANCE

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Inches (in.)	Millimeters (mm)	25.4	Millimeters (mm)	Inches (in.)	0.039
	Centimeters (cm)	2.54		Feet (ft.)	0.003
	Meters (m)	0.0254			
Feet (ft.)	Centimeters (cm)	30.48	Centimeters (cm)	Inches (in.)	0.394
	Meters (m)	0.3048		Feet (ft.)	0.033
Yards (yd.)	Centimeters (cm)	91.4	Meters (m)	Feet (ft.)	3.281
	Meters (m)	0.914		Yards (yd.)	1.093
Miles (mi.)	Kilometers (km)	1.609	Kilometers (km)	Miles (mi.)	0.621

WEIGHT

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Ounces (oz.)	Grams (gm)	28.35	Grams (gm)	Ounces (oz.)	0.035
	Kilograms (kg)	0.028		Pounds (lb.)	0.002
Pounds (lb.)	Kilograms (kg)	0.454	Kilograms (kg)	Pounds (lb.)	2.203

FORCE

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Foot Pounds (lb-ft)	Newton Meters (N-m)	1.36	Newton Meters (N-m)	Foot Pounds (lb-ft)	0.738

TEMPERATURE

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Fahrenheit (˚F)	Celsius (˚C)	0.56, then subtract 18	Celsius (˚C)	Fahrenheit (˚F)	1.8, then add 32

VOLUME

To convert:	Into:	Multiply by:	To convert:	Into:	Multiply by:
Quarts (qt.)	Liters (L)	0.946	Liters (L)	Quarts (qt.)	1.057
Gallons (gal.)	Liters (L)	3.785		Gallons (gal.)	0.264

For a complete list of industry terminology, visit ***www.bicsi.org/Resources/Dictionary/Index.aspx***

WARRANTY

The Siemon Company delivers a full range of product and system warranty programs:

- **A one (1) year repair or replace warranty on Tools & Testers**
- *** A five (5) year repair or replace warranty for all Siemon Products (cabling system connecting hardware) when not installed in a certified Siemon Cabling System®**
- **A sixteen (16) year Siemon Cabling System (System 5e®, LightSystem®) warranty covering application assurance, product, cable, and labor for installations performed by Siemon Certified Installer℠ in a registered cabling system using Siemon connecting hardware and qualified cable**
- **A twenty (20) year premium Siemon Cabling System (Premium 5e®, Ultralink®, System 6®, LightSystem Plus℠, and UltraLight®) warranty covering application assurance, product, cable, and labor for installations performed by Siemon Certified Installer in a registered cabling system using Siemon connecting hardware and qualified premium cable**

Please contact your local Siemon Company sales office (see inside back cover) to obtain warranty details for conditions and limitations.

* THE SIEMON COMPANY LIMITED FIVE (5) YEAR PRODUCT WARRANTY

Siemon warrants its products to be free from defects in material and workmanship. Should any product fail to conform, Siemon will, upon written notice from Distributor of such non-conforming product, within five (5) years after date of purchase, either replace it F.O.B. original point-of-delivery, or refund the purchase price, at Siemon's option, and shall have the right to require Distributor to return the defective product to Siemon's plant unless such return is impracticable. The remedies provided herein shall be Buyer's sole and exclusive remedies, and no statement or recommendation not contained herein shall have any force or effect unless in writing and signed by an authorized officer of Siemon. Siemon makes no warranty, expressed or implied, as to merchantability or fitness for a particular purpose of any product sold. In no event will Siemon be liable for any special incidental, or consequential damages, where asserted in contract, tort, or otherwise. This warranty applies only to those cabling products that are used to terminate or cross-connect telecommunications cabling. Warranty terms for other categories of cabling products (e.g., tools, test equipment, protection apparatus, etc.) may vary.

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❑ **Please check if you do not wish to receive e-mail updates from The Siemon Company.**

❑ **Please remove my name from the Siemon mailing list.**

❑ **Please have a Siemon representative contact me.**

1. Please send information on:

- ❑ The Siemon Company
- ❑ Ultra™/Premium 6™
- ❑ System 6®
- ❑ System 7®/TERA™
- ❑ LightSystem® and LightSystem® XGLO™
- ❑ Total Building Integration Cabling (TBIC℠) System
- ❑ Contacting a Siemon Certified Installer℠ nearest me
- ❑ The Siemon Consultant/Architect Program
- ❑ The Siemon Certified Installer℠ Program
- ❑ Siemon Home Cabling System®
- ❑ The Siemon Project Assistance Program
- ❑ Mini Catalog
- ❑ Cabling for the Future Magazine
- ❑ Interactive Catalog on CD

2. Which of the following best describes your job function?

- ❑ Management
- ❑ Systems Designer
- ❑ Field Technician
- ❑ Professional (Architect/Engineer)
- ❑ Other _____

3. Do you perform any of the following (check one)

- ❑ Authorize/approve purchase of cabling systems of components
- ❑ Recommend/specify purchases of cabling systems or components.
- ❑ No purchasing authority. Please list names of person(s) responsible for specifying cabling systems or components

Names: _____
_____

4. Which of the following best describes your company's primary operation?

- ❑ Consultant
- ❑ Distributor
- ❑ End User
- ❑ Manufacturer of: _____
- ❑ Other: _____
- ❑ Telephone Company
- ❑ Installer: voice or data
- ❑ Security and alarm industry

5. How many employees are at your location? (check one)

- ❑ Less than 10
- ❑ 10 – 50
- ❑ 51 – 100
- ❑ 101 – 500
- ❑ 501 – 1,000
- ❑ Over 1,000

6. What are the annual sales for your company at your location? (check one)

- ❑ Under $1 million
- ❑ $1 million to $5 million
- ❑ $5 million to $10 million
- ❑ $10 million to $25 million
- ❑ $25 million to $50 million
- ❑ $50 million to $100 million
- ❑ Over $100 million

7. Are you planning any network cabling projects?

- ❑ Yes
- ❑ No

If yes, when is it scheduled to begin? Mo/Yr _____

- ❑ In progress
- ❑ Not scheduled

How many work areas will be installed? _____

Are there multiple locations? ❑ Yes ❑ No

8. Additional comments or suggestions.

_____

_____

_____

_____

_____

_____

_____

_____

C03

Siemon International Office Locations

Complete the questionnaire on-line at **www.siemon.com** or if you prefer, complete the questionnaire on the reverse of this page and fax to the nearest Siemon location below:

The Americas

Siemon – USA
Watertown, CT, USA
Fax: (1) 860 945 4225

Siemon – Canada
Markham, Ontario
Fax: (1) 905 940 1075

Siemon – Latin America
Coral Gables, Florida, USA
Fax: (1) 305 446 4586

Siemon – Brasil
São Paulo/SP, Brasil
Fax: (55) 11 3048 4099

Siemon – Andean Region
Bogota, Colombia
Fax: (571) 416 9305

Siemon – Mexico
Mexico, D.F., Mexico
Fax: (52) 55 52 84 22 23

Manufacturer's Representative
Latin America Sales
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Siemon – Italy
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