Category 7_A/Class F_A Products

Exceeding ISO/IEC category 7_A/class F_A specifications, Siemon's fully shielded TERA end-to-end cabling solution is the highest-performing, most secure twisted-pair copper cabling system available. TERA® supports performance of 10Gb/s and passes stringent TEMPEST security testing.

Beyond industry best speed and best total cost of ownership, TERA's unique cable-sharing ability in support of lower speed applications results in a more "Green" solution and can also provide up-front savings through the reduction of cable counts. By combining the use of one TERA outlet dedicated for high-speed applications of 10Gb/s and another for cable sharing of lower speed voice and video applications, end-users simultaneously benefit from the highest performing and most cost effective copper solution.

The only non-RJ connector approved as a category 7_A/class F_A interface, TERA fits within a standard RJ45 footprint and is easily connected to RJ45 equipped electronics via hybrid TERA to RJ patch cords.

Section Contents

TERA® Outlet

Invented by Siemon in 1999 and subsequently chosen as an industry standard interface for category 7/class F and category 7_A/class F_A, the Siemon TERA outlet is by far the highest performing twisted-pair copper connector in the world. When installed as part of a TERA solution, each pair delivers 1.2 GHz of bandwidth — exceeding category 7_A/class F_A specifications. This extra bandwidth supports demanding applications like 10GBASE-T and broadband video.

Bend Relief — Rear boot provides bend relief for cable exiting the plug and outlet

Compact Design — Slim, compact design allows outlets to be side-stacked and inserted from either the front or rear of faceplates and patchpanels

Tempest Security Tested — The TERA system is the first and only copper system to pass TEMPEST emissions testing by an independent, NSA certified lab, Dayton T. Brown Inc.

Application Sharing — TERA's ability to support multiple applications over a single 4-pair cable and outlet can save significant material and installation costs

Shielded Termination — Connector automatically assures proper termination of cable shield — no additional processes required for grounding cable

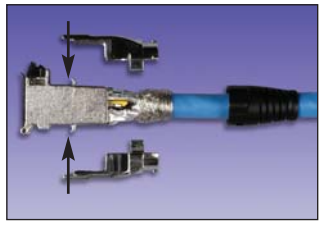
Quadrant Isolation — Shielded quadrant design fully isolates pairs for optimum NEXT performance

Fully Shielded — Terminates fully shielded (F/FTP and S/FTP) cable - virtually eliminates alien crosstalk

Hinged Door — Outlets include a hinged door to prevent exposure to dust and other contaminates

Easy Installation
CPT-T tool reduces preparation and termination time.

Mounting Options
The TERA outlet is compatible with TERA-MAX® patch panels and all MAX series faceplates.



Quick-Ground™ Termination
No additional steps required for termination. Cable shield is automatically terminated within the outlet without additional steps or tools.

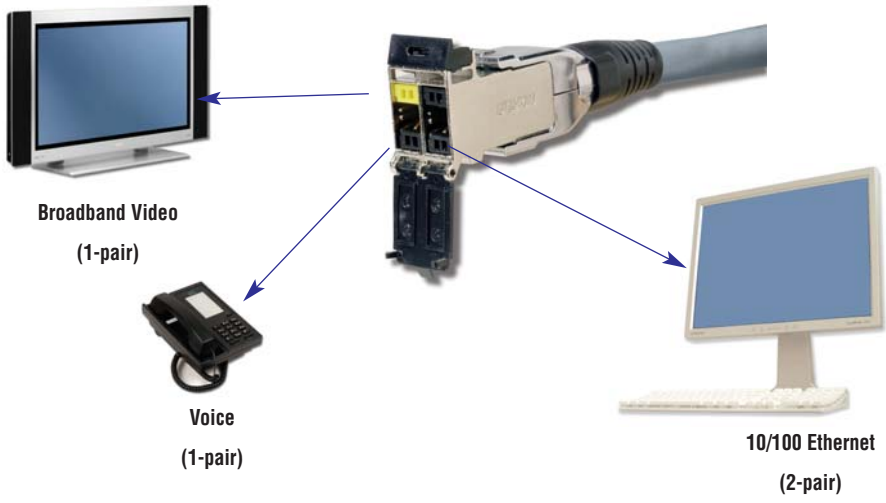
TERA® 4-Pair Outlet

TERA outlets are the industry's highest performing network cabling connectors. Outlets accept 1-, 2- and 4-pair plugs and terminate fully shielded category 7 and 7_A cables. TERA outlets can be used in both the work area and in the telecommunications room.

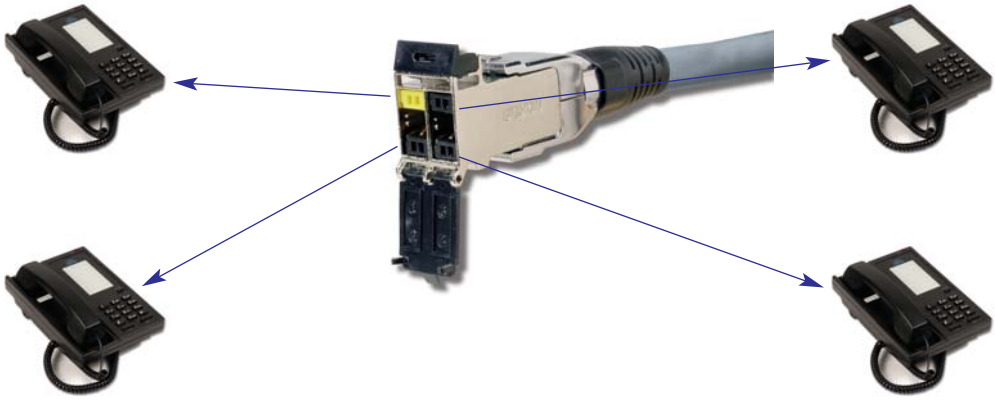
Part #	Description
T7F-01-1	TERA 4-pair outlet with black door, latch and boot. Compatible with 0.64-0.55mm (22-23 AWG) solid S/FTP and F/FTP cable

TERA Cable Sharing

Up to four simultaneous applications can be served from a single 4-pair, S/FTP cable and TERA outlet, saving significant materials, labor, pathway and rack space.



One TERA replaces four 1-pair analog voice outlets — perfect for call centers.



TERA®-MAX® Patch Panels

TERA-MAX 19 inch patch panels provide outstanding performance and reliability in a shielded, high-density modular solution. As outlets are snapped into place, resilient ground tabs assure that each outlet is properly grounded. No secondary outlet grounding operations are required, reducing overall installation time.

Angled TERA-MAX — Allows direct routing of cables to vertical managers, eliminating the need for horizontal cable managers

Standard Fit — Panels can be mounted directly on standard 19 inch relay rack or cabinet

Durable — High strength steel with black or metallic finish

Port Identification — Bold port numbering enables quick identification of outlets

High Density — 24 ports in only 1U - up to 96 ports with cable sharing

Installation Friendly — Individual modules snap into place, providing integrated grounding without additional steps

Cable Management
Integral rear cable manager facilitates the orderly routing of horizontal cables as well as maintaining proper bend radius for optimum performance.

Slim Design
Use TERA outlets in TERA-MAX patch panel for telecommunications room applications.

Integrated Grounding
Panels feature integrated grounding via resilient ground tabs engaged during module insertion.

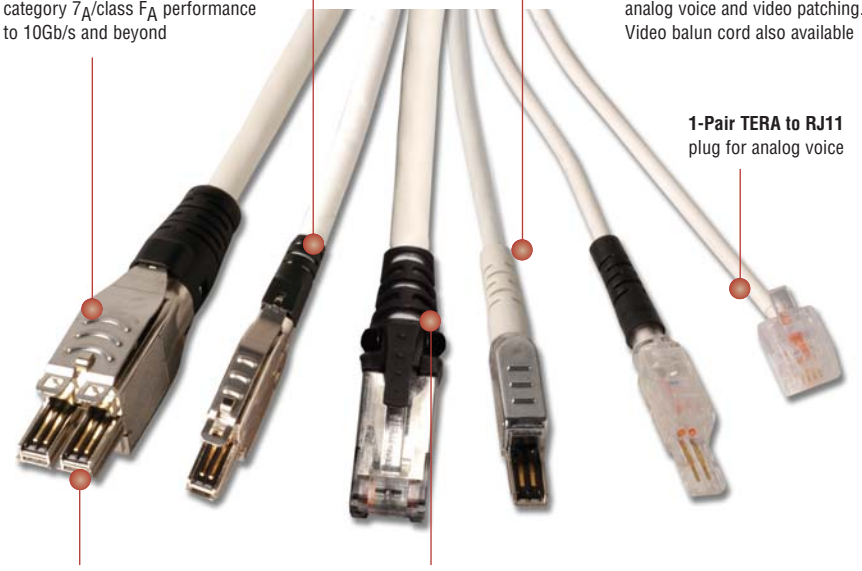
TERA-MAX Patch Panels

Part #	Description
TM-PNLZ-24-01	24-port TERA-MAX panel, black, 1U
TM-PNLZ-24	24-port TERA-MAX panel, metallic, 1U
TM-PNLZA-24-01	24-port Angled TERA-MAX panel, black, 1U
TM-PNLZA-24	24-port Angled TERA-MAX panel, metallic, 1U

Panels include designation labels, cable ties and mounting hardware.
Note: 1U = 44.5mm (1.75 in.)

TERA® - Patch Cords

Part of the TERA cabling solution, TERA-to-TERA patch cords exceed bandwidth of category 7_A/class F_A specifications when combined with the TERA outlet. TERA delivers up to 1.2 GHz of bandwidth per pair, providing the extra bandwidth for demanding applications like 10GBASE-T and Broadband Video. Facilitated by 1- and 2-pair patch cords, TERA's extended performance also supports cable sharing — the simultaneous convergence of video, voice and data onto a single 4-pair cable and outlet.



Standard Footprint
ISO recognized interface allows TERA cords and outlets to fit within a standard RJ45 footprint.

Fully Compatible With Active Electronics
TERA to RJ45 patch cords allow the TERA system to be easily connected to RJ45 equipped active electronics.

Cable Sharing
Multiple applications can be run over one 4-pair cable and outlet, saving significant material and pathway space.

TERA Field-Terminated Plug

TERA 4-pair plugs can be used to terminate horizontal cable into exact lengths for consolidation point applications. Plugs terminate fully shielded category 7 and 7A solid cable.

Part #	Description
T7P4-B(XX)-1	4-pair TERA plug with colored boot. Compatible with 0.64 – 0.55mm (22 – 23 AWG) solid S/FTP and F/FTP cable

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

TERA® Patch Cords

TERA Category 7_A Patch Cords

Category 7_A compatible, TERA to TERA, LS0H cable assembly, ivory jacket, colored boot.

T(X)-(XX)M-B(XX)L

Plug Type:
1 = 1-Pair
4 = 4-Pair

Cord Length:
01 = 1m (3.28 ft.)
02 = 2m (6.56 ft)
03 = 3m (9.84 ft.)
05 = 5m (16.4 ft.)

Boot Color:
01 = Black
02 = White
03 = Red
05 = Yellow
06 = Blue
07 = Green

TERA Category 5e Compatible Patch Cords

TERA to Shielded RJ-45, or TERA to 6 position (Voice) modular plug, LS0H cable assembly, ivory jacket, colored boot.

T(XXX)-(XX)M-B(XX)L

Plug Type:
2E2 = 2-Pair, RJ-45, 10/100BASE-T
2UT = 2-Pair, RJ-45, Token Ring
1U1 = 1-Pair, UTP, 6-position, Voice

Cord Length:
01 = 1m (3.28 ft.)
02 = 2m (6.56 ft.)
03 = 3m (9.84 ft.)
05 = 5m (16.4 ft.)

Boot Color:
01 = Black
02 = White
03 = Red
05 = Yellow
06 = Blue
07 = Green

TERA Category 6A Patch Cords

Augmented Category 6A, TERA to Shielded RJ-45 modular plug, LS0H cable assembly, ivory jacket, colored boot

T4(X)-S(XX)M-B(XX)L

Plug Type:
A = T568B
T = T568A

Cord Length:
01 = 1m (3.28 ft.)
02 = 2m (6.56 ft.)
03 = 3m (9.84 ft.)
05 = 5m (16.4 ft.)

Boot Color:
01 = Black
02 = White
03 = Red
05 = Yellow
06 = Blue
07 = Green

CLIP-(XX) . . . . . Color coding clip, bag of 25

Clip Color

01 = Black	**04** = Gray	**07** = Green
02 = White	**05** = Yellow	**08** = Violet
03 = Red	**06** = Blue	**09** = Orange

TERA Video Balun Cords

TERA CATV baluns provide the optimum solution for the transmission of TV or CATV signals over structured cabling systems that were historically limited to voice and data transmission. These products convert the unbalanced TV signals designed for coaxial cabling (75 Ω impedance) to balanced signals (100 Ω impedance) as required for transmission over twisted pair (balanced) cabling. The TERA CATV adapters are specified and useable to 862 MHz. The 1-pair TERA to PAL and TERA to "F" patch cords utilise an integrated balun. The 1-pair shielded TERA to shielded RJ45 patch cord allows connection to third-party RJ45 baluns.

Part #	Description
T1VC-(XX)M-B01L	1-pair TERA to PAL connector, LS0H cable assembly, gray jacket
T1VF-(XX)M-B01L	1-pair TERA to F connector, LS0H cable assembly, gray jacket
T1S4V-(XX)M-B01L	1-pair shielded TERA to RJ45 patch cord

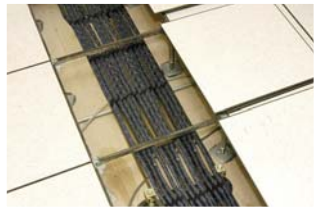
Use (XX) to specify length: 01 = 1m (3 ft.), 1.5 = 1.5m (4.5 ft.), 02 = 2m (6 ft.), 03 = 3m (9 ft.), 05 = 5m (15 ft.)

T1VF-(XX)M-B01L

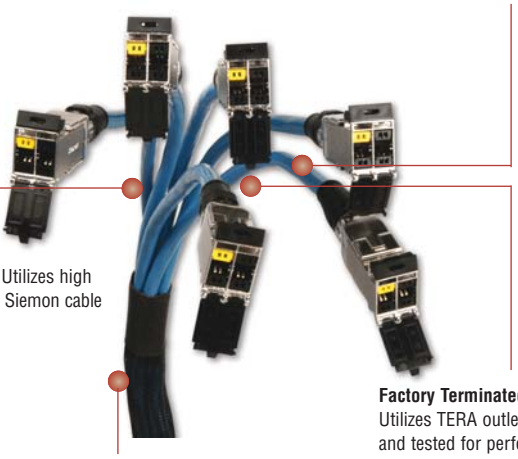
T1S4V-(XX)M-B01L

TERA® - S/FTP Trunking Cable Assemblies

Siemon's TERA copper trunking cable assemblies provide an efficient and cost effective alternative to individual field-terminated components. Combining factory terminated and tested TERA outlets and fully shielded Siemon category 7_A cable, Siemon TERA trunking cable assemblies offer industry leading performance to 10Gb/s and beyond. Standard configurations also help maintain consistent cable layout, facilitate efficient moves, adds and changes and significantly reduce scrap versus typical field installation. Modular design, in conjunction with reduced scrap, makes trunks the most "Green" method for copper cabling installations.



Data Centers
Ideal for data center, raised floor and ladder rack environments enabling up to 75% faster deployment time. Well organized cable bundles improve cable management and air flow



Identification — Each cable assembly is coded with a unique identification number for administrative purposes

Fully Shielded Cable — Utilizes high quality category 7_A S/FTP Siemon cable

Factory Terminated and Tested — Utilizes TERA outlets, factory terminated and tested for performance to 10Gb/s and beyond

Breakout Kit — Unique breakout kit creates optimal cable orientation and limits cable crossing

Simple, Snap-In Installation
Straight Cut aligns TERA outlets for optimal snap in installation into TERA-MAX® patch panels and allows left, right or centre exit.

Protective Packaging
Each assembly is packaged individually to protect factory terminations.

TERA S/FTP Trunking Cable Assemblies

6 Leg Double-Ended Trunking Cable Assemblies

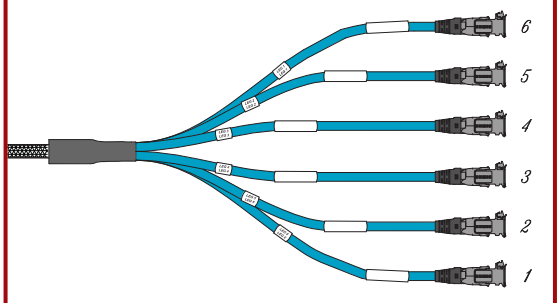
Part #	Description
TJRD6E-F1F1(XXX)F	Riser rated (CMR), blue jacket, 1000MHz
TJPD6E-F1F1(XXX)F	Plenum rated (CMP), blue jacket, 1000MHz

Use (XXX) to specify length: 2.7 - 90m (009 - 295 ft.) in increments of 1 meter (3 feet)

Other lengths and configurations available upon request.

Note: These products are made to order. Call for lead time and part number availability in your region.

STRAIGHT CUT



TERA® S/FTP 1000 MHz 4-Pair Cable (US)

COMPLIANCE

- ISO/IEC 11801:2002 (Category 7)
- ISO/IEC 11801 2nd ed Amendment 1
- IEC 61156-5:2002 (Category 7)
- IEC 61156-5 Ed 2.0 (Category 7_A)
- UL CMR and CSA FT4
- UL CMP and CSA FT6

Part #	Description
9T7P4-E10-06-R1	Plenum (CMP, CSA FT6), Blue Jacket, 305m (1000 ft.) Reel
9T7R4-E10-06-R1	Riser (CMR, CSA FT4), Blue Jacket, 305m (1000 ft.) Reel

CABLE CONSTRUCTION

- S/FTP
- 0.64mm (0.025 in.) (22 AWG) solid bare copper
- 8.9mm (0.35 in.) [CMR], 8.4mm (0.33 in.) [CMP] max jacket diameter
- Pairs individually shielded with aluminum-polyester foil
- Overall tinned copper braid

ELECTRICAL SPECIFICATIONS

DC Resistance	<17.0Ω/100m
DC Resistance Unbalance	2%
Mutual Capacitance	5.6 nF/100m
Capacitance Unbalance	<330 pF/100m
Characteristic Impedance (ohms)	1-100 MHz: 100 ± 15% 100-250 MHz: 100 ± 22% 250-1000 MHz: 100 ± 25%
NVP	CMR = 79% - CMP = 60%
TCL	40-10 log(*f*) dB
Delay Screw	≤20ns

PHYSICAL PROPERTIES

	CMP	CMR
Pulling Tension (max)	110N (25 lbf)	110N (25 lbf)
Bend Radius (min)	50mm (2.0 in.)	50mm (2.0 in.)
Installation Temperature	0 to 60°C (+32 to 140°F)	0 to 60°C (+32 to 140°F)
Storage Temperature	-20 to 75°C (-4 to 167°F)	-20 to 75°C (-4 to 167°F)
Operating Temperature	-20 to 60°C (-4 to 140°F)	-20 to 60°C (-4 to 140°F)

TRANSMISSION PERFORMANCE

GUARANTEED WORSE CASE SIEMON TYPICAL

Frequency (MHz)	Insertion Loss (dB)		NEXT (dB)		PS NEXT (dB)		ACR (dB)		PSACR (dB)		ACR-F (dB)		PS ACR-F (dB)		Return Loss (dB)		Propagation Delay (ns)	
1.0*	2.1	1.7	78.0	100.0	75.0	97.0	75.9	98.3	72.9	95.3	78.0	90.0	75.0	87.0	20.0	30.0	570	492
4.0	3.7	3.4	78.0	100.0	75.0	97.0	74.3	96.6	71.3	93.6	78.0	90.0	75.0	87.0	23.0	33.0	552	474
10.0	5.8	5.0	78.0	100.0	75.0	97.0	72.2	95.0	69.2	92.0	74.0	90.0	71.0	87.0	25.0	35.0	545	467
16.0	7.3	6.4	78.0	100.0	75.0	97.0	70.7	93.6	67.7	90.6	69.9	90.0	66.9	87.0	25.0	35.0	543	465
20.0	8.2	7.1	78.0	100.0	75.0	97.0	69.8	92.9	66.8	89.9	68.0	90.0	65.0	87.0	25.0	35.0	542	464
31.25	10.3	9.0	78.0	100.0	75.0	97.0	67.7	91.0	64.7	88.0	64.1	90.0	61.1	87.0	23.6	33.6	540	462
62.5	14.6	13.0	75.5	100.0	72.5	97.0	60.9	87.0	57.9	84.0	58.1	85.0	55.1	82.0	21.5	31.5	539	461
100.0	18.5	16.8	72.4	98.0	69.4	95.0	53.9	81.2	50.9	78.2	54.0	81.0	51.0	78.0	20.1	30.1	538	460
200.0	26.5	23.9	67.9	93.0	64.9	90.0	41.4	69.1	38.4	66.1	48.0	77.0	45.0	74.0	18.0	28.0	537	459
250.0	29.7	28.5	66.4	92.1	63.4	89.1	36.7	63.6	33.7	60.6	46.0	76.0	43.0	73.0	17.3	27.3	536	458
300.0	32.7	29.2	65.2	91.0	62.2	88.0	32.6	61.8	29.6	58.8	44.5	71.0	41.5	68.0	17.3	27.3	536	458
350.0	35.4	31.8	64.2	90.3	61.2	87.3	28.8	58.5	25.8	55.5	43.1	69.0	40.1	66.0	17.3	27.3	536	458
400.0	38.0	33.4	63.4	89.1	60.4	86.1	25.4	55.7	22.4	52.7	42.0	68.1	39.0	65.1	17.3	27.3	536	458
550.0	45.0	37.2	61.3	87.3	58.3	84.3	16.3	50.1	13.3	47.1	39.2	66.2	36.2	63.1	17.3	27.3	536	458
600.0	47.1	42.5	60.7	86.1	57.7	83.1	13.6	43.6	10.6	40.6	38.4	60.0	35.4	57.0	17.3	27.3	536	458
800.0	54.9	48.2	58.9	83.1	55.9	80.1	3.9	34.9	0.9	31.9	35.9	52.1	32.9	49.1	16.1	27.3	477	457
900.0	58.5	53.8	58.1	82.0	55.1	79.0	-0.4	28.2	-3.4	25.2	34.9	48.0	31.9	45.0	15.5	25.0	477	456
1000.0	61.9	57.5	57.4	81.0	54.4	78.0	-4.5	23.5	-7.5	20.5	34.0	46.0	31.0	43.0	24.0	24.0	477	456

**Values below 4 MHz are for information only.*

All performance based on 100 meters (328 ft.).