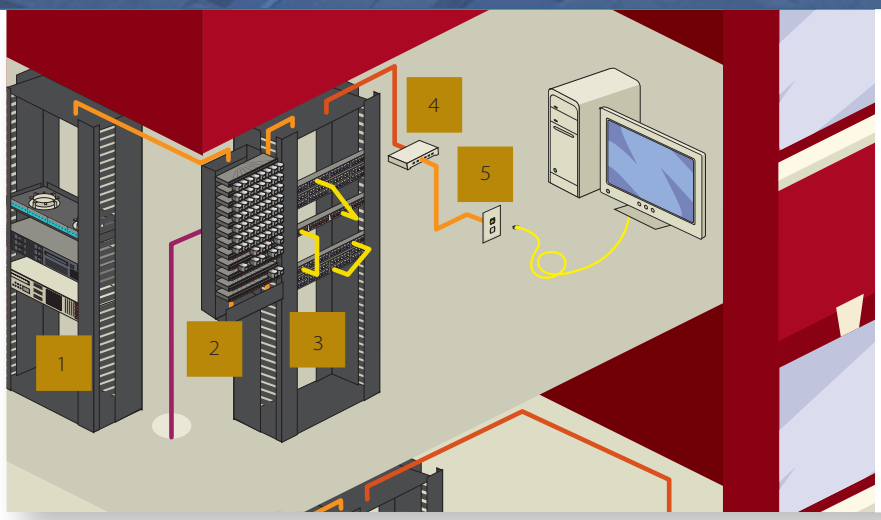
GigaSPEED® X10D Solution Exceeding Category 6A



1 Racks
2 VisiPatch® 360 system
3 M3000 modular patch panel
4 Optional zone box with MGS500s
5 MGS500 outlet and faceplate
1091/2091/3091 UTP cable
GS117-10E equipment cord
GS10E patch cord

GigaSPEED X10D Solution

Features and Benefits:

- Performance guaranteed to meet or exceed Category 6A/Class E_A Channel Specifications to 500 MHz
- Performance guaranteed up to 4 connections, up to 100 meters, in a 6-around-1 cable bundle configuration
- Channel optimized using Modal Decomposition Modeling
- Supports IEEE 802.3 10GBASE-T, 1000BASE-T, TIA-854-A 1000BASE-TX, ATM Forum CB1G plus other legacy LANs and applications (Video, BAS)
- Backward compatible with existing SYSTIMAX cable and connecting hardware

The GigaSPEED X10D Solution fully complies with the IEEE 802.3an link segment specifications for 10GBASE-T, in addition to the TIA/EIA and ISO/IEC Category 6A/Class E_A requirements.

The GigaSPEED X10D Solution will support up to 100 meter channel configuration with at least 4 connections and meet PSANEXT, PSAELFEXT and Insertion Loss specifications extrapolated to 500 MHz per IEEE 802.3an. The Alien Crosstalk performance of the GigaSPEED X10D Solution, which is crucial to successful 10 Gbps transmission, is guaranteed for the complete channel (not just cable) across the entire swept frequency (1-500 MHz) and tested in a stringent 6-around-1 configuration that is representative of worst-case installation conditions.

The GigaSPEED X10D components are fully backward compatible in terms of channel performance and installation techniques to existing SYSTIMAX UTP solutions. The new and innovative cable design coupled with new connectors that follow similar termination as the previous generations, installation of the complete channel is an evolution of previous SYSTIMAX solutions with a revolution in channel performance.

The GigaSPEED X10D Solution is backed by the SYSTIMAX 20-Year Extended Product Warranty and Applications Assurance when installed and registered by an authorized BusinessPartner.

GigaSPEED X10D products include:

- 4-Pair 1091/2091/3091 UTP Cables
- 4-Pair 1291/2291/3291 FTP Cables
- 1100GS5 Patch Panels
- PATCHMAX® GS5 Patch Panels
- M3000 Modular Patch Panels
- M2000 Modular Patch Panels
- MGS500 Information Outlets
- GS10E Patch and Workstation Cords
- VisiPatch 360 System

GigaSPEED® X10D Specifications

SYSTIMAX GigaSPEED X10D Category 6A Guaranteed Channel Performance

Guaranteed Performance Specifications for GigaSPEED X10D Solution

Electrical Parameters	Guaranteed Channel Margins to ISO/IEC 11801 : 2002 "Class E" (1 – 250 MHz)	Guaranteed Channel Margins to ISO/IEC 11801 Edition 2.1 "Class E_A" (1 – 500 MHz)
Insertion Loss	5.0 %	2.0 %
NEXT	6.0 dB	1.0 dB
PSNEXT	7.5 dB	2.5 dB
ACR-F	6.0 dB	4.0 dB
PSACR-F	8.0 dB	6.0 dB
Return Loss	3.0 dB	0.0 dB
PSANEXT	N/A	0.0 dB
PSAACR-F	N/A	0.0 dB

Frequency (MHz)	Insertion Loss (dB)	PSANEXT (dB)	PSAACR-F (dB)	NEXT (dB)	ACR-N (dB)	PSNEXT (dB)	PSACR-N (dB)	ACR-F (dB)	PSACR-F (dB)	Return Loss (dB)	Delay (ns)	Delay Skew (ns)
1.0	3.8	67.0	67.0	71.0	68.9	69.5	67.4	69.3	68.3	22.0	580	40
4.0	4.0	67.0	65.0	69.0	65.0	68.0	64.0	57.2	56.2	22.0	562	40
8.0	5.6	67.0	58.9	64.2	58.5	63.1	57.5	51.2	50.2	22.0	557	40
10.0	6.3	67.0	57.0	62.6	56.3	61.5	55.2	49.3	48.3	22.0	555	40
16.0	7.9	67.0	52.9	59.2	51.3	58.1	50.2	45.2	44.2	18.9	553	40
20.0	8.9	67.0	51.0	57.6	48.7	56.5	47.6	43.2	42.2	19.0	552	40
25.0	10.0	66.0	49.0	56.0	46.1	54.8	44.9	41.3	40.3	19.1	551	40
31.3	11.2	65.1	47.1	54.4	43.3	53.2	42.1	39.4	38.3	19.2	550	40
62.5	15.9	62.0	41.1	49.4	33.4	48.1	32.2	33.3	32.3	17.0	549	40
100.0	20.4	60.0	37.0	45.9	25.6	44.6	24.2	29.3	28.3	15.0	548	40
200.0	29.4	55.5	31.0	40.8	11.4	39.4	10.0	23.2	22.2	12.0	547	40
250.0	33.1	54.0	29.0	39.1	6.0	37.7	4.5	21.3	20.3	11.0	546	40
300.0	36.5	52.8	27.5	32.7	-3.8	31.3	-5.3	19.7	19.0	7.2	546	40
400.0	42.7	51.0	25.0	30.6	-12.2	29.1	-13.7	17.2	16.5	6.0	546	40
500.0	48.3	49.5	23.0	28.9	-19.4	27.3	-21.0	15.3	14.5	6.0	546	40

Guaranteed Channel Performance Margin for registered SYSTIMAX installations performed by a SYSTIMAX BusinessPartner in accordance with the GigaSPEED X10D Design and Installation guidelines.

Note: The table provides reference values only. All parameters comply with the governing equations given above over the entire frequency range. All values and equations apply to worst-case channels utilizing 4-Pair 91A series cables with full cross-connects, consolidation points and work area outlets (4 connections in a channel) for the length up to 100 meters.

Non Plenum 1091, GigaSPEED® X10D Cable

The GigaSPEED X10D Solution includes a new type of 4-pair cable, the 91 series. GigaSPEED X10D Solution is designed to give channel performance exceeding Category 6A channel specifications, and in addition has substantially improved Alien Crosstalk performance.

The cable design has been dramatically enhanced using the SYSTIMAX Labs Cable Twist Accuracy Technology. The 91 series cables incorporate a round smooth shape that speeds the handling and termination process and minimizes variation in Alien Crosstalk performance. The cables have been designed to withstand an aggressive 6-around-1 channel test that SYSTIMAX Labs believes to be the most challenging test configuration representative of real life installations including large cable bundles. This is a Powersum computation of the Alien Crosstalk noise from 24-pairs of 6 channels surrounding a single 4-pair channel. The 91 series cables have been specified out to 550 MHz to support high bandwidth applications operating at 10 Gbps.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of the TIA "Category 6A" and ISO/IEC "Class E_A" up to 500 MHz when used as part of a GigaSPEED X10D channel in registered SYSTIMAX installations
- 4-pair construction with finned inner jacket surface and bisector center member provides the extra margin of performance required for high bandwidth applications
- Can support network line speeds up to at least 10 Gbps
- Qualifies for the SYSTIMAX 20-Year Extended Product Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D channel

Physical Specifications:

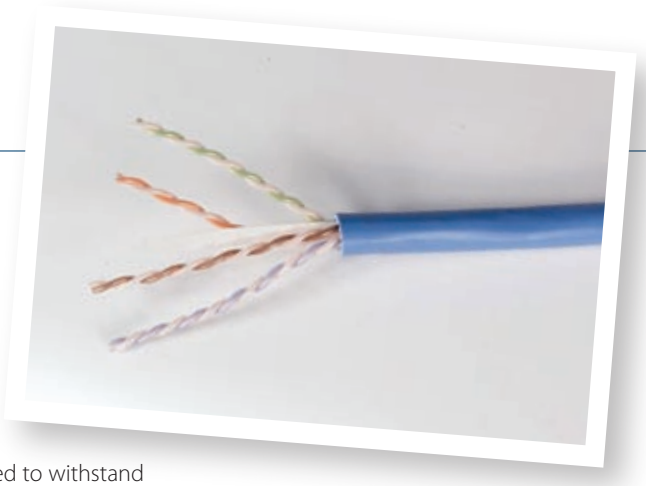
Weight: 40.6 lbs/1,000 ft (60.5 kg/km)
Nominal Jacket Thickness: 0.058 in (1.47 mm)
Nominal Outside Diameter: 0.315 in (8 mm)
Maximum Pulling Tension: 25 lbs (11.34 kg)
Operating Temperature: -4°F to 140°F (-20°C to 60°C)
Gauge: 23 AWG

Electrical Specifications:

NVP (fastest pair @ 10 MHz): 66%
Maximum DC Resistance: 7.61 Ohms/100 m
Maximum DC Resistance Unbalance: 3%
Mutual Capacitance at 1 kHz: 6 nF/100 m
UL and cUL: CMR, CMG

Product Number	Pair Count	Color	Length	Package	Material ID
1091 004ABK 4/23 R1000	4	Black	1,000 ft (305 m)	Reel	760069658
1091 004A1BK 4/23 R1000	4	Black	1,000 ft (305 m)	Reel	760071266
1091 004ABL 4/23 R1000	4	Blue	1,000 ft (305 m)	Reel	760021683
1091 004ABL 4/23 R3000	4	Blue	3,000 ft (914 m)	Reel	760027144
1091 004ALB 4/23 R1000	4	Light Blue	1,000 ft (305 m)	Reel	760074096
1091 004AGR 4/23 R1000	4	Green	1,000 ft (305 m)	Reel	760047597
1091 004AOR 4/23 R1000	4	Orange	1,000 ft (305 m)	Reel	760021733
1091 004AOR 4/23 R3000	4	Orange	3,000 ft (914 m)	Reel	760027185
1091 004ARD 4/23 R1000	4	Red	1,000 ft (305 m)	Reel	760047589
1091 004ASL 4/23 R1000	4	Slate	1,000 ft (305 m)	Reel	760021709
1091 004ASL 4/23 R3000	4	Slate	3,000 ft (914 m)	Reel	760027151
1091 004AWH 4/23 R1000	4	White	1,000 ft (305 m)	Reel	760021717
1091 004AWH 4/23 R3000	4	White	3,000 ft (914 m)	Reel	760027169
1091 004AYL 4/23 R1000	4	Yellow	1,000 ft (305 m)	Reel	760021725
1091 004AYL 4/23 R3000	4	Yellow	3,000 ft (914 m)	Reel	760027177

Plenum 2091, GigaSPEED® X10D Cable



GigaSPEED X10D

The GigaSPEED X10D Solution includes a new type of 4-pair cable, the 91 Series. GigaSPEED X10D Solution is designed to give channel performance exceeding Category 6A channel specifications, and in addition has substantially improved Alien Crosstalk performance.

The cable design has been dramatically enhanced using the SYSTIMAX Labs Cable Twist Accuracy Technology. The 91 series cables incorporate a round smooth shape that speeds the handling and termination process. The cables have been designed to withstand an aggressive 6-around-1 channel test that SYSTIMAX Labs believes to be the most challenging test configuration. This is a Powersum computation of the Alien Crosstalk noise from 24-pairs of 6 channels surrounding a single 4-pair channel. The 91 series cables have been specified out to 550 MHz to support high bandwidth applications operating at 10 Gbps.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of the TIA "Category 6A" and ISO/IEC "Class E_A" up to 500 MHz when used as part of a GigaSPEED X10D channel in registered SYSTIMAX installations
- 4-pair construction with finned inner jacket surface and bisector center member provides the extra margin of performance required for high bandwidth applications
- Can support network line speeds up to at least 10 Gbps
- Qualifies for the SYSTIMAX 20-Year Extended Product Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D channel

Physical Specifications:

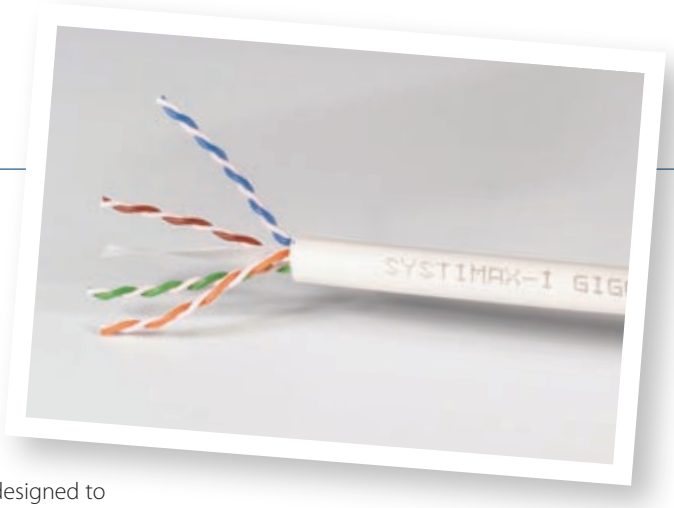
Weight: 48.2 lbs/1,000 ft (71.9 kg/km)
Nominal Jacket Thickness: 0.052 in (1.32 mm)
Nominal Outside Diameter: 0.310 in (7.87 mm)
Maximum Pulling Tension: 25 lbs (11.34 kg)
Operating Temperature: -4°F to 140°F (-20°C to 60°C)
Gauge: 23 AWG

Electrical Specifications:

NVP (fastest pair @ 10 MHz): 68%
Maximum DC Resistance: 7.61 Ohms/100 m
Maximum DC Resistance Unbalance: 3%
Maximum Mutual Capacitance at 1 kHz: 6 nF/100 m
UL and cUL: CMP

Product Number	Pair Count	Color	Length	Package	Material ID
2091 004ABL 4/23 R1000	4	Blue	1,000 ft (305 m)	Reel	760024190
2091 004ABL 4/23 R3000	4	Blue	3,000 ft (915 m)	Reel	760071100
2091 004AGR 4/23 R1000	4	Green	1,000 ft (305 m)	Reel	760047571
2091 004AOR 4/23 R1000	4	Orange	1,000 ft (305 m)	Reel	760024232
2091 004APR 4/23 R1000	4	Purple	1,000 ft (305 m)	Reel	760055483
2091 004ARD 4/23 R1000	4	Red	1,000 ft (305 m)	Reel	760042788
2091 004ASL 4/23 R1000	4	Slate	1,000 ft (305 m)	Reel	760024208
2091 004ASL 4/23 R3000	4	Slate	3,000 ft (915 m)	Reel	760071092
2091 004AWH 4/23 R1000	4	White	1,000 ft (305 m)	Reel	760024216
2091 004AWH 4/23 R3000	4	White	3,000 ft (915 m)	Reel	760071316
2091 004AYL 4/23 R1000	4	Yellow	1,000 ft (305 m)	Reel	760024224
2091 004AYL 4/23 R3000	4	Yellow	3,000 ft (914 m)	Reel	760058032

LSZH 3091, GigaSPEED® X10D Cable



The GigaSPEED X10D Solution includes a new type of 4-pair cable, the 91 series. GigaSPEED X10D Solution is designed to give channel performance exceeding Category 6A channel specifications, and in addition has substantially improved Alien Crosstalk performance.

The cable design has been dramatically enhanced using the SYSTIMAX Labs Cable Twist Accuracy Technology. The 91 series cables incorporate a round smooth shape that speeds the handling and termination process. The cables have been designed to withstand an aggressive 6-around-1 channel test that SYSTIMAX Labs believes to be the most challenging test configuration. This is a Powersum computation of the Alien Crosstalk noise from 24-pairs of 6 channels surrounding a single 4-pair channel. The 91 series cables have been specified out to 550 MHz to support high bandwidth applications operating at 10 Gbps.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of the TIA "Category 6A" and ISO/IEC "Class E_A" up to 500 MHz when used as part of a GigaSPEED X10D channel in registered SYSTIMAX installations
- 4-pair construction with finned inner jacket surface and bisector center member provides the extra margin of performance required for high bandwidth applications
- Can support network line speeds up to at least 10 Gbps
- Qualifies for the SYSTIMAX 20-Year Extended Product Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D channel

Physical Specifications:

Weight: 42.8 lbs/1,000 ft (63.8 kg/km)
Nominal Jacket Thickness: 0.057 in (1.45 mm)
Nominal Outside Diameter: 0.315 in (8.00 mm)
Maximum Pulling Tension: 25 lbs (11.34 kg)
Operating Temperature: -4°F to 140°F (-20°C to 60°C)
Gauge: 23 AWG

Electrical Specifications:

NVP (fastest pair @ 10 MHz): 66%
Maximum DC Resistance: 7.61 Ohms/100 m
Maximum DC Resistance Unbalance: 3%
Maximum Mutual Capacitance at 1 kHz: 6 nF/100 m
Standards: IEC 60754 Part 2, IEC 61034 Part 2, IEC 60332 Part 3

Product Number	Pair Count	Color	Length	Package	Material ID
3091 004ABL 4/23 R1000	4	Blue	1,000 ft (305 m)	Reel	760023242
3091 004ABL 4/23 R3000	4	Blue	3,000 ft (914 m)	Reel	760023275
3091 004AWH 4/23 R1000	4	White	1,000 ft (305 m)	Reel	760023226
3091 004AWH 4/23 R3000	4	White	3,000 ft (914 m)	Reel	760023234

GigaSPEED® X10D 1100GS5 Modular Patch Panel

The GigaSPEED X10D 1100GS5 panel is the latest innovation to the existing family of 1100 modular patch panels. The 1100GS5 panel is fully tuned to provide optimal throughput performance when installed as part of the GigaSPEED X10D channel.

The 1100GS5 panel features a new termination manager and redesigned rear housing. The termination manager and new rear housing provide for easier, faster, more reliable terminations, and reduced variability in the placement and termination of cables to the panel.

After the cable jacket is trimmed, the cable pairs are placed in the termination manager. The termination manager functions as an orientation guide and holder for each cable pair. The termination manager with each cable pair in the correct orientation (either 568B or 568A) is attached to the rear housing between the IDCs. Each cable pair is now aligned to the correct IDC slots, and the conductors are now placed in the slots. After all 24 cables with termination managers are in place and the conductors are in the correct IDC slot, the conductors are terminated and trimmed with the impact tool and 110 blade. An entire row of 24 cables can be placed sequentially; then, all cable conductors are punched-down sequentially, thus allowing traditional cable termination in high performance panels.

Features and Benefits:

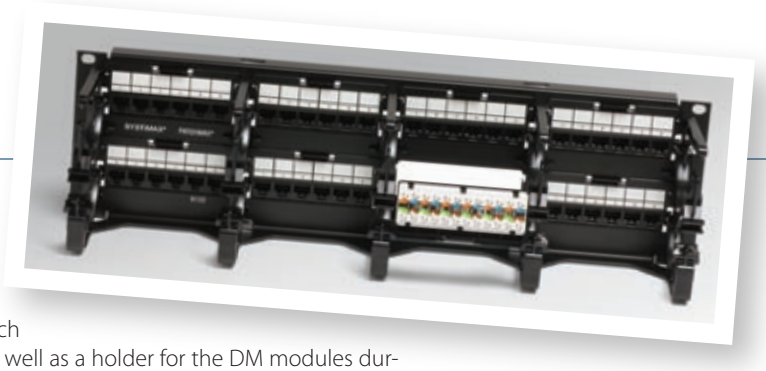
- Certified component of an integrated GigaSPEED X10D 10G solution
- New termination manager and redesigned IDC housing allow traditional cable termination to high performance panel
- Available in 24- and 48-port configurations featuring universal A/B labeling
- 110 connector terminations on rear of panel allow quick and easy installation of 22 to 24 AWG cable
- Can support network line speeds in excess of 10Gbps
- Each panel comes ready to install, including front and rear labels
- Backward compatible with Category 6, 5e, 5, and 3 cords and cables; however, optimal performance is achieved when used with GigaSPEED X10D GS10E cords
- Qualifies for a 20-Year Extended Product Warranty and Applications Assurance when included in a registered SYSTIMAX GigaSPEED X10D channel

Physical Specifications:

Height: 24-Ports: 1.74 in (4.38 cm)
48-Ports: 3.50 in (8.83 cm)
Width: 19 in (48.3 cm)
Depth: 1.60 in (4.06 cm)

Product Number	Detailed Description	UOM	Material ID
1100GS5-24	1100GS5 24-Port Panel	PC	760051151
1100GS5-48	1100GS5 48-Port Panel	PC	760051169
1100AGS5-24	1100GS5 24-Port Panel (Angled)	PC	760051177
1100AGS5-48	1100GS5 48-Port Panel (Angled)	PC	760051185
1100GS5-DM	1100GS5-DM Distribution Module Kit	PC	760051193
1100GS5-TM	1100GS5-TM Termination Manager Kit	KT	760051201

GigaSPEED® X10D PatchMAX® GS5 Modular Patch Panel



The SYSTIMAX GigaSPEED X10D PATCHMAX GS5 panel is a 19-inch rack mountable patch panel, designed to accept 4 or 8 six-port GS3 or GS5 Distribution Modules (DM), which can be rotated forward, allowing front-access to the 110 type IDC terminals for easy cable termination. Built-in horizontal patch cord management brackets provide support for patch cords as well as a holder for the DM modules during installation. This modular approach gives the customer total flexibility in selecting the required copper and fiber adapters. In addition, it provides for fiber and SYSTIMAX GigaSPEED X10D and XL copper solutions since both fiber and copper modules can fit into the same panel kit.

The PATCHMAX GS5 Distribution Modules feature an innovative termination manager and redesigned rear housing. The termination manager and new rear housing provide for easier, faster, more reliable terminations and reduced variability in the placement and termination of cables to the panel.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of TIA 568-B.2-1 Category 6, ISO/IEC 11801 Class E, TIA Category 6A and ISO/IEC Class E_A Ed. 2.1 up to 500 MHz when used as part of a GigaSPEED X10D Channel in registered SYSTIMAX installations
- UL listed (CM)
- Individual six-port distribution modules can be removed, snapped onto the front cord management rings and pivoted forward for easy front access to the rear 110 type IDC termination field making installation easy
- Designed for simplified administration with built-in cord and cable retainer rings, color-coded labels and icons
- New termination manager and redesigned IDC housing allow traditional cable termination to high performance panel
- Available in 24- and 48-port configurations featuring universal A/B labeling
- Can support network line speeds in excess of 10 Gb/s
- Qualifies for a 20-year Extended Product Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D channel

Physical Specifications:

Dimensions:
PM-GS5-24:
19.0 x 3.53 x 8.13 in (48.26 x 8.90 x 20.50 cm) - 2 Rack Unit Universal A/B labeling
PM-GS5-48:
19.0 x 5.29 x 8.13 in (48.26 x 13.34 x 20.50 cm) - 3 Rack Unit Universal A/B labeling
Operating Temperature: 14°F to 140°F (-10°C to 60°C)
Storage Temperature: -40°F to 158°F (-40°C to 70°C)
Humidity: 95% (non-condensing)
Nominal Solid Conductor Diameter: 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)
Nominal Stranded Conductor Diameter: 0.025 to 0.020 in (0.64 to 0.51 mm) (22 to 24 AWG)
Insulation Size: 0.042 in (1.08 mm) (22 to 24 AWG) Maximum DOD
Insulation Types: All plastic insulates including: PVC, irradiated PVC, Polyethylene, Polypropylene, PTF Polyurethane, Nylon and FEP
Insulation Types: 750 minimum insertions of an FCC 8-Position Telecommunications Plug
Materials: Front Panel: Black powder painted steel
Plastic: High-impact, flame retardant, UL-rated 94V-0 thermoplastic

Electrical Specifications:

Insulation Resistance: 500 megaohms minimum
Current Rating: 1.5 A at 68°F (20°C)
Dielectric Withstand Voltage: 1,000 VAC RMS, 60 Hz minimum, contact-to-contact and 1,500 VAC RMS, 60 Hz minimum to exposed conductive surface
UL and cUL Listed

Product Number	Detailed Description	Material ID
PM-GS5-24	24 Port Patch Panel	760060913
PM-GS5-48	48 Port Patch Panel	760060921
PM-GS5-2U	2U Blank Panel Kit	760060939
PM-GS5-3U	3U Blank Panel Kit	760060947
PM-GS3-DM	Distribution Module	760060954

GigaSPEED® X10D M3000 Modular Patch Panel

The SYSTIMAX GigaSPEED X10D M3000 Modular Patch Panels are patch panels for M-series outlets that can be configured for copper, fiber, or both. The M3000 is a 24-port panel and can mount in a 19-inch (483 mm) rack with universal hole spacing.

The M3000 panel incorporates rear cable management for consistent cable routing and management.

The M3000 includes a label sheet and clear label holders. A label area is provided to the left of each port. Port designations can be printed on the label sheet, and individual port labels are trimmed from the label sheet and placed in the label area and secured by the clear label holder. If adhesive labeling is desired, adhesive labels can be applied to the label holder.

Physical Specifications:

Height: 1.75 in (44.1mm)
Width: 19 in (483 mm)
Depth: 3.7 in (93.9 mm)

Product Number	Detailed Description	No. Of Ports	Material ID
M3000-24	1U 24-Port Panel	24	760065391
Bezel Kit	8-Port Bezel Kit	8	760065417

GigaSPEED® X10D M2000 Modular Patch Panel

The M2000 Modular Patch Panel is a panel designed for M-series outlets that can be configured for copper, fiber, or both and is available in 24-port (M2000-1U) and 48-port (M2000-2U) versions. Both the M2000-1U and M2000-2U panels mount in a 19-inch (483 mm) rack with universal hole spacing.

The M2000-1U and M2000-2U include a label sheet and clear label holders. A label area is provided to the left of each port. Port designations can be printed on the label sheet and individual port labels are trimmed from the label sheet and placed in the label area and secured by the clear label holder. If adhesive labeling is desired, adhesive labels can be applied to the label holder.

The M2000-1U and M2000-2U Panels now include M2000 Cable Organizers. The M2000 Cable Organizer is a molded plastic design that is snapped into each 6-port bezel. The 24 port 1U panel includes 4 cable organizers and the 48 port 2U panel includes 8 cable organizers. The 6 4-pair cables from each bezel are routed and positioned to the cable organizer. Cable ties are included to secure the cables.

M2000 Cable Organizers are not included with the M2000 1U and 2U Angled Panels. The M2000 Angled Panels include a cable management bar.

Also available and sold separately are M2000 1U Patch Cord Managers. These patch cord managers are metal rings that mount to the front of the panel. 5 patch cord managers are used for each 24 port 1U panel. The M2000 1U Patch Cord Manager Kit, 760069278, is a package of 5 patch cord managers.

Features and Benefits:

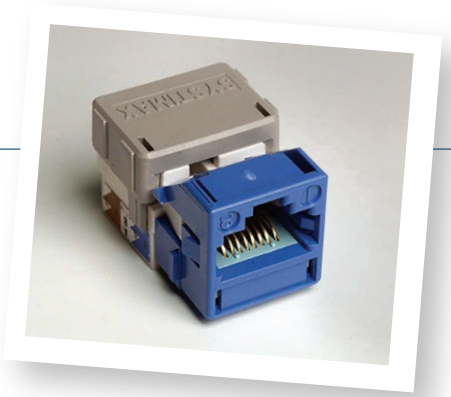
- Electrical performance guaranteed to meet or exceed the channel specifications of TIA 568-B.2-1 Category 6, ISO/IEC 11801 Class E, and the current TIA "Category 6A" and ISO/IEC "Class E_A Ed. 2.1" up to 500 MHz when used with MGS500 connectors as part of a GigaSPEED X10D Channel in registered SYSTIMAX installations
- Electrical performance guaranteed to meet or exceed TIAEIA 568B.2-1 Category 6 and ISO/IEC Category 6/Class E specifications when used with MGS400 connectors
- Available in 24-port and 48-port configurations
- Labeling and identification for each port
- Supports copper and fiber connectors

Physical Specifications:

Height: 24 Port: 1.75 in (44.1mm)
48 Port: 3.5 in (88.9 mm)
Width: 19 in (48.3 cm)
Depth: 1.2 in (30.48 mm)

Product Number	No. Of Ports	Material ID
M2000-24 1U	24	760049932
M2000-48 2U	48	760049940
M2000A-24 1U (Angled)	24	760049957
M2000A-48 2U (Angled)	48	760049965
M2000 Cable Mgt Bar		760054627
MGS Cover with Strain Relief, 1000/Kit		760056408
M2000 Custom Label Kit		760060392
M2000 1U Cord Manager Kit		760069278

MGS500 Series GigaSPEED® X10D Information Outlet



The MGS500 information outlet, the latest result of many years continuous product development at SYSTIMAX Labs, features patented crosstalk cancellation and compensation techniques. The MGS500 connectivity, consistent at the panels and outlet, exhibit huge improvements in high frequency crosstalk enabled via new PWB (Printed Wiring Board) materials and compensation technology. In addition, large improvements in connector Alien Crosstalk mitigation have been achieved through new materials and PWB compensation enhancements. This connector design excellence has been made possible by the SYSTIMAX Labs Connector Field Pattern Modeling technology, coupled with the system level MDM tool enabling high frequency cross coupling effects to be eliminated.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of the TIA "Category 6A" and ISO/IEC "Class E_A" up to 500 MHz when used as part of a GigaSPEED X10D channel in registered SYSTIMAX installations
- Snaps into standard SYSTIMAX M-Series faceplates, surface-mount boxes, consolidation point boxes, M3000 and M2000 Modular Panels, UMP 36-port Modular Panel and FlexiMAX panels. Can also be mounted either at 90 degrees (straight) or 45 degrees (angled) in any SYSTIMAX faceplate
- Universal design and label supports both T568A and T568B wiring
- IDC connector terminations on rear of base allow quick and easy installation of 22 to 24 AWG cable
- Qualifies for the SYSTIMAX 20-Year Extended Product Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D channel

Physical Specifications:

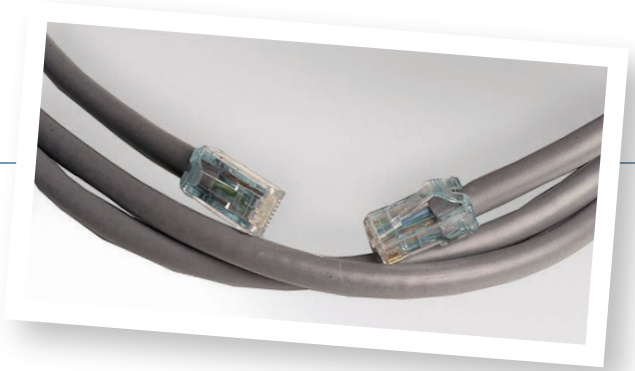
Dimensions: HxWxD: 0.8 in x 0.8 in x 1.2 in (2.0 cm x 2.0 cm x 3.1 cm) Universal A/B labeling
Plastic Material: High-impact, flame retardant, thermoplastic
Flammability Rating: UL-rated 94 V-0
Operating Temperature: 14°F to 140°F (-10°C to 60°C)
Storage Temperature: -40°F to 158°F (-40°C to 70°C)
Humidity: 95% (non-condensing)
Contact Material & Plating: Copper alloy, 100 micro-inch (2.54 microns) bright solder over 100 micro-inch (2.54 microns) nickel underplate. Insulation displacement connectors accept solid or stranded wire
Nominal Solid Conductor Diameter: 0.016 in to 0.025 in (0.40 mm to 0.64 mm) (26 to 22 AWG)
Nominal Stranded Conductor Diameter: 0.020 in to 0.025 in (0.51 mm to 0.64 mm) (24 to 22 AWG)
Insulation Size: 0.030 in to 0.046 in (0.76 mm to 1.17 mm)
Insulation Types: All plastic insulates, including: PVC, irradiated PVC, Polyethylene, Polypropylene, PTFE, Polyurethane, Nylon and FEP
Outlet Wires: Copper alloy, 50 micro-inch (1.27 microns) hard gold plating over 100 micro-inch (2.54 microns) nickel underplate
Plug Retention Force: 30 lbs (133 N) minimum between modular plug and jack
Plug Insertion Life: 750 minimum insertions of an 8-position IEC 60603-7 compliant plug
Plug/Jack Contact Force: 100 grams minimum per contact using FCC approved plug

Electrical Specifications:

Insulation Resistance: 500 megaohms minimum
Current Rating: 1.5 A at 68°F (20°C)
Dielectric Withstand Voltage: 1,000 VAC RMS, 60 Hz minimum, contact-to-contact and 1,500 VAC RMS, 60 Hz minimum to exposed conductive surface
UL and cUL Listed

Product Number	Color	Material ID
MGS500-003	Black	760023556
MGS500-318	Blue	760023648
MGS500-112	Orange	760023564
MGS500-226	Green	760023598
MGS500-123	Yellow	760023572
MGS500-361	Violet	760023655
MGS500-270	Gray	760023622
MGS500-215	Cream	760023580
MGS500-262	White	760023614
MGS500-246	Ivory	760023606
MGS500-317	Red	760023630

GS10E GigaSPEED® X10D Modular Patch Cord



The high performance GS10E modular patch cord family has a patent pending plug design featuring a distinctive aqua sled and anti-snag latch for easy and rapid field identification. The GS10E plug exhibits a dramatic reduction in variation of performance via the innovative plug design.

Double ended GS10E and single ended GS117-10E are available. The GS117-10E will support both equipment cord and consolidation point applications.

Patch cords are orderable using a 14-character feature configuration coding scheme which replaces the familiar 9-character Material ID. This allows maximum flexibility for ordering many different combinations of plug ends, cordage types, colors and lengths. Please use SYSTIMAX Copper Patch Cord Product Identifier (in Copper Reference Section) for ordering information or contact your SYSTIMAX BusinessPartner.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of the TIA "Category 6A" and ISO/IEC "Class E_A" up to 500 MHz when used as part of a GigaSPEED X10D channel in registered SYSTIMAX installations
- Can support network line speeds up to at least 10 Gbps
- Certified component of an integrated GigaSPEED X10D Solution
- Qualifies for the SYSTIMAX 20-Year Extended Product Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D channel

Physical Specifications:

Contact Material: Phosphor Bronze
Contact Plating: Gold 50 micro-inch (1.27 microns), nickel 100 micro-inch (2.54 microns)
Insertion Life: 750 minimum
Plug Material: Polycarbonate UL-rated 94 V-O
Operating Temperature: 14°F to 140°F (-10°C to 60°C)

Electrical Specifications:

UL and cUL: CM (cordage)

Product Number	Detailed Description	CPC Code
GS10E	X10D Double Ended Cord	CPC7732
GS117-10E	X10D Single Ended Cord	CPC7432
GS10E-Plenum	X10D Plenum Double Ended Cord	CPC77F2
GS117-10E-P	X10D Plenum Single Ended Cord	CPC74F2
GS10E-L	X10D Double Ended LSZH Cord	CPC77D2
GS117-10E-L	X10D Single Ended LSZH Cord	CPC74D2

GigaSPEED® X10D FTP Specifications

SYSTIMAX GigaSPEED X10D FTP Channel Performance

The SYSTIMAX GigaSPEED X10D FTP cabling system is designed specifically to meet and exceed the emerging ISO/IEC Class E_A cabling specification. A major breakthrough of the SYSTIMAX GigaSPEED X10D FTP Solution over other legacy FTP solutions is vastly improved performance across the complete frequency spectrum from 1 to 500 MHz.

By utilizing the unique design tools available to SYSTIMAX Labs, the technologies implemented in the SYSTIMAX GigaSPEED X10D FTP Solution are capable of incorporating the FTP technology while maintaining pair balance without degrading the internal channel transmission performance. Superior Crosstalk performance, improved Insertion Loss performance and guaranteed channel performance up to 500 MHz are the key enhancements that set the SYSTIMAX GigaSPEED X10D FTP Solution apart from other FTP solutions on the market today.

SYSTIMAX GigaSPEED X10D Performance Specifications

Freq (MHz)	Insertion Loss (dB)	PS ANEXT (dB)	PS AELFEXT (dB)	Pr-pr NEXT (dB)	ACR (dB)	PS NEXT (dB)	PS ACR (dB)	Pr-pr ELFEXT (dB)	PS ELFEXT (dB)	Return Loss (dB)
1	4.0	67.0	67.0	65.0	62.8	62.0	59.8	65.0	62.0	19.0
4	4.1	67.0	65.0	63.0	58.9	60.5	56.4	53.5	50.5	19.0
8	5.7	67.0	58.9	58.2	52.5	55.6	49.9	47.4	44.4	19.0
10	6.4	67.0	57.0	56.6	50.2	54.0	47.6	45.5	42.5	19.0
16	8.1	67.0	52.9	53.2	45.1	50.6	42.5	41.4	38.4	18.0
20	9.1	67.0	51.0	51.6	42.5	49.0	39.9	39.5	36.5	17.5
25	10.2	67.0	49.0	50.0	39.8	47.3	37.1	37.5	34.5	17.0
31.2	11.4	67.0	47.1	48.4	37.0	45.7	34.3	35.6	32.6	16.5
62.5	16.3	64.0	41.1	43.4	27.1	40.6	24.3	29.6	26.6	14.0
100	20.8	62.0	37.0	39.9	19.1	37.1	16.3	25.5	22.5	12.0
200	30.0	57.5	31.0	34.8	4.8	31.9	1.9	19.5	16.5	9.0
250	33.8	56.0	29.0	33.1	-0.7	30.2	-3.6	17.5	14.5	8.0
300	37.3	54.8	27.5	31.7	-5.6	28.8	-8.5	16.0	13.0	8.0
400	43.6	53.0	25.0	29.6	-14.0	26.6	-17.0	13.5	10.5	8.0
500	49.3	51.5	23.0	27.9	-21.4	24.8	-24.5	11.5	8.5	8.0

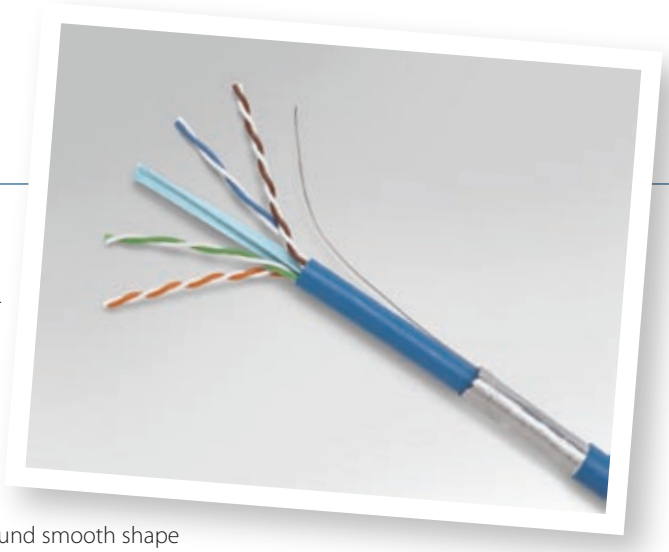
Note: values at specific frequencies for information only.

The SYSTIMAX GigaSPEED X10D FTP Solution offers guaranteed channel performance to the above specifications for registered SYSTIMAX SCS installations. Please contact your SYSTIMAX Solutions representative for a GigaSPEED X10D FTP Solution Guide and GigaSPEED X10D FTP Design and Installation Guidelines.

* IL and PSANEXT requirement of the proposed TIA-568-B.2-AD10 for the category 6A ScTP cabling are different from the ISO Class E_A requirements. PSANEXT is 2dB more stringent while IL is relaxed to Category 6 level across the entire frequency band. Note that IL is a critical parameter generic to all applications while PSANEXT is specific to IEEE 10GBASE-T. The GigaSPEED X10D FTP solution incorporates the best of these proposed standards. The GigaSPEED X10D FTP channel meets or exceeds all ISO Class E_A requirements as well as TIA Cat-6A PSANEXT requirement.

.

91 Series GigaSPEED® X10D FTP Cable



GigaSPEED X10D

The SYSTIMAX GigaSPEED X10D 91 Series FTP Cable exhibits excellent crosstalk performance, enabled via patented high-technology pair isolator (improves pair separation and also cable flexibility), an inner jacket and an optimized twist and strand scheme, dramatically enhancing high-frequency performance using the SYSTIMAX Labs Cable Twist Accuracy Technology.

The GigaSPEED X10D 91 Series FTP Cables have been optimized with the GigaSPEED X10D FTP connectors and cords to minimize internal channel crosstalk, and also crosstalk between channels in close proximity. The 91 Series Cables incorporate a round smooth shape that speeds the handling and termination process. The cables have been designed to optimize the balance of the FTP solution. The 91 Series FTP Cables have been specified out to 500 MHz to support high bandwidth applications operating at 10 Gbps.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of TIA 568-B.2-1 Category 6, ISO/IEC 11801 Class E, and the current TIA Category 6A and proposed ISO/IEC Class E_A Ed. 2.1 up to 500 MHz when used as part of a GigaSPEED X10D FTP Channel in registered SYSTIMAX installations
- 4-pair construction with aluminum foil tape and isolator center member provides extra margin of performance required for high-bandwidth applications.
- 1291 Non-Plenum cable is UL listed as CMR and C(UL)CMG. This cable is constructed with an inner and outer jacket.
- 2291 Plenum cable* is UL listed as CMP. This cable is constructed with a single jacket.
- 3291 LSZH cable meets the requirements of IEC 60332-3. This cable is constructed with an inner and outer jacket.
- UL® Listed - 1291 Riser rated CMR and C(UL) CMG
- IEC Certified - 3291 LSZH rated IEC 60332-3
- Can support network line speeds up to at least 10 Gbps
- Qualifies for the SYSTIMAX SCS 20-Year Extended Product Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D FTP channel

**call for availability*

Physical Specifications:

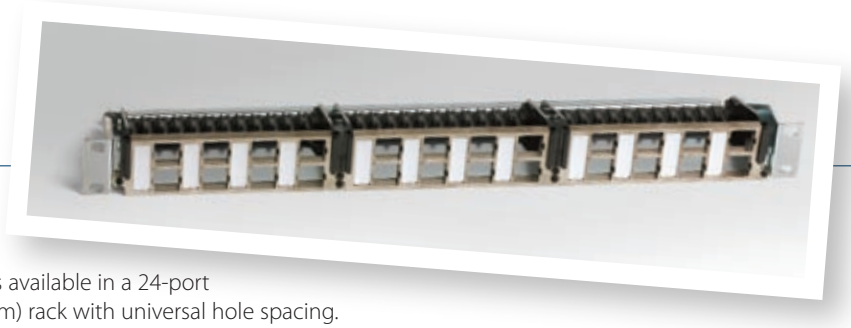
	1291	3291
Nominal Outer Jacket OD:	0.315 in (8.0 mm)	0.315 in (8.0 mm)
Nominal Outer Jacket Thickness:	0.020 in (0.51 mm)	0.020 in (0.51 mm)
Nominal Inner Jacket OD:	0.255 in (6.48 mm)	0.260 in (6.60 mm)
Nominal Inner Jacket Thickness:	0.018 in (0.46 mm)	0.018 in (0.46 mm)
Maximum Pulling Tension:	25 lbs (11.34 kg)	25 lbs (11.34 kg)
Installation Temperature:	4ºC to 60 ºC	4ºC to 60 ºC
Operating Temperature:	-20°C to 60°C	-20°C to 60°C

Electrical Specifications:

Characteristic	**Limit / 100 m**	**Range (MHz)**
Conductor Resistance:	7.6 Ω @ 20 ºC	
Resistance Unbalance:	3.0%	
Mutual Capacitance:	5.6 nF	1 KHz
Dielectric Strength:	2500 Volts DC (2 sec)	-
UL and CUL	CMR, CMG	

Product Number	Detailed Description	Color	Material ID
1291 004ABL 4/23 R1000	Non-Plenum PVC Cable	Blue	760060764
1291 004AGR 4/23 R1000	Non-Plenum PVC Cable	Green	760060780
1291 004AOR 4/23 R1000	Non-Plenum PVC Cable	Orange	760060756
1291 004ASL 4/23 R1000	Non-Plenum PVC Cable	Slate	760060772
3291 004ABL 4/23 R1000	LSZH Cable	Blue	760060855
3291 004AWH 4/23 R1000	LSZH Cable	White	760060848

GigaSPEED® X10D M3200 Modular FTP Patch Panel



The SYSTIMAX GigaSPEED X10D M3200 Modular Patch Panel is a patch panel for M-Series FTP outlets that can be configured for copper, fiber, or both and is available in a 24-port version. The M3200 panel mounts in a 19-inch (483 mm) rack with universal hole spacing.

The M3200 panel incorporates rear cable management for consistent cable routing and grounding studs for reliable grounding of the cable shield. The M3200 includes a label sheet and clear label holders. A label area is provided to the left of each port. Port designations can be printed on the label sheet, and individual port labels are trimmed from the label sheet and placed in the label area and secured by the clear label holder. If adhesive labeling is desired, adhesive labels can be applied to the label holder.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of TIA 568-B.2-1 Category 6, ISO/IEC 11801 Class E, and the current TIA Category 6A and proposed ISO/IEC Class E_A Ed. 2.1 up to 500 MHz when used with MFP520 connectors as part of a GigaSPEED X10D FTP Channel in registered SYSTIMAX installations
- Available in 24-port configuration
- Labeling and identification for each port
- Supports copper and fiber connectors
- Qualifies for the SYSTIMAX SCS 20-Year Extended Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D FTP channel

Physical Specifications:

Height: 24-Ports: 1.75 in (4.45 cm)
48-Ports: 3.50 in (8.83 cm)
Width: 19 in (48.20 cm)
Depth: 4.16 in (10.60 cm)

Product Number	Detailed Description	Material ID
M3200	(1) M3200 Modular Patch Panel	760058578
M3200 Custom Label Kit	8.5x11 6 rows of 12 labels, supports 6U of labeling	760060392

MFP520 GigaSPEED® X10D FTP Information Outlet

The SYSTIMAX GigaSPEED X10D MFP520 information outlet is the latest result of many years of continuous product development at SYSTIMAX Labs. The MFP520 features patent-pending crosstalk cancellation and compensation techniques. A unique opaque aqua-colored inner tab identifies the unparalleled compensation technology.

The MFP520 information outlet, used throughout the GigaSPEED X10D FTP channel, exhibits extended frequency crosstalk suppression enable via innovative Printed Wiring Board (PWB) compensation technologies. The MFP520 incorporates a metallized body and capsule, plus an innovative grounding connection to ensure consistent bonding performance.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of TIA 568-B.2-1 Category 6, ISO/IEC 11801 Class E, and the current TIA Category 6A and proposed ISO/IEC Class E_A Ed. 2.1 up to 500 MHz when used as part of a GigaSPEED X10D FTP Channel in registered SYSTIMAX installations
- Snaps into standard SYSTIMAX M-Series faceplates, surface-mount boxes, consolidation point boxes, SYSTIMAX M3200 panels
- Universal design and label supports both T568A and T568B wiring
- IDC connector terminations on rear of base allow quick and easy installation of 22 to 24 AWG cables
- Optional Plastic Icons (M61A) and Dust Covers (M20A) available in several colors
- Optimal performance is achieved when using the GigaSPEED X10D G10FP patch cords
- UL® listed
- Can support network line speeds up to at least 10 Gbps
- Certified component of an integrated GigaSPEED X10D FTP Solution
- Qualifies for the SYSTIMAX SCS 20-Year Extended Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D FTP channel

Physical Specifications:

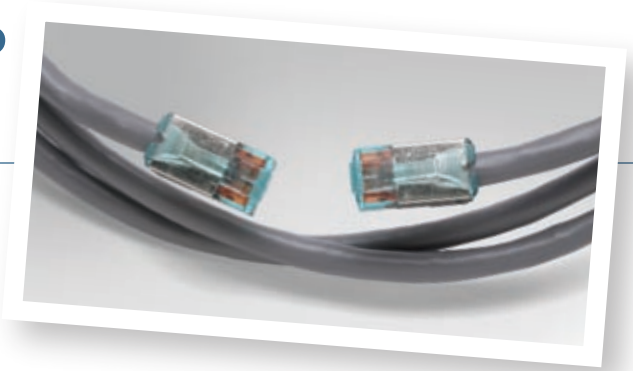
Width: 0.80 in (20 mm)
Length: 1.61 in (41 mm)
Depth: 0.82 in (21 mm)
Plastic: High-impact, flame retardant, UL-rated 94V-0 thermoplastic
Jack Wires: Copper alloy, 1.27 µm lubricated gold plating over 2.54 µm nickel underplate
Connectors: Copper alloy, 2.54 µm bright solder over 2.54 µm nickel underplate
Insertion Life: >750 insertions of an FCC 8 position telecommunications plug
Min. Contact Force: 100 g using FCC approved modular plug
Min. Plug Retention Force: 133 N
Operating Temperature Range: 14º F to 140º F (-10º C to 60º C)

Electrical Specifications:

Min. Insulation Resistance: 500 Megaohms minimum
Min. Dielectric Withstand Voltage: 1000 V DC or AC peak
Min. Dielectric Withstand Voltage: 1500 V DC or AC peak (contact to contact DC or @ 60Hz)
Max. Contact Resistance: 20 mΩ (contact to exposed conductive surface, DC or @ 60Hz)
Current Rating @ 20ºC: 1.5 A

Product Number	Detailed Description	Material ID
MFP520	FTP Information Outlet	760061291

GS10FP GigaSPEED® X10D FTP Modular Patch Cord



SYSTIMAX Solutions has developed the new SYSTIMAX GigaSPEED X10D G10FP patch cord to support the GigaSPEED X10D FTP channel. Along with GigaSPEED X10D FTP cable and patching hardware, SYSTIMAX Labs has characterized the performance of these cords in thousands of different channel configurations using the Modal Decomposition Modeling (MDM) tool.

The high performance G10FP modular patch cord family has a patent pending plug design featuring a distinctive metallized body and anti-snag latch for easy and rapid field identification. The G10FP plug exhibits a dramatic reduction in variation of performance via the innovative plug design. A compact crimp ring ensures secure and reliable contact between cable shield and plug, also allowing a low profile to rear of the plug housing.

Features and Benefits:

- Electrical performance guaranteed to meet or exceed the channel specifications of TIA 568-B.2-1 Category 6, ISO/IEC 11801 Class E, and the current TIA Category 6A and proposed ISO/IEC Class E_A Ed. 2.1 up to 500 MHz when used as part of a GigaSPEED X10D FTP Channel in registered SYSTIMAX installations
- UL® listed (CM)
- Can support network line speeds up to at least 10 Gbps
- Certified component of an integrated GigaSPEED X10D FTP Solution
- Qualifies for the SYSTIMAX SCS 20-Year Extended Warranty and Applications Assurance when included as part of a registered SYSTIMAX GigaSPEED X10D FTP channel

Physical Specifications:

Operating Temperature Range: 14º F to 140º F (-10º C to 60º C))
Contact Stability: 20 mΩ max. change
Insertion Life: 750 insertions
Contact Plating: 1.27 µm Gold over 2.540 µm Nickel

Product Number	Detailed Description	Packaging	Color	Material ID
G10FP	PVC Cord	1/Pkg	Dark Gray, Light Blue	CPCGGJ2
G10FP-L	LSZH Cord	1/Pkg	White	CPCGGL2