



SYSTIMAX® GigaSPEED®
X10D F/UTP solutions

COMMSCOPE®

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The GigaSPEED X10D F/UTP solution

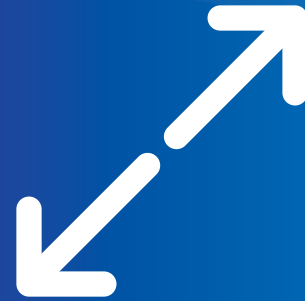
The GigaSPEED X10D F/UTP Solution provides unprecedented performance for key parameters such as insertion loss and all forms of crosstalk, both within and between channels, yielding improved bandwidth, data throughput and network efficiency.

The GigaSPEED X10D F/UTP Solution has been specifically engineered with enhanced cable and connector performance designed to support the latest 10 Gbps Ethernet requirements. Using patented technology and the scientific capabilities of CommScope Labs, this solution exhibits far superior channel performance than legacy F/UTP solutions, and innovative engineering techniques to meet the specific channel requirements of the ISO/IEC 11801 Class E_A and ANSI/TIA-568-D Category 6A standards. The GigaSPEED X10D F/UTP Solution delivers next-generation support by providing double the bandwidth of today's Category 6A cabling channel and guaranteed performance in worst case installation conditions out to 500 MHz.

GigaSPEED X10D F/UTP channel performance

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

By utilizing the unique design tools available to CommScope Labs, the technologies implemented in the GigaSPEED X10D F/UTP Solution are capable of incorporating the F/UTP technology while maintaining pair balance without degrading the and 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 GigaSPEED X10D F/UTP Solution apart from other F/UTP solutions on the market today.



Extending...

- the usable bandwidth of the enterprise
- the peak performance of the enterprise
- the technology of copper cabling
- the value of the IT budget
- the life of the enterprise cabling infrastructure

Guaranteed performance specifications for 4-connection GigaSPEED X10D F/UTP channels¹

Electrical parameter ²	Guaranteed channel margins to ISO/IEC 11801 edition 2.1 "class E _A " (1-500 MHz)
Insertion loss	3%
NEXT	1 dB
PSNEXT	2.5 dB
ACR-N	3 dB
PSACR-N	4 dB
ACR-F	6 dB
PSACR-F	8 dB
Return loss	> 0 dB
PSANEXT	15 dB
PSAACR-F	15 dB
Average PSANEXT	15 dB
Average PSAACR-F	15 dB

¹ GigaSPEED X10D shielded (F/UTP,S/FTP) channel is composed of 1291B, 2291B and 3291B series cable with HGS620 outlets and G10SP cords installed according to SYSTIMAX design and installation guidelines.

GigaSPEED X10D F/UTP performance specifications

Guaranteed channel performance specifications for 4-connection GigaSPEED X10D F/UTP systems

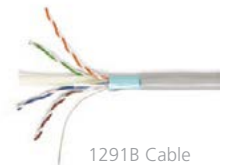
Freq (MHZ)	Insertion loss (dB)	PS ANEXT (dB)	Ave. PS ANEXT (dB)	PS ACR-F (dB)	Ave. PS ACR-F (dB)	NEXT (dB)	ACR-N (dB)	PS NEXT (dB)	PS ACR-N (dB)	ACR-F (dB)	PS ACR-F	Return loss (dB)	Delay (ns)	Delay skew (ns)
1	2.2	95.0	97.25	92.0	96.0	73.7	71.5	72.3	70.1	69.3	68.3	19.0	580	40
4	4.0	89.0	91.23	80.0	84.0	64.0	60.0	62.5	58.5	57.2	56.2	19.0	19.0	40
8	5.6	86.0	88.22	73.9	77.9	59.2	53.5	57.6	52.0	51.2	50.2	19.0	557	40
10	6.3	85.0	87.25	72.0	76.0	57.6	51.3	56.0	49.7	49.3	48.3	19.0	555	40
16	7.9	83.0	85.21	67.9	71.9	54.2	46.3	52.6	44.7	45.2	44.2	18.0	553	40
20	8.9	82.0	84.24	66.0	70.0	52.6	43.8	51.0	42.1	43.2	42.2	17.5	552	40
25	9.9	81.0	83.27	64.0	68.0	51.0	41.1	49.3	39.4	41.3	40.3	17.0	551	40
31.3	11.1	80.0	82.29	62.1	66.1	49.4	38.3	47.7	36.6	39.3	38.3	16.5	550	40
62.5	15.9	77.0	79.29	56.1	60.1	44.4	28.5	42.6	26.7	33.3	32.3	14.0	548	40
100	20.3	75.0	77.25	52.0	56.0	40.9	20.7	39.1	18.8	29.3	28.3	12.0	548	40
200	29.2	70.5	72.73	46.0	50.0	35.8	6.6	33.9	4.7	23.2	22.2	9.0	547	40
250	32.9	69.0	71.28	44.0	48.0	34.1	1.2	32.2	0.7	21.3	20.3	8.0	546	40
300	36.2	67.8	70.09	42.5	46.5	32.7	-3.5	30.8	-5.5	19.7	18.7	7.2	546	40
400	42.3	66.0	68.22	40.0	44.0	30.6	-11.8	28.6	-13.8	17.2	16.2	6.0	546	40
500	47.8	64.5	66.77	38.0	42.0	28.9	-18.9	26.8	-21.0	15.3	14.3	6.0	546	40

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 four-pair 91B series cable/cordage with full cross-connects, consolidation points and work area outlets (four connections in a channel) for the length up to 100 meters.

The GigaSPEED X10D F/UTP Solution offers guaranteed channel performance to the above specifications for registered Network Infrastructure Solutions installations. Please contact your CommScope representative for a GigaSPEED X10D F/UTP Solution Guide and GigaSPEED X10D F/UTP Design and Installation Guidelines.

GigaSPEED 91 series F/UTP cable

The GigaSPEED X10D F/UTP cabling system is designed specifically to meet or exceed the latest ISO/IEC Class E_A cabling specification. A major breakthrough of the GigaSPEED X10D F/UTP Solution over other legacy F/UTP solutions is vastly improved performance across the complete frequency spectrum from 1 to 500 MHz. By utilizing the unique design tools available to CommScope Labs, the technologies implemented in the GigaSPEED X10D F/UTP Solution are capable of incorporating the F/UTP technology while maintaining pair balance without degrading the and 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 GigaSPEED X10D F/UTP Solution apart from other F/UTP solutions on the market today.



Features and benefits

- Electrical performance guaranteed to meet or exceed the channel specifications of Amendment 1 to ISO/IEC 11 801:2002 Class E_A, and ANSI/TIA-568-D Category 6A up to 500 MHz when used as part of a GigaSPEED X10D F/UTP Channel in registered installations.
- Four-pair construction with aluminum foil tape and isolator center member provides extra margin of performance required for high-bandwidth applications.
- 1291B non-plenum cable is ETL listed as CMR and CMG. This cable is constructed with a single jacket.
- 2291B plenum cable is ETL listed as CMP. This cable is constructed with a single jacket.
- 3291B LSZH cable meets the requirements of IEC 60332-3. This cable is constructed with a single jacket.
- Supports 10GBASE-T.
- 3291 LSZH cables available in CPR Euroclass ratings of Dca, Cca and B2ca.
- 1291B, 2291B, and 3291B are jacketed using a single-layer IL and AXT optimizing cross-section.
- Qualifies for the SYSTIMAX 20-Year Extended Product Warranty and Applications Assurance when included as part of a registered GigaSPEED X10D F/UTP channel

Ordering information:

Material ID	Product number	Description
760081364	1291B BL 4/23 R1000	GigaSPEED X10D 1291B Category 6A F/UTP Non-Plenum Cable, blue jacket, 4 pair count, 1000 ft (305 m) length, reel
760081372	1291B GR 4/23 R1000	GigaSPEED X10D 1291B Category 6A F/UTP Non-Plenum Cable, gray jacket, 4 pair count, 1000 ft (305 m) length, reel
760081380	1291B OR 4/23 R1000	GigaSPEED X10D 1291B Category 6A F/UTP Non-Plenum Cable, orange jacket, 4 pair count, 1000 ft (305 m) length, reel
760081398	1291B SL 4/23 R1000	GigaSPEED X10D 1291B Category 6A F/UTP Non-Plenum Cable, slate jacket, 4 pair count, 1000 ft (305 m) length, reel
760081406	1291B WH 4/23 R1000	GigaSPEED X10D 1291B Category 6A F/UTP Non-Plenum Cable, white jacket, 4 pair count, 1000 ft (305 m) length, reel
760122630	2291B BL 4/23 R1000	GigaSPEED X10D 2291B Category 6A F/UTP Plenum Cable, blue jacket, 4 pair count, 1000 ft (305 m) length, reel
760122655	2291B SL 4/23 R1000	GigaSPEED X10D 2291B Category 6A F/UTP Plenum Cable, slate jacket, 4 pair count, 1000 ft (305 m) length, reel
760122648	2291B WH 4/23 R1000	GigaSPEED X10D 2291B Category 6A F/UTP Plenum Cable, white jacket, 4 pair count, 1000 ft (305 m) length, reel
760081323	3291B WH 4/23 R1000	GigaSPEED X10D 3291B Category 6A F/UTP Low Smoke Zero Halogen Cable, white jacket, 4 pair count, 1000 ft (305 m) length, reel, CPR D rated
760237885	3291B-C WHT 4/23 R1000	GigaSPEED X10D 3291B Category 6A F/UTP Low Smoke Zero Halogen Cable, white jacket, 4 pair count, 1000 ft (305 m) length, reel, CPR C rated
760237886	3291B-B WHT 4/23 R1000	GigaSPEED X10D 3291B Category 6A F/UTP Low Smoke Zero Halogen Cable, white jacket, 4 pair count, 1000 ft (305 m) length, reel, CPR B rated

GigaSPEED X10D G10SP S/FTP modular patch cords

GigaSPEED X10D G10SP S/FTP patch cords are for use at both ends of a SYSTIMAX GigaSPEED X10D S/FTP channel. Along with cable and patching hardware, CommScope Labs has characterized the performance of these cords in thousands of different channel configurations using the Modal Decomposition Modeling (MDM) tool.



CA111H2

Features and benefits

- Electrical performance guaranteed to meet or exceed the channel specification of Amendment 1 of ISO/IEC 11801 Class E_A and ANSI/TIA-568.2-D Category 6A up to 500 MHz when used as part of a GigaSPEED X10D S/FTP channel in registered installations
- Can support network line speeds up to at least 10 Gbps
- Certified component of an integrated GigaSPEED X10D S/FTP Solution
- Qualifies for the 25-Year Extended Warranty and Applications Assurance when included as part of a registered GigaSPEED X10D S/FTP channel

Ordering information:

Material ID	Product number	Description	Cable/cordage length options
CA111H2	G10SP	Modular Patch Cord, Black, Orange, Red, White, Yellow Slate, Green	3-300 ft /1-100 m
CA111K2	G10SP-L	Modular Patch Cord, Black, Dark Gray, Orange, Red, White, Yellow Slate, Green	3-300 ft /1-100 m

Ask your local customer service representative for information on Zone Extension Cords

GigaSPEED X10D shielded high-density information outlet

The GigaSPEED X10D shielded high-density information outlet is the latest result of many years of continuous product development at CommScope Labs and features a patent pending flexible mounting system that enables a single connector to mount in three separate openings (high density, M-Series, and keystone). The HGS620 has a rugged, full-metal construction and allows for multiple size cable terminations for F/UTP and S/FTP installation (0.270 inches up to .300 inches diameter over jacket).



GigaSPEED X10D Shielded High Density Information Outlet

When used with the GigaSPEED X10D F/UTP modular panels, cable length is dramatically reduced in a channel configuration. CommScope engineers pushed the threshold and reduced the original 15 meter cable length requirement to 5 meters for 3 or 4 connector channels and only 3 meters for 2 connector channels—a more than 65 percent reduction in short channel length. These new short cable requirements give CommScope customers the design freedom to build a Category 6A infrastructure that meets their needs without the hassles of inefficient spacing and slack storage.

Features and benefits

- Architectural design and flexibility—supports 5 meter cables in 3 and 4 connector channels, 3 meter cables in 2 connector channels and cross-connect cords down to 1 meter
- Allows for multiple size cable terminations 0.270 inches up to 0.300 inches diameter over jacket and flame ratings: F/UTP and S/FTP
- Universal design and label supports both T568A and T568B wiring
- Black icons provided in strip of three: VOICE, DATA and BLANK and are also sold separately in bulk packs, available in green, blue, red, black, white and yellow
- Termination time decreased when using the HGS-TT-S termination tool and GigaSPEED X10D F/UTP 91B Series Cables
- Electrical performance guaranteed to meet or exceed the channel specification of Amendment 1 of ISO/IEC 11801 Class E_A and ANSI/TIA-568-D Category 6A up to 500 MHz when used as part of a GigaSPEED X10D F/UTP Channel in registered installations
- Patent pending flexible mounting system enables a single connector to mount in three separate openings: HD (High Density), M-Series and Keystone
- Rugged, full-metal construction
- IDC connector terminations on rear of base allow quick and easy installation of 22 to 24 AWG cables
- Optimal performance is achieved when using shielded patch cords
- UL® listed
- Supports 10GBASE-T
- Certified component of an integrated GigaSPEED X10D F/UTP solution
- Qualifies for the 25-Year Extended Warranty and Applications Assurance when included as part of a registered GigaSPEED X10D F/UTP Channel

Ordering information:

Material ID	Product number	Description
760152801	HGS620	GigaSPEED X10D Shielded High-Density Information Outlet
760152819	HGS620-BULK100	GigaSPEED X10D Shielded High-Density Information Outlet, 100 pack
760152827	HGS-A-KS-BK	HGS Keystone Adapter Bulk Pack
760154211	HGS-A-MS-Black	HGS M-Series Adapter, Black
760154252	HGS-A-MS-Blue	HGS M-Series Adapter, Blue
760154187	HGS-A-MS-White	HGS M-Series Adapter, White
760154195	HGS-A-MS-Ivory	HGS M-Series Adapter, Ivory
760154229	HGS-A-MS-Orange	HGS M-Series Adapter, Orange
760154260	HGS-A-MS-Red	HGS M-Series Adapter, Red
760154237	HGS-A-MS-Green	HGS M-Series Adapter, Green
760154203	HGS-A-MS-Gray	HGS M-Series Adapter, Gray
760154245	HGS-A-MS-Yellow	HGS M-Series Adapter, Yellow
760154096	H61A-226-Green	HGS Icon Strip Bulk Pack, Green
760154112	H61A-318-Blue	HGS Icon Strip Bulk Pack, Blue
760154120	H61A-317-Red	HGS Icon Strip Bulk Pack, Red
760154104	H61A-123-Yellow	HGS Icon Strip Bulk Pack, Yellow
760152876	HGS-TT-S	Hand Termination Tool—Seat Only

360 GigaSPEED X10D F/UTP modular panels

The 360 GigaSPEED X10D F/UTP modular panels are available in straight and angled constructions and are iPatch®-ready, making them field upgradeable to iPatch without the need to remove patch cords, meaning no network downtime. The F/UTP modular panels offer easy cable routing and bundling through CommScope's rear cable management solution and feature the elegant 360 design.



360 GigaSPEED X10D modular panel, 48 port, front view

When used with the GigaSPEED X10D HGS620 information outlet, cable length is dramatically reduced in a channel configuration. CommScope engineers pushed the threshold and reduced the original 15 meter cable length requirement to 5 meters for 3 or 4 connector channels and only 3 meters for 2 connector channels—a more than 65 percent reduction in short channel length. These new short cable requirements give CommScope customers the design freedom to build a Category 6A infrastructure that meets their needs without the hassles of inefficient spacing and slack storage.

Features and benefits

- Simple-to-use grounding solution
- Straight and angled constructions, both iPatch (intelligence) ready
- Features the elegant 360 design
- Supports 5 meter cables in 3 and 4 connector channels, 3 meter cables in 2 connector channels and cross-connect cords down to 1 meter when using the GigaSPEED X10D shielded high-density information outlet (HGS620)
- iPatch-ready—field upgradeable to iPatch without the need to remove patch cords, meaning no network downtime
- Easy cable routing and bundling through improved rear cable management solution
- Electrical performance guaranteed to meet or exceed the channel specification of Amendment 1 of ISO/IEC 11801 Class E_A and ANSI/TIA-568-D Category 6A up to 500 MHz when used as part of a GigaSPEED X10D F/UTP channel in registered installations
- Available in 24 and 48 port configurations
- Qualifies for the 20-Year Extended Warranty and Applications Assurance when included as part of a registered GigaSPEED X10D F/UTP Channel
- Compatible with DYMO Labeling Solution



360 GigaSPEED X10D modular panel, 48 port, rear view



360 GigaSPEED X10D angled modular panel, 24 port

Ordering information:

Material ID	Product number	Description
760150144	360-IPR-MFTP-E-HD6B-1U-24	360 GigaSPEED X10D Evolve High-Density F/UTP Modular Panel, 24-port
760151498	360-IPR-MFTP-E-HD6B-2U-48	360 GigaSPEED X10D Evolve High-Density F/UTP Modular Panel, 48-port
760151290	360-IPR-MFTPA-E-HD6B-1U-24	360 GigaSPEED X10D Evolve High-Density F/UTP Angled Modular Panel, 24-port
760151746	360-IPR-MFTPA-E-HD6B-2U-48	360 GigaSPEED X10D Evolve High-Density F/UTP Angled Modular Panel, 48-port
760152371	360-iP-M-E-HD6B-1U-24	360 iPatch Evolve High-Density F/UTP Modular Panel, 24-p
760152389	360-iP-M-E-HD6B-2U-48	360 iPatch Evolve High-Density F/UTP Modular Panel, 48-port
760158667	360-iP-MFTPA-E-HD6B-1U-24	360 iPatch Evolve High-Density F/UTP Angled Modular Panel, 24 Port
760158675	360-iP-MFTPA-E-HD6B-2U-48	360 iPatch Evolve High-Density F/UTP Angled Modular Panel, 48 Port
760151480	360-MFTP-LKB	360 GigaSPEED X10D Evolve High-Density F/UTP Modular Panel Label Kit
760152538	360-E-C-1U	360 Evolve Panel Front Cover 1U
760152546	360-E-C-2U	360 Evolve Panel Front Cover 2U
760158600	360-iP-UP-KIT-AE-24	360 iPatch Angled Evolve Kit, 24-Port, 10 pack
760158618	360-iP-UP-KIT-AE-48	360 iPatch Angled Evolve Kit, 48-Port, 5 pack

CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement.

We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

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