COMMSCOPE®

Constellation™

Connecting and powering the hyperconnected enterprise

Today's enterprise network managers are responsible for building the networks that will power tomorrow's Web 4.0/5.0 applications. The challenge—for them and their design/installation partners—is to stay one step ahead of the changes that are coming.

- Hyperconnected workplaces that bring together people, resources, and services, and enable buildings to intelligently adapt and evolve
- Billions of connected and powered devices at the network edge, and fewer skilled professionals available to design, deploy and manage them
- Wide-scale network convergence that combines IT/OT functions and power/data networks into a more efficient and manageable infrastructure
- A more competitive and challenging environment in which sustainable solutions and meaningful reductions in carbon emissions play an increasingly important role

Meeting these challenges requires us to rethink how power and data are delivered throughout the enterprise; how new technologies and systems are deployed, onboarded and managed; and the overall impact on the enterprise and the environment.

Questions like these provided the raw material for an entirely new and innovative infrastructure platform, conceived and built for what's coming.

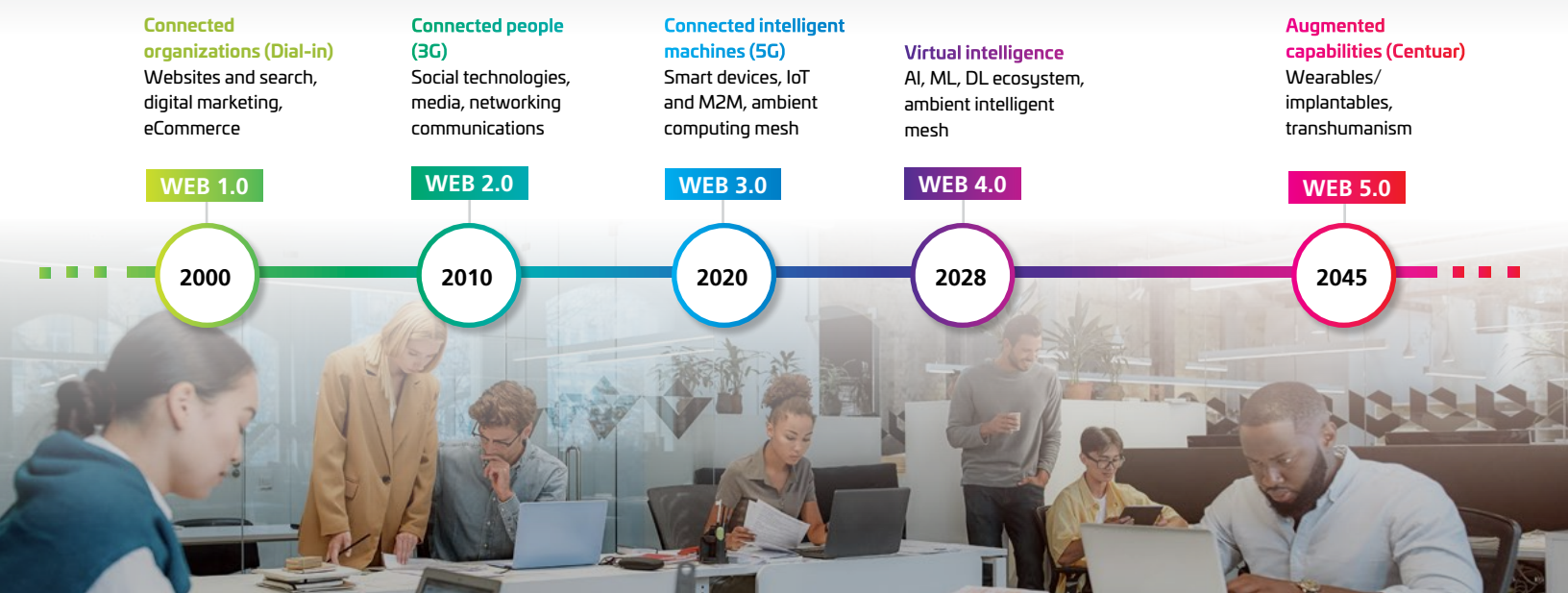
Constellation: Building edge infrastructure for a hyperconnected future

The Constellation infrastructure platform is a streamlined, modular and adaptable power/data solution specifically designed for today's hyperconnected enterprise networks. It combines fault managed power, hybrid power/data fiber, and ceiling-based "Constellation Points" in an easy-to-deploy star topology. The result is a simplified, scalable network that can dramatically reduce the time, cost and complexity of supporting connected devices, in-building and across campuses.

Next-generation building networks must...

- Simplify to enable faster design, installation
- Reliably power and connect a vast number of new network devices and systems
- Easily scale and reconfigure to support converged, segmented and hybrid networks
- Enable enterprises to lower their embodied and operational carbon impact

THE EVOLUTION OF THE WEB



Constellation: Network flexibility redefined

The Constellation platform is based on modular components deployed in a simplified, repeatable architecture. So it can support a wide variety of network types, devices and environments while reducing design and installation resources and time.

Power transmitter

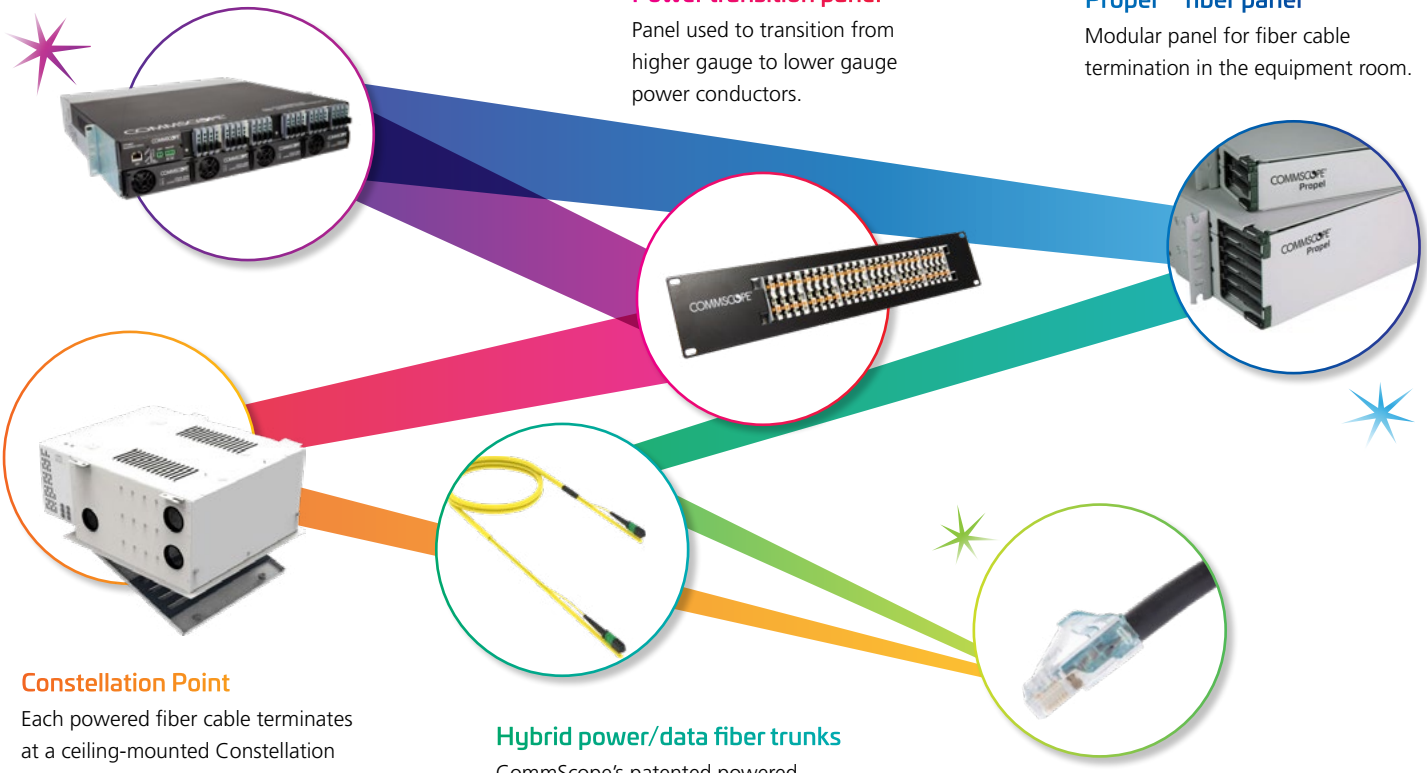
Rack mount and compact power transmitters support up to 12 kW of fault managed power.

Power transition panel

Panel used to transition from higher gauge to lower gauge power conductors.

Propel™ fiber panel

Modular panel for fiber cable termination in the equipment room.



Constellation Point

Each powered fiber cable terminates at a ceiling-mounted Constellation Point (Enclosure) that houses customer provided PoE switches and Automation controllers. The Constellation Point provides 1 kW of power with 110 AC, 48 V DC and 24 V DC power service outlets to support customer provided PoE switches, automation controllers, and DAS antennas.

Hybrid power/data fiber trunks

CommScope's patented powered fiber trunk cabling extends from the SYSTIMAX panel in the equipment room (ER) to designated service coverage areas throughout the facility. Power is delivered via 16-AWG twisted-pair conductors—two-pair or four-pair. Data is transported on high-capacity, singlemode, 8- or 16-fiber cables.

Device connectivity

Each Constellation Point delivers reliable power and data to its connected devices via Category 6A patch cords and cable assemblies. Category 6A's superior thermal performance and 10G bandwidth capabilities provide long-term data and power-over-Ethernet support for both existing and next-generation edge-based devices.

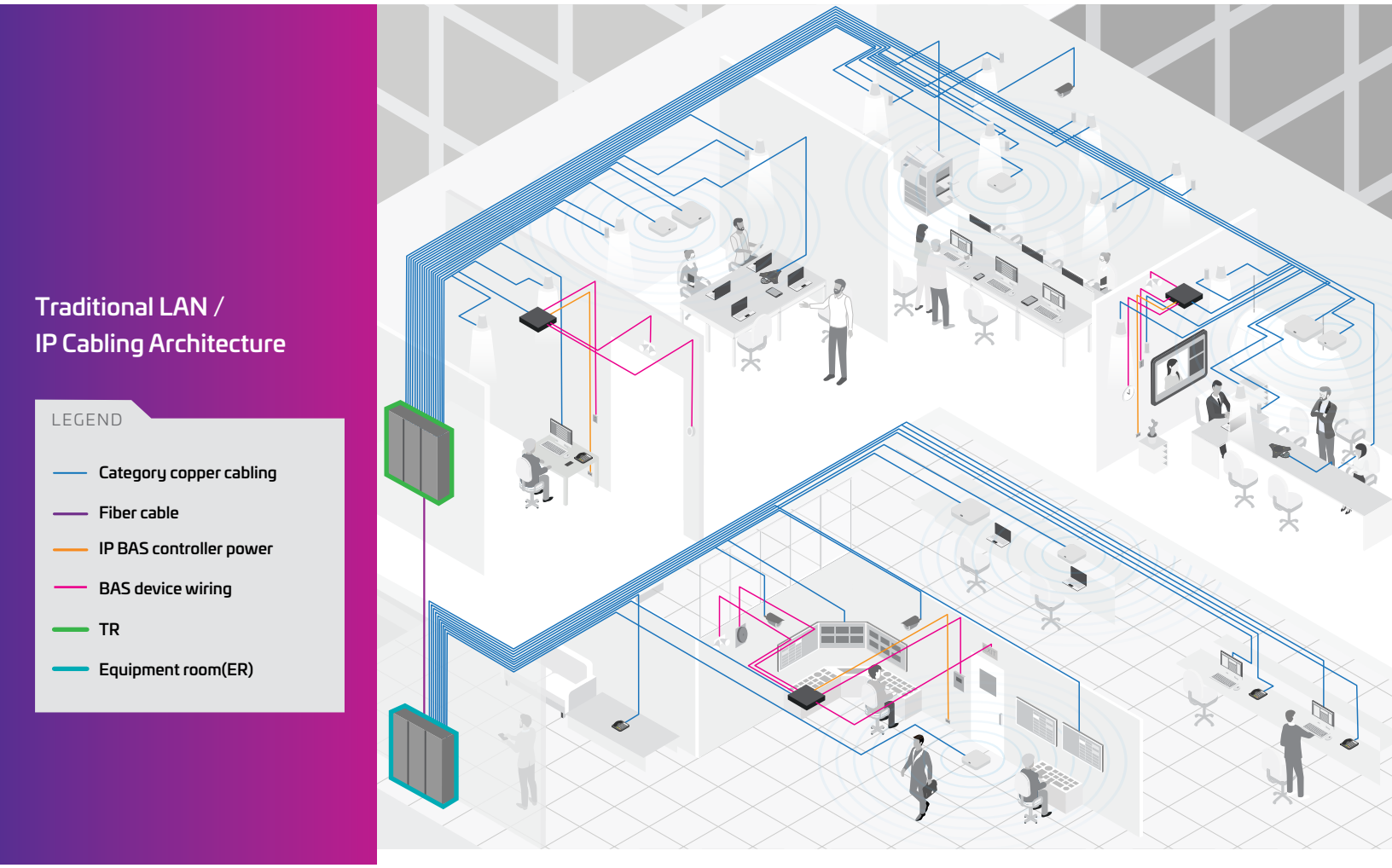
A more streamlined, manageable architecture

Constellation's streamlined, modular design provides a highly efficient architecture that dramatically simplifies the cost and complexity of connecting edge-based devices and services.

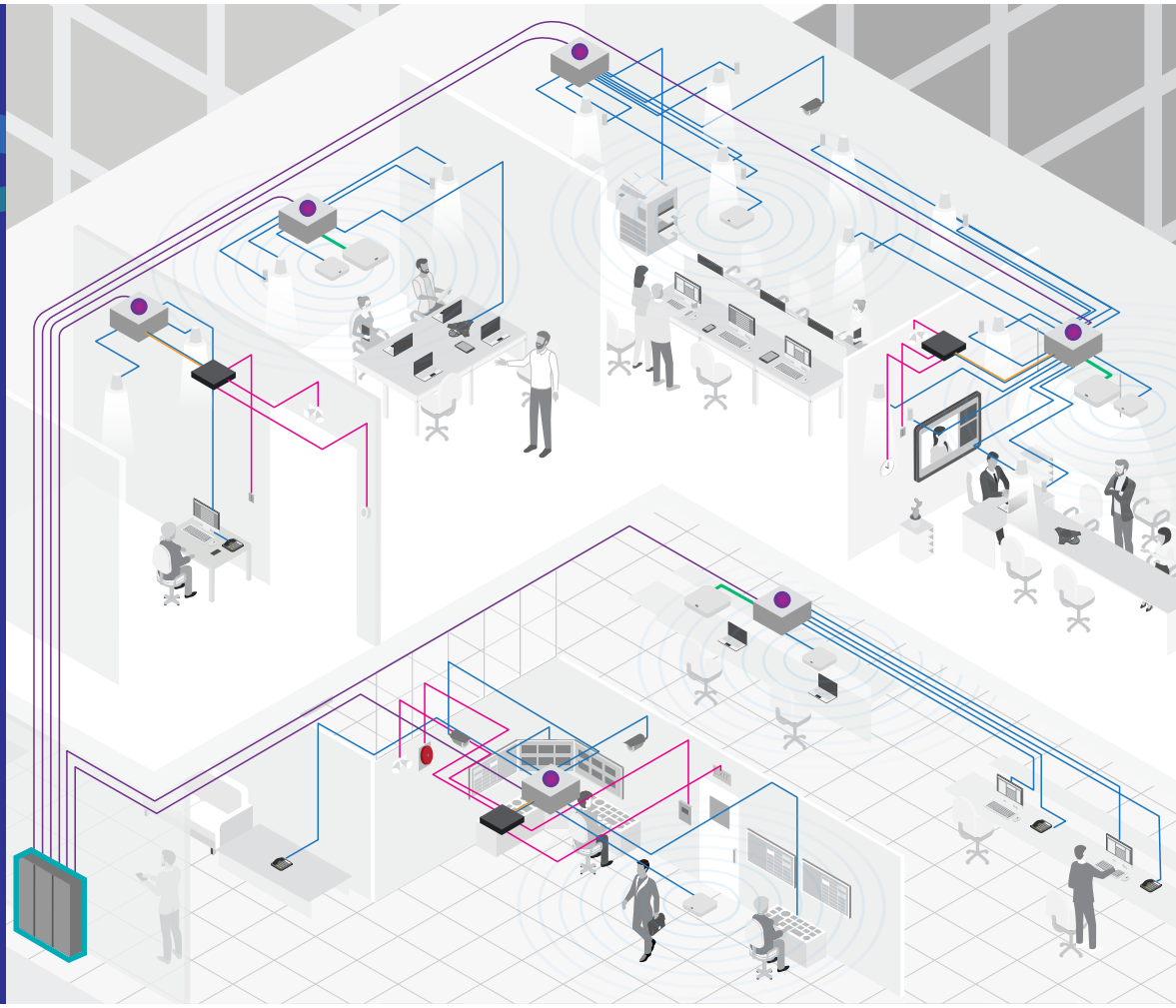
Traditional LAN/IP design

Traditional LAN/IP architectures use a basic star topology. The equipment room houses the network core and aggregation layer. It is connected via fiber-optic cables to telecommunications rooms (TRs) located on every floor and within 100 meters of the farthest device. From the TRs, individual point-to-point LAN copper cables run horizontally, up to 100 meters, to feed connected devices.

While the design is straightforward and repeatable, the number and length of cable runs require a significant amount of materials and labor-intensive installation. Finding sufficient space for the TRs can also be challenging, requiring network access and power—which can be hundreds of meters from the connected devices.



Constellation™ building edge infrastructure



LEGEND

- High powered fiber cable
- IP devices
- Powered fiber for ERA® UAP-2
- Edge convergence point
- IP BAS controller with power
- BAS device wiring
- Equipment room (ER)

Constellation building edge infrastructure

The Constellation building edge network solution uses a distributed star topology that minimizes equipment and cabling requirements and facilitates simplified deployment and management.

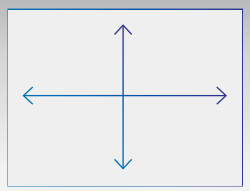
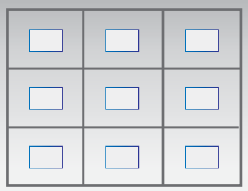
The ER houses the power sourcing, transmission, and transition equipment, as well as the fiber panel and fiber cross-connect. From here, powered fiber cabling runs up to 500 meters (1,640 feet) to Constellation Points located in the ceiling of the service coverage areas throughout the building or campus. They serve as mini-TRs, providing up to up to 16 fiber strands and 1 kW of power. With 110 V AC, 48 V DC and 24 V DC connections, Constellation supports a wide range of power requirements. Each Constellation Point houses customer provided PoE switches and building automation controllers for its specific service coverage area. Each network device in the coverage area is connected back to its Constellation Point via category cabling.

Benefits of the Constellation distributed star topology

- Dramatically reduce the amount of cabling and deployment time
- Shrink space requirements for equipment rooms
- Eliminate the need for separate TRs on each floor
- Span up to 500 meters (1,640 feet) between equipment room and Constellation Points
- Support converged, discrete and hybrid IT/ OT networks
- Leverage existing centralized power backup
- Reduce the need for bulky ac/dc transformers
- Reduce skilled labor requirements by 50 percent or more
- Easily add devices/services from any Constellation Point with short factory-terminated cables

Constellation's simplistic design conventions

10X THE POWER, 5X THE DISTANCE
1000 Watts and 500 meters

Every CP Supports:	Determine cell size by device density, power requirements and applications included.	Create your service area/cell layout to determine quantity of CPs	Cable distance from TR determines cable type and quantity of TX cards:
• Multiple fiber links 8F and 16F option *(16F better suited to support DAS)* • 1000 Watts (1Kw) of power and can support up to 50 devices in service area/cell			• Up to 150 m 2 pair cable = 2 cards in the Power Transmitter • Up to 350 m 4 pair cable = 3 cards in the Power Transmitter • Up to 500 m 4 pair cable = 4 cards in the Power Transmitter

Sustainability beyond the headlines

Current sustainability actions such as reduction of single use plastics and materials transparency are important undertakings, but their net effect on the environment is negligible. To significantly impact network sustainability over time, solution providers must create more substantive change.

From the beginning, CommScope prioritized meaningful sustainability as one of the key design principles of the Constellation building edge infrastructure platform. By reducing network complexity, space requirements and infrastructure materials, Constellation provides a more responsible and sustainable long-term solution.

The platform's simplified architecture untangles traditional cabling complexities—cutting the amount of copper required. It also uses less than half the number of components while providing greater design flexibility and cost savings. Constellation reduces the need for manufacturing raw materials and the environmental ripple effects, while decreasing labor cost and installation time up to 57 percent. That translates into fewer truck rolls and less fuel consumption and greenhouse gas emissions.

By placing Constellation Points closer to edge devices, the platform reduces cabling length, which also means lower thermal loading and, for PoE devices, lower power loss over distance. By leveraging the extended product life of powered fiber cabling and Category 6A patch cables, Constellation extends the infrastructure lifecycle, further reducing the effects of the building network on the environment.

59% less copper **&** **65%** less plastic

than a typical Category 6A plenum LAN installation

SUSTAINABLE BUILDING ADOPTION

94K commerical buildings

There are now some 94,000 commercial buildings granted or awaiting LEED certification in 167 countries. Every day, another 2.2 million square feet of real estate is certified, roughly the size of a 65-story office tower.

SOURCE: Bloomberg.com

42% of office space

Measured in square footage, more than 42% of total office space across the top 30 office markets is green certified (2019).

SOURCE: cbre.com

Rely on CommScope, now and next

For years, enterprise network and facility managers have relied on CommScope's powered fiber, PoE and Cat 6A solutions to continually evolve their power and data infrastructure capabilities. As part of our SYSTIMAX family of cabling and connectivity platforms, Constellation represents the next step in the development of hyperconnected and digitally aware buildings and campuses. Our active involvement with the world's major standards bodies and global presence provide the insight, innovation and resources to ensure customers have the solutions they need, when and where they need them. Only CommScope backs its cable and connectivity products with the SYSTIMAX 25-year warranty, one of the industry's most comprehensive and reliable.

For more information on the Constellation building edge infrastructure platform, contact your CommScope representative.

Constellation products are labeled with a QR code linked to the component's unique serial number. Using CommScope WebTrak® product tracking platform, you can easily verify the optical performance of any element when it left the factory.

Ordering information

Constellation solution

Material ID	Product Number	Description
760252854	CPCE-1	Constellation™ Enclosure, secure equipment enclosure providing 5RU of 19 inch rack space as well as 0RU accommodations for Propel and G2 modules
760252855	CPCB-1	Constellation™ Powered Backplane power conditioning component mounted to the CPCB-1 manages the transition from fault-managed power delivered via hybrid powered fiber cable to 1 kW of conventional power with power service outlets in 110 VAC, 48 VDC, and 24 VDC form
760254285	CPCX-12	Constellation™ Power Transmitter Chassis, capable of energizing up to ten enclosures with management module that provides remote access/monitoring/control of the Constellation power delivery system
760254288	CTX-6	Constellation™ Transmitter Card, 600 W, fault managed power delivery card interface between the CPCX-12 and the power delivery cabling. Up to 24 can be loaded into the CPCX-12
760254294	CTX-CBL-10	Constellation™ Power Interconnection Lead connecting CTX-6 and the Power Transition Panel
760254293	CPT-PP-48C	Constellation™ Power Transition Panel, with 48 color coded terminal blocks providing a transition point from 20 AWG to 16 AWG cabling, 19 in, 2RU
760254287	CPM-3K	Constellation™ Transmitter Power Module, 3 kW module that provides the CPCX-12 with up to 12 kW of capacity
760254290	CABLE-PWR-SAFD-L620P	Constellation™ Power Supply Cord, AC, Saf-D-Grid® to L620P power cable
760254642	PM500-COVER	Constellation™ optional blanking cover for unused power supply bays in CPCX-12
760254286	CTX-MGT	Management module containing pre-loaded graphical user interface software and Ethernet interface used by the administrator

Cable

Material ID	Product Number	Description
760255004	P-016-HY-8G-F30YL/4X16AWG/CTX	Constellation Plenum Hybrid Fault Managed Power Cable, 16 Fiber Loose Tube, 4 Conductor 16 AWG Twisted Pairs
760255005	P-016-HY-8G1-F30YL/8X16AWG/CTX	Constellation Plenum Hybrid Fault Managed Power Cable, 16 Fiber Loose Tube, 8 Conductor 16 AWG Twisted Pairs

Constellation cable assemblies

Material ID	
UGGRXRXYR	MPO16 (pinned) to MPO16 (pinned), 2 pair 16AWG
UGGRXUCYR	MPO16 (pinned) to Unconnectorized, 2 pair 16AWG
UGGRXRXZR	MPO16 (pinned) to MPO16 (pinned), 4 pair 16AWG
UGGRXUCZR	MPO16 (pinned) to Unconnectorized, 4 pair 16AWG
UGGQXQXY8	MPO8 (pinned) to MPO8 (pinned), 2 pair AWG
UGGQXUCY8	MPO8 (pinned) to unconnectorized, 2 pair AWG
UGGQXQXZ8	MPO8 (pinned) to MPO8 (pinned), 4 pair AWG
UGGQXUCZ8	MPO8 (pinned) to unconnectorized, 4 pair AWG

Length	
XXX	**2 Pair parameters:** 033-492 (in feet) / 10-150 (in meters)
XXX	**4 Pair parameters:** 033-999 (in feet) / 10-500 (in meters)

NOTE: Use dimension parameters for 2 Pair or 4 Pair. Replace XXX with numeric values in feet or meters. Example: 45 feet = 045

Unit of measure	
F	Foot
M	Meter

Propel panels

Material ID	Product Number	Description
760252002	PPL-1U	Propel 1RU sliding panel
760252003	PPL-2U	Propel 2RU sliding panel
760252004	PPL-4U	Propel 4RU sliding panel

Propel modules

Material ID	Product Number	Description
760252352	PPL-DM-16AU-16LC-SM-BEU	Propel ULL Singlemode MPO-16 Distribution Module, 8 duplex LC/UPC to 1x16f MPO/APC non-pinned, Method B Enhanced
760252334	PPL-DM-8AU-8LC-SM-BEU	Propel ULL Singlemode MPO-08 Distribution Module, 4 duplex LC/UPC to 1x8f MPO/APC non-pinned, Method B Enhanced

GigaSPEED® X10D 360GS10E modular patch cords

Material ID	
CPCSSX2	360GS10E Solid Cordage
CPCSSY2	360GS10E Solid Plenum Cordage
CPCSC4X	360GS10E Single-ended Solid Cordage
CO199K2	360GS10E Single-ended Solid Cordage

Length	
XXX	1-100 (in feet) / 1-30 (in meters)

NOTE: Replace XXX with numeric values in feet or meters. Example: 45 feet = 045

Unit of measure	
F	Foot
M	Meter

Cord color options (below) are limited as folows:
CPCSSX2: 1, 2, 3, 4, 6, 7, 8, 9, B, C, K, L, Z
CPCSSY2: 1, 4, 6, 7, 8, 9, C, M, Z
CPCS4X2: 1, 2, 3, 4, 6, 7, 8, 9, B, C, L, Z
CO199K2: 1, 2, 3, 4, 7, 8, 9, K, L, Z

Cord color	
1	Black
2	Light Blue
3	Dark gray
4	Spring Green
6	Orange
7	Red
8	White
9	Yellow
B	Lilac
C	Gray
K	Pink
L	Violet
M	Green
Z	Blue

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.

COMMSCOPE®

commscope.com

Visit our website or contact your local CommScope representative for more information.

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