

AMP NETCONNECT CABLING SYSTEMS

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Chapter Summary

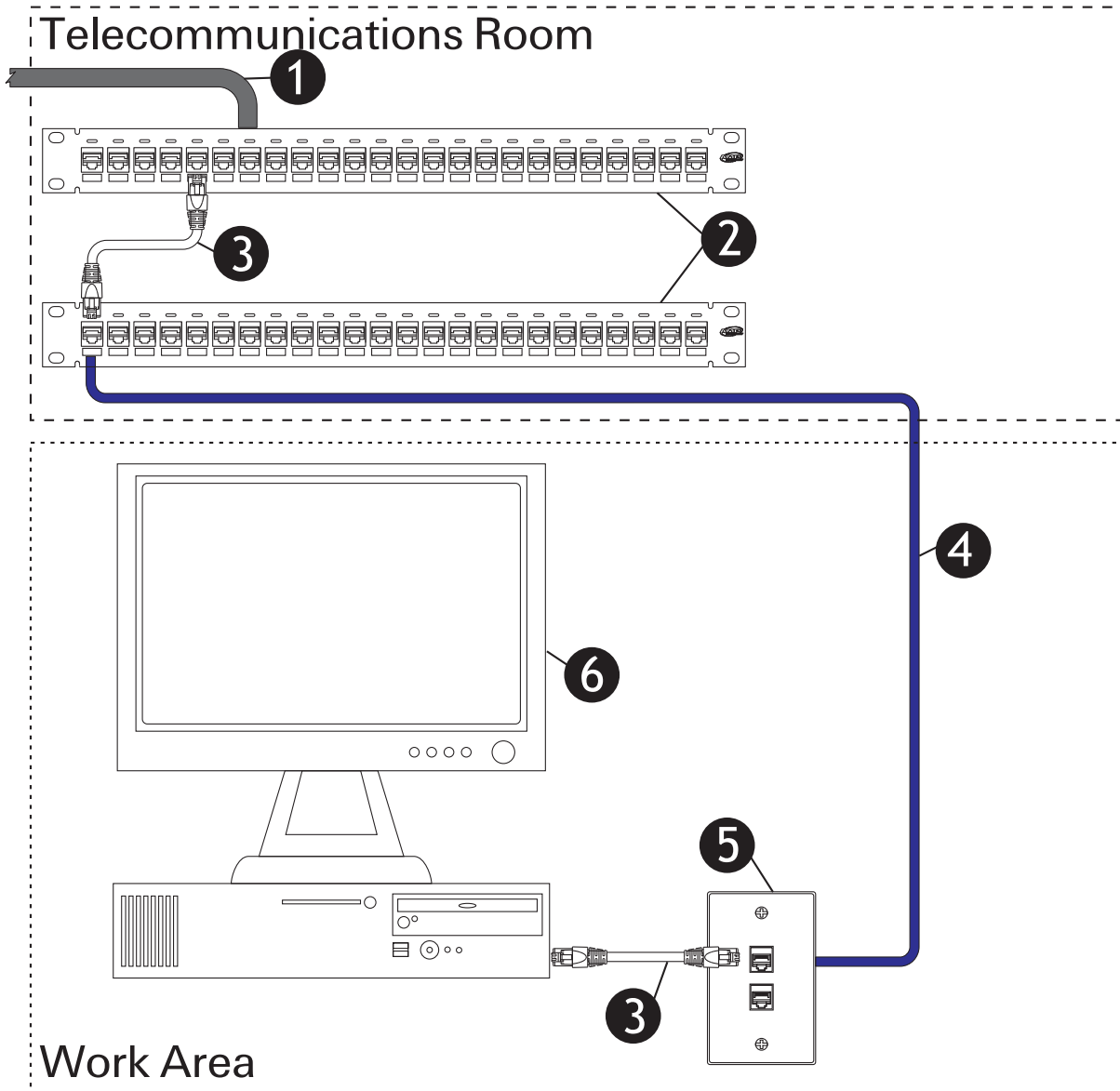
- Example systems are shown with illustrations, part numbers and informational text
- Most examples list only one product set (ex: Category 6 CMP cabling), but most can be constructed with other system components as well - examples are not intended to be exclusionary
- Examples shown are for illustrative purposes and are not necessarily recommendations - industry standards and other applicable documents and regulations should be consulted before settling on a specific design
- For more information or questions on AMP NETCONNECT products, contact Tyco Electronics

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Twisted Pair Systems



Shielded XG Category 6A (10 Gb/s)

The AMP NETCONNECT Shielded Product Solution offers higher electrical performance and virtually eliminates ANEXT associated with 10 Gig transmission. The system meets all TIA/EIA Category 6A performance standards and IEEE 802.3an, 10 Gigabit Ethernet requirements.

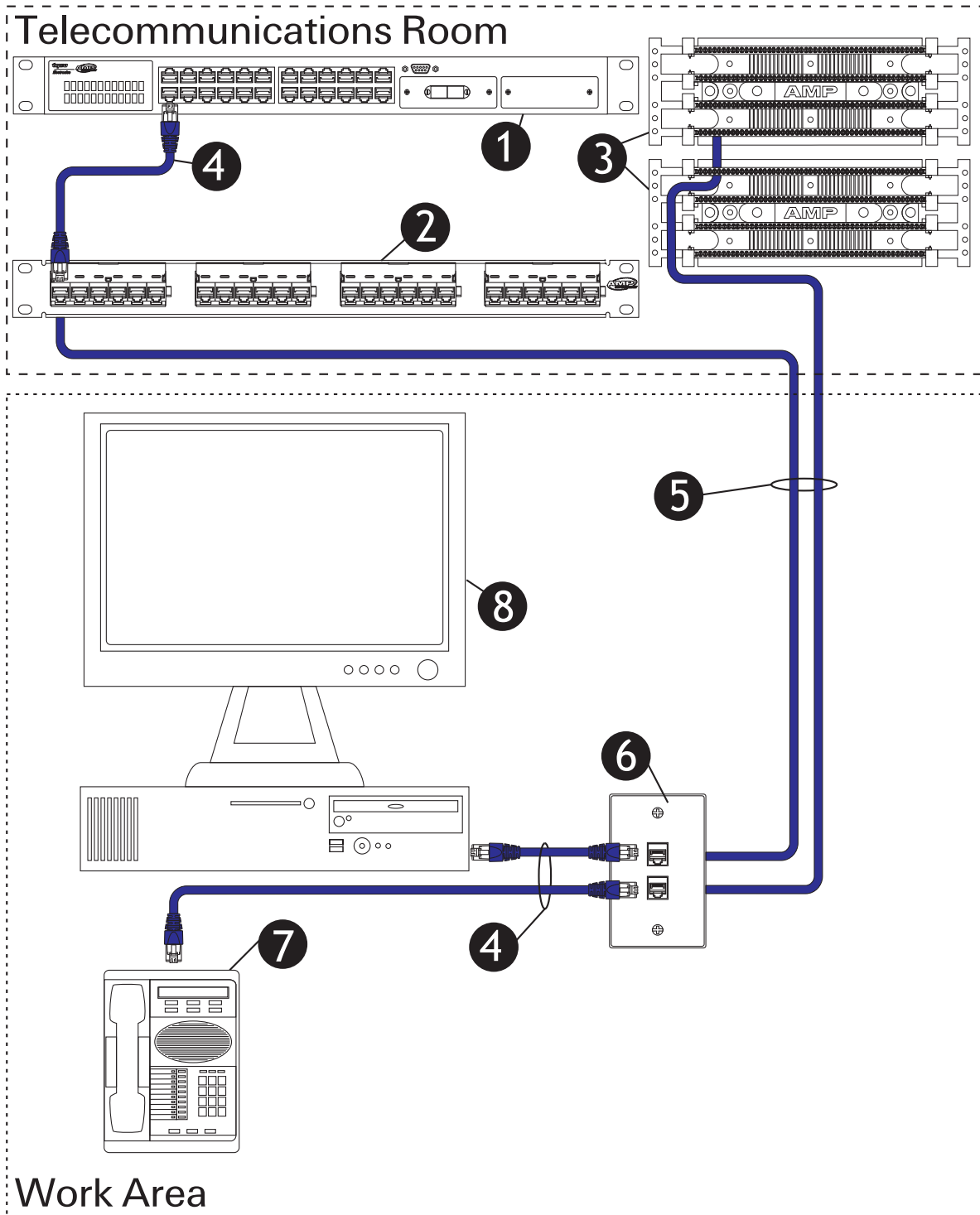
The AMP NETCONNECT XG Category 6A Copper Cabling Solution overcomes the ANEXT problem and will support 10GBASE-T to 100 m. Our cable and connecting hardware designs minimize the adverse effects of ANEXT, resulting in a high signal-to-noise ratio. The AMP NETCONNECT XG Copper System offers the transmission capacity needed for 10GBASE-T. Intensive lab tests, applying worst case configurations in conjunction with testing up to 625 MHz, and the extensive proven experience in the field have demonstrated these superior cable, connector, and patch panel designs which fully support the proposed 10G data rates.

- Supports 10GBASE-T on 100 m and shorter channels
- Proven Shannon Capacity > 18 GBit/s
- Tested up to 625 MHz
- Excellent ANEXT suppression
- Easy installation
- Available in SL Series Jack style

Shielded XG (10 Gb/s)

Item	Part Number	Quantity	Page
1) Twisted Pair Cables			3-11
Category 6A F/UTP Cable, CMR	1499389-X		5
Category 6A F/UTP Cable, CMP	1499416-X		5
2) Twisted Pair Patch Panels			33-50
XG Category 6A Shielded Patch Panel, 24-Port, with AMP-TWIST Jacks	1933319-2		34
XG Category 6A AMPTRAC Shielded Patch Panel, 24-Port, with AMP-TWIST Jacks	1933331-1		233
3) Twisted Pair Cable Assemblies			27-32
Category 6 Shielded Patch Cable Assembly, White	1499480-X		28
4) Twisted Pair Cables			3-11
Category 6A F/UTP Cable, CMR	1499389-X		5
Category 6A F/UTP Cable, CMP	1499416-X		5
5) Outlets, Faceplates and Accessories – Connectors, Couplers and Adapters			
Flush Faceplate, 2-Port	1479444-X		155
SL Series AMP-TWIST-6S Modular Jack	1711342-1		13
6) Computer Equipment			
SL Series Modular Jack Termination Tool	1725150-3		67

Twisted Pair Systems



Unshielded

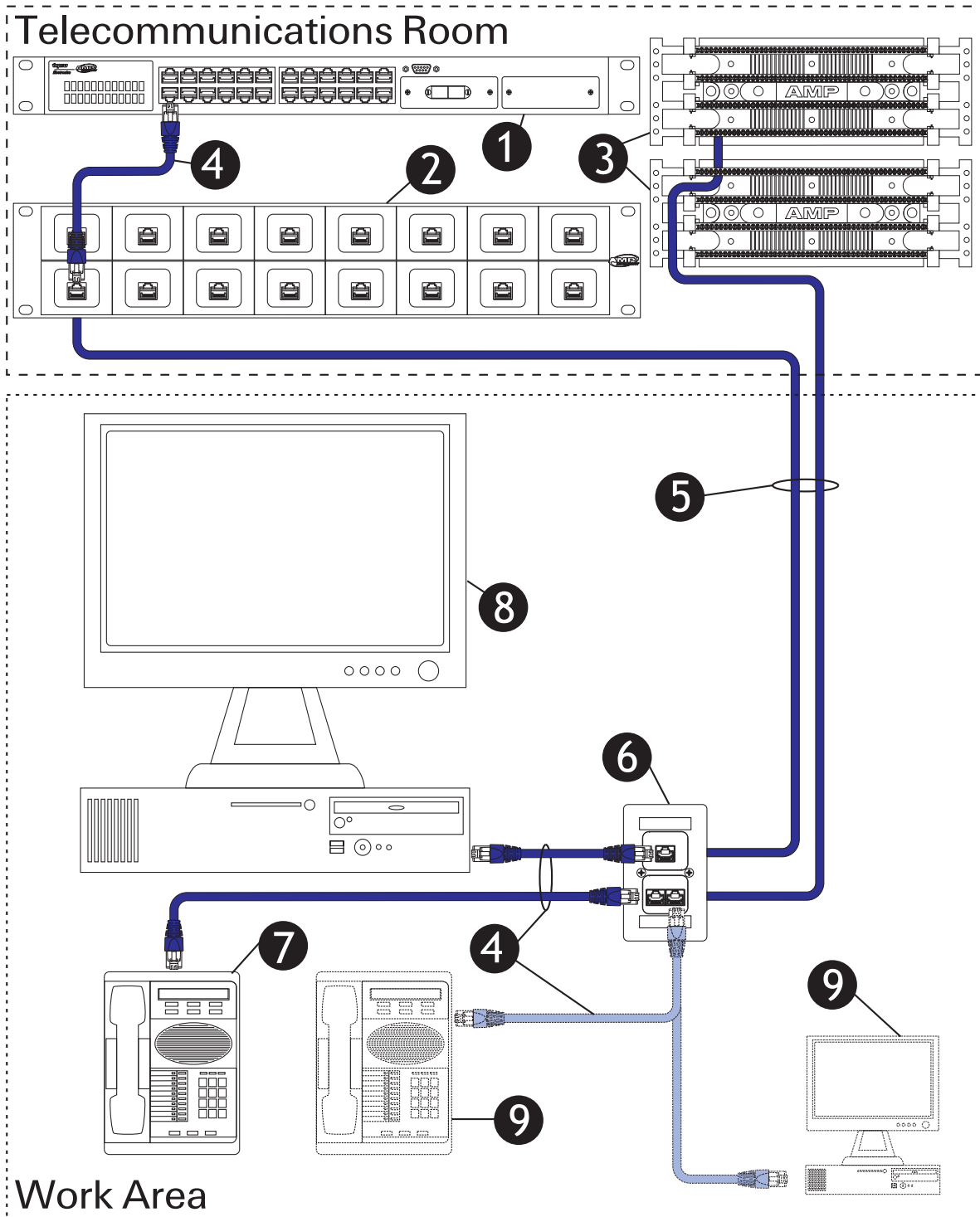
AMP NETCONNECT SL Series products combine the easy termination of the 110-style punchdown block with the proven performance characteristics of AMP NETCONNECT modular jacks. SL Series products offer a complete, cost-effective means to cable a building for unshielded and shielded twisted pair, optical fiber and coaxial applications. A wide variety of work area outlet solutions is available supporting twisted pair, optical fiber and coaxial applications. Outlets include multiple styles of wall mount faceplates, decorator and duplex mounting straps, FLEX-MODE faceplates for modular furniture applications, Office Box surface mount outlets, and the Access Floor Workstation Module (AFWM) products.

The SL Series System has the advantage of high port densities at the outlet due to a smaller modular jack form factor and adds the advantages of single port replacement to the patch panel. This also allows individual termination of each patch panel port with the SL Series Termination Tool, speeding installation. SL Series Discrete Patch Panels allow custom, mix-and-match-style multimedia configurations.

Unshielded

Item	Part Number	Quantity	Page
1) LAN Electronics			243-252
SNMP Managed Ethernet Switch	1591099-X		248
2) Twisted Pair Patch Panels			33-50
Category 6 SL Series 24-Port Patch Panels	1375014-X		35
Category 6 SL Series 48-Port Patch Panels	1375015-X		35
Category 5e SL Series 24-Port Patch Panels	1479154-X		36
Category 5e SL Series 48-Port Patch Panels	1479155-X		36
3) Twisted Pair Cross-Connects			51-60
610XC Category 6 Cross-Connect, 100-Pair Kit	1479254-1		53
110Connect XC Category 5e Cross-Connect, 100-Pair Kit	569439-1		57
4) Twisted Pair Cable Assemblies			27-32
Category 6 Patch Cable Assemblies	219884-X		28
Category 5e Patch Cable Assemblies	406483-X		29
5) Twisted Pair Cables			3-11
Category 6, CMR	219560-X		5
Category 6, CMP	219567-X		5
Category 6E, CMR	1499038-X		6
Category 6E, CMP	1499033-X		6
Category 5e, CMR	219538-X		7
Category 5e, CMP	219513-X		7
Category 5E, CMR	57826-X		8
Category 5E, CMP	57825-X		8
6) Outlets, Faceplates and Accessories – Connectors, Couplers and Adapters			
Flush Faceplate, 2-Port	1479444-X		155
Category 6 SL Series Modular Jack	1375055-X		13
Category 5E SL Series Modular Jack	1375191-X		14
7) Multi-line Telephone			
8) Computer Equipment			
SL Series Modular Jack Termination Tool	1725150-1		67

Twisted Pair Systems

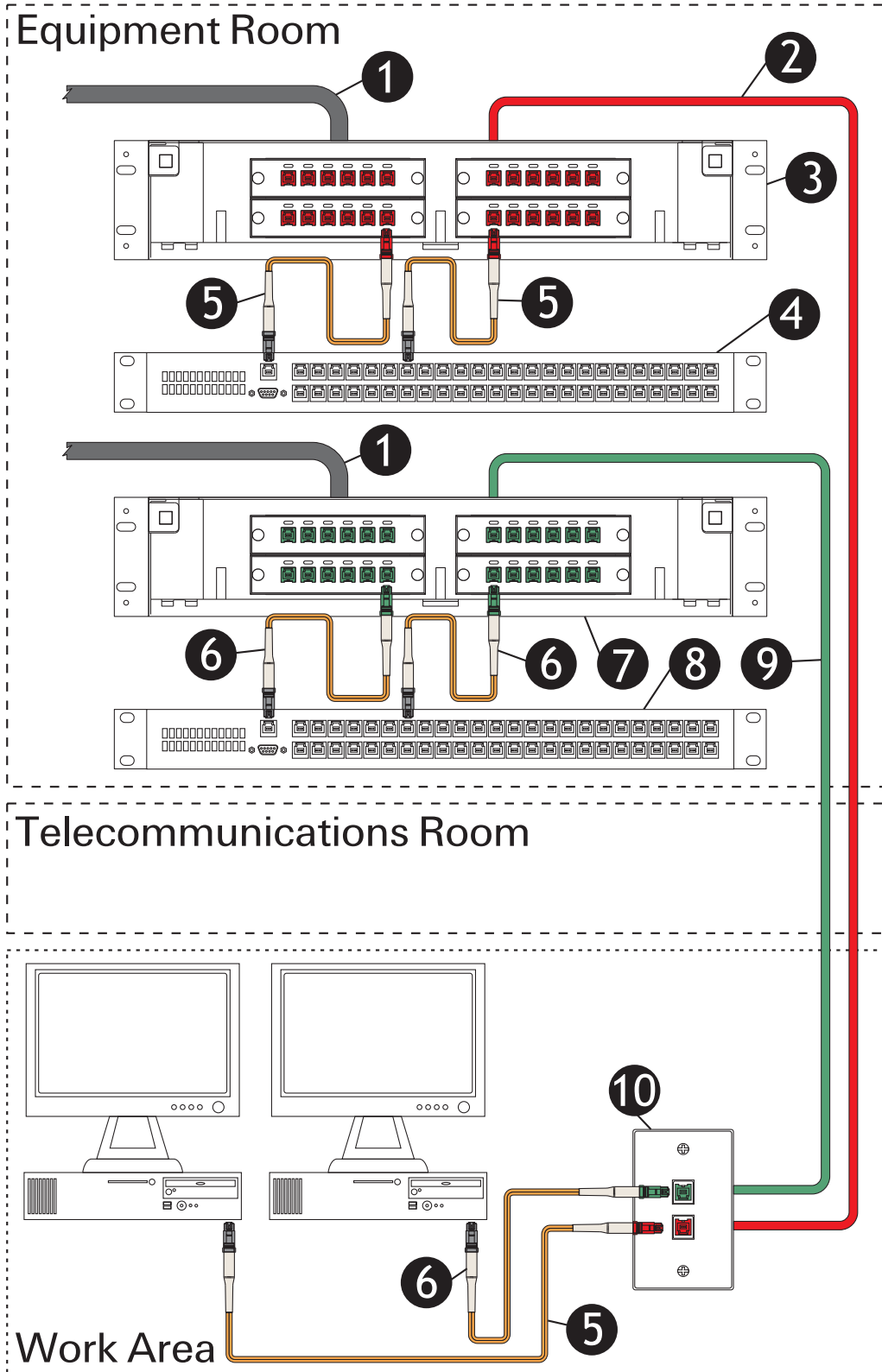


AMP Communications Outlet (ACO)

The AMP Communications Outlet (ACO) is a unique flexible cabling system that provides two significant advantages over traditional “hard-wired” modular jacks. The first is the ability to change the connector interface at the work area outlet and at the patch panel without having to re-terminate the horizontal distribution cable. This allows the cabling system to adapt to changing equipment requirements without the need to re-certify the performance of the system. The “standard” alternative to this is to make or purchase custom, possibly long lead-time, cable assemblies to adapt an 8-position jack to suit your equipment. The second advantage offered by the ACO System is the easy ability to combine two applications in the same 4-pair cable. Since most communications applications require only one or two pairs to operate, half of a standard hard-wired cable plant is typically wasted. AMP Communications Outlet dual-jack inserts allow an outlet to be changed from two 100BASE-T stations to two ATM stations in minutes, again without the need to re-terminate or re-certify the cable.

AMP Communications Outlet (ACO)

Item	Part Number	Quantity	Page
1) LAN Electronics			243-252
SNMP Managed Ethernet Switch	1591099-X		248
2) Twisted Pair Patch Panels			33-50
Category 6, ACO Single-Port Patch Panel Kit, 16-Port, Unshielded	1479311-1		43
Standard, ACO Single-Port Patch Panel Kit, 16-Port, Unshielded	406363-1		44
3) Twisted Pair Cross-Connects			51-60
610XC Category 6 Cross-Connect, 100-Pair Kit	1479254-1		53
110Connect XC Category 5e Cross-Connect, 100-Pair Kit	569439-1		57
4) Twisted Pair Patch Cable Assemblies			27-32
Category 6 Patch Cable Assemblies	219884-X		28
Category 5e Patch Cable Assemblies	406483-X		29
5) Twisted Pair Cables			3-11
Category 6, CMR	219560-X		5
Category 6, CMP	219567-X		5
Category 6E, CMR	1499038-X		6
Category 6E, CMP	1499033-X		6
Category 5e, CMR	219538-X		7
Category 5e, CMP	219513-X		7
Category 5E CMR	57826-X		8
Category 5E, CMP	57825-X		8
6) Outlets, Faceplates and Accessories			149-200
ACO Faceplate, Single Gang	558510-X		80
Category 6, ACO Dual-Port Installation Kit, Unshielded	1479306-1		172
Standard, ACO Dual-Port Installation Kit, Unshielded	406352-1		172
Category 6, ACO Single Insert, T568A Wiring, Unshielded/Shielded	1644031-X		178
Category 6, ACO Single Insert, T568B Wiring, Unshielded/Shielded	1644027-X		178
Standard, ACO Single Insert, T568A Wiring, Unshielded	558908-X		178
Standard, ACO Single Insert, T568B Wiring, Unshielded	558909-X		178
Standard, ACO Dual Insert, 10/100BASE-T Wiring, Unshielded	557280-X		179
7) Multi-line Telephone			
8) Computer Equipment			
9) Extra Multi-line Telephone or Computer Equipment, application depends upon insert chosen			



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MT-RJ SECURE Segregated Networks

The MT-RJ SECURE connector system is designed to provide additional security and segregation for installations running multiple networks in common spaces. Although initially installed in government and defense locations as a means to prevent cross-connection between networks of different classifications, these products have proven themselves in other applications such as financial institutions, research laboratories and college campus networks.

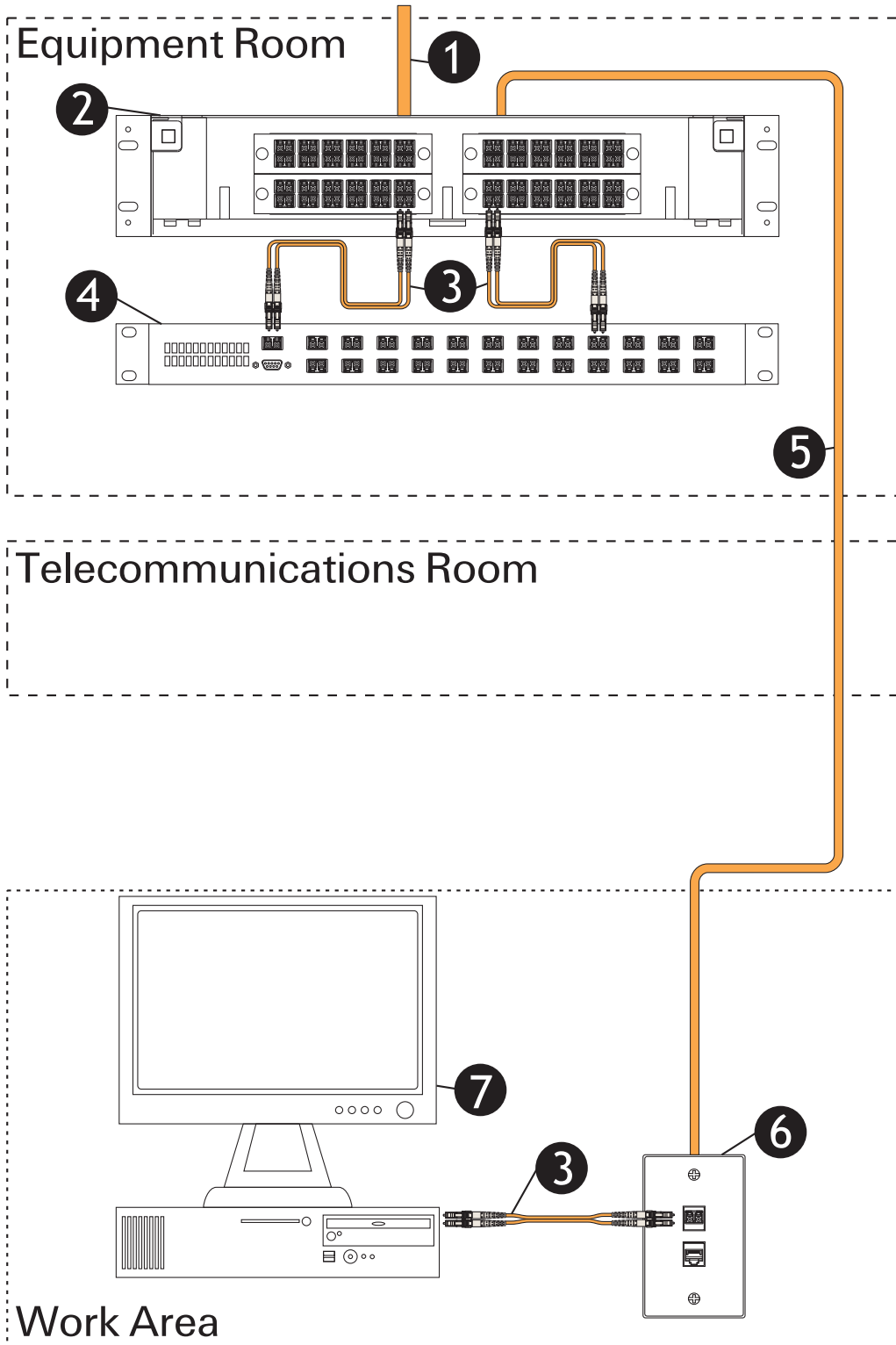
Each color version of the MT-RJ SECURE jacks and plugs has a different slot and key combination that prevents plug to jack mating unless the plug color and jack color match. With a complete line of jacks, cables and cable assemblies, the MT-RJ SECURE system allows access to multiple networks from the same location without concern of inadvertent cross-connection or improper network access.

In this system, two of the ten color versions are used - green and red. The green switch connects via a green MT-RJ SECURE plug and jack to the "Green Network" cabling, which is also terminated in a green MT-RJ SECURE jack. A green MT-RJ SECURE cable assembly completes the connection to the work area equipment. A similar network is run in parallel as a "Red Network". Although only red and green are shown, similar networks can be constructed with up to eleven variations - ten colored version and the standard MT-RJ.

This example shows the MT-RJ SECURE System installed in a centralized fiber network. Here, the MT-RJ SECURE jacks are installed on both ends of the plenum-rated pull-through cable, and MT-RJ SECURE patch cords are used to connect to the equipment in the equipment room and work area. With this network, you can have access to both networks in the same faceplate. Note that the standard MT-RJ snap-in adapter plates work with the MT-RJ SECURE Jacks.

MT-RJ SECURE Segregated Networks

Item	Part Number	Quantity	Page
1) Optical Fiber Backbone Cabling			
Distribution Cable, 24-Fiber, 62.5/125 μm Multimode, OFNR	1-1664058-1		78
2) Optical Fiber Pull-through Cable - RED Network			
DUAL Cable, 2-Fiber, 62.5/125 μm Multimode, OFNP - RED	1-1664029-4		86
3) Optical Fiber Rack Mount Enclosure and Adapter Plates - RED Network			
2U Rack Mount Enclosure for Standard Optical Fiber Cables	559542-2		125
MT-RJ Jack Snap-in Adapter Plate	1278328-3		120
MT-RJ SECURE Patch Panel Jacks, 62.5/125μm, RED	6588878-1		203
4) Optical Fiber LAN Equipment with MT-RJ Interface			
5) Optical Fiber Cable Assemblies - RED Network			
MT-RJ SECURE Patch Cord, RED, 62.5/125 μm Multimode, 1 meter	6278890-1		204
6) Optical Fiber Cable Assemblies - GREEN Network			
MT-RJ SECURE Patch Cord, GREEN, 62.5/125 μm Multimode, 1 meter	6278892-1		204
7) Optical Fiber Rack Mount Enclosure and Adapter Plates - GREEN Network			
2U Rack Mount Enclosure for Standard Optical Fiber Cables	559542-2		125
MT-RJ Jack Snap-in Adapter Plate	1278328-3		120
MT-RJ SECURE Patch Panel Jacks, 62.5/125μm, GREEN	6588878-3		203
8) Optical Fiber LAN Equipment with MT-RJ Interface			
9) Optical Fiber Pull-through Cable - GREEN Network			
DUAL Cable, 2-Fiber, 62.5/125 μm Multimode, OFNP - GREEN	1-1664029-2		86
10) Outlets, Faceplates and Accessories – Connectors, Couplers and Adapters			
Flush Faceplate, 2-Port	1479444-X		155
MT-RJ SECURE Outlet Jacks, 62.5/125 μm, RED	6278810-1		202
MT-RJ SECURE Outlet Jacks, 62.5/125 μm, GREEN	6278810-3		202



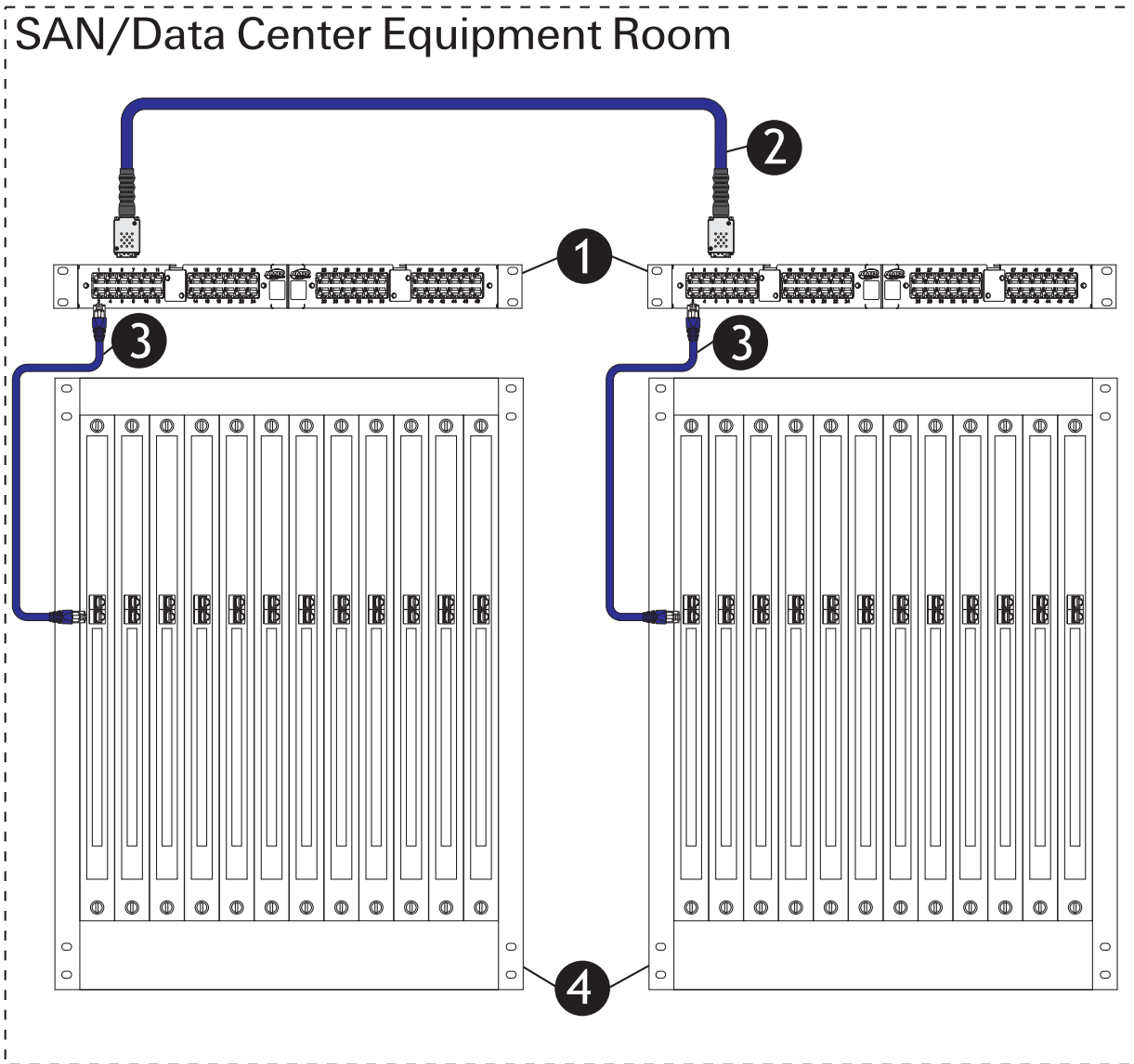
Centralized Fiber Network with LC Connectors

The LC small form factor connector has become increasingly popular in single-mode systems and as an electronics interface. It's design is similar to the SC connector, only smaller. Small enough, in fact, that an LC duplex connector is only slightly larger than a simplex SC. Tyco Electronics offers AMP NETCONNECT LC connectors in the popular LightCrimp Plus (no-epoxy/no-polish) and epoxy/polish product lines.

In this example, a Centralized Fiber Network is constructed using LAN equipment with an LC duplex interface, LC duplex patch cords, plenum fiber cable and LC LightCrimp Plus connectors. Note that the pull-through fiber cable (5) is routed through the Telecommunications Room without termination. This is allowed by the TIA-568B Standard as long as the pull-through cable length does not exceed 90 meters.

Centralized Fiber Network with LC Connectors

Item	Part Number	Quantity	Page
1) Optical Fiber Backbone Cable			
Distribution Cable, 24-Fiber, 50/125 μm Multimode, OFNR	2-1664056-1		78
2) Optical Fiber Rack Mount Enclosure and Adapter Plates			
2U Rack Mount Enclosure for Standard Optical Fiber Cables	559542-2		125
LC Snap-in Adapter Plate, Multimode, 24-Fiber	1435516-2		120
LC Simplex LightCrimp PLUS, 50/125 μm Multimode Connectors	6754483-2		95
3) Optical Fiber Cable Assemblies			103-112
LC Patch Cable Assembly, 50/125 μm	1906866-1		109
4) Optical Fiber LAN Equipment with LC Interface			
5) Optical Fiber Pull-through Cable			
Horizontal Cable, 2-Fiber (Dual), 50/125 μm Multimode, OFNP	2-1664027-1		86
6) Outlets, Faceplates and Accessories – Connectors, Couplers and Adapters			
Flush Faceplate, 2-Port	1479444-X		155
SL Series Insert, LC Duplex, Multimode	1435735-X		101
LC Simplex LightCrimp PLUS, 50/125 μm Multimode Connectors	6754483-1		95
7) Computer Equipment			



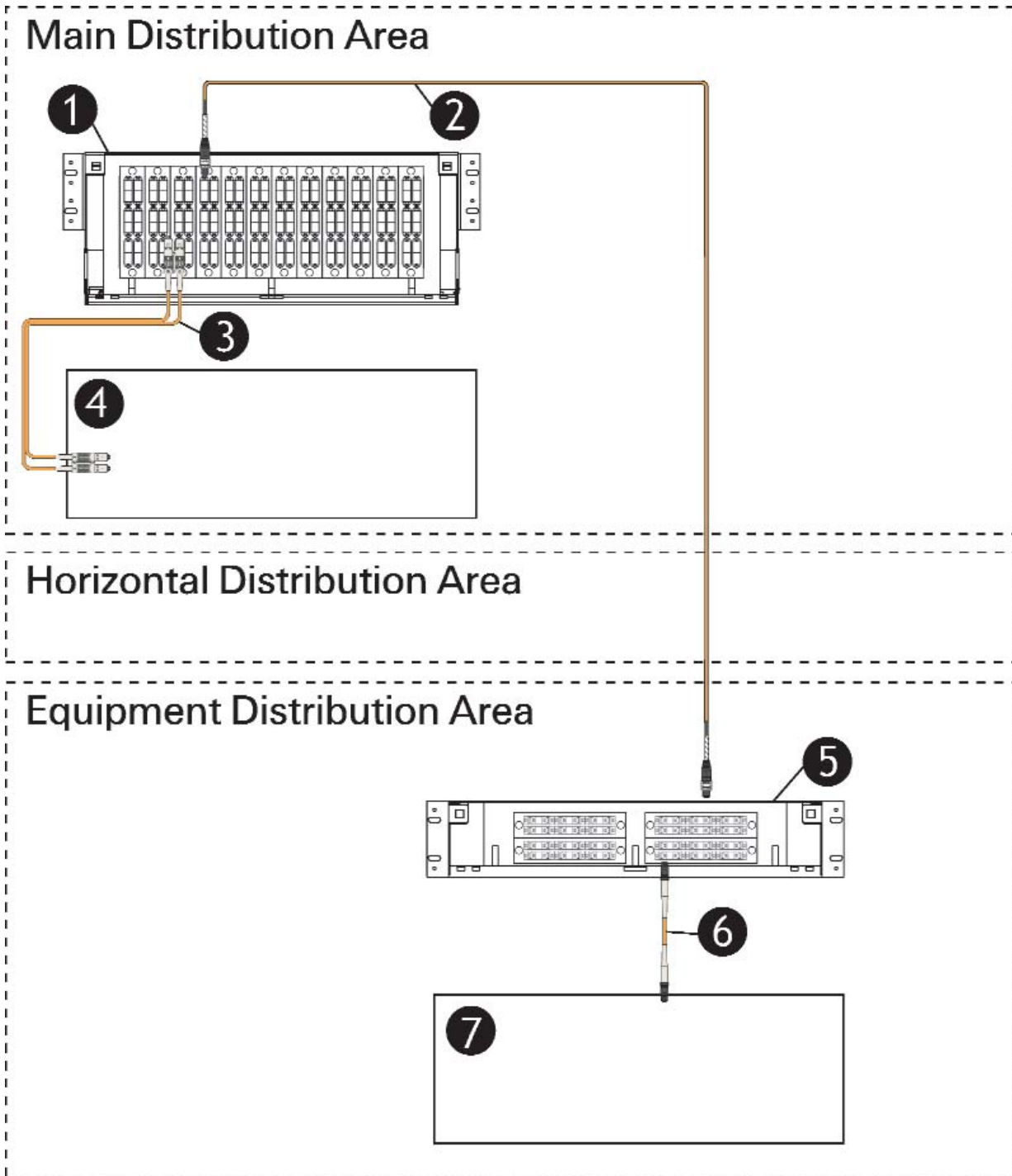
MRJ21 High Density Copper Cabling

The MRJ21 Connector System Solution is a high-density, high-performance, modular copper cabling system. Our matched powersum 24-pair cabling and connector solution provides a variety of applications to up to 12 ports with a single cable. This solution supports any plug and play environment including data centers and zone cabled or open office environments. When utilizing our PC board mounted solution, the MRJ21 connector enables much higher switch port density than the common Modular plug/jack interface, which can reduce active port costs.

- MRJ21 connector system provides an application independent copper platform for applications today and into the future – including Gigabit, VoIP & powered Ethernet
- The small size of the MRJ21 connector and cabling reduces cable bulk in pathways and spaces, enabling much higher manageable port counts in a smaller space
- Factory termination and testing of the cassettes and patch panels allow pluggable performance on site. This enables rapid installation or MACs with pre-tested quality
- The modularity of this solution significantly reduces time to install or migrate from a 10/100BASE-T 2-pair platform to a Gigabit Ethernet 4-pair platform. Upgrading is as simple as unplugging one cassette and plugging in the new one. The same cable is re-usable. A 48-port 1U panel can be installed with Gigabit performance in minutes compared to a traditional 48 port discrete RJ45 panel which can take hours to install.
- Cassettes and patch panels break out high-performance 24-pair solutions to the appropriate wiring patterns for standards based 10/100BASE-T, Gigabit Ethernet, and other applications
- Common cable assembly lengths provide readily available, pluggable solutions, speeding implementation
- Additional hardware options continue to be released. Contact your sales engineer or check our website for the latest updates

MRJ21 High Density Copper Cabling

Item	Part Number	Quantity	Page
1) Twisted Pair Data Center/SAN Products .....			.61-64
MRJ21 Patch Panel, Angled, 48-Port	1777052-1	_____	.63
2) Twisted Pair Data Center/SAN Products .....			.61-64
MRJ21 Cable Assembly, 180° Back Shells, CMR	1499515-X	_____	.64
MRJ21 Cable Assembly, 180° Back Shells, CMP,	1499518-X	_____	.64
3) Twisted Pair Patch Cable Assemblies .....			.27-32
Category 6 Patch Cable Assemblies .....	.219884-X	_____	.28
Category 5e Patch Cable Assemblies .....	.406483-X	_____	.29
4) Rack Mounted Server			



MPO High Density Optical Fiber Cabling

Data Centers (DCs) and Storage Area Networks (SANs) have slightly different conditions than traditional commercial building cabling networks. Unlike the TIA-568B commercial building networks, which are distributed networks, the DC/SAN networks are concentrated networks with a premium placed on reliability, density and speed of installation.

Just as the MRJ21 connector system for copper offers a twisted pair solution, the MPO products offer a solution for optical fiber networks. These products are based on the high-density, 12-fiber MPO array connector. In the MPO ferrule, 12 fibers are terminated in a connector the same size as a single-fiber SC connector. Thus, the MPO solutions offer the highest density solution with the added advantages of optical fiber - high data rates, small diameter flexible cables, and resists electromagnetic and radio frequency interference.

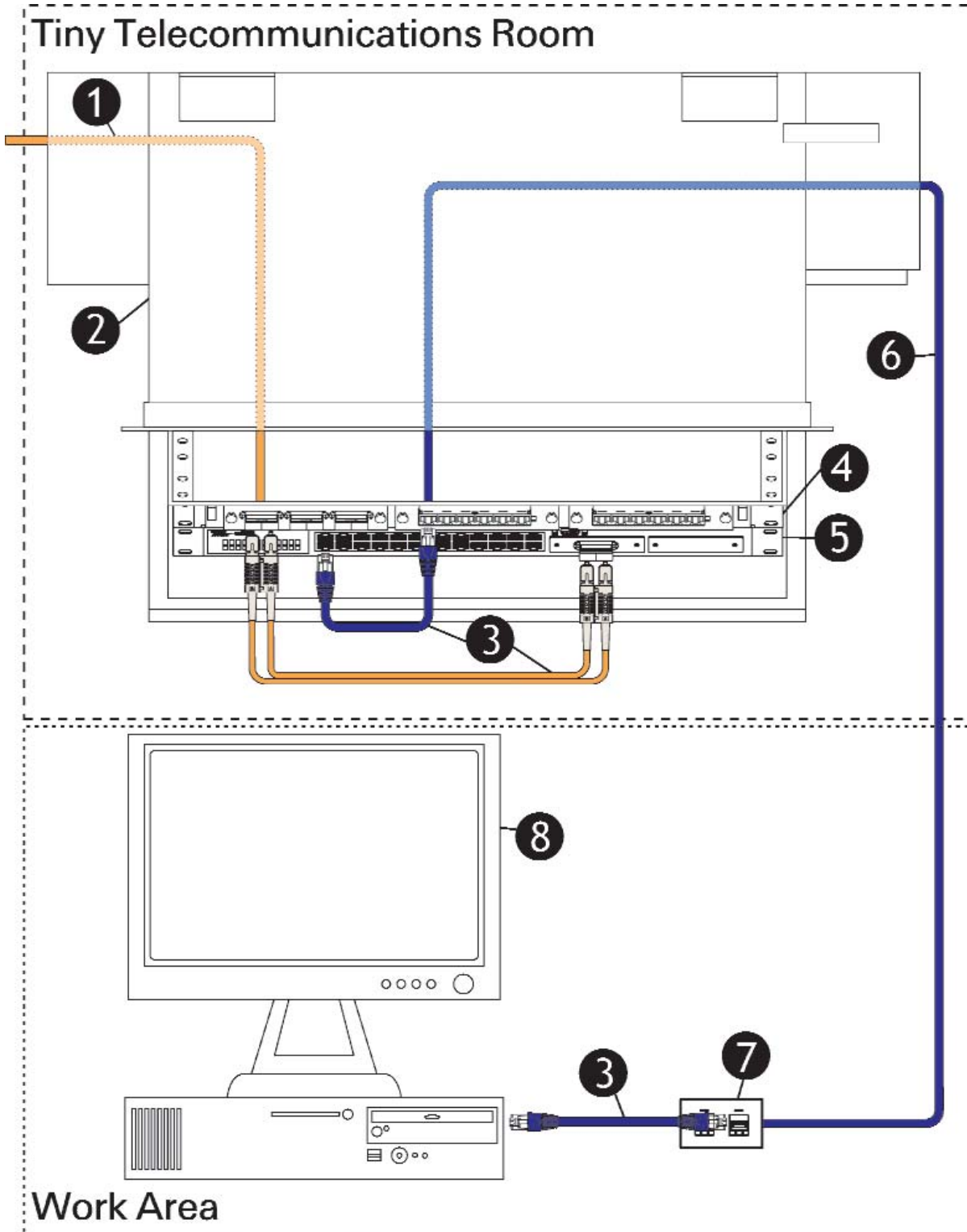
Trunk cables are terminated with MPO connectors. Cassettes offer a modular breakout of the fibers in the MPO connector to more common interfaces such as MT-RJ, SC duplex and LC. Together, constructing a functional link between equipment can be accomplished rapidly, simply and without the complexity of a normal move, add or change.

In this example, the Main Distribution Area (MDA) is connected to remote equipment in the Equipment Distribution Area (EDA) by a link constructed of common patch cords, a trunk cable, and cassettes in a centralized fiber network. Since the TIA-942 Standard allows up to 300 m for optical fiber pull-through cables, and because data centers thrive on high data rates, this example is constructed with XG (850 nm LO 50/125 μm) optical fiber to allow 10 Gb/s data rates to the full 300 m distance. These components can be constructed in many ways to make viable links between equipment, and the interfaces can be mixed and matched on either end of the trunk cable cassettes to match the equipment interfaces. In this example, a SC duplex interfaces are used in the MDA and MT-RJ interface equipment is used in the EDA.

MPO High Density Optical Fiber Cabling

Item	Part Number	Quantity	Page
1) Rack Mount Enclosure and Cassettes			
4U Rack Mount Enclosure for Armored and Trunk Cables	1435558-1 .....	_____	.....126
MPO Cassette, SC Duplex, 12-Fiber, XG (850 nm LO 50/125 μm) MM .....	.6754333-2 .....	_____	.....117
2) MPO Trunk Cable Assembly, 24-Fiber, XG (850 nm LO 50/125 μm) MM, CMR	1754687-X .....	_____	.....116
3) SC Duplex Patch Cable Assembly, XG (850 nm LO 50/125 μm) MM .....	.6828151-X .....	_____	.....108
4) DC/SAN Director			
5) Rack Mount Enclosure and Cassettes			
2U Rack Mount Enclosure for Armored and Trunk Cables	1435556-1 .....	_____	.....125
MPO Cassette, MT-RJ, 24-Fiber, XG (850 nm LO 50/125 μm) MM .....	.1918778-1 .....	_____	.....117
6) MT-RJ Patch Cable Assembly, XG (850 nm LO 50/125 μm) MM .....	.6588572-X .....	_____	.....106
7) Storage Device			

Telecommunications Enclosures ("Tiny TR")



Telecommunications Enclosures ("Tiny TR")

Recent additions to the TIA-568 and TIA-569 standards have allowed a new type of network architecture called Telecommunications Enclosures. This architecture allows an effective combination of optical fiber for longer distance and twisted pair cable for work area outlets. While the concept was initially designed to simplify modular office moves, adds and changes, the concept offers advantages in other types of installations as well - particularly in areas where the horizontal cabling will be changed frequently.

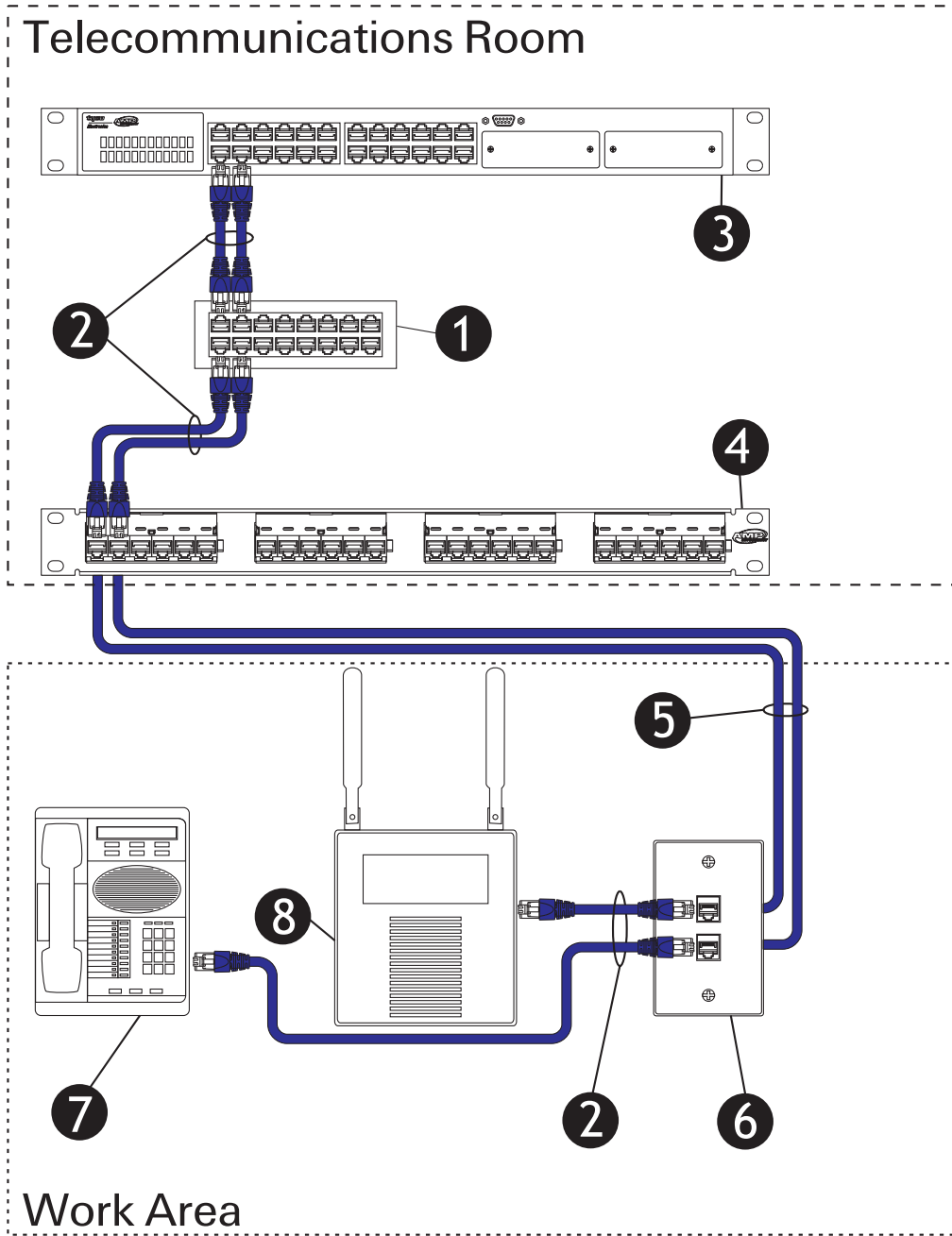
The base of the Telecommunications Enclosure (TE) architecture is the TE itself. Optical fiber backbone cabling is run from the Equipment Room, through the Telecommunications Room (TR) and into the TE where it is terminated and patched to a switch. The output of the switch (RJ45 ports) are then patched to horizontal twisted pair cable to the outlet in the Work Area.

At first glance, this appears to be a displaced TR. However, the requirements for the TE are not the same as for the TR, so there is some additional flexibility when using the TE. It is important to note that the standards do not allow a network without a TR, but in some installations where multiple TRs are needed, TEs may be used in place of additional TRs.

In this example, a 50um optical fiber backbone cable is terminated in SC LightCrimp PLUS connectors. A hybrid patch panel (that can house optical fiber adapters and twisted pair punch down blocks) allows patching the optical fiber backbone to the optical port in the switch. The RJ45 output ports are then patched to the patch panel ports where the horizontal cabling begins.

Telecommunications Enclosures ("Tiny TR")

Item	Part Number	Quantity	Page
1) Horizontal Optical Fiber Cabling			
Distribution Cable, 6-Fiber, 50/125 μm Multimode, OFNP	2-1664039-1		77
SC Duplex LightCrimp PLUS, 50/125 μm Multimode Connectors	6278080-1		95
2) Twisted Pair/Optical Fiber Consolidation Points & Accessories			
Active Equipment Consolidation Point for Drop Ceiling System	1479039-1		195
3) Twisted Pair/Optical Fiber Patch Cable Assemblies			
Category 5e Patch Cable Assemblies	406483-X		29
SC Duplex Patch Cable Assembly, 50/125 μm Multimode	1907379-X		108
4) Optical Fiber Rack Mount Enclosures			119-128
1U Swappable Front Panel Enclosure	1348876-4		123
Duplex SC Snap-in Adapter Plate, 6-Fiber, Multimode	559558-1		121
SL 6-Port Adapter Plate	1479506-1		121
Category 5e SL Jacks	1375191-X		14
5) LAN Electronics			243-252
SNMP Managed Ethernet Switch	1591099-X		248
6) Twisted Pair Cables			3-11
Category 5e, CMP	57825-X		8
7) Twisted Pair Outlets, Faceplates and Accessories - Connectors, Couplers and Adapters			
FLEX-MODE Flush Faceplate, 2-Port	558106-X		189
Category 5e SL Series Modular Jack	1375191-X		14
8) Computer Equipment			



Power over Ethernet (PoE) over Twisted Pair Cabling

Tyco Electronics offers the AMP NETCONNECT 8-Port Power over Ethernet (PoE) Midspan device for 802.3af applications. The AMP NETCONNECT PoE Midspan device offers a cost-effective solution for power remote devices like VoIP phones, WLAN access points, security devices, etc. The AMP NETCONNECT 8-Port PoE Midspan device makes injecting DC power as simple as routing patch cords, eliminates the PoE option costs for powered switch ports and allows routing power only to the outlets where power is needed.

The AMP NETCONNECT Midspan PoE device offers several advantages over end-span devices like powered switches:

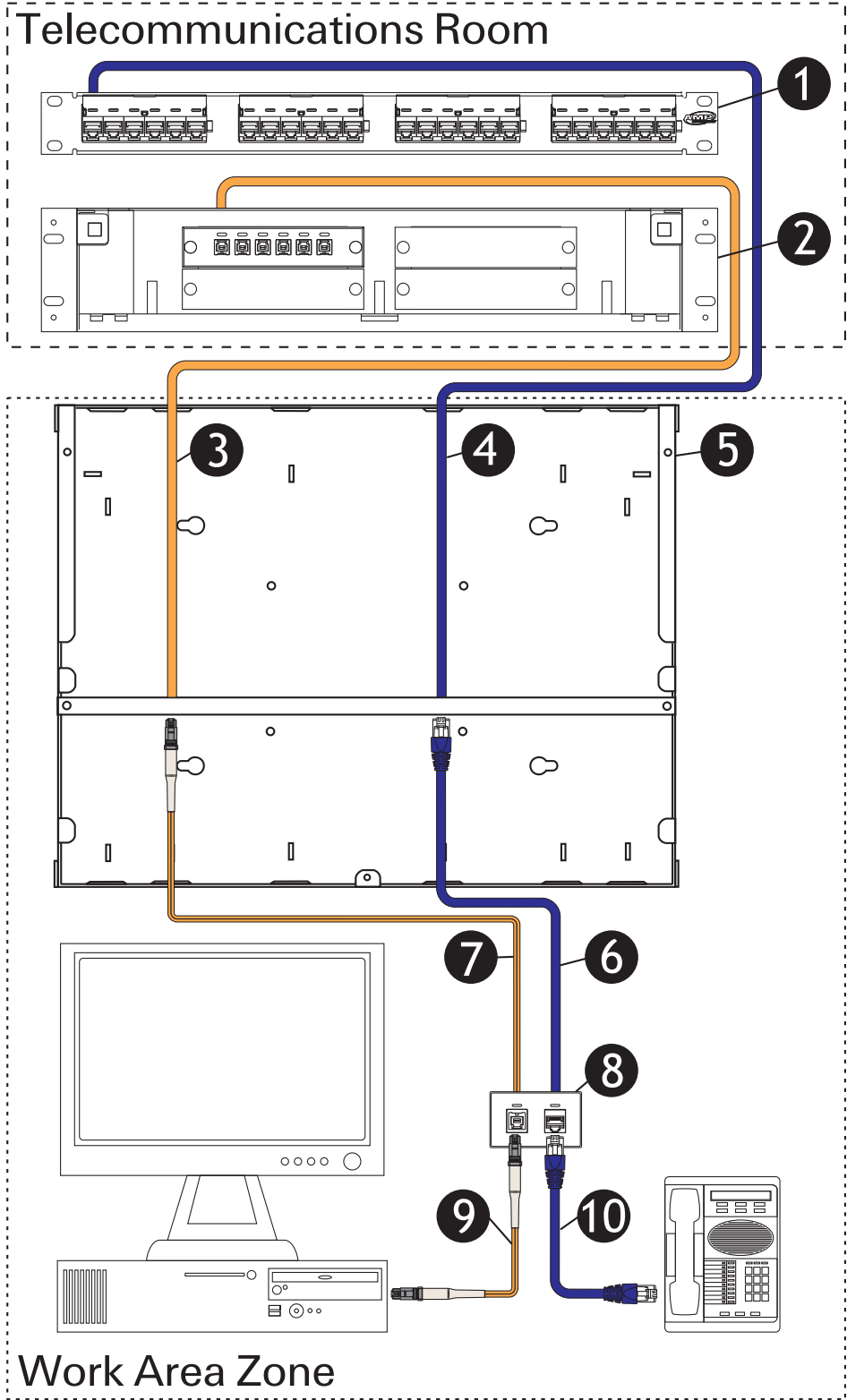
- Allows the widest selection of switch vendors and products for PoE - the midspan even adds power to existing switch ports.
- Provides a migration path to PoE without the cost of upgrading to new switches.
- Improves port utilization for PoE ports, and removes the excess heat generation associated with end-span devices

The AMP NETCONNECT 8-Port PoE Midspan device has a universal 110/220 VAC power supply, ideal as a stand-alone device for powering a small number of wireless access points with no external power supply required at the switch, or as a rack-mounted solution that's stackable to grow as the power needs of your network grow. Up to three midspan devices can be mounted in 1U on standard 19-inch racks for a total of 24 fully powered ports in one rack unit. The fan/power supply is covered under a 2-year warranty. For more information about AMP NETCONNECT 8-Port PoE Midspan device from Tyco Electronics, see Chapter 7 or call your AMP NETCONNECT product sales engineer.

This example system shows a standard LAN switch connected to the AMP NETCONNECT 8-Port PoE Midspan device which adds power to the data signal before connection to the patch panel. Category 6 cabling is installed to the outlet where patch cords connect to standard work area devices or IEEE 802.3af-compliant devices like a wireless access point. Although Category 6 cabling is shown in this example, PoE will run on any 4-pair AMP NETCONNECT category cabling.

Power over Ethernet (PoE) over Twisted Pair Cabling

Item	Part Number	Quantity	Page
1) LAN Electronics			243-252
PoE Module	1591184-X		251
2) Twisted Pair Cable Assemblies			27-32
Category 6 Patch Cable Assemblies	219884-X		28
3) LAN Electronics			243-252
SNMP Managed Ethernet Switch	1591099-X		248
4) Twisted Pair Patch Panels			33-50
Category 6 SL Series 24-Port Patch Panels	1375014-X		35
Category 6 SL Series 48-Port Patch Panels	1375015-X		35
5) Twisted Pair Cables			3-11
Category 6, CMP	219567-X		5
Category 6E, CMP	1499033-X		6
6) Outlets, Faceplates and Accessories – Connectors, Couplers and Adapters			
Flush Faceplate, 2-Port	1479444-X		155
Category 6 SL Series Modular Jack	1375055-X		13
7) PoE ready phone			
8) PoE ready Wireless Access Point (WAP)			



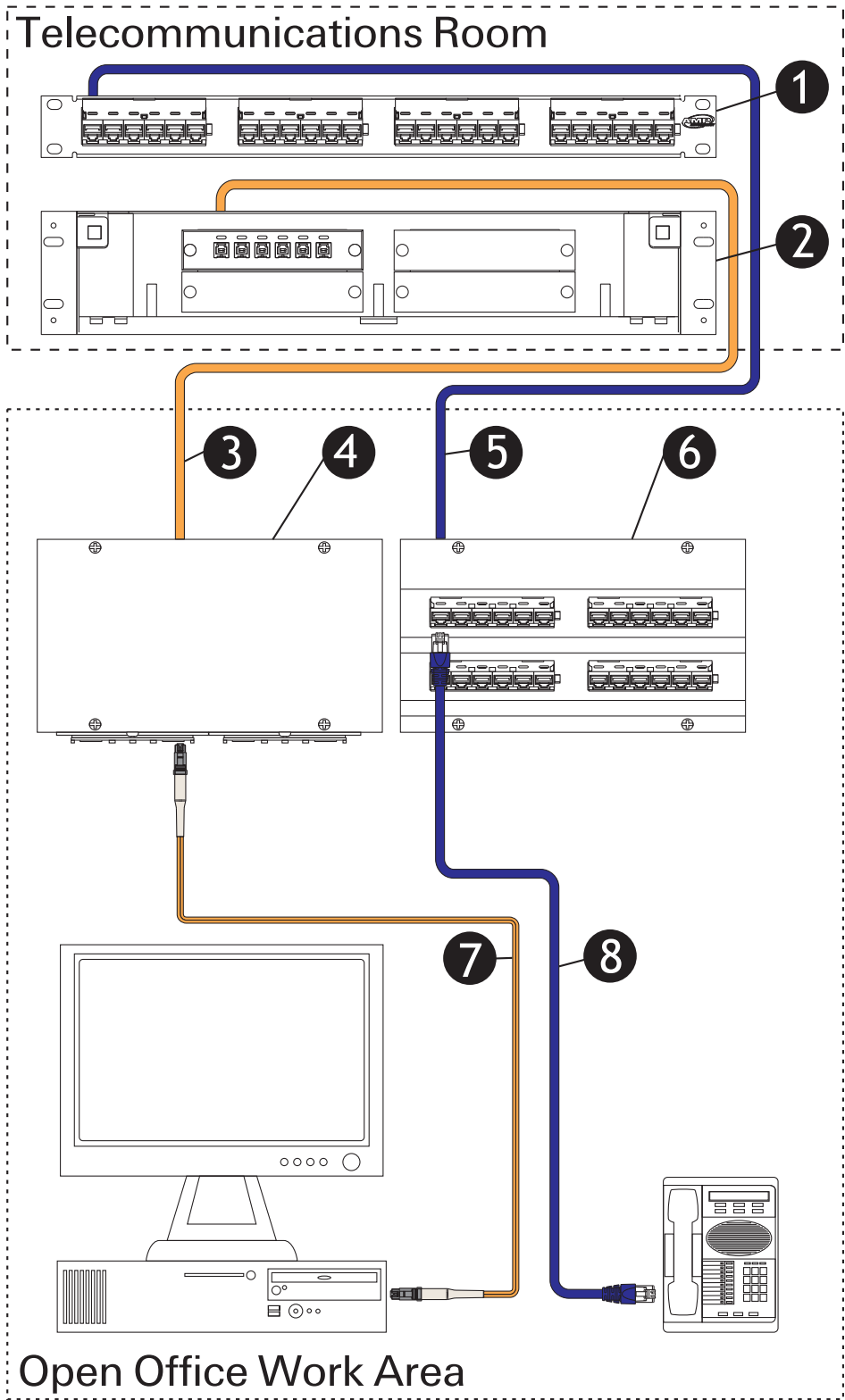
Consolidation Point

TIA/EIA Standard – ANSI/TIA/EIA-568-B.1 - Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements defines two styles of horizontal cabling systems specifically geared towards modular furniture and the multi-user telecommunications outlet assembly. Both of these cabling system practices are designed to lessen the amount of “re-cabling” involved in modular furniture moves.

This example system is an illustration of a typical consolidation point application. The consolidation point functions as an interconnect between two sections of the horizontal cabling: the main cabling from the telecommunications closet and shorter distribution cables which serve outlets in the work area. The consolidation point enclosure is typically mounted in the ceiling or under access flooring. When furniture moves are required, only the shorter cables must be reconfigured. Consolidation point modules are available for both optical fiber and twisted pair cabling.

Consolidation Point

Item	Part Number	Quantity	Page
1) Twisted Pair Patch Panels			33-50
Category 6 SL Series 24-Port Patch Panels	1375014-X		35
Category 6 SL Series 48-Port Patch Panels	1375015-X		35
Category 5e SL Series 24-Port Patch Panels	1479154-X		36
Category 5e SL Series 48-Port Patch Panels	1479155-X		36
2) Optical Fiber Rack Mount Enclosures & Connectors, Couplers, Adapters and Mechanical Splices			
2U Rack Mount Enclosure for Standard Optical Fiber Cables	559542-2		125
2U Rack Mount Enclosure for Armored or Trunk Optical Fiber Cables	1435556-1		125
MT-RJ Jack Snap-in Adapter Plate	559558-X		121
MT-RJ Patch Panel Jack, 50/125µm	1588880-1		117
3) Optical Fiber Cabling			75-88
Horizontal Cable, 2-Fiber (Dual), 50/125 µm Multimode, OFNP	2-1664027-1		86
4) Twisted Pair Cables			3-11
Category 6, CMR	219560-X		5
Category 6E, CMR	1499038-X		6
Category 5e, CMR	219538-X		7
Category 5e, CMR	57826-X		8
5) Twisted Pair Consolidation Points & Accessories			
Modular Consolidation Point, 24-Port	406771-1		197
Category 6, 6-Port Modular Jack Modules, SL Series	1375367-1		197
Category 5e, 6-Port Modular Jack Modules, 110Connect	1375367-1		197
MT-RJ, 12-Fiber Optical Fiber Module	1375093-1		198
6) Twisted Pair Patch Cable Assemblies			27-32
Transition Cable Assembly, Category 6, CMR, T568A Wiring	219172-X		31
Transition Cable Assembly, Category 6, CMR, T568B Wiring	219173-X		31
Transition Cable Assembly, Category 5e, CMR, T568A Wiring	219596-X		31
Transition Cable Assembly, Category 5e, CMR, T568B Wiring	219597-X		31
7) Optical Fiber Cable Assemblies			103-112
MT-RJ Patch Cable Assembly, 50/125 µm	6278128-X		106
8) Outlets, Faceplates and Accessories – Connectors, Couplers and Adapters			
FLEX-MODE Flush Faceplate, 2-Port	558106-X		189
Category 6 SL Series Modular Jack	1375055-X		13
Category 5e SL Series Modular Jack	1375191-X		14
MT-RJ Outlet Jacks, 50/125 µm	1278414-X		176
9) Optical Fiber Cable Assemblies			103-112
MT-RJ Patch Cable Assembly, 50/125 µm	6278128-X		106
10) Twisted Pair Patch Cable Assemblies			27-32
Category 6 Patch Cable Assemblies	219884-X		28
Category 5e Patch Cable Assemblies	406483-X		29



Multi-User Outlet (MUO)

TIA/EIA Standard – ANSI/TIA/EIA-568-B.1 - Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements defines two styles of horizontal cabling systems specifically geared towards modular furniture and the multi-user telecommunications outlet assembly. Both of these cabling system practices are designed to lessen the amount of “re-cabling” involved in modular furniture moves.

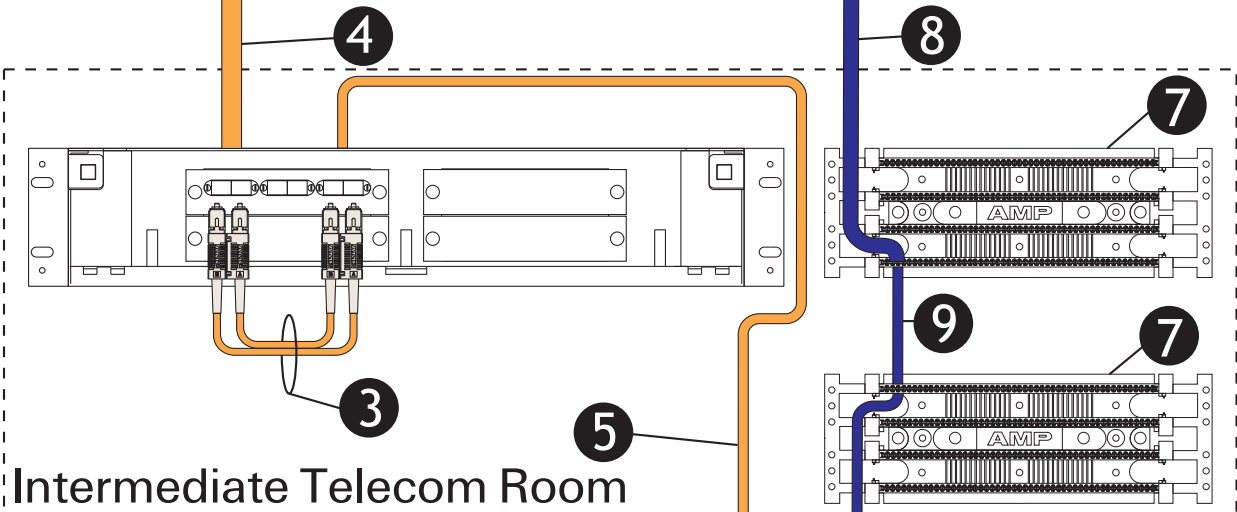
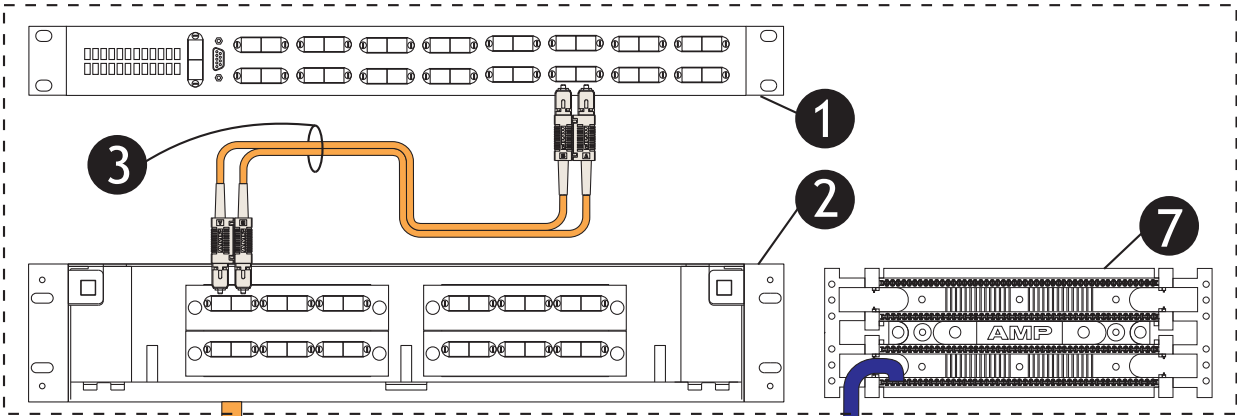
This example system is an illustration of a typical Multi-user Telecommunications Outlet Assembly (MUTOA) application. The MUTOA, or simply MUO (for Multi-user Outlet, the common term used in this catalog) is meant to be accessible to users and replaces individual work area outlets. TIA/EIA-568-B.1 allows for the use of work area patch cords longer than the 3 meters specified elsewhere in the standard to accommodate multiple users. Each MUO should be labeled with the longest allowable patch cord according to the table below.

Multi-User Outlet (MUO)

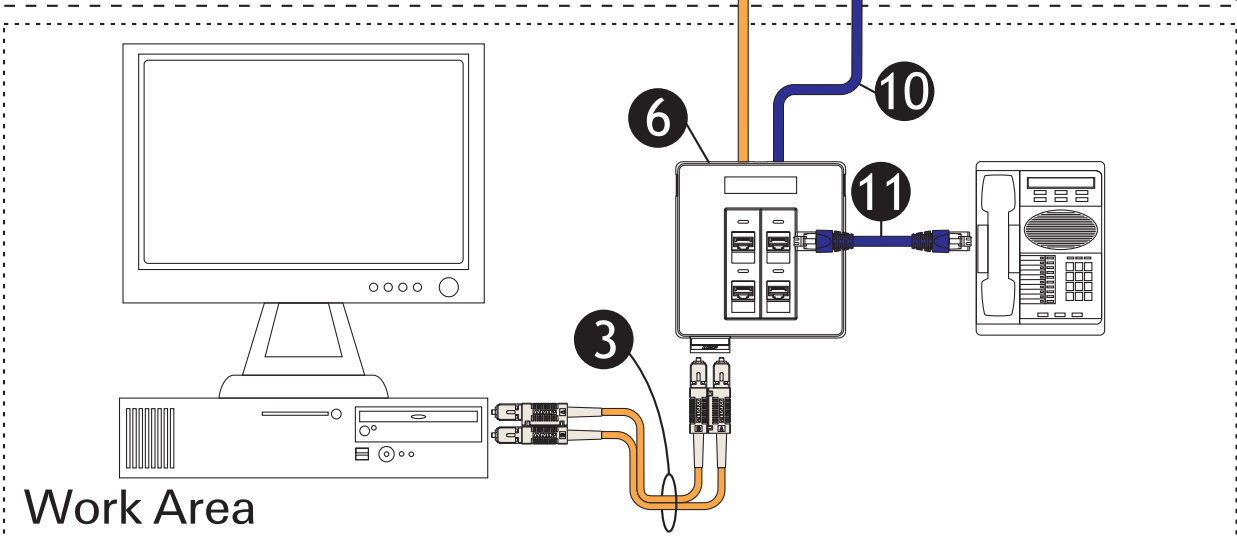
Item	Part Number	Quantity	Page
1) Twisted Pair Patch Panels			33-50
Category 5e SL Series 24-Port Patch Panels	1479154-X		36
Category 5e SL Series 48-Port Patch Panels	1479155-X		36
2) Optical Fiber Rack Mount Enclosures – Connectors, Couplers, Adapters and Mechanical Splices			
2U Rack Mount Enclosure for Standard Optical Fiber Cables	559542-2		125
2U Rack Mount Enclosure for Armored or Trunk Optical Fiber Cables	1435556-1		125
MT-RJ Jack Snap-in Adapter Plate	559558-X		121
MT-RJ Patch Panel Jack, 50/125 µm	6588880-1		93
3) Optical Fiber Cabling			75-88
Horizontal Cable, 2-Fiber (Dual), 50/125 µm Multimode, OFNP	2-1664027-1		86
4) Optical Fiber Outlets, Faceplates and Accessories – Connectors, Couplers, Adapters and Mechanical Splices			
Optical Fiber Multi-User Outlet (MUO)	406817-1		194
Optical Fiber Multi-User Outlet (MUO) Module, MT-RJ Jack	1375347-1		194
MT-RJ Patch Panel Jack, 50/125 µm	6588880-1		93
5) Twisted Pair Cables			3-11
Category 5e, CMR	219538-X		7
Category 5e, CMR	57826-X		8
6) Twisted Pair Outlets, Faceplates and Accessories			149-200
Multi-User Outlet (MUO), Category 5e	406810-1		193
7) Optical Fiber Cable Assemblies			103-112
MT-RJ Patch Cable Assembly, 50/125 µm	6278128-X		106
8) Twisted Pair Cable Assemblies			27-32
Category 5e Patch Cable Assemblies	406483-X		29

Length of Horizontal Cable m (ft)	Maximum Length of Work Area Cable m (ft)	Maximum combined length or work area Cables, Patch Cords and Equipment Cables m (ft)
90 (295)	3 (10)	10 (33)
85 (279)	7 (23)	14 (46)
80 (262)	11 (36)	18 (59)
75 (246)	15 (49)	22 (72)
70 (230)	20 (66)	27 (89)

Main Telecommunications Room



Intermediate Telecom Room



Work Area

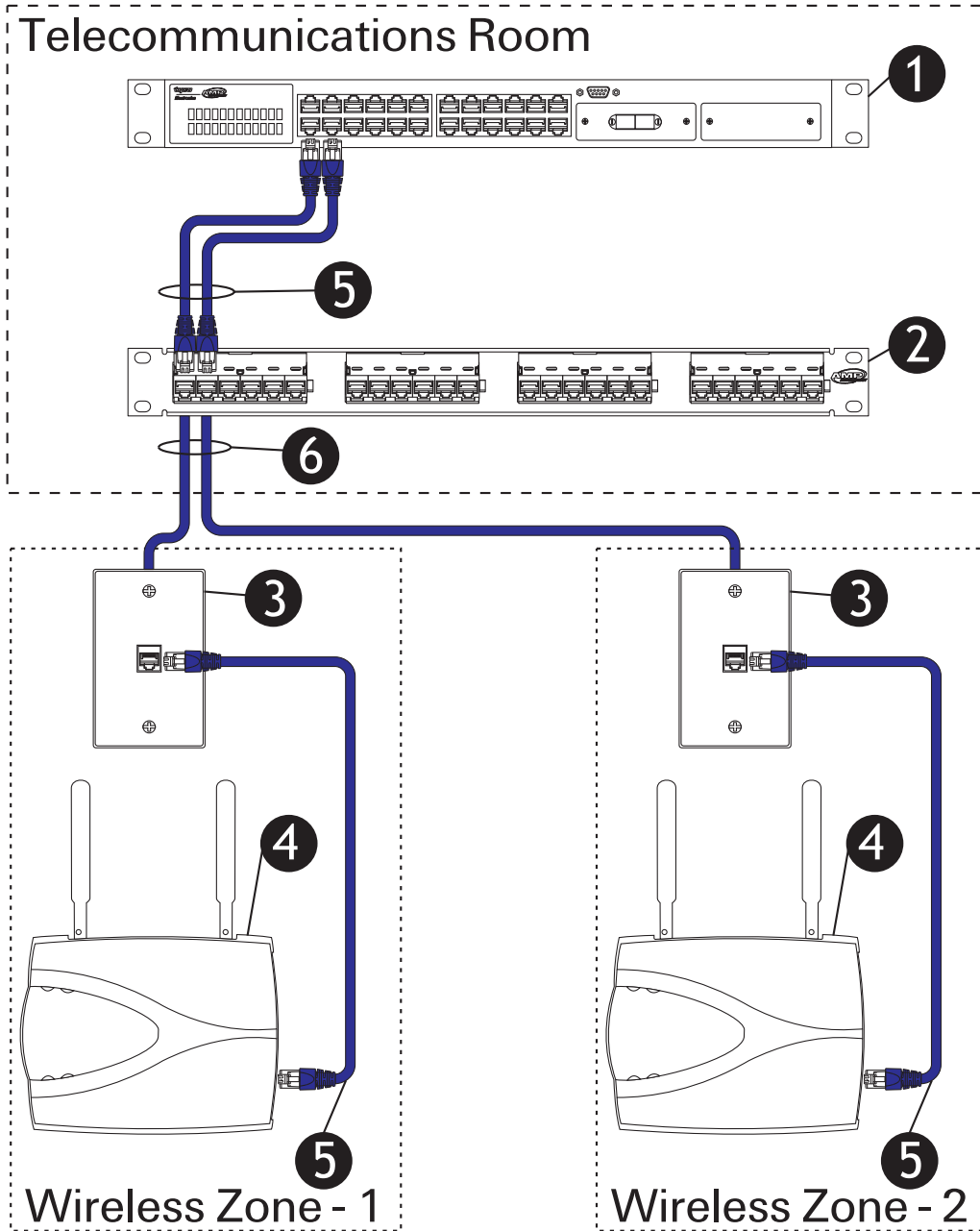
Centralized Network Administration (CNA) Systems

Centralized Network Administration (CNA) is the premier architecture offered by Tyco Electronics to address the increasing operation costs of network administration and the future requirement to easily and cost-effectively migrate from the low-speed LANs of today to the high-speed requirements of tomorrow.

CNA brings all user connectivity to one centralized closet/equipment room within the building versus distributed closets throughout the building. This example shows the components used in a typical CNA system. Please refer to the page numbers listed for further information.

Centralized Network Administration (CNA) Systems

Item	Part Number	Quantity	Page
1) Optical Fiber Switch			
2) Optical Fiber Rack Mount Enclosures – Connectors, Couplers, Adapters and Mechanical Splices			
2U Rack Mount Enclosure for Standard Optical Fiber Cables	559542-2		125
2U Rack Mount Enclosure for Armored or Trunk Optical Fiber Cables	1435556-1		125
Duplex SC Snap-in Adapter Plate, 6-Fiber	559558-X		121
Duplex SC Snap-in Adapter Plate, 12-Fiber	559596-X		121
3) Optical Fiber Cable Assemblies			103-112
Duplex SC Optical Fiber Cable Assembly, 50/125 μm Multimode	1907379-X		108
4) Optical Fiber Cable			75-88
Distribution Cable, 24-Fiber, 50/125 μm Multimode, OFNR	2-1664056-1		78
Distribution Cable, 24-Fiber, 50/125 μm Multimode, OFNP	2-1664056-1		78
5) Optical Fiber Cabling			75-88
Horizontal Cable, 2-Fiber (Dual), 50/125 μm Multimode, OFNR	2-1664026-1		86
Horizontal Cable, 2-Fiber (Dual), 50/125 μm Multimode, OFNP	2-1664027-1		86
6) Faceplates Outlets and Accessories – Connectors, Couplers, Adapters and Mechanical Splices			
HIDEAWAY Multimedia Outlets			159
SL Series 110Connect Modular Jacks, Category 5e	1375191-X		14
7) Twisted Pair Cross-Connects			51-60
110Connect XC Category 5e Cross-Connect, 100-Pair Kit	569439-1		57
8) Twisted Pair Cables			3-11
Category 5e, CMR	219538-X		7
Category 5e, CMP	219513-X		7
Category 5E, CMR	57826-X		8
Category 5E, CMP	57825-X		8
9) Twisted Pair Cables			3-11
Category 5e, CMR	219538-X		7
Category 5e, CMP	219513-X		7
Category 5E, CMR	57826-X		8
Category 5E, CMP	57825-X		8
10) Twisted Pair Cables			3-11
Category 5e, CMR	219538-X		7
Category 5e, CMP	219513-X		7
Category 5E, CMR	57826-X		8
Category 5E, CMP	57825-X		8
11) Twisted Pair Patch Cable Assemblies			27-32
Category 5e Patch Cable Assemblies	406483-X		29



Wireless Systems

Mobility within the work environment has become a necessity with today’s workforce. Whether you’re moving employees, adding additional workspace, or just don’t have time for new cable installation, high-speed wireless networking is the answer. The indoor wireless system provides high-speed network connectivity without cabling. Functioning in the same manner as a wired LAN, the wireless LAN can be utilized by itself or as a complement to an existing wired LAN. Your network remains safe, secure, and reliable.

Wireless Systems

Item	Part Number	Quantity	Page
1) LAN Electronics			243-252
SNMP Managed Ethernet Switch	1591099-X		248
2) Twisted Pair Patch Panels			33-50
Category 6 SL Series 24-Port Patch Panels	1375014-X		35
Category 6 SL Series 48-Port Patch Panels	1375015-X		35
Category 5e SL Series 24-Port Patch Panels	1479154-X		36
Category 5e SL Series 48-Port Patch Panels	1479155-X		36
3) Outlets, Faceplates and Accessories - Connectors, Couplers and Adapters			
Flush Faceplate, 1-Port	1479443-X		155
Category 6 SL Series Modular Jack	1375055-X		13
Category 5e SL Series Modular Jack	1375191-X		14
4) Wireless Access Point			
5) Twisted Pair Patch Cable Assemblies			27-32
Category 6 Patch Cable Assemblies	219884-X		28
Category 5e Patch Cable Assemblies	406483-X		29
6) Twisted Pair Cables			3-11
Category 6, CMR	219560-X		5
Category 6, CMP	219567-X		5
Category 6E, CMR	1499038-X		6
Category 6E, CMP	1499033-X		6
Category 5e, CMR	219538-X		7
Category 5e, CMP	219513-X		7
Category 5E, CMR	57826-X		8
Category 5E, CMP	57825-X		8

Notes

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