



# **Cabling Systems for Data Centers**

## Factory-terminated “Plug&Go” Solutions





## Product Features

- **High port density**
- **Pre-terminated connectors**
- **Easy-mate interconnections**
- **MRJ21 System**
  - Max. 48 RJ-45 Ports/1 U
  - Robust, screw-locked MRJ21 connection
- **MPO System**
  - Up to 72 fibers/1 U
  - LC, SC or MT-RJ interfaces
  - OS2 and OM3 performance
- **Secure System**
  - Physical and optical coding
  - 100% protection against improper connections
  - Plug&Go, No termination

Due to the increasing demands on technology and capacity, the number of network connections in a Data Center is continually increasing. Irrespective of the connection type, extremely high port density supported by a scalable, modular cabling system is a critical requirement of the modern Data Center.

The AMP NETCONNECT Data Center Cabling Systems provide those key features. Connectors that are terminated and tested in the factory, enable you to deploy real “Plug&Go” solutions. Pre-terminated high-pair/high-fiber cable assemblies which connect to modular break-out cassettes give flexible and fast deployment of Copper and Fiber Optic solutions within the Data Center.

The core of the MPO Fiber Optic Cabling System is the MT-Ferrule. This precision component allows 12 fibers to be housed within a single connector that is half the size of an SC connector. Therefore, you can connect 12 fiber links simultaneously – each capable of 10 Gb/s.

The MRJ21 Copper Cabling System is designed with similar functionality, terminates 24 twisted pairs in a compact 48 pin connector. Therefore, one MRJ21 link can support 6 x Gigabit Ethernet ports or 12 x Fast Ethernet ports, depending on the performance requirement.

Once installed, these systems provide easy on-going management and are extremely cost-effective over the life-time of the installation.



**Extremely compact connectors:**  
MRJ21 for 6 or 12 copper links and MPO with 12 fibers



**MPO SECURE Optical Fiber Cassettes**

## MPO System

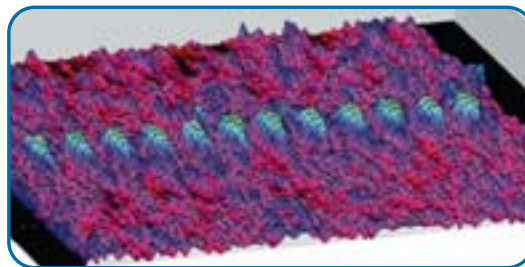
AMP NETCONNECT has more than 15 years experience with MPO termination and assembly production. MPO cabling system is an excellent choice for various fiber optic applications. Modular components are the key to fast deployment, simple installation, capital effectiveness and network flexibility. Pre-terminated trunk cables, breakout cassettes and cable assemblies are the basic modular components needed for a complete network.

### MPO Connector

- Utilizes the high-density MT-Ferrule
- 12 fibers per ferrule on only 16 mm<sup>2</sup>
- Very accurate fiber positioning
- 10 Gb/s capable

### Product Facts:

- Available in OM1, OM2, OM3 or OS2
- For 1 and 10 Gigabit Ethernet up to 300m with MM
- For 10 Gigabit Ethernet and more future applications with SM



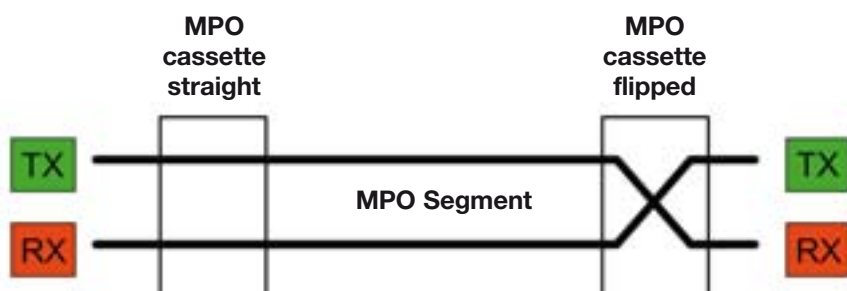
## Pre-terminated and Factory Tested



### Each Link contains

- 1x Trunk cable
- 1x Flipped cassette
- 1x Straight cassette
- 2x Panels
- Desired patch cords

## MPO Installation and Polarity



In each fiber optic system, the link from source (Tx) to receiver (Rx) needs to be flipped once.

In a complete MPO link this flipping is provided by one flipped cassette, while all other components in this link shall be installed as straight version.

## MPO Trunk Cables (straight)



Universal Cable MPO  
24 Fibers  
2 x MPO Connector



All universal trunk cables are delivered with pulling socks for easy installation and high protection of the MPO connector.

**For all cables:** Our cables are capable for transmission of Ethernet speeds 10/100/1000 MBit/s and 10 Gigabit/s.

### Fiber Optic – Loose tube cables for internal and external installation (6,4 mm cable):

For distances from 10m up to 300m AMP NETCONNECT offers ULSZH cables for internal and external applications. Standard trunk cables are not designed for external cabling. All standard trunks have a gel filled tube construction.

Also available are gel filled cables with aramid yarn as well as rodent resistant outdoor trunks.

Our 12 fiber cables have a diameter of 6,4mm only.

Installation Tension: 500N; Crush Resistance: 2000N; Minimum Bend Radius During Installation: 140 mm.

The 24 and 48 fiber cables have a diameter of 11,5mm. Crush resistance: 1000N crush and 170mm bend radius.

| Fiber       | Version  | Part Number/Fiber count |             |             |
|-------------|----------|-------------------------|-------------|-------------|
|             |          | 12                      | 24          | 48          |
| 62,5/125 µm | OM1      | Y-6391975-X             | Y-6391978-X | Y-6391981-X |
| 50/125 µm   | OM2      | Y-6391976-X             | Y-6391979-X | Y-6391982-X |
| 50/125 µm   | OM3 (XG) | Y-6695135-X             | Y-6920014-X | Y-6695471-X |
| 9/125 µm    | OS1      | Y-6391977-X             | Y-6391980-X | Y-6391983-X |

All pairs straight (Complete link needs one component with flipped pairs!). All non-highlighted PNs have unterminated cable stocked ready for assembly (except OM1).

| Y- -X | Length | Y- -X | Length | Y- -X | Length | Y- -X | Length | Y- -X | Length | Y- -X | Length | Y- -X | Length |
|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| 4- -6 | 7 m    | 4- -8 | 25 m   | 0- -5 | 50 m   | 0- -9 | 90 m   | 1- -3 | 130 m  | 1- -7 | 170 m  | 2- -1 | 210 m  |
| 0- -1 | 10 m   | 0- -3 | 30 m   | 0- -6 | 60 m   | 1- -0 | 100 m  | 1- -4 | 140 m  | 1- -8 | 180 m  | 2- -2 | 220 m  |
| 4- -7 | 15 m   | 4- -9 | 35 m   | 0- -7 | 70 m   | 1- -1 | 110 m  | 1- -5 | 150 m  | 1- -9 | 190 m  | 2- -3 | 230 m  |
| 0- -2 | 20 m   | 0- -4 | 40 m   | 0- -8 | 80 m   | 1- -2 | 120 m  | 1- -6 | 160 m  | 2- -0 | 200 m  | 2- -5 | 250 m  |

## MPO Patchcords

### Product Facts:

- Available in different length
- LSZH sheaths
- 2 x 5 mm outer dimensions
- Standard with female connectors
- Male patchcords available on request

| Description         | Part Number |
|---------------------|-------------|
| 62,5/125 µm, OM1    | Y-6391905-X |
| 50/125 µm, OM2      | Y-6391906-X |
| 50/125 µm, OM3 (XG) | Y-6391908-X |
| 9/125 µm, OS1       | Y-6391907-X |

| Y- -X | Length |
|-------|--------|
| 0- -1 | 1,0 m  |
| 0- -5 | 5,0 m  |
| 1- -0 | 10,0 m |
| 1- -5 | 15,0 m |
| 2- -0 | 20,0 m |



### Fiber Optic – Ribbon cables (5 x 2 mm):

The flat ribbon cable is especially indicated to be used for short distances up to 50 m inside buildings. Its small diameter allows for high flexibility and easy installation.

## 19" Patch Panels 1 U

### Patch panels for Snap-In Cassettes

|                                                                                          |             |
|------------------------------------------------------------------------------------------|-------------|
| Patch panel for 3 MPO cassettes, drawer style                                            | 0-1671082-8 |
| Breakout-Panel for 3 MPO cassettes                                                       | 0-1671114-4 |
| Rear bracket for cable management (also fits to the MRJ21 Breakout-Panel, see next page) | 0-1711314-2 |



## Snap-In Blank Modules

| Description   | Packaging | Part Number |
|---------------|-----------|-------------|
| Blank modules | 1         | 0-0559523-1 |
| Blank modules | 100       | 0-0559575-1 |



## MPO Cassettes

| MPO to 12 x MT-RJ        | Fiber count | Flipped     | Straight    |
|--------------------------|-------------|-------------|-------------|
| 62,5 µm, Multimode       | 24          | 0-6391920-1 | 0-6391926-1 |
| 50/125 µm OM2            | 24          | 0-6391922-1 | 0-6391928-1 |
| 50/125 µm OM3 10 Gb/s XG | 24          | 0-6391931-1 | 1-6391931-1 |
| 9/125 µm OS1             | 24          | 0-6391924-1 | 0-6391930-1 |

| MPO to 6 x SC Duplex     | Fiber count | Flipped     | Straight    |
|--------------------------|-------------|-------------|-------------|
| 62,5 µm, Multimode       | 12          | 0-6391932-1 | 0-6391938-1 |
| 50/125 µm OM2            | 12          | 0-6391934-1 | 0-6391940-1 |
| 50/125 µm OM3 10 Gb/s XG | 12          | 1-6695133-1 | 0-6695133-1 |
| 9/125 µm OS1             | 12          | 0-6391936-1 | 0-6391942-1 |

| MPO to 6 x LC Duplex     | Fiber count | Flipped     | Straight    |
|--------------------------|-------------|-------------|-------------|
| 62,5 µm, Multimode       | 12          | 0-1920209-6 | 0-1920209-5 |
| 50/125 µm OM2            | 12          | 0-1920209-4 | 0-1920209-3 |
| 50/125 µm OM3 10 Gb/s XG | 12          | 0-1920209-8 | 0-1920209-7 |
| 9/125 µm OS1             | 12          | 0-1920209-2 | 0-1920209-1 |

| MPO to 12 x LC Duplex    | Fiber count | Flipped     | Straight    |
|--------------------------|-------------|-------------|-------------|
| 62,5 µm, Multimode       | 24          | 0-1920033-6 | 0-1920033-5 |
| 50/125 µm OM2            | 24          | 0-1920033-4 | 0-1920033-3 |
| 50/125 µm OM3 10 Gb/s XG | 24          | 0-1920033-8 | 0-1920033-7 |
| 9/125 µm OS1             | 24          | 0-1920033-2 | 0-1920033-1 |

Cassettes with other interfaces on request e.g. E2000, MU, FC-PC!



Picture shows a cassette with MU interface



## MPO Fan-Out Cables

### Product Facts:

- Available in different lengths
- LSZH sheath (Fanout cord 2 mm jacketed LSZH)
- Configuration with other connector types on request

| Description                               | PartNumber  |
|-------------------------------------------|-------------|
| MPO to 6 x MT-RJ, 62,5/125 µm, OM1        | Y-6391956-X |
| MPO to 6 x MT-RJ, 50/125 µm, OM2          | Y-6391957-X |
| MPO to 6 x MT-RJ, 50/125 µm, OM3 (XG)     | Y-6695461-X |
| MPO to 6 x MT-RJ, 9/125 µm, OS1           | Y-6391958-X |
| MPO to 12 x ST-Style, 62,5/125 µm, OM1    | Y-6391961-X |
| MPO to 12 x ST-Style, 50/125 µm, OM3 (XG) | Y-6695459-X |

| Description                         | PartNumber  |
|-------------------------------------|-------------|
| MPO to 12 x LC, 62,5/125 µm, OM1    | Y-6695462-X |
| MPO to 12 x LC, 50/125 µm, OM2      | Y-6695195-X |
| MPO to 12 x LC, 50/125 µm, OM3 (XG) | Y-6695464-X |
| MPO to 12 x LC, 9/125 µm, OS1       | Y-6695463-X |
| MPO to 12 x SC, 62,5/125 µm, OM1    | Y-6391953-X |
| MPO to 12 x SC, 50/125 µm, OM2      | Y-6391954-X |
| MPO to 12 x SC, 50/125 µm, OM3 (XG) | Y-6695460-X |
| MPO to 12 x SC, 9/125 µm, OS1       | Y-1920112-X |

| Y- -X | Length |
|-------|--------|
| 0- -5 | 5 m    |
| 1- -0 | 10 m   |
| 1- -5 | 15 m   |
| 2- -0 | 20 m   |



## MPO Fanout Solution

The default fiber solution is shown on page 2. MPO cables are terminated on two cassettes. This allows flexibility and single operation of fiber links. In some scenarios especially in storage area networks a high density along with less connections is preferred. For this a male MPO version with couplers is available. This allows direct connections of the Fan out cables to the trunk cable. In total the number of connections is reduced from 4 to 2. This allows 18 MPO connections in 1 panel and in total 216 fibers on 1U.



## MPO Fanout Cords with Pins

### Product Facts:

- Available in different lengths
- LSZH sheath (Fanout cord 2 mm jacketed LSZH)
- Configuration with other connector types on request



| Y- -X | Length |
|-------|--------|
| 0- -5 | 5,0 m  |
| 1- -0 | 10,0 m |
| 1- -5 | 15,0 m |
| 2- -0 | 20,0 m |

| Description                           | Part Number        |
|---------------------------------------|--------------------|
| MPO to 6 x MT-RJ, 62,5/125 µm, OM1    | <b>Y-1920346-X</b> |
| MPO to 6 x MT-RJ, 50/125 µm, OM2      | <b>Y-1920347-X</b> |
| MPO to 6 x MT-RJ, 50/125 µm, OM3 (XG) | <b>Y-1920348-X</b> |
| MPO to 6 x MT-RJ, 9/125 µm, OS1       | <b>Y-1920349-X</b> |

| Description                         | Part Number        |
|-------------------------------------|--------------------|
| MPO to 12 x LC, 62,5/125 µm, OM1    | <b>Y-1920350-X</b> |
| MPO to 12 x LC, 50/125 µm, OM2      | <b>Y-1920351-X</b> |
| MPO to 12 x LC, 50/125 µm, OM3 (XG) | <b>Y-1920352-X</b> |
| MPO to 12 x LC, 9/125 µm, OS1       | <b>Y-1920353-X</b> |
| MPO to 12 x SC, 62,5/125 µm, OM1    | <b>Y-1920354-X</b> |
| MPO to 12 x SC, 50/125 µm, OM2      | <b>Y-1920355-X</b> |
| MPO to 12 x SC, 50/125 µm, OM3 (XG) | <b>Y-1920356-X</b> |
| MPO to 12 x SC, 9/125 µm, OS1       | <b>Y-1920357-X</b> |

## MPO Snap-In-Module

### Product Facts:

- Fits in all AMP NETCONNECT patch panels for Snap-In-Modules

| Description                                        | Packaging | Part Number        |
|----------------------------------------------------|-----------|--------------------|
| MPO Coupler 6 x 12 fibers (Multimode + Singlemode) | 1         | <b>0-1374598-1</b> |



## MPO and Fiber Patch Panels for AMPTRAC

### Product Facts:

- Available for MT-RJ, LC Duplex and SC Duplex systems
- Available in OM1 (62.5/125 µm), OM3 (50/125 µm) and singlemode
- Support field termination or use with MPO cassettes
- MT-RJ patch panel jacks and duplex LC SL Series inserts sold separately.

| -X | Color          |
|----|----------------|
| -1 | Pairs straight |
| -2 | Pairs flipped  |

| Description                                                   | Fiber Type                   | Part Number        |
|---------------------------------------------------------------|------------------------------|--------------------|
| <b>Unloaded 19" Patch Panels for Cassettes/Adaptor Plates</b> |                              |                    |
| 1 U Frontplate for 3 MPO Snap-In Cassettes/Adaptor Plates     | -                            | <b>0-1671114-4</b> |
| 1 U Drawer for 3 MPO Snap-In Cassettes/Adaptor Plates         | -                            | <b>0-1671082-8</b> |
| 1 U Drawer for 4 MPO AMPTRAC Cassettes                        | -                            | <b>0-1435608-1</b> |
| <b>MT-RJ</b>                                                  |                              |                    |
| MPO AMPTRAC Cassette, 6 ports (12 fibers)                     | OM3 50 µm XG                 | <b>0-1435594-X</b> |
| MPO AMPTRAC Cassette, 6 ports (12 fibers)                     | OM1 62.5 µm                  | <b>0-1435672-X</b> |
| MPO AMPTRAC Cassette, 6 ports (12 fibers)                     | Singlemode                   | <b>0-1435673-X</b> |
| 1 U drawer for 24 MT-RJ Jacks (48 fibers)                     | MT-RJ Jacks sold separately* | <b>0-1499645-1</b> |
| <b>LC Duplex</b>                                              |                              |                    |
| MPO AMPTRAC Cassette, 6 ports (12 fibers)                     | OM3 50 µm XG                 | <b>0-1499647-X</b> |
| MPO AMPTRAC Cassette, 6 ports (12 fibers)                     | OM1 62.5 µm                  | <b>0-1499648-X</b> |
| MPO AMPTRAC Cassette, 6 ports (12 fibers)                     | Singlemode                   | <b>0-1499649-X</b> |
| 1 U drawer for 24 LC Duplex Inserts (48 fibers)               | LC Duplex Inserts sold sep.* | <b>0-1499645-1</b> |
| <b>SC Duplex</b>                                              |                              |                    |
| MPO Snap-In Cassette, 6 ports (12 fibers)                     | OM3 50 µm XG                 | <b>0-1435688-X</b> |
| MPO Snap-In Cassette, 6 ports (12 fibers)                     | OM1 62.5 µm                  | <b>0-1435653-X</b> |
| MPO Snap-In Cassette, 6 ports (12 fibers)                     | Singlemode                   | <b>0-1435689-X</b> |
| Snap-In Adaptor Plate, 6 ports (12 fibers)                    | Multimode (beige)            | <b>0-1435657-1</b> |
| Snap-In Adaptor Plate, 6 ports (12 fibers)                    | Singlemode (blue)            | <b>0-1435657-2</b> |
| Snap-In Adaptor Plate, 6 ports (12 fibers)                    | Singlemode APC (green)       | <b>0-1435657-3</b> |

\* Fiber patch panel 0-1499645-1 comes with 4 empty 6-Pack housings (accommodating max. 24 SL ports).  
 - MT-RJ Jacks (0-1278303-X or 0-1588880-X) and SL Housing (0-1374416-X) sold separately.  
 - LC Duplex Inserts incl. SL Housing (0-1435735-X or 0-1435799-X) sold separately.



Frontplate panel (3 Snap-In slots)



Drawer Panel (3 Snap-In slots)



MPO AMPTRAC Cassette (6 x MT-RJ)



Empty Drawer Panel (for 24 SL ports)



MPO Snap-In Cassette (6 x SC Duplex)



Snap-In Adaptor Plate (6 x SC Duplex)

## Cassette Cleaners



| Description    | Packaging | Part Number |
|----------------|-----------|-------------|
| 1 Slot         | 1         | 0-1918803-1 |
| 2 Slot         | 1         | 0-1918805-1 |
| MT-RJ w/pins   | 1         | 0-1918804-1 |
| MTP/MPO w/pins | 1         | 0-1918802-1 |
| Cleaner Refill | 6 rls     | 0-1918806-1 |

## MPO Coupler Cleaner



| Description                | Packaging | Part Number |
|----------------------------|-----------|-------------|
| MTP/MPO Cleaner MTP I.B.C. | 1         | 0-1918809-1 |

## Card Cleaner



| Description         | Packaging  | Part Number |
|---------------------|------------|-------------|
| Card Cleaner        | 1          | 0-1918810-1 |
| Card Cleaner Refill | 100 sheets | 0-1918811-1 |

## Cleaning Sticks for Single Fiber Couplers



| Description           | Packaging | Part Number |
|-----------------------|-----------|-------------|
| 2,5 mm stick cleaner  | 5 x 10    | 0-1918807-1 |
| 1,25 mm stick cleaner | 5 x 10    | 0-1918808-1 |

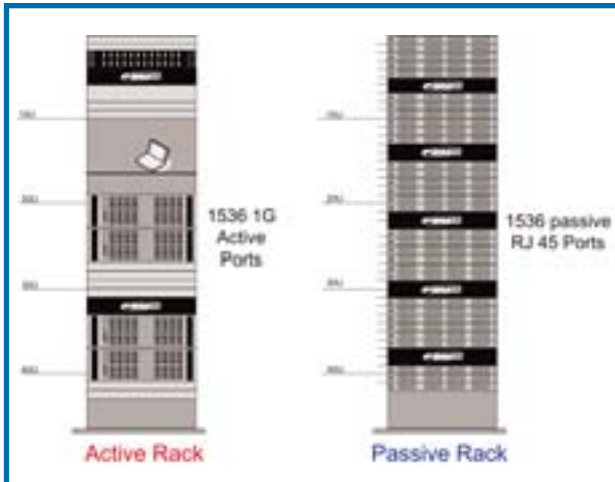
## MRJ21 System

The MRJ21 system is a high-density, high-performance modular system. The Tyco Electronics solution is designed to deliver multiple Gigabit Ethernet ports in a high-density package that fully supports PoE. The 24 pair cabling and connector solution supports any Plug&Play environment including Data Centers. MRJ21 trunk cables, cassettes and assemblies are the basic components of this modular connectivity solution.

### Technical overview:

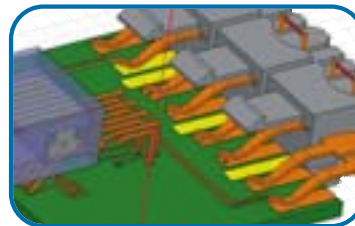
- 10/100 MBit/s
- 1 Gigabit Ethernet
- Factory tested
- 48 Ports, 1 U
- AMPTRAC Ready!
- BER tested

Only a pre-terminated system allows moves, adds and changes in the usual short time scales for maintenance, which are allowed in Data Centers. This solution allows the installation of 30–50 % more ports in comparison to a conventional solution.



### MRJ21 Connector

- Very compact metal connector with 48 pins
- Resistant against mechanical loads
- Factory terminated and tested to ensure reliable transmission parameters
- Gigabit Ethernet capable



High-Frequency Structure Simulator Software allows emulation and testing of electromagnetic connector characteristics

## MRJ21 System Configuration



## MRJ21 Trunk Cables (for connections between...)

### ... Cassettes and Panels:

MRJ21 to MRJ21 (180° back shell)

Part Number: **Y-1499515-X**



### ... Active Components (RJ-21) and Cassettes/Panels:

MRJ21 to RJ-21 (180° back shell)

Part Number: **Y-1499516-X**



### ... "Service-Presentation-Panels" and Cassettes/Panels:

Fan-Out MRJ21 to 6 x RJ-45 (1000Base-T)

Bestell-Nr.: **Y-1499520-X**

Fan-Out MRJ21 to 12 x RJ-45 (10/100Base-T)

Bestell-Nr.: **Y-1499521-X**



| Y- -X | Length |
|-------|--------|
| 0- -1 | 1 m    |
| 0- -2 | 2 m    |
| 0- -3 | 3 m    |

| Y- -X | Length |
|-------|--------|
| 0- -4 | 4 m    |
| 0- -5 | 5 m    |
| 0- -7 | 7 m    |

| Y- -X | Length |
|-------|--------|
| 1- -0 | 10 m   |
| 1- -3 | 13 m   |
| 1- -5 | 15 m   |

| Y- -X | Length |
|-------|--------|
| 1- -7 | 17 m   |
| 2- -0 | 20 m   |
| 2- -5 | 25 m   |

| Y- -X | Length |
|-------|--------|
| 3- -0 | 30 m   |
| 3- -5 | 35 m   |
| 4- -0 | 40 m   |

| Y- -X | Length |
|-------|--------|
| 4- -5 | 45 m   |
| 5- -0 | 50 m   |
| 6- -0 | 60 m   |

| Y- -X | Length |
|-------|--------|
| 7- -0 | 70 m   |
| 8- -0 | 80 m   |
| 9- -0 | 90 m   |

**Note:** Cable assemblies as well available as MRJ21 45° back shell

## MRJ21 Patch Panels & Cassettes

### Snap-In Cassettes

|                                                       |                    |
|-------------------------------------------------------|--------------------|
| 6 x RJ-45 (1000Base-T)                                | <b>0-1479459-1</b> |
| 12 x RJ-45 (10/100Base-T)                             | <b>0-1479452-1</b> |
| Breakout-Panel, unpopulated (for 3 Snap-In-Cassettes) | <b>0-1479451-1</b> |
| Rear bracket for cable management*                    | <b>1711314-2</b>   |

\* We strictly recommend using those brackets for each MRJ21 Panel as the cables have a certain weight. This reduces undesired force at the connectors.

### 19" Patch Panels 1 U, Straight

|                                                    |                    |
|----------------------------------------------------|--------------------|
| 24 Port (1000Base-T) with 4 x MRJ21 Standard       | <b>0-1777029-1</b> |
| 24 Port (1000Base-T) with 4 x MRJ21 Full AMPTRAC** | <b>0-1777029-2</b> |
| 48 Port (1000Base-T) with 8 x MRJ21 Standard       | <b>0-1435971-1</b> |
| 48 Port (1000Base-T) with 8 x MRJ21 Full AMPTRAC** | <b>0-1777041-1</b> |
| 48 Port (100Base-T) with 4 x MRJ21 Standard        | <b>0-1435965-1</b> |
| 48 Port (100Base-T) with 4 x MRJ21 Full AMPTRAC**  | <b>0-1777042-1</b> |

### 19" Patch Panels 1 U, Angled (minimizes transversal forces at RJ-45 jacks)

|                                                    |                    |
|----------------------------------------------------|--------------------|
| 48 Port (1000Base-T) with 8 x MRJ21 Standard       | <b>0-1777052-1</b> |
| 48 Port (1000Base-T) with 8 x MRJ21 Full AMPTRAC** | <b>0-1777053-1</b> |

\*\* AMPTRAC is the Intelligent Infrastructure Management System from AMP NETCONNECT.



## Cable Management

The market introduction of high density electronics with extreme power and cooling requirements have presented end users in both the commercial office environment and data center environment with the problem of having to increase the space efficiency of their structured cabling designs to accommodate reduced footprint. Whilst it is not so complex to increase the physical port count per square metre it is an increasing problem to effectively manage this density.

The Hi-D Connect Cable Management System has been designed to overcome these issues through innovative design that allows the user to increase the port density and cable management capability of a standard 800 x 800 cabinet to 720 ports per cabinet face.

The increase in density is achieved by patented bend control designs that ensure installed patch cords automatically achieve minimum bend radius requirements. The design of the bend control also features accessible cable retention that ensures the maximum user flexibility. The modular design ensures design and installation simplicity and integration into a wide range of cabinet environments.

### Products Facts

- Increases cabinet density by 35%
- Integrated bend control for installed patch cords.
- Patent pending design
- Functional design specifically for in cabinet applications
- Complete cable management system to be applied to industry standard 800 X 800 cabinets.
- Independent of cabinet manufacturer and type



Conventional cable management



Hi-D Connect System

## How to use Hi-D Connect

### Passive racks only



1536 Ports in each rack

### Hi-D Connect Pass Through Duct:

- Allows left to right, front to back and intra-cabinet patching
- Hingeable access cover

### Hi-D Connect 1 and 6U Vertical manager:

- Patent bending controls
- Full scalability
- For copper and Fiber

### Installation guidelines:

- Install after each 6U of equipment a Pass Through Duct
- Minimum dimension of a closed cabinet shall be 800x800
- For cable diameter more than 6mm a rack with a width of 1000mm is recommended
- In Data Centers open rack systems is an innovative solution for passive equipment

## Hi-D Connect 6 U Vertical Managers

### Product Facts:

- 6 U vertical manager
- Patent pending bend controls
- Allows ease of installation and full scalability

| Description                            | Part Number |
|----------------------------------------|-------------|
| Hi-D 6 U Vertical Manager (1 set of 2) | 1-1671078-1 |

## Hi-D Connect 2 U Pass Through Duct

### Product Facts:

- 2 U pass through duct
- Allows left to right side patching as well as front to back patching and intra-cabinet patching
- Hinged access cover ensures accessibility of installed patch cords

| Description                | Part Number |
|----------------------------|-------------|
| Hi-D 2 U pass through duct | 1-1671080-1 |

## Hi-D Connect 1 U Corner Bracket

### Product Facts:

- 1 U corner bracket to be mounted with any 1 U panel

| Description                           | Part Number |
|---------------------------------------|-------------|
| Hi-D 1U Corner Bracket (left + right) | 0-1671104-1 |

## Hi-D Connect 1 U Blind Panels

### Product Facts:

- 1 U blind panels for the Hi-D management solution
- Straight version to fill space between angles panels and straight panels or active equipment

| Description                   | Part Number |
|-------------------------------|-------------|
| Hi-D 1 U blind panel straight | 0-1671113-2 |

## Open Frame Rack

While discussing the issues of cable management systems with Data Center owners and operators, one of the key challenges that consistently surfaces is how capacity can be grown without increasing costly real estate space. To increase the port density while maintaining, or decreasing, the required floor space has taken a different design approach to traditional cable management systems. The biggest challenge is cooling of the active equipment, which is the limiting factor for further growth.

Tyco Electronics has developed the Hi-D (High Density) cable management solution that can considerably increase patch densities. With the expanding demand on data rates over Data Center cabling systems, and the increasing importance of correct cable management to maintain these performances, additional attention has been paid to respecting cable bend radii throughout the whole management system.

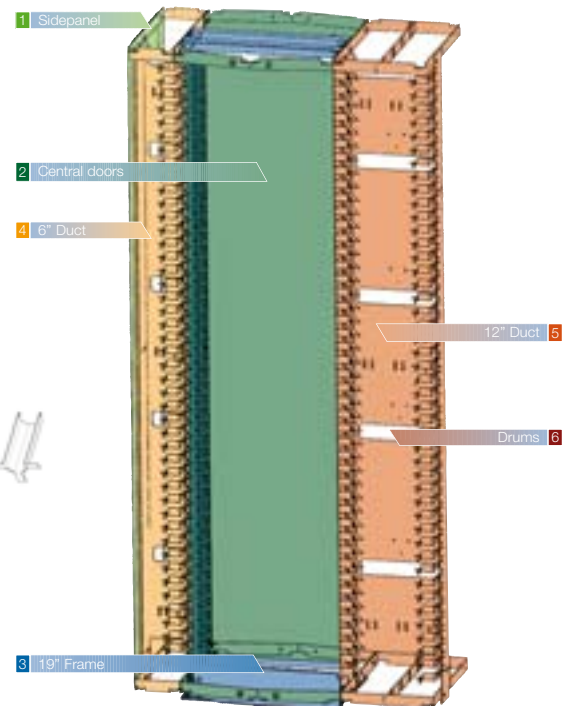
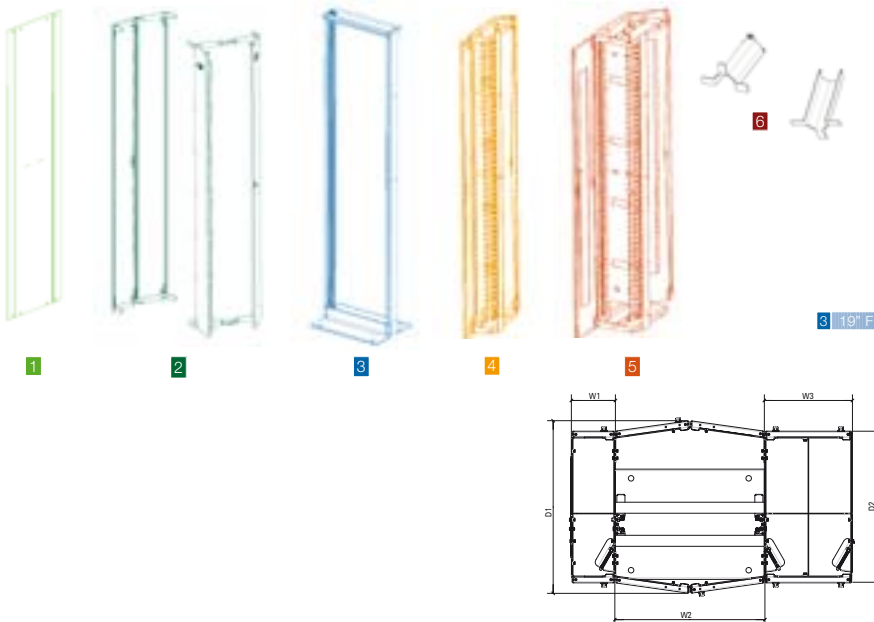
To overcome cooling issues a very economical way is to separate active and passive equipment. This allows just cooling that equipment, which generate heat dissipation. Passive devices don't necessary need cooling, so expensive racks with those mechanism will be avoided.

The trend is an open frame system which accommodate passive equipment. Combined with the Hi-D management solution an extremely economical and efficient way to provide "hot and cold" rows.



## Hi-D Open Frames

| Description             | Part Number          |
|-------------------------|----------------------|
| Hi-D Sidepanel          | <b>1</b> 0-1671112-1 |
| Hi-D Central doors      | <b>2</b> 0-1671110-1 |
| Hi-D 19" Frame (Metric) | <b>3</b> 0-1671106-1 |
| Hi-D 19" Frame (UNC)    | <b>3</b> 0-1671106-2 |
| Hi-D 6" Duct left       | <b>4</b> 0-1671107-1 |
| Hi-D 6" Duct right      | <b>4</b> 0-1671108-1 |
| Hi-D 12" Duct           | <b>5</b> 0-1671109-1 |
| Hi-D Drums              | <b>6</b> 1-1671111-1 |



| Depth            |                  | Width         |                  |                | Height        | N** |
|------------------|------------------|---------------|------------------|----------------|---------------|-----|
| D1<br>(nom.)     | D2<br>(nom.)     | W1<br>(nom.)  | W2<br>(nom.)     | W3<br>(nom.)   | H*<br>(nom.)  |     |
| 596.6 (23.5 in.) | 521.8 (20.5 in.) | 152.2 (6 in.) | 518.6 (20.4 in.) | 304.4 (12 in.) | 2134 (84 in.) | 45  |

\* The height is not shown on the footprint

\*\* Mounting spaces (1U)

<http://www.ampnetconnect.com/EMEA>

## SECURE Products

- The solution to managing multiple networks with reduced risks
  - Reduced risks of improper cross-connection, of inadvertent physical access, and of malicious access
- Keyed connectors, adapters and cable assemblies prevent improper connection of separate networks with common access points
  - Color codes make proper connection easier
  - Standard connector versions will not mate with SECURE systems



## MPO SECURE

- All the benefits of the MPO high-density optical fiber connector
  - 12 fibers in the same space as SC duplex
- Ten variants (colors) available
- Trunk cables with MPO SECURE plugs on each end
- Cassettes the fan out MPO SECURE to MT-RJ SECURE or LC SECURE connectors
- A complete line of MPO SECURE cable assemblies, including hybrid and fan-out assemblies



## LC SECURE

- All the benefits of the LC small form factor (SFF) connector
  - Half the size of SC duplex
- Ten variants (colors) available plus an additional universal plug for easy testing
- No-epoxy/no-polish LC SECURE LightCrimp Plus connectors for fast termination
- Epoxy/Polish LC SECURE connectors also available and are quick-cure compatible
  - LC SECURE connectors have the same fit and form as non-SECURE LC connectors – mix and match in the same patch panels and faceplates
- A complete line of LC SECURE cable assemblies, including hybrids



## MT-RJ SECURE

- All the benefits of the MT-RJ small form factor (SFF) connector
  - Half the size of SC duplex
- Ten variants (colors) available plus an additional universal plug for easy testing
- No-epoxy/no-polish MT-RJ SECURE jacks for fast termination
  - MT-RJ SECURE jacks have the same fit and form as non-SECURE MT-RJ jacks – mix and match in the same patch panels and faceplates
- A complete line of MT-RJ SECURE cable assemblies, including hybrids



### Intelligent Infrastructure Management System

The AMPTRAC Infrastructure Management System turns cabling systems and their connected devices into intelligent networks by reducing costly and time-consuming manual cable management. With this system, you can track and document all moves, additions and changes to your network from a centralised location as they occur. This fully automated system optimises asset utilisation, maintains accurate documentation and helps prevent costly errors.

#### Products Facts

- Reduces downtime and response time
- Integrates network and physical layer management
- Helps to increase productivity
- Reduces operating costs
- Improves port and asset utilization
- Provides accurate and timely information
- Improves service levels
- Supports Cat 5e, Cat 6 and fiber optic networks
- Analyzers sized for enterprise and branch locations



### Analyzers

The AMPTRAC Infrastructure Management System Analyzer discovers connects/disconnects and communicates the port ID information in real-time to the AMPTRAC database software over a TCP-IP connection. When a patch cord is inserted or removed from a port, the AMPTRAC sensory circuit immediately notifies the database software to update and document the change in connectivity. This provides network administrators responsible for small to enterprise wide multi site networks, with vital time saving up-to-the minute information about the status of their network from the hardware layer up. Any change in connectivity can be checked and authorization verified, and if appropriate, action taken if the action is unauthorised.

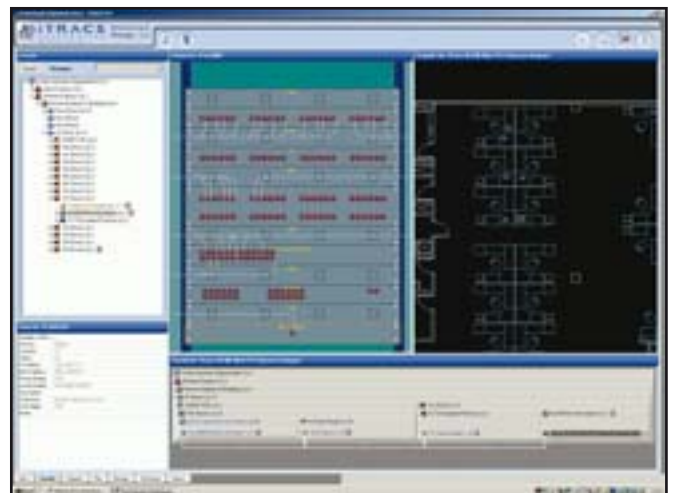


### iTRACS Software

The AMPTRAC Infrastructure Management System's easy to implement hardware coupled with iTRACS cutting-edge software can be integrated into new or existing network.

By allowing you to proactively respond to any changes in connectivity through customisable alerts or alarms, the iTRACS software optimises your network monitoring and security.

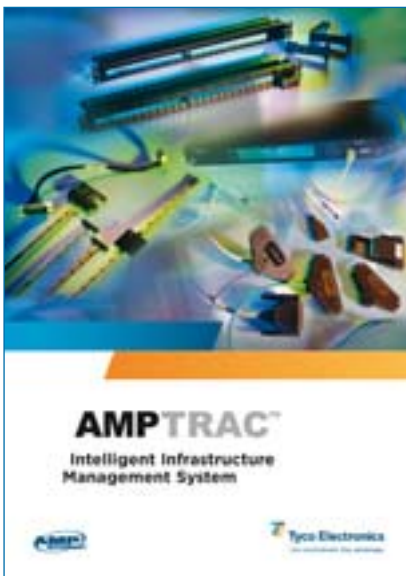
AMPTRAC hardware when used in conjunction with iTRACS software provides the missing link that integrates network management and physical layer management – revolutionising the way networks are controlled and documented. This one-of-a-kind infrastructure management system automatically generates a complete physical topology of your network at the Telecommunications Room/Data Center, while helping you manage and trouble shoot the network remotely.



## Field Installable Copper and Fiber Solutions

AMP NETCONNECT also provide traditional field installable fiber and copper solutions to the last performance standards.

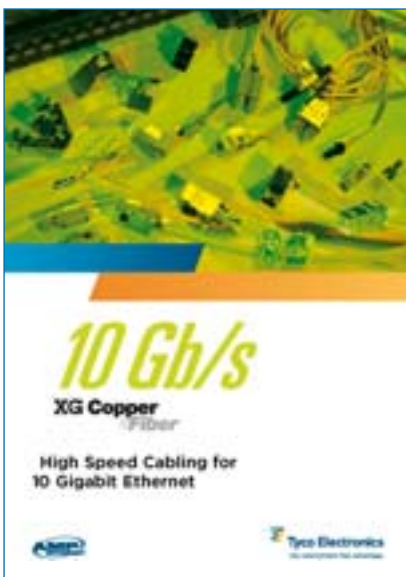
Using patented termination techniques our field installable connectors can be terminated within 1 to 2 minutes.



Literature No. 1308772-2



Literature No. 1308710-1



Literature No. 1308782-2



Literature No. 1308799-2

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