



Cable Assembly Solutions

The background of the entire page is a vibrant sunset or sunrise sky with soft, golden clouds. Three cable connectors are scattered across the scene: a white RJ45 connector on a tan cable in the upper left, a black multi-pin connector on a blue cable in the middle right, and a black multi-pin connector on a blue cable in the lower left. A central text box with a double-line border contains the slogan.

Quality at
the Point
of Contact

A Name To Trust

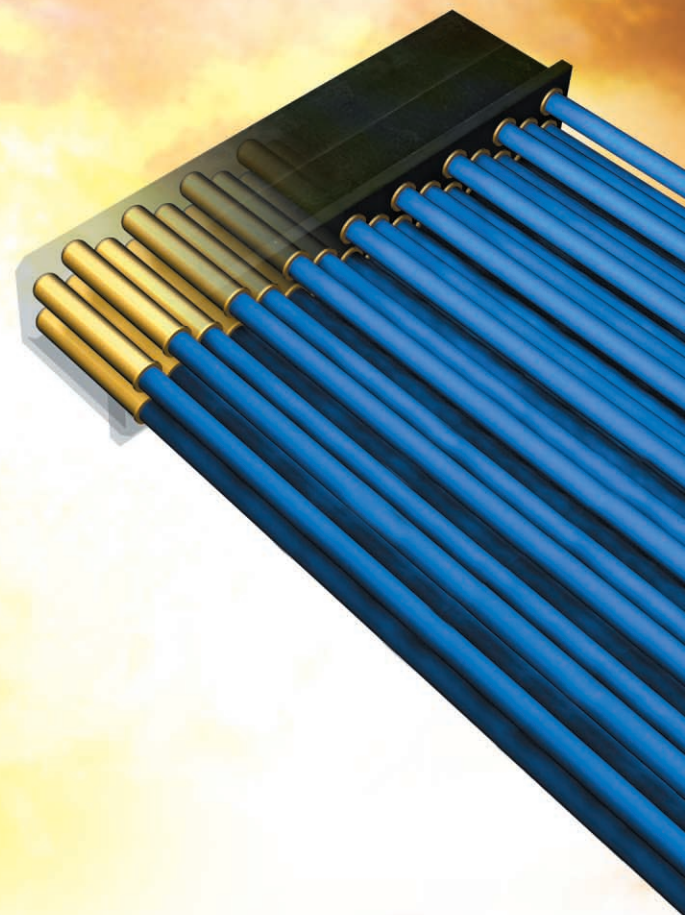
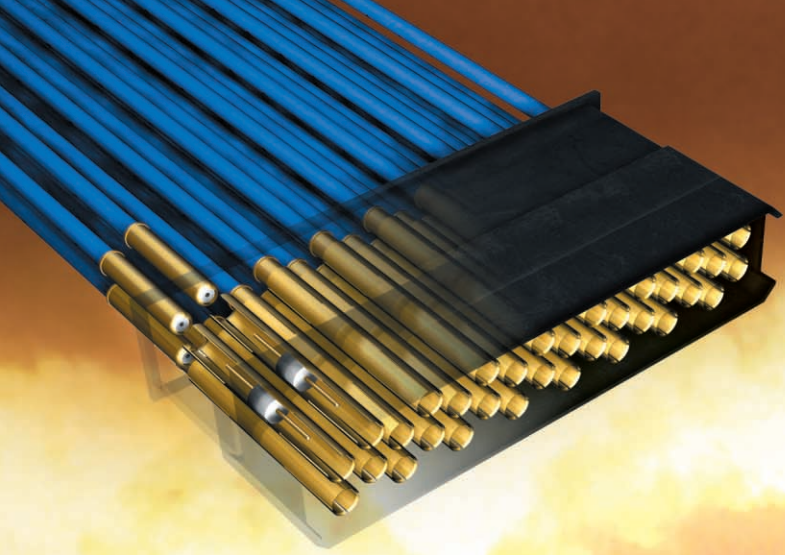
As a project begins to take shape, and the need for faster signal transmission and reliable EMI/RFI protection becomes increasingly important, more companies are now turning to 3M as a strategic source for consistent quality in electronic interconnect solutions.

A History of Innovation

3M has always been an innovator in the electronics industry, from pioneering mass termination technology in the early '60s to today's leading-edge interconnects that meet advanced system demands for speed and density. It all adds up to more than 30 years of unequalled experience in design, precision molding, stamping, plating, assembling and testing.

The result is a wide range of cable assemblies, from copper to fiber, that provide reliable and effective interconnect solutions worldwide to customers in markets such as data communications, automated test equipment, telecommunications, medical systems, industrial controls and many others.

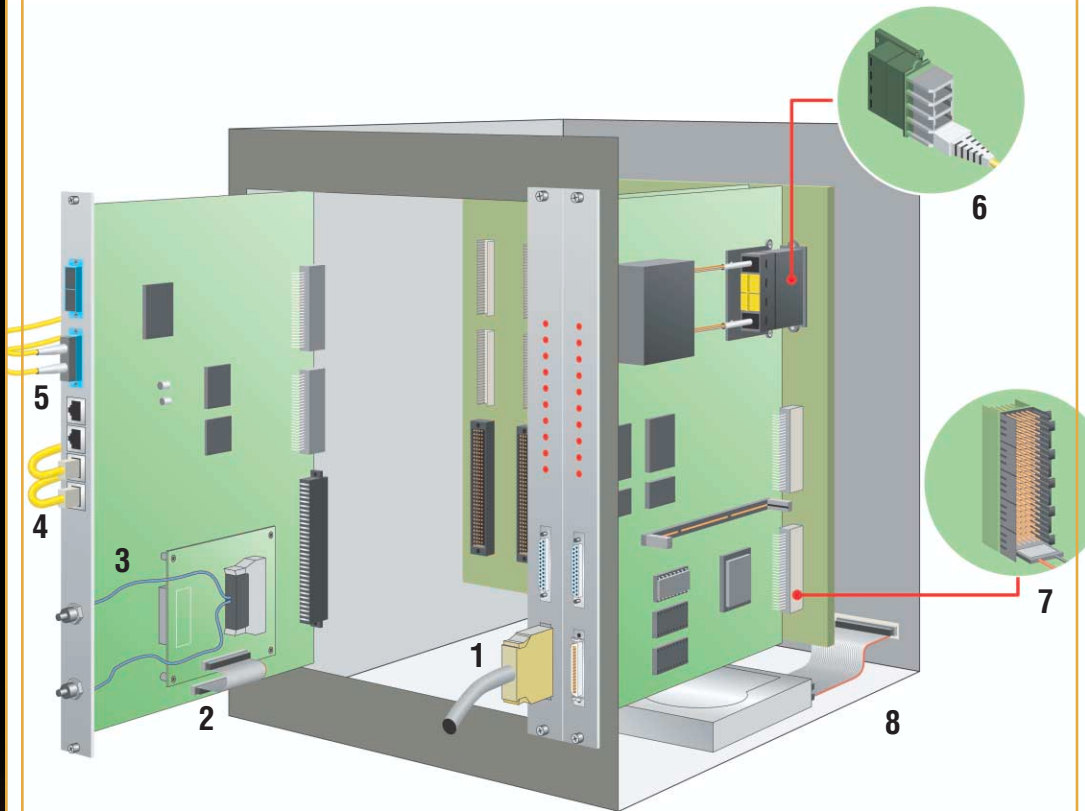




A Commitment to Quality

3M engineers excel at interpreting your requirements and selecting among our extensive capabilities to create an interconnect solution to exactly meet your needs. 3M uses Six Sigma methodologies and ISO quality process standards to allow our products to meet specifications for long-term reliability. This commitment to innovation, quality and service continues to set us apart as an industry leader in interconnect technology.

3M™ Cable Assembly Applications



1. MDR (Mini Delta Ribbon) shielded round-jacketed twisted pair or twinax I/O assembly
2. Molded-on 2mm Socket to PCB ribbon cable
3. SCI (Shielded Controlled Impedance) carrier socket (plugged into latch/eject header) to BNC coaxial assembly
4. MTP® 12-fiber cable assembly
5. LC fiber optic assemblies with repositionable boots and GGP (Glass/Glass/Polymer) tight bend radius fiber
6. OGI Fiber Optic Panel mount and backplane blind-mate system
7. 5x1 Twinax assembly plugged into 2mm CompactPCI® header
8. Molded-on .100" socket to Pressed-on D-sub ribbon cable assembly

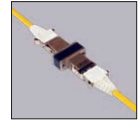


t_r
 ps
 35*
 50*
 100
 250
 500
 1000

f_{3db}
 GHz
 10*
 7*
 3.5
 1.4
 0.7
 0.35

• **Future performance targets**

Multi-Fiber & Discrete Optical Interconnects
 OGI, MTP, ST, SC, FC, LC



High Speed Micro Coaxial Connectors and Spring Probe Cable Assemblies



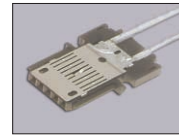
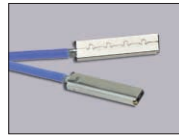
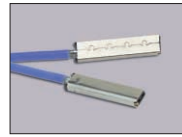
SCI (Shielded Controlled Impedance) Assemblies

.100" Pitch 1x2

2mm Pitch 1x2

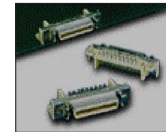
CompactPCI® 2mm Pitch 5x1

CompactPCI 2mm Pitched Stacked 5x1



MDR .050" High-Density Shielded System

MDR High-Speed Twinaxial Cable Assemblies

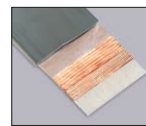


Mating Boardmount Connectors

Ribbon Cables and IDC Connector Systems



MDR Pleated Foil I/O Assemblies



Copper Solutions from 3M offer quality and reliability.

3M offers Copper Cable Assembly solutions for a wide range of applications to drive high frequency signals, fit in tight spaces, and solve shielding and signal integrity challenges. We provide assemblies in performance ranges from 1 MHz and 2ns rise times up to 6 GHz and 100 picosecond rise times with matched single ended or balanced impedance. All cable assemblies are custom built to your specifications and requirements and are 100% tested to assure quality and performance.

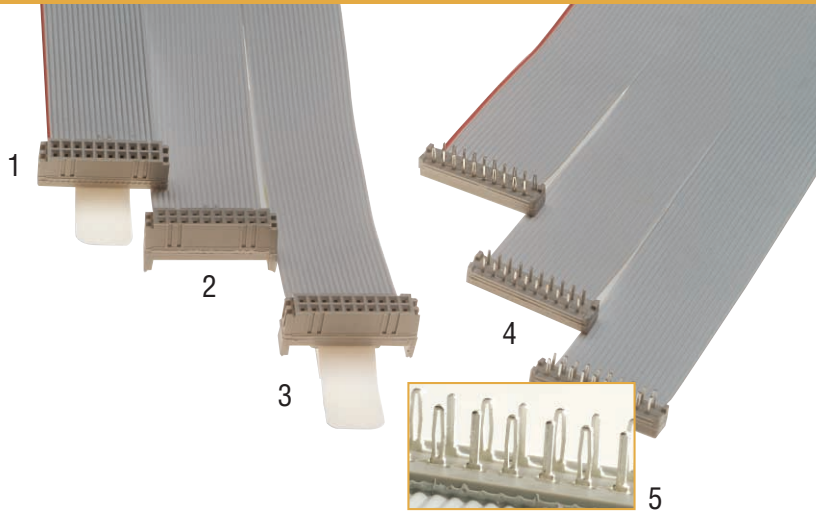
Fiber Optic Solutions from 3M provide speed and innovation.

3M offers a broad range of solutions for traditional discrete fiber systems, as well as for future oriented offerings in parallel optical interconnects. Our assemblies include standard to premium performance options within a dense format in order to meet your specific requirements. All assemblies are 100% tested to assure quality and performance.

3M™ MOLDED-ON COPPER CABLE ASSEMBLIES

3M™ .100" x .100" MOLDED-ON ASSEMBLIES

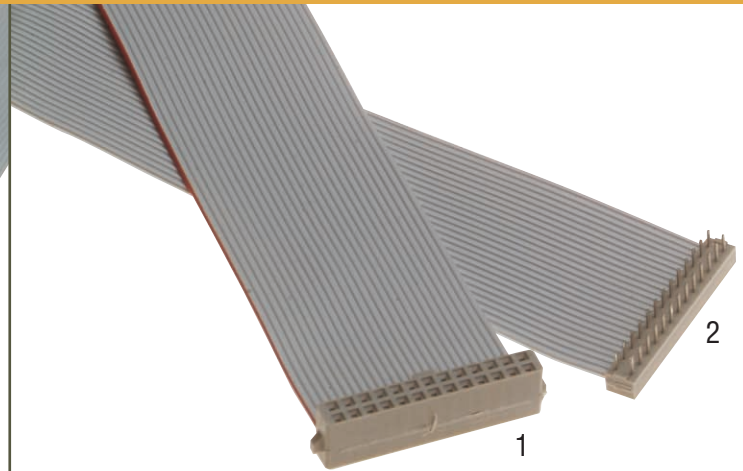
- Industry standard IDC Socket, DIP and 2 Row PCB transition connectors
- One piece IDC Molded-on construction with integral strain relief
- High and Low profile Sockets available
- Header pin bypass slots on socket ends allow mating to continuous row headers
- Industry standard polarization
- Board retention feature on 2 Row PCB connector (see insert photo)
- Modular tooling allows for customized designs



1. Low profile socket with pull tab (optional)
2. High profile socket
3. High profile socket with pull tab (optional)
4. 2 Row PCB transition with board retention solder tails (optional)
5. Close up view of board retention solder tails

3M™ 2MM MOLDED-ON ASSEMBLIES

- Industry standard Socket and 2 Row PCB connectors
- One piece IDC Molded-On construction with integral strain relief
- Low profile allows close stacking between components and boards
- Center bump polarization available on Socket



1. 2mm Socket – available with latch ears (optional) to mate with popular 2mm shrouded headers
2. 2mm 2 Row PCB transition connector

3M™ MINI DELTA RIBBON (MDR) COPPER CABLE ASSEMBLIES

3M™ PLEATED FOIL SHIELDED I/O CABLE ASSEMBLIES

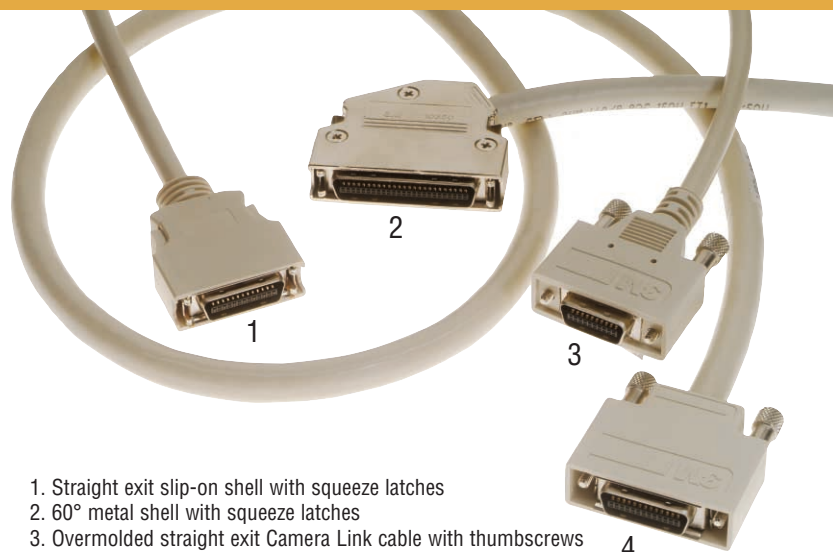
- Offers superior combination of high-density, electrical performance, shielding and durability
- Allows digital data rates of up to 200 megabits per second per conductor
- 360° Copper foil shield over cable enables coax-like performance
- Cable jacket and backshells provide rugged protection for I/O applications



1. Metal shell with squeeze latches
2. Overmolded shell with thumbscrews

3M™ MDR WITH ROUND CABLE

- Compatible for variety of LVDS, Camera Link™, Flat Link™, Channel Link™ and PanelLink™/TMDS OpenLDI and QuadLDI applications
- Ribbon style .050" pitch contact provides reliable mating and is industry preferred
- Shielded twisted pair or twinax cable options
- Variety of pin counts from 14 to 100
- All backshells provide shielding to the mating face of the connector

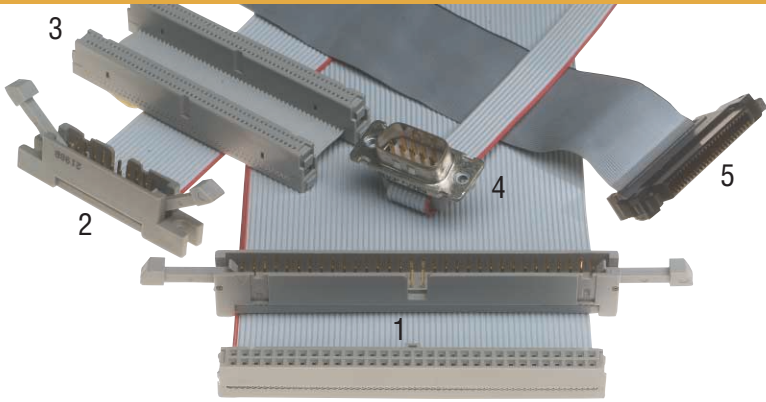


1. Straight exit slip-on shell with squeeze latches
2. 60° metal shell with squeeze latches
3. Overmolded straight exit Camera Link cable with thumbscrews
4. Straight exit slip-on shell with thumbscrews

3M™ PRESSED-ON COPPER CABLE ASSEMBLIES

3M™ PRESSED-ON ASSEMBLIES

- Industry standard IDC Socket, D-sub, Plug, PCB transition and Card Edge connectors
- Available contact spacing: .100" X .100", 2mm, .050" X .100", .050" X .050"
- Variable contact plating
- Beryllium copper and copper alloy contacts
- Jumper and I/O applications

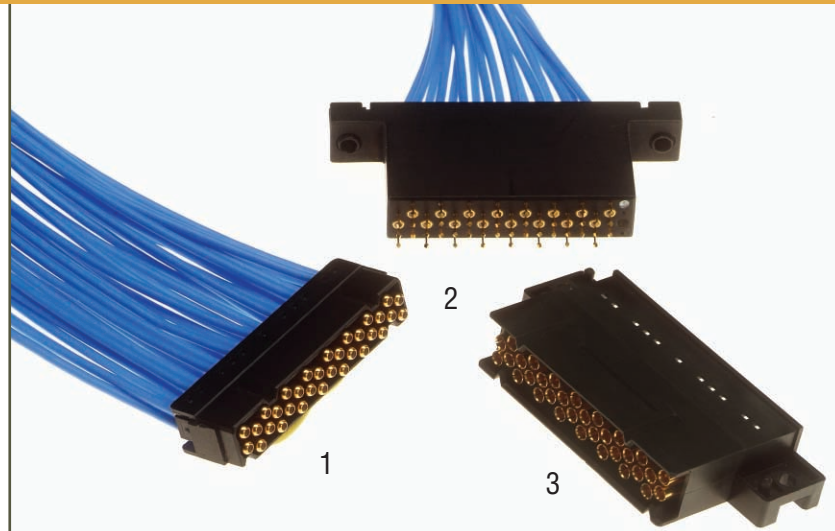


1. .100" x .100" Socket – center bump and military polarization
•Also available in 2mm spacing
2. .100" x .100" Plug – wiremount male connector available with latch/eject system and mounting flange
3. .050" x .100" Mini Socket – Tripolarized with Hill-n-Dale design for high reliability
4. D-Sub – four mounting options with dimples for EMI/ESD protection
5. .050" x .050" Pak 50 Socket – Integral latch system on socket for space saving on board

3M™ MICRO COAXIAL COPPER CABLE ASSEMBLIES

3M™ MICRO COAXIAL ASSEMBLIES

- High density 50 ohm coaxial interconnect for ATE test head and other high speed applications
- Can support multi-gigabit speeds and fast rise times
- Spring probe contact option and matched impedance male couplers available
- Low insertion and withdrawal force
- Blind mating capability

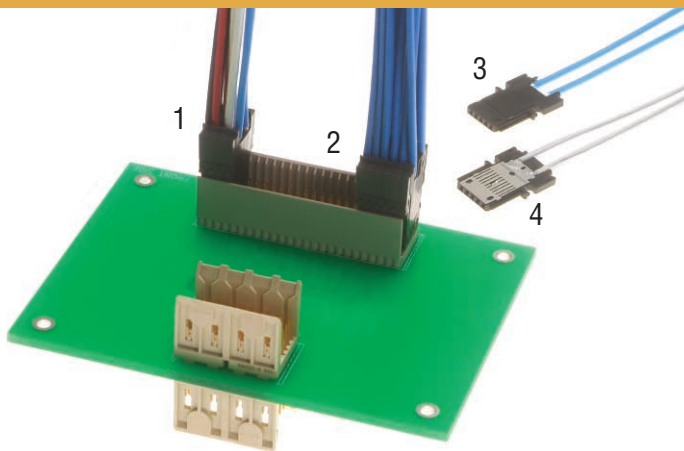


1. Micro Coax female cables in 32 position carrier
2. Micro Coax spring probe cables in 16 position carrier
3. Micro Coax male couplers in 32 position carrier

3M™ METPAK™ HM 5 X 1 COPPER CABLE ASSEMBLIES

3M™ 2MM 5X1 ASSEMBLIES

- Mates with 2mm pitch Hard Metric/Compact PCI® IEC backplane headers
- Side-to-side stackable
- Range of low to high frequency performance cables:
50 ohm/75 ohm coax and 100 ohm twinax
- Semi-rigid stacking system reduces stubbing and eases insertion force

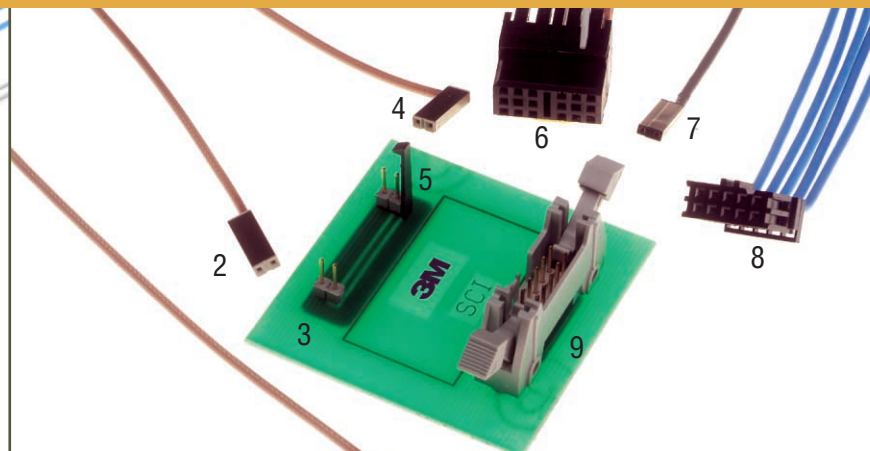


1. Stacked 2mm 5x1 plugged into CPCI header (3 wafers)
2. Stacked 2mm 5x1 plugged into CPCI header (6 wafers)
3. Single 2mm 5x1 connector wafer – plastic side up
4. Single 2mm 5x1 connector wafer – shield side up

3M™ SHIELDED CONTROLLED IMPEDANCE (SCI) COPPER CABLE ASSEMBLIES

3M™ .100" SCI CABLE ASSEMBLIES

- .100" pitch contact spacing
- Mates with standard 3M two-pin headers
- Available with a variety of 50 and 75 ohm miniature coaxial cable constructions
- Stand-alone termination available in right angle and straight configurations with optional polarization feature
- Carrier termination available in straight configuration designed for use with the 3M SCI carrier system to mate to latch/eject headers
- Other terminations available for opposite end such as BNCs



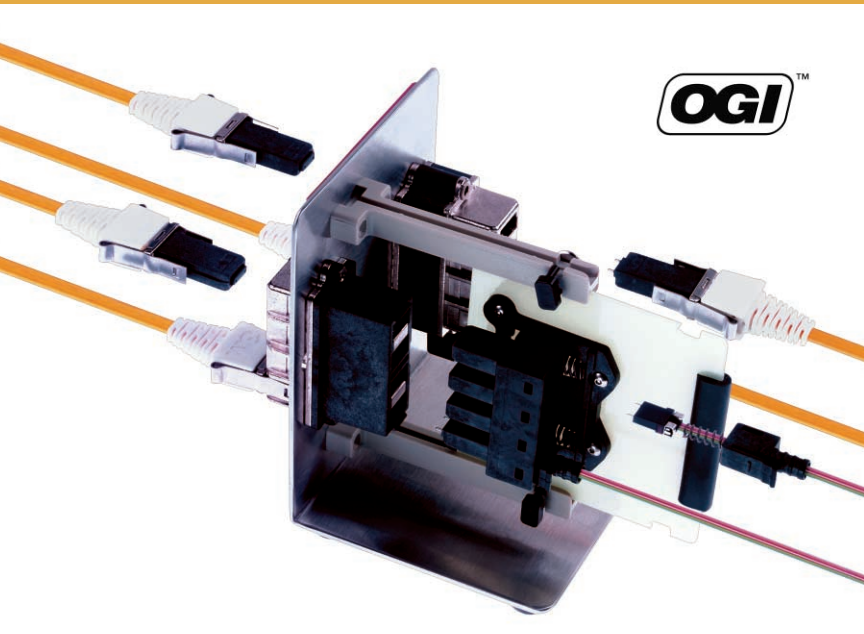
1. Two-pin PCB direct solder transition connector
2. Stand-alone straight SCI socket termination
3. 2 position pin strip
4. Stand-alone right angle SCI socket termination
5. 2 position pin strip with Latch
6. 3x7 DIN 41612 Carrier
7. Carrier SCI termination
8. Carrier SCI termination loaded into 2 row center bump carrier
9. 2 row latch/eject 4 wall header

3M™ OGI MULTI-FIBER SYSTEM

FIBER OPTIC CABLE ASSEMBLIES

3M™ OGI MULTI-FIBER SYSTEM

- 3M-patented, high-density panel mount and backplane feed-through system
- Utilizes MT Ferrule technology
- Meets Telcordia GR-1435 qualification requirements
- Limited Access Cleaning system cleans connector while in adapter



3M™ OGI MULTI-FIBER SYSTEM FANOUT CABLE ASSEMBLIES

- Utilizes industry standard discrete connectors for non-ruggedized and ruggedized fanouts
- Round cable and repositionable boots improve cable management
- Robust connector design exceeds GR-1435 Level 2 90° side pull test (3 lbs.)

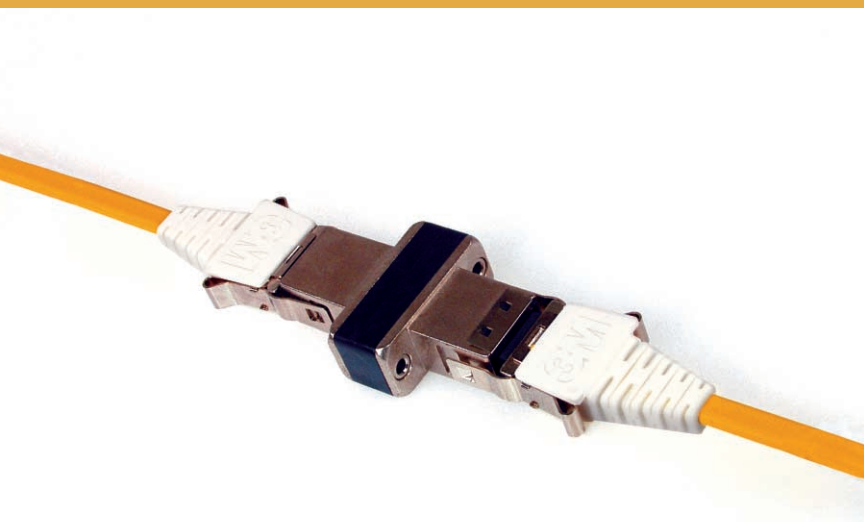


3M™ OGI MULTI-FIBER SYSTEM

FIBER OPTIC CABLE ASSEMBLIES

3M™ OGI MULTI-FIBER CABLE ASSEMBLIES

- Backplane and panelmount couplings allow for system architecture flexibility
- Couplings have independent, self-closing metal shutters
- Metallic coupling, gasket and connector components improve EMI performance



3M™ SC

FIBER OPTIC CABLE ASSEMBLIES

- Mates to all industry standard SC connectors
- Assemblies are 100% inspected and insertion loss tested
- Available in single-mode (PC and APC) or multimode
- Meets Telcordia GR-326 and TIA/EIA 568B.3 qualification requirements



3M™ MULTI-FIBER CABLE ASSEMBLIES, MTP®/MPO

FIBER OPTIC CABLE ASSEMBLIES

MULTIMODE

- High Density Fiber Management Solutions, 8 or 12 fibers per connector
- Mates to all MTP or MPO connectors
- Meets EIA/TIA 568-B.3 qualification requirements
- Non-ruggedized and ruggedized fanouts available with industry standard discrete connectors
- Protruded fiber finish enables lower insertion loss and back reflection
- Assemblies are 100% inspected and insertion loss tested



SINGLE-MODE

- High Density Fiber Management Solutions, 8 or 12 fibers per connector
- Mates to all industry standard MTP or MPO connectors
- Meets Telcordia GR 1435 qualification requirements
- Protruded fiber finish enables lower insertion loss and back reflection
- Non-ruggedized and ruggedized fanouts
- Assemblies are 100% inspected and insertion loss tested



3M™ LC

FIBER OPTIC CABLE ASSEMBLIES

- Mates to all industry standard LC connectors
- Assemblies are 100% inspected and insertion loss tested
- Small form factor connector saves space on board and in patch panels
- Repositionable boot allows cable to be positioned in any direction
- Meets TIA/EIA 568-B.3 standard for multimode and Telcordia GR-326, Issue 3 for single-mode
- Available in single-mode (PC and APC) and multimode



3M™ GLASS GLASS POLYMER (GGP)

FIBER OPTIC CABLE ASSEMBLIES

- Available in industry standard connectors (SC, LC, ST, FC); multimode only
- Tight bend radius provides increased durability and reliability in small spaces
- Cable flexibility makes it easy to route and manage
- Meets TIA/EIA 568-B.3 qualification requirements
- Assemblies are 100% inspected and insertion loss tested



3M™ CABLE ASSEMBLY INTERCONNECT SOLUTIONS

Description	Series	Tech Sheet Number*
Copper Solutions		
2mm Molded Assembly	2M Series	TS1056
2mm Molded Socket	2M Series	TS0525
2mm Molded PCB	2M Series	TS0524
.100" x .100" Molded Assembly	1M Series	TS1055
.100" x .100" Molded Socket	871 Series	TS0632
.100" x .100" Molded PCB	878 Series	TS0633
.100" x .100" and .600" Molded DIP	877 Series	TS0631
MDR Cable Assembly IEEE 1284, A-C	4120-1110	TS0640
MDR Assembly IEEE 1284, C-C	4120-4120	TS0642
MDR Assembly VESA™ and PanelLink™/TMDS™, 20 to 26 position	14520-EZAB	TS0858
MDR Assembly VESA and DISM, 20 to 26 position	14520-EZDB	TS0883
MDR Assembly, Camera Link™ approved 26 position, 11 shielded pairs	14X26-SZLB	TS1001
MDR Assembly, 26 to 26 position, 8 shielded pairs	14526-EZ5B	TS0866
MDR Assembly, LVDS FPD Link™, Flat Link™, Channel Link™, PanelLink/TMDS, 6 shielded pairs	14526-EZ8B	TS0757
MDR Assembly, LVDS Channel Link, 20 shielded pairs, 50 position	14150-EZBB	TS0959
MDR Assembly, 26 position, 10 shielded pairs	14526-EZHB	TS0891
MDR Assembly, 26 position, 8 shielded pairs	14526-EZLB	TS0967
MDR Assembly, 100 position, 24 shielded pairs	141A0-SZ5B	TS0966
MDR Assembly, 26 position, 13 shielded pairs	4926-01XX	TS0758
Pleated Foil I/O Cable Assembly	Socket	TS0805
Pleated Foil I/O Cable Assembly	MDR	TS0804
Monosignal 2-Pin PCB		TS0871
Shielded Controlled Impedance (SCI) Cable Assembly		TS0803
Shielded Controlled Impedance (SCI) Cable Assembly	Assembly Hardware	TS0802
2mm MetPak™ HM 5x1 Assemblies	HM Series	TS0965
Micro Coaxial Socket and Spring, Probe Assemblies		TS0969
Fiber Optic Solutions		
OGI Multi-Fiber Cable Assembly, Single-mode	OGI Series	TS1065
OGI Multi-Fiber Fan-Out Cable Assembly, Single-mode, Ruggedized	OGI Series	TS1068
OGI Panel Mount Couplings	OGI Series	TS1067
OGI Daughter Card/Backplane Coupling	OGI Series	TS1066
MTP®/MPO Multi-Fiber Fan-Out Cable Assembly, Multimode, Ruggedized		TS1158
MTP/MPO Multi-Fiber Cable Assembly, Multimode		TS0975
MTP/MPO Multi-Fiber Cable Assembly, Single-mode		TS1009
MTP/MPO Multi-Fiber Fan-Out Cable Assembly, Single-mode, Ruggedized		TS1160
LC Cable Assemblies, Single-mode and Multimode		TS1170
GGP Fiber Cable Assemblies, Multimode		TS1169
ST/SC/FC Cable Assemblies, Single-mode and Multimode		TS0990
SC/APC and FC/APC Cable Assemblies, Angled, Single-mode		TS0991

*All Tech Sheets can be downloaded from our website at www.3m.com/interconnects.

3M MANUFACTURING AND
LABORATORY LOCATIONS



For more information regarding our cable assembly and other interconnect solutions, visit us on the web at www.3m.com/interconnects.



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Channel Link is a trademark of National Semiconductor.
CompactPCI is a registered trademark of PICMG-PCI Industrial Computer Manufacturers Group Inc.
FPD Link is a trademark of National Semiconductor.
Flat Link is a trademark of Texas Instruments.
MTP is a registered trademark of U.S. Conec Ltd.
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80-4000-1924-8(0937.5)TG-1