

3M Telecommunications

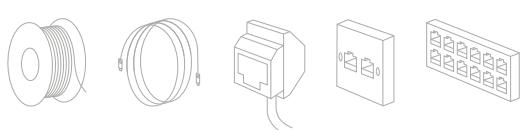
Solutions for Networks

Product Catalogue - Middle East



Solutions for Enterprise Networks

Technology built for business



3M





Network Solutions that power business

Dear Customer,

In response to the increased demands made on the cabling infrastructure, the range of Enterprise Network Solutions products includes passive and active products for copper and fibre optic cabling systems for use in local area networks, data centres and campus networks for both data and telephony.

3M provides a broad range of support options for every stage of a system's life, including network design and project support, on-site assistance, certified installer training and advice on systems upgrades.

The components of 3M's systems feature innovative and high performance designs that offer the strong customer value that you would expect from a company that has more than 40 years experience of network design and product innovation.

Further information to our extensive products program and our achievements are on our Website: www.3MTelecommunications.com

Sincerely,

3M Telecommunications Team



Why Choose 3M?

The company is renowned for its commitment to research and development, so customers and partners can always be sure that 3M is at the leading edge of innovation, as well as the assurance that 3M has a strong focus on environmental issues and adhering to relevant legislation. 3M continues to follow the evolution of information technology and to develop high performance solutions which meet the increasing need for bandwidth. Employing some of the best experts in the industry, 3M has for many years worked closely with the industry associations tasked with creating international cabling standards.

Thanks to its network of branches in 80 countries in the world, 3M is in a position to offer both world class support and the understanding of local markets, including installer training, on site support and advice.

Network Compliance



In addition 3M Volition™ copper components are independently certified by Delta for compliance to the component standards. See www.madebydelta.com/

3M Enterprise Networks Solutions extended 25-year warranty

As such a crucial part of a company's communications system, customers need to be confident that their network will work to specification from commissioning to the end of its lifetime. 3M Telecommunications offers an extended 25-year warranty* for the entire range of passive permanent link components in the Volition and Fibre Interconnect ranges that they will continue to perform to ISO/IEC 11801, EN50173 and TIA/EIA 568 standards in force at the time of installation. The warranty is extended through 3M partner installers and systems integrators who support the warranty in the field, backed by 3M technical support.

*Terms and conditions apply.



3M Telecommunications is a Registered Developer in the Cisco Developer Network



3M Telecommunications is an HP AllianceOne Partner

Content

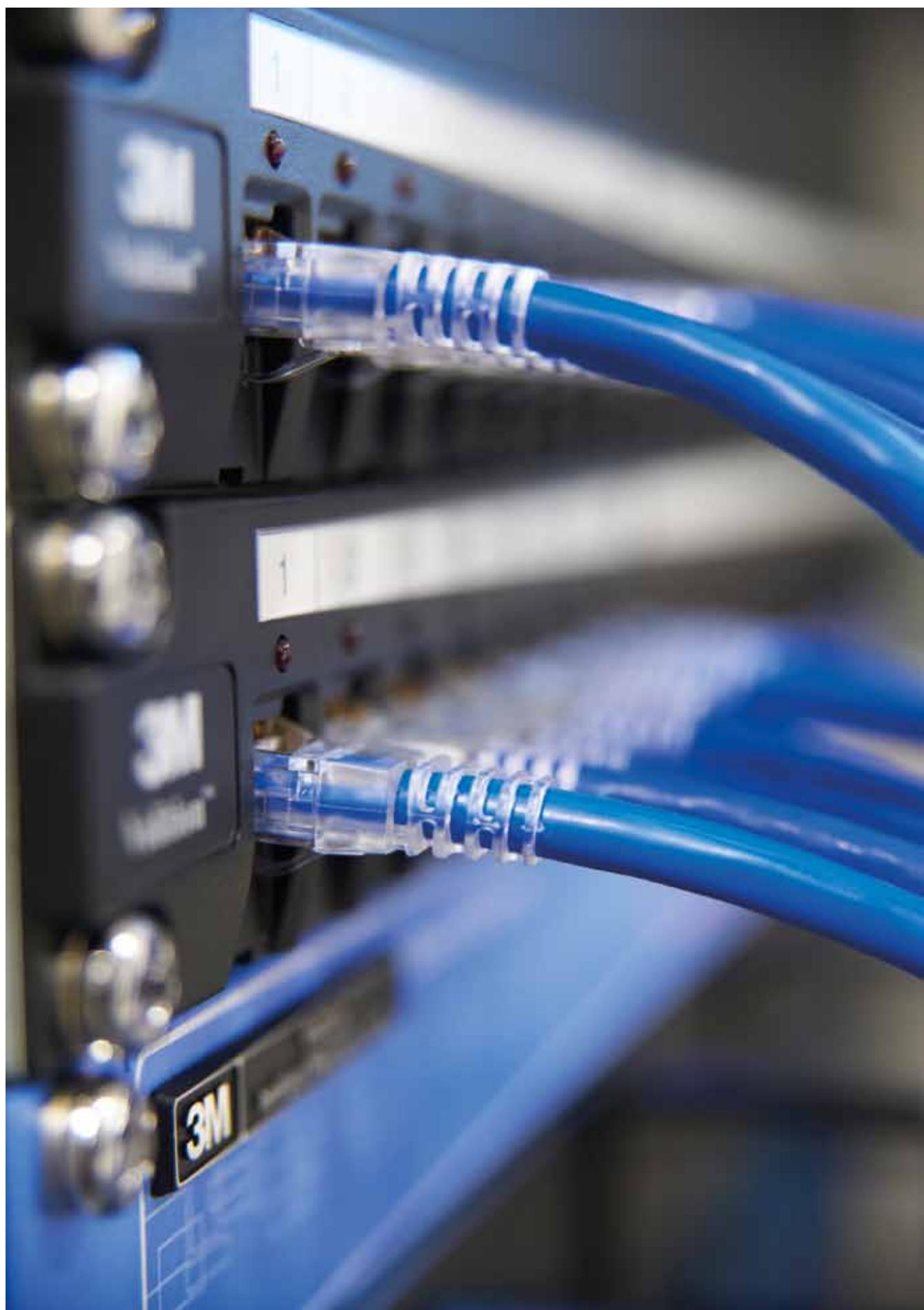
1. Copper Cabling Solutions	6 - 53
Copper Cabling - Features and Benefits	9 - 10
Copper Cabling Selection Guide	11 - 12
1.1 Volition™ - Class E _A /Category 6 _A cabling system	13 - 24
1.2 Volition™ - Category 6/Class E cabling system	25 - 36
1.3 Volition™ - Category 5e/Class D cabling system	37 - 46
1.4 Industrial RJ45 Connector	47 - 49
1.5 Splitters	50 - 51
1.6 Boxes for Surface Mounting	52 - 53
2. Fibre Cabling Solutions	54 - 142
2.1 Volition™ VF-45™	59 - 69
2.2 Volition™ Installation Indoor Cable	70 - 73
2.3 Volition™ Installation Indoor/Outdoor Cable	75 - 80
2.4 Volition™ Break-out Fibre Cable	81 - 83
2.5 3M No Polish Connectors	85 - 87
2.6 3M LC Connectors, Couplings and Pigtails	88 - 89
2.7 3M SC Connectors, Couplings and Pigtails	90 - 92
2.8 3M ST Connectors, Couplings and Pigtails	93 - 94
2.9 3M FC Connectors, Couplings and Pigtails	95 - 96
2.10 3M™ Hot Melt System	97 - 100
2.11 3M™ Crimplok Connector System	101 - 101
2.12 3M MPO Preterminated System	102 - 103
2.13 3M™ Fibrlok System	104 - 109
2.14 3M™ Cable Assemblies - Multimode Patch Cords	110 - 112
2.15 3M™ Cable Assemblies - Single-mode Patch Cords	113 - 114
2.16 3M Preterminated Pigtail Modules	115 - 116
2.17 3M™ 19" Patchpanels	117 - 121
2.18 3M™ Wall Outlets	122 - 124
2.19 3M™ Connection Boxes	125 - 138
2.20 3M™ 19" MODF 2K Distribution Frame	139 - 142
3. Volition™ Intelligent Management System	144 - 154
3.1 VIMS Patch Panels	147 - 148
3.2 VIMS Patch Cords	149 - 15
3.3 VIMS Hardware	151 - 152
3.4 VIMS Software	153 - 154
4. Copper Interconnect Solutions	156 - 215
4.1 Connection Blocks	159 - 193
4.2 Patchcords	194 - 197
4.3 Frames, cabinets	198 - 203
4.4 Building Distribution	204 - 215
5. Numeric Content	217 - 253
Numeric Content as Ref. No.	218 - 235
Numeric Content as Type/Order Text	236 - 253

Copper Cabling Solutions

Copper Cabling Solutions include state of the art voice and data copper cabling system, including a range of Category 6A, Category 6 and Category 5e systems.

A variety of easy to install and innovative connectivity solutions ensure high performance, reliable systems. The 3M™ RJ45 copper products offer simple termination solutions – jacks snap on without tools – with built-in reliability features and component performance exceeding existing standards. The jacks are complemented by a range of cables, panels, outlets and patchcords to complete the installed link.

1. Copper Cabling Solutions	6 - 53
Copper Cabling - Features and Benefits	9 - 10
Copper Cabling Selection Guide	11 - 12
1.1 Volition™ - Class E_A /Category 6_A cabling system	13 - 24
Volition RJ45 Faceplates	15 - 16
Volition RJ45 K6A STP keystone jack	17 - 17
Volition RJ45 19" Patch Panels for K6A STP jacks	17 - 18
Volition RJ45 Category 6 _A patch cords	19 - 19
Volition Category 6 _A and Category 7 cables	19 - 19
Technical Specifications	20 - 24
Category 7 S/FTP LS0H cable	20 - 20
Category 6 _A F/FTP LS0H cable	21 - 21
Category 6 _A U/FTP LSZH cable	22 - 22
Category 6 _A U/FTP LSZH cable	23 - 23
F/FTP LS0H reduced diameter cable	24 - 24
1.2 Volition™ - Category 6/Class E cabling system	25 - 36
Volition RJ45 Faceplates	27 - 28
Volition RJ45 K6 keystone jack	29 - 29
Volition RJ45 19" Patch Panels for K6 Jacks	30 - 31
Volition RJ45 patch cords	32 - 33
Volition Category 6 cables	34 - 34
Technical Specifications	35 - 36
Volition Category 6 F/FTP LSZH and PVC cable	35 - 35
Volition Category 6 U/FTP LSZH and PVC cable	36 - 36
1.3 Volition™ - Category 5e/Class D cabling system	37 - 46
Volition RJ45 Faceplates and modules	37 - 38
Volition RJ45 K5e keystone jack	39 - 39
Volition RJ45 19" Patch Panels for K5E Jacks	40 - 41
Volition RJ45 patch cords	42 - 43
Category 5e Cable	44 - 46
Copper cable, 4 pairs, Category 5E, U/UTP, LS0H	44 - 44
Copper cable, 4 pairs, Category 5E, U/UTP, PVC	44 - 44
Copper cable, 4 pairs, Category 5E, F/UTP, LS0H	44 - 44
Copper cable, 4 pairs, Category 5E, F/UTP, PVC	44 - 44
Technical Specifications	45 - 46
Volition Category 5E F/UTP LSZH and PVC cable	45 - 45
Volition Category 5E U/UTP LSZH and PVC cable	46 - 46
1.4 Industrial RJ45 Connector	47 - 49
IP67 Plastic shell for patchcords	48 - 48
IP 67 Receptacle	48 - 48
Receptacle Cap	48 - 48
Stainless Steel Faceplate for IP67 Receptacle	49 - 49
Left and Right Face Covers	49 - 49
Stainless Steel Faceplate for IP67 Receptacle	49 - 49
1.5 Splitters	50 - 51
UTP and FTP RJ45 Splitters	51 - 51
1.6 Boxes for Surface Mounting	52 - 53
45 x 45 mm Module Supports	52 - 53
Single box in ABS	52 - 52
Wall Mounted Boxes	52 - 53



Copper Cabling System - Features and Benefits

Description

Volition™ Copper Cabling System

- The Volition Copper Cabling system offers a complete range of products to support Ethernet applications over twisted pair. The Volition system gives electrical performance above the limits set by the standards ISO/IEC 11801, EN 50173 series and ANSI/TIA-568C series.
The Volition Copper Cabling system offers a complete range of RJ45 jacks and sockets, cables, patch panels, patch cords and accessories. All the Volition components are designed to guarantee optimal performance as a complete system.

Standards

- ISO/IEC 11801
- EN 50173 series
- ANSI/TIA-568-C series

Applications

- IEEE 802.3ab 1000BASE-T
- IEEE 802.3an 10GBASE-T

Volition™ 25-years Warranty

- 3M Telecommunications offers an extended 25-year warranty on the complete range of Volition components.

3M Telecommunications guarantees the electrical performance according to ISO/IEC 11801, EN 50173 series and ANSI/TIA-568-C series.

Advantages of 3M Telecommunications

- 3M is renowned for its commitment to research and development and its sense of innovation. 3M Telecommunications has dedicated more than 40 years of study to designing and improving networks. The Volition™ solution is an innovation from 3M Telecommunications Laboratories. 3M continues to follow the evolution of information technology and to develop high performance

solutions which meet the increasing need for bandwidth. Thanks to its network of branches in 60 countries in the world, 3M is in a position to offer world class service support on three levels: certified installation training, assistance with the design of networks and on-site assistance with installation.

Volition™ RJ45 Keystone Jacks

- The RJ45 Keystone jacks have been specifically developed for Gigabit and 10 Gigabit Ethernet applications, according to ISO/IEC 11801, EN 50173-1, EN 60603-7 series and TIA/EIA 568C. Their patented design allows an easy, tool-less

termination, and makes them leading products in the market.

The keystone format gives compatibility with many standard faceplates and adapters.

Features

- Tool-free assembly
- Built-in dust shutter which closes automatically
- Easily reusable
- Insulation displacement connections compatible with solid and stranded cables
- Cable entry from top or bottom
- Versions: UTP, FTP and STP with 360° shield
- STP version: Total 360° coverage of cable shield by metallic braid

Advantages

- Connection quality is independent of the quality of tools or labour
- Immunity to dust on both patch panels and terminal outlets
- No waste in the case of cabling errors
- Consolidation point assembly with patch cables
- Easier accommodation of cable minimum bend radius
- Compliance with different EMC requirements
- STP version: Excellent transfer of impedance for immunity against electromagnetic disturbances



Copper Cabling System - Features and Benefits

Volition™ RJ45 sockets and faceplates

- Volition faceplates are available in many different formats, according to the most important national standards.

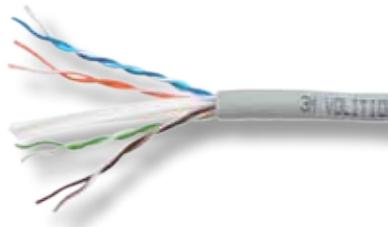


Features

- Available types: France, Germany, Italy, UK, USA
- Built-in dust shutter in the RJ45 jack
- Shallow depth of the jack and choice of cable entry
- Compatibility with UTP, FTP and STP RJ45 jacks

Advantages

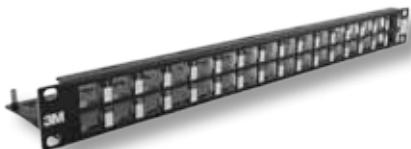
- Integration with many standards
- Immunity to dust on terminal outlets
- Compatibility with many types of boxes and frames
- Compliance with different EMC requirements



Volition™ Cables

- Volition™ Cables allow easy termination to the RJ45 jacks. The cables are available in unshielded

and shielded versions, 4 pairs and 2x4 pairs, with PVC or LSZH (Low Smoke Zero Halogen) jacket.



Volition™ Patch Panels

- Volition patch panels are modular and can accommodate up to 24 RJ45 ports in one unit of rack space (1U). Their modular design makes them easy to install on site in 19" racks.

All Volition patch panels have an earth stud which permits continuity of earth with the FTP or STP RJ45 K series jacks.

Volition™ certificates of compliance

- Certification by an independent laboratory is a proof of the quality and reliability of the Volition™ range.
- 3M is using world-class laboratories for its certification.
- The Category 6A and Category 6 systems are certified by the external laboratory Delta.
- The 3M certificates are updated annually and can be downloaded from the web site www.delta.dk.

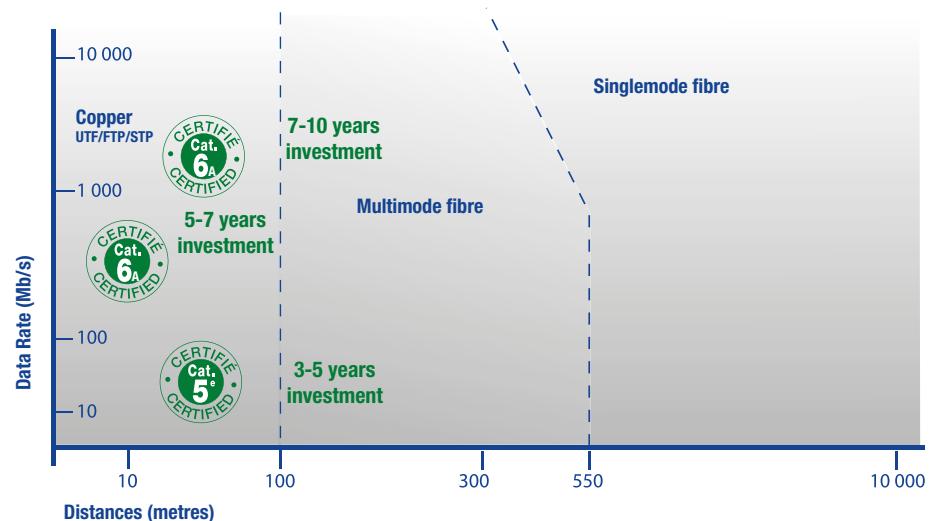


Note: In international and European standards copper components are classified in Categories and links are classified in Classes. In USA standards the term Category is used for both copper components and links.

In international and European standards Category 6A and Class E_A are written with subscript A whereas in USA standards an uppercase A is used - Category 6A.

Copper Cabling Selection Guide

Version	U/UTP Cat.5e	F/UTP Cat.5e	U/UTP Cat.6	F/UTP Cat.6	F/UTP Cat.6A	F/FTP Cat.6A	S/FTP Cat.6A
EMC	Low	Medium	Low	Medium	Medium	High	High
Cables	U/UTP	F/UTP	U/UTP	F/UTP	F/UTP Cat.6A	F/FTP Cat.6A	S/FTP Cat.7
Cords	U/UTP	F/UTP	U/UTP	S/FTP	S/FTP	S/FTP	S/FTP
RJ45	UTP	FTP	UTP	FTP or STP	STP	STP	STP
Class	D / 1 Gb/s	D / 1 Gb/s	E / 1 Gb/s	E / 1 Gb/s	E _A / 10 Gb/s	E _A / 10 Gb/s	E _A / 10 Gb/s



Category 5e

- Volition™ Category 5e solution (standard bandwidth up to 100MHz) supports up to 1Gb/s Ethernet for businesses with a short-medium term

investment strategy in the infrastructure and with a limited demand for high-speed voice-video-data applications.

Category 6

- Volition™ Category 6 solution (standard bandwidth up to 250 MHz) offers a larger bandwidth than Category 5e and supports up to

1Gb/s Ethernet with higher efficiency and throughput for those businesses with a medium-term investment strategy in infrastructure.

Category 6A

- Volition™ Class E_A / Category 6A solution supports up to 10G Ethernet according to the 10GBASE-T standard. It is ideal for businesses with a long-term investment strategy and with a fast evolution in network application requirements.
- The Volition™ Class E_A / Category 6A solution offers double the bandwidth (500 MHz) compared with Class E / Category 6 and a unique integral reduction of alien crosstalk (AXT).

- AXT is all the electrical noise created on a cable or an RJ45 jack by neighbouring cables and jacks. The number one noise source in 10GBASE-T is AXT, the effects of which disturb not only the cables, particularly in the cable routes, but also the RJ45 jacks, especially in patching racks where there are many adjacent links.



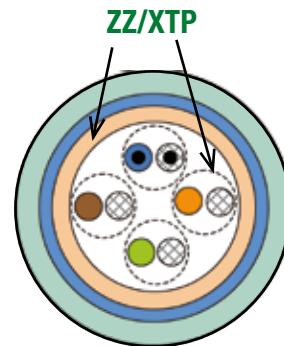
Copper Cabling Selection Guide

LAN Cable Naming Scheme

- The naming conventions of LAN cables are published in Annex E of ISO 11801.
- All the designations have the format: **ZZ/XTP**
- TP** = Twisted Pair

Naming Scheme of 3M LAN cables

3M Name	ISO 11801 Name
UTP	U/UTP
FTP	F/UTP
SFTP	SF/UTP
FFTP	F/FTP
SSTP	S/FTP



ZZ = general protection of the cable
 U = Unshielded
 F = Foil screen (made from aluminium/polyester foil)
 S = Braid screen (made from copper braid)
 SF = Braid and foil screen (made from braid + aluminium/polyester foil)
 X = protection of the individual pairs
 U = Unshielded
 F = Foil screened (screen made from aluminium/polyester foil)

Category/Class	Cable			3M Connector	Alternative	
	Structure	No. pairs	3M Reference		Type	Recommended
Cat.5e/ Class D	U/UTP	4	VOL-5EUL4	K5E	VOL OCK5EU	-
		2 x 4	VOL-5EUL8		VOL OCK5EF	VOL OCK5ES
	F/UTP	4	VOL-5EFL4		VOL OCK6U	-
		2 x 4	VOL-5EUL8		VOL OCK6F	VOL OCK6S
	U/UTP	4	VOL-6UL4	K6	VOL OCK6S	-
		2 x 4	VOL-6UL8		VOL OCK6A	-
Cat.6/ Class E	F/UTP	4	VOL-6FL4		VOL OCK6A	-
		2 x 4	VOL-6FL8		VOL OCK6A	-
	S/FTP	4	VOL-10SFL4		VOL OCK6A	-
		2 x 4	VOL-10SFL8		VOL OCK6A	-
	F/UTP	4	VOL-6AFL4	K6A	VOL OCK6A	-
		2 x 4	VOL-6AFL8		VOL OCK6A	-
Cat.6A/ Class E _A	F/FTP	4	VOL-6AFFL4		VOL OCK6A	-
		2 x 4	VOL-6AFFL8		VOL OCK6A	-
	S/FTP	4	VOL-10SFL4		VOL OCK6A	-
		2 x 4	VOL-10SFL8		VOL OCK6A	-

Volition™ Class E_A / Category 6A Cabling System

Description - Class E_A /Category 6A cabling system

Category 6_A extended to 500 MHz

- In less than 10 years, the speed of local area networks (LAN) has gone from less than 10 Mb/s to several Gigabits per second. Market specialists foresee LAN requirements accelerating and a progression in bandwidth for the horizontal cabling which is traditionally a copper system. The 10 Gb/s Ethernet standard (10GBASE-T) for twisted pair copper cabling is now a reality. New revisions of international standards on cabling systems ISO/IEC 11801, EN 50173 series and ANSI/TIA-568-C series define Class E_A and Category 6A cabling which both offer a bandwidth of 500 MHz.
- These developments mean that companies are now able to install a high-speed fibre optic backbone and migrate towards higher speed copper cabling in the horizontal. Many LAN administrators plan to install high performance copper cabling systems which make it possible to support both present and future applications. Also Class E_A / Category 6A cabling is increasingly used in data centres where higher speeds are essential.
- Volition Network Solutions from 3M comply fully and economically with the advances in copper cabling standards.

10 Gigabit per second copper cabling technologies

- The IEEE 802.3an group chose a maximum frequency of 500 MHz which doubles the frequency range of the original Class E /Category 6 specified up to 250 MHz. The IEEE group also defined a new electrical parameter for the channel which is "alien cross talk" (AXT). AXT is all the electrical noise created on a cable or an RJ45 jack

by neighbouring cables and jacks. The number one interference in 10GBASE-T is AXT, the effects of which disturb not only the cables, particularly in the cable routes, but also the RJ45 jacks, especially in patching racks where there are many adjacent links.

Volition Class E_A / Category 6A Solution

- Volition Class E_A / Category 6A cabling system is designed in compliance with the most recent ISO/IEC, European and TIA standards for Channel and Permanent Link configurations. The Volition Class E_A / Category 6A Solution is differentiated by the unequalled reduction of the effects of AXT over the

entire channel. The solution comprises a complete range of new RJ45 jacks, new twisted pair copper cables, 19" patch panels and new RJ45 patch cables. The Volition Class E_A / Category 6A solution fully meets the requirements of a 10 Gb/s local area network infrastructure.



RJ45 Volition K6A jack

- The RJ45 Volition K6A jack has been specially developed for Class E_A and Category 6A systems on twisted pair cable in compliance with the standards ISO/IEC 11801, EN 50173 series and ANSI/TIA-568-C for channel and permanent link configurations. With its patented design, it can be connected to Volition Category 6A cables

without any special tools. The 360° connection to the cable shield, thanks to the metallic braid of the cover, is a unique, method of cabling. The 360° shield acts like a Faraday cage around the RJ45 Volition K6A jack, giving unrivalled immunity against alien cross talk.



Volition™ RJ45 faceplates

- Volition faceplates are available in many different formats, according to national standards.



Volition™ Class EA / Category 6A Cabling System



3M™ Volition™ Category 6A / Category 7 cables

- The Volition Category 6A and Category 7 cables have been specially developed to ensure excellent immunity against AXT up to 500 MHz (for Category 6A) and 600 MHz (for Category 7). All cables of Volition design have a general shield and/or screen per pair. Volition cables benefit from unequalled immunity to AXT. The cables have independent performance verification from Delta. Volition cables are easy to install and do not require any special installation precautions. Connection to the Volition K6A RJ45 jack remains simple and familiar. Pulling in the cables is easy, due to the fact that their outer dimensions are very close to the current Volition Category 6 cables. Volition cables have LSOH (Low Smoke Zero Halogen) sheath.
- Comparative studies show that competing Category 6A UTP cables have outer diameters larger than those of current Category 6 cables or are a non-round shape. Cabling techniques to reduce AXT between 10 Gb/s UTP cables consist of moving the pairs further apart, strengthening the outer sheaths, placing an insulator or separator between the pairs and increasing the twist. The outer diameter of Category 6A UTP cables is thus increased. Another technique consists of making Category 6A UTP cables oval to reduce the risk in cable routes of one pair being adjacent to another pair with the same twist. This makes the cables harder to install and the cable bundles larger.

Features

- Category 6A cable with round design
- General shield and/or screen per pair
- Metric markings on exterior sheath

Advantages

- Easy to terminate with RJ45 Volition K6A jacks
- Unequalled protection against AXT
- Makes it easier to manage the installation

Volition patch cables



- Volition patch cables have been specially designed to give excellent immunity against AXT up to 500 MHz, in particular to reduce the effect of AXT in patching racks where there are many adjacent

links. Volition patch cables have a general braid and a screen per pair. Volition patch cables are available with LSOH (Low Smoke Zero Halogen) sheath.

Volition patch panels



- Volition patch panels are modular and can accommodate up to 24 RJ45 ports in one unit of rack space (1U). Their modular design makes them

easy to install on site in 19" racks. All Volition patch panels have an earth stud which permits continuity of earth with the RJ45 K6A jacks.

Volition™ Class EA / Category 6A Cabling System



Volition RJ45 Faceplates

- Available in many different formats compatible with Category 6A RJ45 jacks
- Have automatic dust shutter when fitted with a jack
- Low depth when fitted with a jack

Ordering Information

Ref. No.	
FP4MF1KND	
FP4MF2KND	
USA	
VOL-0712B	
VOL-0714B	
UK	
VOL-CHUK-1K	
VOL-CHUK-2K	
VOL-EF-F-1K	
VOL-EF-A-1K	
VOL-EFUK-1K	
VOL-EFUK-2K	
VOL-EFUK-4K	
VOL-EF-BEV-2K	
VOL-EF-BEV-4K	
VOL-LJ6C-F-1K	
VOL-LJ6C-A-1K	
VOL-FPUK-LJ6C-F1K	
VOL-FPUK-LJ6C-F2K	
VOL-FPUK-LJ6C-F4K	
Germany	
60-516-09200	
60-516-09225	
Italy	
VOL-BLI-K6	
VOL-BLG-K6	
VOL-BLT-K6	
VOL-BMA-K6	
VOL-BMT-K6	
VOL-BMX-K6	
VOL-BXN-K6	
VOL-BXA-K6	
VOL-GPL-K6	
VOL-GSB-K6	
VOL-GSN-K6	
VOL-VIB-K6	
VOL-VIG-K6	
VOL-VPL-K6	

Volition™ Class EA / Category 6A Cabling System

Ordering Information

Accessories for USA Faceplates



Coloured identifiers

- For identification of different service (data or telephony)

	Ref. No.
Blue	VOL0790BL
Yellow	VOL0790YL
Red	VOL0790RD
Green	VOL0790GR

Accessories for France Faceplates



Coloured identifiers

- For identification of different service (data or telephony)

	Ref. No.
Blue	VOL0790BLND
Yellow	VOL0790YLND
Red	VOL0790RDND
Green	VOL0790GRND

Accessories for UK faceplates



Blanking Plates

	Ref. No.
LJ6C Adaptor Blanking Plate	VOL-LJ6C-F1K BLANK
12.5 x 50 Euro Blanking Plate	VOL-EF-BLANK-12.5*50
25 x 50 Euro Blanking Plate	VOL-EF-BLANK-25*50

Volition™ Class EA / Category 6A Cabling System



Volition RJ45 K6A STP keystone jack

- 360° Metallic shielding
- Tool-less termination
- Re-usable jack
- Connector can be terminated with both solid and stranded wires
- Integral shutter
- Separate wire guide indicating the contact number and the wiring codes TIA 568A and TIA 568B

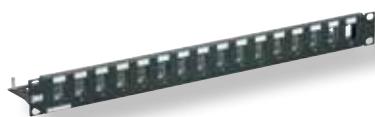
Ordering Information

Ref. No.
VOLOCK6ASE

Volition RJ45 19" Patch Panels for K6A STP jacks

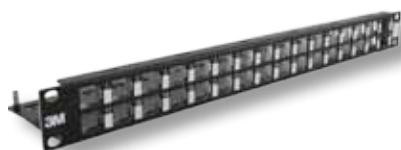
- Modular patch panel for RJ45 keystone jacks
- Delivered without connectors
- Can be equipped with Volition RJ45 K6A STP Jacks
- Direct and individual earthing protection upon insertion of jacks
- Delivered with screws and cage nuts

Ordering Information



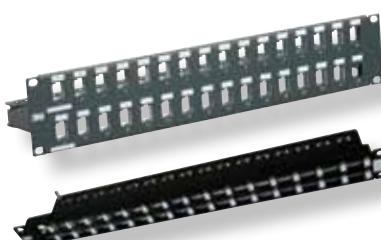
16 ports

Ref. No.
VOLPPCBF16K
VOLPPCBV16K
VOLPPCAF16K
VOLPPUDF16K



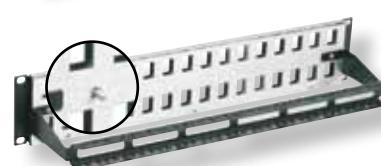
24 ports

Ref. No.
VOLPPCBF24K
VOLPPCBV24K
VOLPPCAF24K
VOLPPUDF24K



32 ports

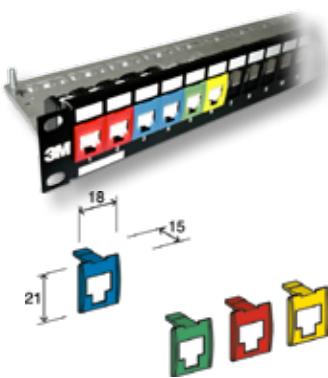
Ref. No.
VOLPPCBF32K
VOLPPCAF32K
VOL-PPCBHD-F32K



48 ports

Ref. No.
VOLPPCBF48K
VOLPPCAF48K

Volition™ Class EA / Category 6A Cabling System



Accessories for Volition RJ45 19" Patch Panels

Coloured identifiers

- Cannot be used with RJ45 splitters

Blue

Ref. No.

VOLPCCB

Yellow

VOLPCCY

Red

VOLPCCR

Green

VOLPCCG



Coloured identifiers with label holder

Ref. No.

VOLPECB

Blue

VOLPECY

Yellow

VOLPECR

Red

VOLPEGC

Green



RJ45 keystone blanking caps

Ref. No.

VOL0300BK

Black

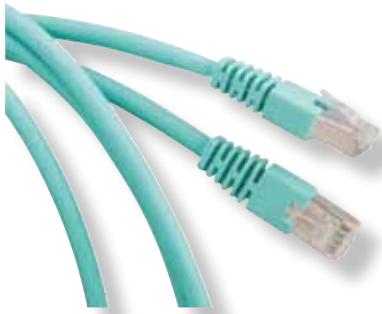
VOL0300

White

Volition™ Class EA / Category 6A Cabling System

Volition RJ45 Category 6A patch cords

- These cords allow the implementation of Class EA ISO or EN Channel and Category 6A TIA Channel.
- Round S/FTP cable
- Straight wiring
- LSZH jacket
- Standard colour: turquoise



Volition S/FTP LSZH turquoise

- Multistranded cable, foil wrapped pair by pair, general braid.

Turquoise	Ref. No.
1,00 m	VOL10SFLL1
2,00 m	VOL10SFLL2
3,00 m	VOL10SFLL3
5,00 m	VOL10SFLL5

Volition Category 6A and Category 7 cables

Copper cable, 4 pairs, Category 7, S/FTP, LSZH

Available in 1000 m and 500 m drums

Ref. No.

4 pairs, 500 m drum	VOL10SFL4500
4 pairs, 1000 m drum	VOL10SFL41000
2 x 4 pairs, 1000 m drum	VOL10SFL8500



Copper cable, 4 pairs, Category 6A, F/FTP, LSZH

Ref. No.

4 pairs, 1000 m drum	VOL6AFFL41000
2 x 4 pairs, 1000 m drum	VOL6AFFL8500

Copper cable, 4 pairs, Category 6A, F/UTP, LSZH

Ref. No.

4 pairs, 500 m drum	VOL6AFL4500
4 pairs, 1000 m drum	VOL6AFL41000
2 x 4 pairs, 1000 m drum	VOL6AFL8500

Copper cable, 4 pairs, Category 6A, U/FTP, LSZH

Ref. No.

4 pairs, 500 m drum	VOL6AUFL4500
4 pairs, 1000 m drum	VOL6AUFL41000
2 x 4 pairs, 1000 m drum	VOL6AUFL8500

Copper Cable, 4 pairs, S/FTP LSZH, Reduced Diameter

Ref. No.

4 pairs, 500 m drum	VOLDCSFL4500
4 pairs, 1000 m drum	VOLDCSFL41000

Copper Cabling Solutions

Volition™ Class EA / Category 6A Cabling System

Technical Specifications

Category 7 S/FTP LSZH cable

Cabling standards

- EN 50173
- ISO/IEC 11801
- EN 50288-4-1
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emission IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter mm	Weight kg/km	Fire loading MJ/Km	Max. Pulling Tension (N)
4P	Green	7,70	57	626	78
2x4P	Green	7,90x16,00	116	1 301	156

1 – Conductor material: copper wire Ø 0.56 mm (23AWG)

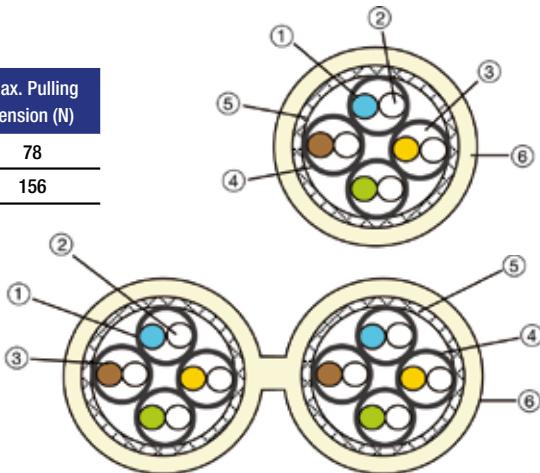
2 – Insulation material: Coloured polyethylene Ø 1.45 mm

3 - Number of pairs: 4 and 8 (2x4)

4 – Individual screen on each pair: Aluminium/Polyester foil

5 – General screen: copper braid

6 – Jacket material: LSZH



Electrical characteristics at 20°C

- Complete conductor resistance: $\leq 146.4 \Omega / \text{km}$
- Insulation resistance (500V): $\geq 5000 \text{ M}\Omega \cdot \text{km}$
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: $\leq 1600 \text{ pF / km}$
- Propagation velocity (NVP): 78%
- Characteristic impedance at 100 MHz: $100 \pm 5 \Omega$
- Transfer impedance at 1 MHz $\leq 10 \text{ m}\Omega / \text{m}$
at 10 MHz $\leq 10 \text{ m}\Omega / \text{m}$
at 30 MHz $\leq 20 \text{ m}\Omega / \text{m}$
at 100 MHz $\leq 30 \text{ m}\Omega / \text{m}$

Mechanical installation characteristics

- Minimum bend radius (installation): 60 mm
- Minimum bend radius (installed): 30 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance

Frequency (MHz)	4	10	20	62.5	100	250	500	600	
Max. Attenuat. (dB/100m)	Typical value	3.6	5.6	8	14.2	18.1	28.9	41.2	44
	Category 7 (max.)	3.8	5.9	8.4	15	19.1	31.1	45.3	50.1
Next (dB)	Typical value	90	90	90	90	85	77	74	73
	Category 7 (min.)	78	78	78	75	72	66	62	61
PS Next (dB)	Typical value	87	87	87	87	82	74	71	70
	Category 7 (min.)	75	75	75	72	69	63	59	58
ELFEXT (dB/100 m)	Typical value	86	85	82	76	72	60	51	50
	Category 7 (min.)	78	74	68	58	54	46	40	38
PS ELFEXT (dB/100 m)	Typical value	83	82	79	73	69	57	48	47
	Category 7 (min.)	72	71	65	55	51	43	37	35
Return Loss (dB)	Typical value	26	26	26	26	24	19	16.7	16
	Category 7 (min.)	23	25	25	21.5	20.1	17.3	17.3	17.3
PS ANEXT (dB)	Typical value	85	85	85	85	80	75	68	67
	Category 7 (min.)	67	67	67	64.5	62.5	56.5	52	51

Volition™ Class EA / Category 6A Cabling System

Technical Specifications

Category 6A F/FTP LSZH cable

Cabling standards

- EN 50173
- ISO/IEC 11801
- ANSI/TIA-568-C
- EN 50288-10
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emission IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P	Green	7,80	52	550	78
2x4P	Green	7,80x15,80	110	1125	156

1 – Conductor material: copper wire Ø 0.56 mm (23AWG)

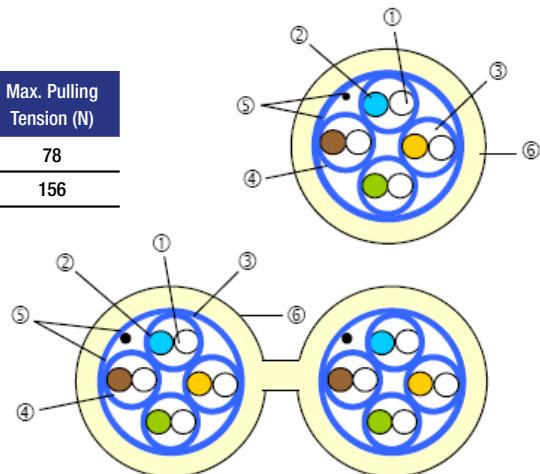
2 – Insulation material: Coloured polyethylene Ø 1.45 mm

3 - Number of pairs: 4 and 8 (2x4)

4 – Individual screen on each pair: Aluminium/Polyester foil

5 – General screen: Aluminium foil with copper drain wire

6 – Jacket material: LSZH



Electrical characteristics at 20°C

- Complete conductor resistance (maxi): $\leq 146.4 \Omega / \text{km}$
- Insulation resistance (500V): $\geq 5000 \text{ M}\Omega \cdot \text{km}$
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: $\leq 1600 \text{ pF / km}$
- Propagation velocity (NVP): 78%
- Characteristic Impedance at 100 MHz: $100 \pm 5 \Omega$
- Transfer impedance at 1 MHz $\leq 30 \text{ m}\Omega / \text{m}$
at 10 MHz $\leq 30 \text{ m}\Omega / \text{m}$
at 30 MHz $\leq 50 \text{ m}\Omega / \text{m}$
at 100 MHz $\leq 100 \text{ m}\Omega / \text{m}$

Mechanical installation characteristics

- Minimum bending radius (installation) 70 mm
- Minimum bending radius (installed) 35 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance

Frequency (MHz)	4	10	20	62.5	100	250	500	550*
Max. Attenuat. (dB/100m)	Typical value	3.6	5.6	8	14.2	18.1	28.9	41.2
	Category 6A (max.)	3.8	5.9	8.4	15	19.1	31.1	45.3
Next (dB)	Typical value	90	90	90	90	85	77	74
	Category 6A (min.)	65.3	59.3	54.8	47.4	44.3	38.3	33.8
PS Next (dB)	Typical value	87	87	87	87	82	74	71
	Category 6A (min.)	63.3	57.3	52.8	45.4	42.3	36.3	31.8
ELFEXT (dB/100 m)	Typical value	86	85	82	76	72	60	51
	Category 6A (min.)	58	50	44	34.1	30	22	16
PS ELFEXT (dB/100 m)	Typical value	83	82	79	73	69	57	48
	Category 6A (min.)	55	47	41	31.1	27	19	13
Return Loss (dB)	Typical value	26	26	26	26	24	19	18
	Category 6A (min.)	23	25	25	21.5	20.1	17.3	17.3
PS ANEXT (dB)	Typical value	85	85	85	85	80	73	68
	Category 6A (min.)	76.5	72.5	69.5	64.5	62.5	56.5	52

* For information only

Copper Cabling Solutions

Volition™ Class EA / Category 6A Cabling System

Technical Specifications

Category 6A F/UTP LSZH cable

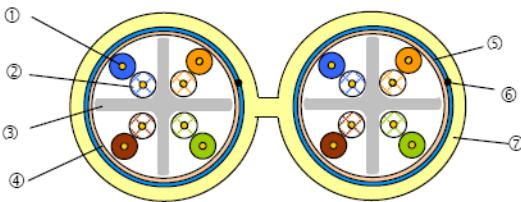
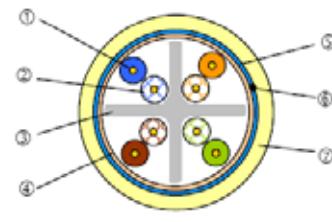
Cabling standards

- EN 50173
- ISO/IEC 11801
- ANSI/TIA-568-C
- EN 50288-10
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emission IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P	Green	6,70	48	710	80
2x4P	Green	6,70x14,10	95	1422	160



1 – Conductor material: copper wire Ø 0.510 mm (24AWG)

2 – Insulation material: Polyethylene Ø 1.10 mm

3 – Cross separator to optimise NEXT

4 – Tape – Synthetic

5 – General screen: Aluminium/Polyester foil

6 – Copper drain wire

7 – Jacket material: LSZH

Electrical characteristics at 20°C

- Complete conductor resistance (maxi): $\leq 190 \Omega / \text{km}$
- Insulation resistance (500V): $\geq 5000 \text{ M}\Omega\cdot\text{km}$
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: $\leq 1600 \text{ pF / km}$
- Propagation velocity (NVP): 78%
- Characteristic impedance at 100 MHz: $100 \pm 5 \Omega$
- Transfer impedance at 1 MHz $\leq 40 \text{ m}\Omega / \text{m}$
at 10 MHz $\leq 40 \text{ m}\Omega / \text{m}$
at 30 MHz $\leq 50 \text{ m}\Omega / \text{m}$
at 100 MHz $\leq 200 \text{ m}\Omega / \text{m}$

Mechanical installation characteristics

- Minimum bending radius (installation) 50 mm
- Minimum bending radius (installed) 25 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance

Frequency (MHz)	4	10	20	62.5	100	250	500	550*	
Max. Attenuat. (dB/100m)	Typical value	3.6	5.6	8	14.2	18.1	28.9	41.2	43.5
	Category 6A (max.)	3.8	5.9	8.4	15	19.1	31.1	45.3	-
Next (dB)	Typical value	71	65	61	53	50	44	40	39
	Category 6A (min.)	66.3	60.3	55.8	48.4	45.3	39.3	34.8	-
PS Next (dB)	Typical value	68	62	58	50	47	41	37	36
	Category 6A (min.)	66.3	60.3	55.8	48.4	45.3	39.3	34.8	-
ELFEXT (dB/100 m)	Typical value	73	65	59	49	45	37	31	30
	Category 6A (min.)	58	50	44	34.1	30	22	16	-
PS ELFEXT (dB/100 m)	Typical value	70	62	56	46	42	34	28	27
	Category 6A (min.)	55	47	41	31.1	27	19	13	-
Return Loss (dB)	Typical value	27	27	27	25.8	25	22	18	17
	Category 6A (min.)	23	25	25	21.5	20.1	17.3	17.3	-
PS ANEXT (dB)	Typical value	85	85	80	75	75	75	75	75
	Category 6A (min.)	76.5	72.5	69.5	64.5	62.5	56.5	52	-

* For information only

Volition™ Class EA / Category 6A Cabling System

Technical Specifications

Category 6A U/FTP LSZH cable

Cabling standards

- EN 50173
- ISO/IEC 11801
- ANSI/TIA-568-C
- EN 50288-10
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emissions IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P	Green	8,0	57	674	78
2x4P	Green	8,0x16,2	116	1380	156

1 – Conductor material: copper wire Ø 0,56 mm (23AWG)

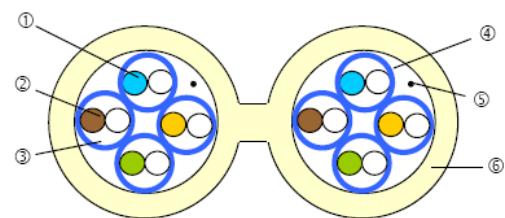
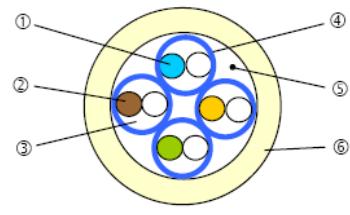
2 – Insulation material: Polyethylene Ø 1,45 mm

3 – Pairs: 4 AND 8 (2x4)

4 – Tape – Synthetic

5 – Copper drain wire

6 – Jacket material: LSZH



Electrical characteristics at 20°C

- Complete conductor resistance (maxi): $\leq 146,4 \Omega / \text{km}$
- Insulation resistance (500V): $\geq 5000 \text{ M}\Omega \cdot \text{km}$
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: $\leq 1600 \text{ pF / km}$
- Propagation velocity (NVP): 78%
- Characteristic Impedance at 100 MHz: $100 \pm 5 \Omega$
- Transfer impedance at 1 MHz $\leq 50 \text{ m}\Omega / \text{m}$
at 10 MHz $\leq 50 \text{ m}\Omega / \text{m}$
at 30 MHz $\leq 70 \text{ m}\Omega / \text{m}$
at 100 MHz $\leq 100 \text{ m}\Omega / \text{m}$

Mechanical installation characteristics

- Minimum bending radius (installation) 70 mm
- Minimum bending radius (installed) 35 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance

Frequency (MHz)	4	10	20	62.5	100	250	500	550*
Max. Attenuat. (dB/100m)	Typical value	3.6	5.6	8	14.2	18.1	28.9	41.2
	Category 6A (max.)	3.8	5.9	8.4	15	19.1	31.1	45.3
Next (dB)	Typical value	90	90	82	75	72	65	60
	Category 6A (min.)	65.3	59.3	54.8	47.4	44.3	38.3	33.8
PS Next (dB)	Typical value	87	87	79	72	69	62	57
	Category 6A (min.)	66.3	57.3	52.8	45.4	42.3	36.3	31.8
ELFEXT (dB/100 m)	Typical value	80	80	77	71	67	52	46
	Category 6A (min.)	58	50	44	34.1	30	22	16
PS ELFEXT (dB/100 m)	Typical value	77	77	74	68	64	49	43
	Category 6A (min.)	55	47	41	31.1	27	19	13
Return Loss (dB)	Typical value	25	26	26	23	22	19	18
	Category 6A (min.)	23	25	25	21.5	20.1	17.3	17.3
PS ANEXT (dB)	Typical value	85	85	85	85	80	73	68
	Category 6A (min.)	76.5	72.5	69.5	64.5	62.5	56.5	52

* For information only

Volition™ Class EA / Category 6A Cabling System

Technical Specifications

S/FTP LS0H reduced diameter cable

- 3M™ Volition™ S/FTP Small Diameter Cable has been specifically designed to provide performances and higher density in data centre applications, as well as offering a low 'Eco-Profile' and cost effectiveness.

VOL-DCSFL4 cable, when associated with 3M K6AS and 3M K6ASE RJ45 Jacks, provides compliance with Category 6A/Class EA performance in permanent link up to 65 m and in channel up to 70m.

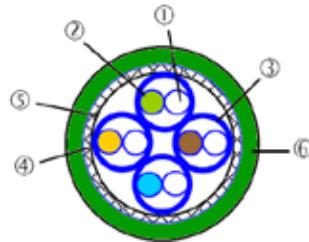
Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emissions IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P	Green	5,80	38	626	55

- Conductor Diameter: 0,425 mm (AWG 26)
- Insulation Diameter: Pe < 1,00 mm
- Cable assemblies: pairs
- Individual Screen around pairs: Alu/Polyester tape conductor
- Shield: Copper braid
- Sheath material: LSZH

Colour: green



Electrical characteristics at 20°C

- Complete conductor resistance (maxi): $\leq 250 \Omega / \text{km}$
- Insulation resistance (500V): $\geq 5000 \text{ M}\Omega \cdot \text{km}$
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: $\leq 1600 \text{ pF / km}$
- Propagation velocity (NVP): 78%
- Characteristic Impedance at 100 MHz: $100 \pm 5 \text{ Ohm}$
- Transfer impedance at $1 \text{ MHz} \leq 10 \text{ mOhm / m}$
 $30 \text{ MHz} \leq 20 \text{ mOhm / m}$
 $100 \text{ MHz} \leq 30 \text{ mOhm / m}$

Mechanical installation characteristics

- Minimum bending radius (installation) 45 mm
- Minimum bending radius (installed) 25 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance (typical values)

Frequency (MHz)	4	10	100	250	600	900*
Max Attenuation (dB/70m)	3.4	5.7	18.5	29.4	47.8	58.2
Min NEXT (dB)	83	83	77	72	66	63
PS NEXT (dB)	80	80	74	69	63	60
ELFEXT (dB)	84	80	60	52	44	40
PS ELFEXT (dB)	81	77	57	49	41	37
Min ACR (dB)	79.6	77.3	58.5	42.6	18.2	4.8
Return Loss (dB)	25	27	22	20	19.5	19.5

* For information only

Volition™ Class EA / Category 6A Cabling System

Technical Specifications

U/FTP Cat 6a PVC

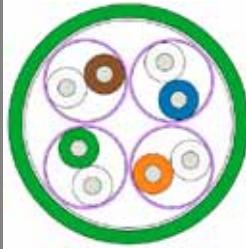
Easy Installation

- No special installation techniques are required to connect the cables to Volition K6A RJ45 jacks. Pulling in the cables is easy, because their outer dimensions are very close in profile to the current Volition Category 6 cables. Available in 500m and 1000m

Environmentally aware

- The Volition Category 6A FUTP cable provides the best 'Eco Profile' of the whole range of Volition shielded cables for Category 6A and Category 7. The 'Eco Profile' is about measuring all the parameters influencing the environmental impact of the cable design, manufacturing, shipping and use.

Type	Colour	Max. Diameter		Weight kg/km	Fire loading MJ/Km	Max. Pulling Tension (N)
		mm				
4P	Green	5,80		38	626	55



Electrical characteristics at 20°C

- Complete conductor resistance (maxi): $\leq 77 \Omega / \text{km}$
- Rated Temperature 70°C
- Velocity Ratio 65%
- Impedance (Ω) 100 ± 15

Cable Construction

- Conductor Construction 0.56 ± 0.01
- Conductor Standard Diameter 0.56 mm
- Insulation Average Thickness 0.37
- Insulation Diameter (mm) $1.31\pm0.1\times2C$ Twist (Each Pair is Twisted, Unshielded)

Electrical performance

Frequency (MHz)	1	4	10	16	25	31.25	100	200	250	300	400	500
Attenuation (dB/100) Max	37.734	4.0	5.8	7.4	9.3	10.4	19.0	27.5	31.0	34.2	40.0	45.2
NEXT (dB) Min	74.3	65.3	59.3	56.2	53.3	51.9	44.3	39.8	38.3	37.1	35.3	33.8
PS NEXT (dB) Min	72.3	63.3	57.3	54.2	51.3	49.9	42.3	37.8	36.3	39.1	33.4	31.8
Return Loss (dB/100M) Min	20.00	23.00	25.00	25.00	25.00	23.60	20.10	18.00	17.30	17.30	17.30	17.30
ELFEXT (dB/100M) Min	55.9	55.8	47.8	53.7	39.8	37.9	27.8	218	19.8	18.1	15.9	14.0
PSELFEXT (dB/100M) Min	52.99	52.80	44.80	40.70	36.80	34.90	24.80	18.80	16.80	15.70	12.90	11.021
ACR (dB/100M) Min	61.50	31.36	53.40	48.60	46.30	42.30	25.20	12.22	7.25	2.92	-4.94	-11.44
PSACR (dB/100M) Min	59.559	59.429	51.328	46.582	44.126	39.383	23128	10.322	4.497	1.002	-6.902	-13.443

Volition™ Category 6 Cabling System

Volition™ - Category 6/Class E cabling system



- The Volition Copper Cabling system offers a complete range of products to support Gigabit Ethernet applications over twisted pairs, according to Ethernet standard IEEE 802.3 (1GBASE-T). Volition Solutions provide electrical performance above the limits set by the standards ISO/IEC 11801, EN 50173 series and ANSI/TIA-568-C in permanent link, up to 90 m with 4 Volition™ RJ45 K6 jacks and Volition™ Category 6 cable, if installed according to the Volition™ Planning and Installation Guide.
- Volition Copper Cabling system offers a complete range of RJ45 jacks and sockets, cables, patch panels and patch cords. All the components of Volition are designed to guarantee optimal performance as a complete system.
- Volition™ Category 6 solution (standard bandwidth up to 250 MHz) offers a larger bandwidth than Category 5e and supports up to 1G Ethernet with higher efficiency and throughput for those businesses with a medium-term investment strategy in infrastructure.

Selection Guide Volition™

Version	U/UTP Cat.6	F/UTP Cat.6	S/FTP Cat.6
EMC	Low	Medium	High
Cables	U/UTP Cat.6	F/UTP Cat.6	S/FTP Cat.7
Cords	U/UTP	S/FTP	S/FTP
RJ45	UTP	FTP	STP
Class E	1 Gb/s	1 Gb/s	1 Gb/s



Volition™ RJ45 Jacks

- The RJ45 Volition jacks have been specially developed for Ethernet applications up to 1Gb/s, according to ISO/IEC 11801, EN60603-7 series and ANSI/TIA-568-C. With their patented design, they can be connected to Volition cables without any special tools.

Volition™ Category 6 Cabling System



Volition™ RJ45 sockets and faceplates

- Volition faceplates are available in many different formats, according to the most important national standards (France, Germany, Italy, UK, USA) and are compatible with UTP, FTP and STP RJ45 jacks.



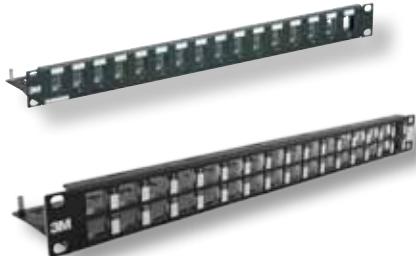
Volition™ Cables

- Volition™ Cables allow easy termination to RJ45 jacks. The Volition™ Category 5e and Category 6 cables are available in U/UTP and F/UTP versions, with PVC and LSZH (Low Smoke Zero Halogen) jacket.



Volition™ Patch Cords

- Volition™ patch cords are designed to ensure electrical performance above ISO/IEC 11801, EN 50173 series and ANSI/TIA-568-C in channel configuration. The Volition™ Category 5e and Category 6 patch cords are available in unshielded and shielded versions, with PVC or LSZH (Low Smoke Zero Halogen) jacket.



Volition™ Patch Panels

- Volition patch panels are modular and can accommodate up to 24 RJ45 ports in one unit of rack space (1U). Their modular design makes them easy to install on site in 19" racks. All Volition patch panels have an earth stud which permits continuity of earth with RJ45 FTP or STP jacks.

Volition™ Category 6 Cabling System



Volition RJ45 Faceplates

- Available in many different formats compatible with Category 6 RJ45 jacks.
- Have automatic dust shutter when fitted with a jack
- Low depth when fitted with a jack

Ordering Information

	Ref. No.
• France	
45 x 45 France faceplate, 1 port, white	FP4MF1KND
45 x 45 France faceplate, 2 ports, white	FP4MF2KND
• USA	
Single gang USA faceplate, 2 port, white	VOL-0712B
Single gang USA faceplate, 4 port, white	VOL-0714B
• UK	
Single gang UK faceplate, 1 port, white	VOL-CHUK-1K
Single gang UK faceplate, 2 ports, white	VOL-CHUK-2K
25 x 50 Euro Flat Adapter	VOL-EF-F-1K
25 x 50 Euro Angled Adapter	VOL-EF-A-1K
86 x 86 Euro Flat Faceplate Single Port	VOL-EFUK-1K
86 x 86 Euro Flat Faceplate Dual Port	VOL-EFUK-2K
86 x 172 Euro Flat Faceplate Quad Port	VOL-EFUK-4K
86 x 86 Euro Bevelled Faceplate Single/Dual Port	VOL-EF-BEV-2K
86 x 172 Euro Bevelled Faceplate Single/Dual/Quad Port	VOL-EF-BEV-4K
LJ6C Flat Adapter	VOL-LJ6C-F-1K
LJ6C Angled Adapter	VOL-LJ6C-A-1K
86 x 86 LJ6 Flat Faceplate Single Port	VOL-FPUK-LJ6C-F1K
86 x 86 LJ6 Flat Faceplate Dual Port	VOL-FPUK-LJ6C-F2K
86 x 172 LJ6 Flat Faceplate Quad Port	VOL-FPUK-LJ6C-F4K
• Germany	
50 x 50 Germany faceplate, white, 2 ports	60-516-09200
50 x 50 Germany faceplate, beige, 2 ports	60-516-09225
• Italy	
Faceplate for BTicino Living International, 1 port	VOL-BLI-K6
Faceplate for BTicino Light, 1 port	VOL-BLG-K6
Faceplate for BTicino Light Tech, 1 port	VOL-BLT-K6
Faceplate for BTicino Magic, 1 port	VOL-BMA-K6
Faceplate for BTicino Magic TT, 1 port	VOL-BMT-K6
Faceplate for BTicino Matix, 1 port	VOL-BMX-K6
Faceplate for BTicino Axolute, 1 port, black	VOL-BXN-K6
Faceplate for BTicino Axolute, 1 port, silver	VOL-BXA-K6
Faceplate for Gewiss Playbus, 1 port	VOL-GPL-K6
Faceplate for Gewiss System, 1 port, white	VOL-GSB-K6
Faceplate for Gewiss System, 1 port, black	VOL-GSN-K6
Faceplate for Vimar Idea, 1 port, white	VOL-VIB-K6
Faceplate for Vimar Idea, 1 port, grey	VOL-VIG-K6
Faceplate for Vimar Plana, 1 port	VOL-VPL-K6

Volition™ Category 6 Cabling System

Ordering Information

Accessories for USA Faceplates



Coloured identifiers

- For identification of different service (data or telephony)

	Ref. No.
Blue	VOL0790BL
Yellow	VOL0790YL
Red	VOL0790RD
Green	VOL0790GR

Accessories for France Faceplates



Coloured identifiers

- For identification of different service (data or telephony)

	Ref. No.
Blue	VOL0790BLND
Yellow	VOL0790YLND
Red	VOL0790RDND
Green	VOL0790GRND

Accessories for UK faceplates



Blanking Plates

	Ref. No.
LJ6C Adaptor Blanking Plate	VOL-LJ6C-F1K BLANK
12.5 x 50 Euro Blanking Plate	VOL-EF-BLANK-12.5*50
25 x 50 Euro Blanking Plate	VOL-EF-BLANK-25*50

Volition™ Category 6 Cabling System

Volition RJ45 K6 keystone jack



- Tool-less termination
- Re-usable jack
- Connector can be terminated with both solid and stranded wires
- Integral shutter
- Separate wire guide indicating the contact number and the wiring codes TIA 568A and TIA 568B
- IP50
- UTP – coloured jacks available
- Bulk packaging available



Ordering Information

	Ref. No.
STP	OCK6S8
FTP	OCK6F8
UTP	OCK6U8
UTP Coloured, Blue	VOLOCK6UB
UTP Coloured, Green	VOLOCK6UG
UTP Coloured, Red	VOLOCK6UR
UTP Coloured, Yellow	VOLOCK6UY
UTP Coloured, Black	VOLOCK6UBK
UTP Coloured, Orange	VOLOCK6UO
UTP Coloured, Almond	VOLOCK6UA

Volition™ Category 6 Cabling System

Volition RJ45 19" Patch Panels for K6 Jacks

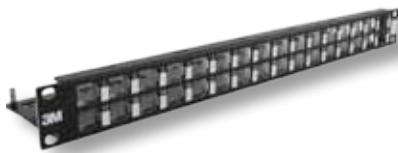
- Modular patch panel for RJ45 keystone jacks
- Delivered without connectors
- Can be equipped with Volition RJ45 K6 Jacks
- Direct and individual earthing protection upon insertion of jacks (FTP and STP)
- Delivered with screws and cage nuts
- Compatible with the RJ45 splitter locking system (Type CBV in 16 and 24 ports versions in black)

Ordering Information



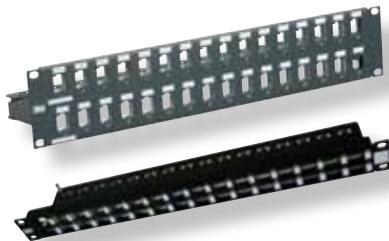
16 ports

	Ref. No.
19" x 1U x 100 mm, Black aluminium	VOLPPCBF16K
19" x 1U x 100 mm, Black aluminium with locking system	VOLPPCBV16K
19" x 1U x 100 mm, Brushed aluminium	VOLPPCAF16K
19" x 1U x 11 mm, Black aluminium, Eco version	VOLPPUDF16K



24 ports

	Ref. No.
19" x 1U x 100 mm, Black aluminium	VOLPPCBF24K
19" x 1U x 100 mm, Black aluminium with locking system	VOLPPCBV24K
19" x 1U x 100 mm, Brushed aluminium	VOLPPCAF24K
19" x 1U x 11 mm, Black aluminium, Eco version	VOLPPUDF24K



32 ports

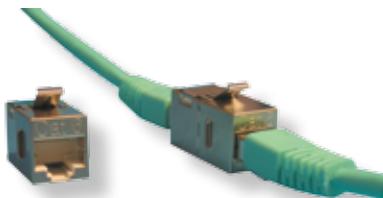
	Ref. No.
19" x 2U x 118 mm, Black aluminium	VOLPPCBF32K
19" x 2U x 118 mm, Brushed aluminium	VOLPPCAF32K
19" x 1U x 118 mm, Black aluminium, high density	VOL-PPCBAH-F32K



48 ports

	Ref. No.
19" x 2U x 118 mm, Black aluminium	VOLPPCBF48K
19" x 2U x 118 mm, Brushed aluminium	VOLPPCAF48K

Volition™ Category 6 Cabling System



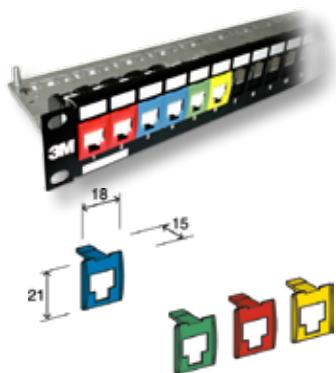
Socket Connector RJ45 / RJ45

- Used to equip feed-through patch panels
- May be used in consolidation point applications as defined by ISO 11801

Category 6, shielded

Ref. No.

VOL78004



Accessories for Volition RJ45 19" Patch Panels

Coloured identifiers

- Cannot be used with RJ45 splitters

Ref. No.

VOLPCCB

VOLPCCY

VOLPCCR

VOLPCCG



Coloured identifiers with label holder

Ref. No.

VOLPECB

VOLPECY

VOLPECR

VOLPEGC



RJ45 keystone blanking caps

Ref. No.

VOL0300BK

VOL0300

Volition™ Category 6 Cabling System



Volition RJ45 patch cords

- Compliant with Category 6 hardware performance, certified by Delta
- These cords allow the implementation of Class E ISO/IEC Channel and Category 6 TIA Channels at 250 MHz
- Round cable
- Moulded boot
- Straight wiring
- PVC or LSOH jacket
- Standard colour: turquoise

• Volition S/FTP LSOH Turquoise

Turquoise	Ref. No.
1,00 m	VOL6SSLL1T
2,00 m	VOL6SSLL2T
3,00 m	VOL6SSLL3T
5,00 m	VOL6SSLL5T

• Volition S/FTP LSOH Red

Red	Ref. No.
1,00 m	VOL6SSLL1R
2,00 m	VOL6SSLL2R
3,00 m	VOL6SSLL3R
5,00 m	VOL6SSLL5R

• Volition S/FTP LSOH Yellow

Yellow	Ref. No.
1,00 m	VOL6SSLL1Y
2,00 m	VOL6SSLL2Y
3,00 m	VOL6SSLL3Y
5,00 m	VOL6SSLL5Y

• Volition S/FTP LSOH Green

Green	Ref. No.
1,00 m	VOL6SSLL1GR
2,00 m	VOL6SSLL2GR
3,00 m	VOL6SSLL3GR
5,00 m	VOL6SSLL5GR

• Volition S/FTP LSOH Blue

Blue	Ref. No.
1,00 m	VOL6SSLL1B
2,00 m	VOL6SSLL2B
3,00 m	VOL6SSLL3B
5,00 m	VOL6SSLL5B

• Volition S/FTP LSOH White

White	Ref. No.
1,00 m	VOL6SSLL1W
2,00 m	VOL6SSLL2W
3,00 m	VOL6SSLL3W
5,00 m	VOL6SSLL5W

Volition™ Category 6 Cabling System



- Volition U/UTP LS0H Turquoise

Turquoise	Ref. No.
1,00 m	VOL6ULL1T
2,00 m	VOL6ULL2T
3,00 m	VOL6ULL3T
5,00 m	VOL6ULL5T

- Volition U/UTP LS0H Red

Red	Ref. No.
1,00 m	VOL6ULL1R
2,00 m	VOL6ULL2R
3,00 m	VOL6ULL3R
5,00 m	VOL6ULL5R

- Volition U/UTP LS0H Yellow

Yellow	Ref. No.
1,00 m	VOL6ULL1Y
2,00 m	VOL6ULL2Y
3,00 m	VOL6ULL3Y
5,00 m	VOL6ULL5Y

- Volition U/UTP LS0H Green

Green	Ref. No.
1,00 m	VOL6ULL1GR
2,00 m	VOL6ULL2GR
3,00 m	VOL6ULL3GR
5,00 m	VOL6ULL5GR

- Volition U/UTP LS0H Blue

Blue	Ref. No.
1,00 m	VOL6ULL1B
2,00 m	VOL6ULL2B
3,00 m	VOL6ULL3B
5,00 m	VOL6ULL5B

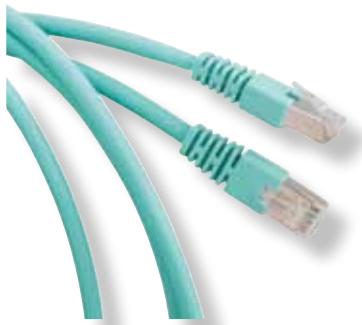
- Volition U/UTP LS0H White

White	Ref. No.
1,00 m	VOL6ULL1W
2,00 m	VOL6ULL2W
3,00 m	VOL6ULL3W
5,00 m	VOL6ULL5W

- Volition U/UTP LS0H Orange

Orange	Ref. No.
1,00 m	VOL6ULL1OR
2,00 m	VOL6ULL2OR
3,00 m	VOL6ULL3OR
5,00 m	VOL6ULL5OR

Volition™ Category 6 Cabling System



Volition RJ45 patch cords

- Compliant with Category 6 hardware performance, certified by Delta
- These cords allow the implementation of Class E ISO/IEC Channel and Category 6 TIA Channels at 250 MHz
- Round cable
- Moulded boot
- Straight wiring
- PVC or LSZH jacket
- Standard colour: turquoise

• Volition U/UTP PVC Dark Grey

Dark Grey	Ref. No.
1,00 m	VOL6UPL1DG
2,00 m	VOL6UPL2DG
3,00 m	VOL6UPL3DG
5,00 m	VOL6UPL5DG

• Volition U/UTP PVC Blue

Blue	Ref. No.
1,00 m	VOL6UPL1B
2,00 m	VOL6UPL2B
3,00 m	VOL6UPL3B
5,00 m	VOL6UPL5B

• Volition U/UTP PVC Red

Red	Ref. No.
1,00 m	VOL6UPL1R
2,00 m	VOL6UPL2R
3,00 m	VOL6UPL3R
5,00 m	VOL6UPL5R

• Volition U/UTP PVC Green

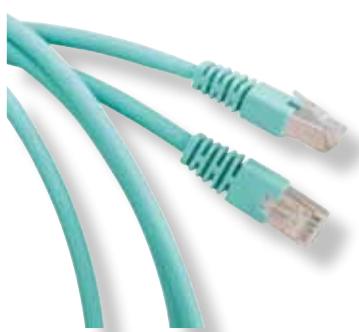
Green	Ref. No.
1,00 m	VOL6UPL1GR
2,00 m	VOL6UPL2GR
3,00 m	VOL6UPL3GR
5,00 m	VOL6UPL5GR

• Volition U/UTP PVC White

White	Ref. No.
1,00 m	VOL6UPL1W
2,00 m	VOL6UPL2W
3,00 m	VOL6UPL3W
5,00 m	VOL6UPL5W

• Volition U/UTP PVC Light Grey

Light Grey	Ref. No.
1,00 m	VOL6UPL1GY
2,00 m	VOL6UPL2GY
3,00 m	VOL6UPL3GY
5,00 m	VOL6UPL5GY



• Volition U/UTP PVC Yellow

Yellow	Ref. No.
1,00 m	VOL6UPL1Y
2,00 m	VOL6UPL2Y
3,00 m	VOL6UPL3Y
5,00 m	VOL6UPL5Y

• Volition U/UTP PVC Orange

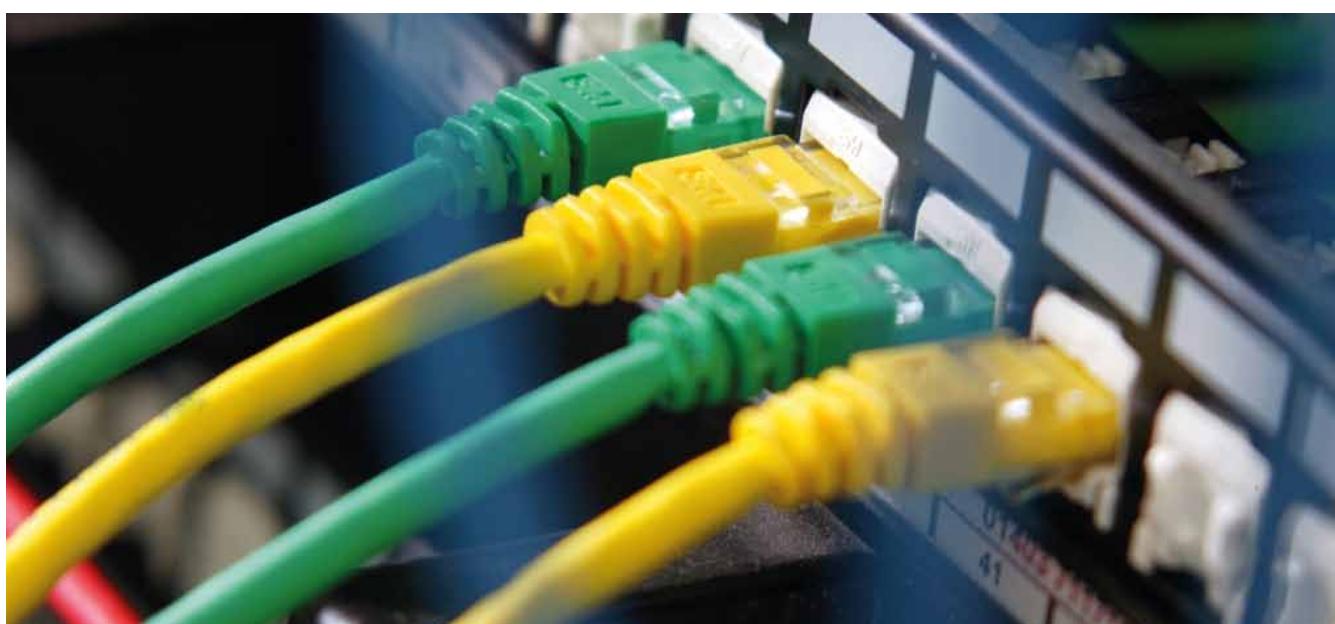
Orange	Ref. No.
1,00 m	VOL6UPL10R
2,00 m	VOL6UPL20R
3,00 m	VOL6UPL30R
5,00 m	VOL6UPL50R

• Volition U/UTP PVC Turquoise

Turquoise	Ref. No.
1,00 m	VOL6UPL1T
2,00 m	VOL6UPL2T
3,00 m	VOL6UPL3T
5,00 m	VOL6UPL5T

• Volition U/UTP PVC Black

Black	Ref. No.
1,00 m	VOL6UPL1BK
2,00 m	VOL6UPL2BK
3,00 m	VOL6UPL3BK
5,00 m	VOL6UPL5BK



Volition™ Category 6 Cabling System

Volition Category 6 cables

Copper cable, 4 pairs, Category 6, U/UTP, LS0H

Ref. No.
• 4 pairs, 305 m box
VOL6UL4305
• 4 pairs, 1000 m drum
VOL6UL41000
• 2 x 4 pairs, 500 m drum
VOL6UL8500
• 2 x 4 pairs, 1000 m drum
VOL6UL81000

Copper cable, 4 pairs, Category 6, U/UTP, PVC

Ref. No.
• 4 pairs, 305 m box
VOL6UP4305
• 4 pairs, 1000 m drum
VOL6UP41000
• 2 x 4 pairs, 1000 m drum
VOL6UP81000

Copper cable, 4 pairs, Category 6, F/UTP, LS0H

Ref. No.
• 4 pairs, 500 m drum
VOL6FL4 500
• 4 pairs, 1000 m drum
VOL6FL4 1000
• 2 x 4 pairs, 500 m drum
VOL6FL8 500
• 2 x 4 pairs, 1000 m drum
VOL6FL8 1000

Copper cable, 4 pairs, Category 6, F/UTP, PVC

Ref. No.
• 4 pairs, 1000 m drum
VOL6FP41000
• 2 x 4 pairs, 500 m drum
VOL6FP8500

Volition™ Category 6 Cabling System

Technical Specifications

Volition Category 6 F/UTP LSZH and PVC cable

Cabling standards

- EN 50173
- ISO/IEC 11801
- TIA/EIA 568
- EN 50288-5-1
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emissions IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P (LSZH)	Green	6,30	42	538	80
2x4P (LSZH)	Green	6,30x13,30	82	1060	160
4P (PVC)	Green	6,30	42	578	80
2x4P (PVC)	Green	6,30x13,30	79	1126	160

1 – Conductor material: copper wire Ø 0,535 mm (24AWG)

2 – Insulation material: Polyethylene Ø 1,10 mm

3 – Pairs: 4 and 8 (2x4)

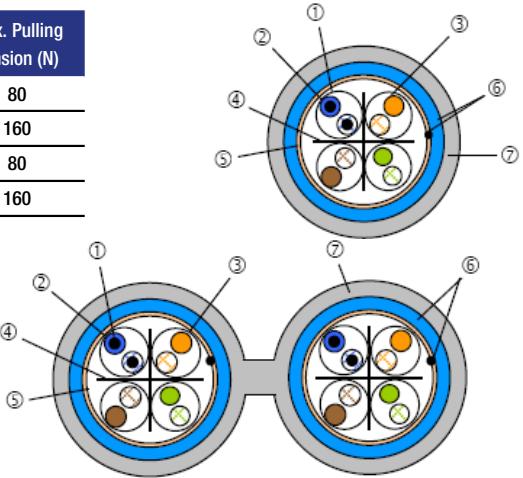
4 – Cross separator

5 – Tape – Synthetic

6 – Alu/polyester tape and copper drain wire

7 – Jacket material: LSZH or PVC

Colour: green



Electrical characteristics at 20°C

- Complete conductor resistance (max): ≤ 190 Ohm / km
- Insulation resistance (500V): ≥ 5000 MΩ.km
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: ≤ 1600 pF / km
- Propagation velocity (NVP): 78%
- Characteristic Impedance at 100 MHz: $100 \pm 5 \Omega$
- Transfer impedance at 1 MHz ≤ 40 mΩ / m
at 10 MHz ≤ 40 mΩ / m
at 30 MHz ≤ 50 mΩ / m
at 100 MHz ≤ 200 mΩ / m

Mechanical installation characteristics

- Minimum bend radius (installation): 50 mm
- Minimum bend radius (installed): 25 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance

Frequency (MHz)	4	10	20	62.5	100	250	300**	450**
Max. Attenuat. (dB/100m)	Typical value	3.6	5.7	8.3	14.8	19	31	34
	Category 6* (max.)	3.8	6	8.5	15.5	19.9	33	-
Min. Next (dB)	Typical value	71	65	61	53	50	44	43
	Category 6* (min.)	65.3	59.3	54.8	47.4	44.3	38.3	-
Min. ACR (dB)	Typical value	68	62	58	50	47	41	40
	Category 6* (min.)	63.3	57.3	52.8	45.4	42.3	36.3	-
PS Next (dB)	Typical value	73	65	59	49	45	37	35
	Category 6* (min.)	58	50	44	34.1	30	22	-
ELFEXT (dB/100 m)	Typical value	70	62	56	46	42	34	32
	Category 6* (min.)	55	47	41	31.1	27	19	-
PS ELFEXT (dB/100 m)	Typical value	27	27	27	25.8	25	22	21
	Category 6* (min.)	23	25	25	21.5	20.1	17.3	-
Return Loss (dB)	Typical value	27	27	27	25.8	25	22	21
	Category 6* (min.)	23	25	25	21.5	20.1	17.3	-

*Category 6 acc. to IEC 61156-5 ** For information only

Volition™ Category 6 Cabling System

Technical Specifications

Volition Category 6 U/UTP LSZH and PVC cable

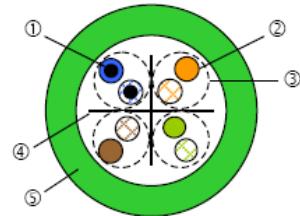
Cabling standards

- EN 50173
- ISO/IEC 11801
- TIA/EIA 568
- EN 50288-6-1
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emissions IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P	Green	6,00	38	468	95
2x4P	Green	6,0x18,1	90	1197	180
4P (PVC)	Green	6,60	37	518	95
2x4P (PVC)	Green	6,0 x 19,6	97	1561	180



1 – Conductor material: copper wire Ø 0,56 mm (23AWG)

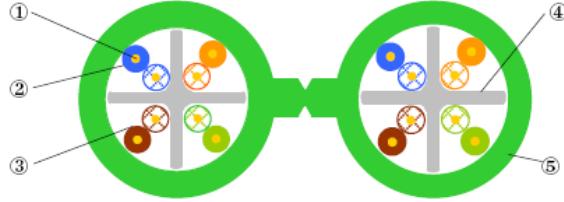
2 – Insulation material: Polyethylene Ø 0,98 mm

3 – Pairs: 4 and 8 (2X4)

4 – Cross separator

5 – Jacket material: LSZH or PVC

Colour: green



Electrical characteristics at 20°C

- Complete conductor resistance (max): $\leq 190 \text{ Ohm} / \text{km}$
- Insulation resistance (500V): $\geq 5000 \text{ M}\Omega\text{hm.km}$
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: $\leq 1600 \text{ pF} / \text{km}$
- Propagation velocity (NVP): 66%
- Characteristic Impedance at 100 MHz: $100 \pm 5 \Omega$

Mechanical installation characteristics

- Minimum bend radius (installation): 50 mm
- Minimum bend radius (installed): 25 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance

Frequency (MHz)	4	10	20	62.5	100	250	300**
Max. Attenuat. (dB/100m)	Typical value 3.6	5.7	8.3	14.8	19	31	34
	Category 6* (max.) 3.8	6	8.5	15.5	19.9	33	-
Min. Next (dB)	Typical value 71	65	61	53	50	44	43
	Category 6* (min.) 65.3	59.3	54.8	47.4	44.3	38.3	-
Min. ACR (dB)	Typical value 67.4	59.3	52.7	38.2	31	13	11
	Category 6* (min.) 61.5	53.3	46.3	31.9	24.4	5.3	-
PS Next (dB)	Typical value 68	62	58	50	47	41	40
	Category 6* (min.) 63.3	57.3	52.8	45.4	42.3	36.3	-
ELFEXT (dB/100 m)	Typical value 73	65	59	49	45	37	35
	Category 6* (min.) 58	50	44	34.1	30	22	-
PS ELFEXT (dB/100 m)	Typical value 70	62	56	46	42	34	32
	Category 6* (min.) 55	47	41	31.1	27	19	-
Return Loss (dB)	Typical value 27	27	27	25.8	25	22	22
	Category 6* (min.) 23	25	25	21.5	20.1	17.3	-

*Category 6 acc. to IEC 61156-5 ** For information only

Volition™ Category 5e Cabling System

Description - Category 5e/Class D cabling system

- The Volition Copper Cabling system offers a complete range of products to support Gigabit Ethernet applications over twisted pairs, according to Ethernet standard IEEE 802.3 (1GBASE-T). Volition Solutions provide electrical performance above the limits set by the standards ISO/IEC 11801, EN 50173 series and ANSI/TIA-568-C in permanent link, up to 90 m with 4 Volition™ RJ45 K5e jacks and Volition™ Category 5e cable, if installed according to the Volition™ Planning and Installation Guide.
- Volition Copper Cabling system offers a complete range of RJ45 jacks and sockets, cables, patch panels and patch cords. All the components of Volition are designed to guarantee optimal performance as a complete system.
- Volition™ Category 5e solution (standard bandwidth up to 100 MHz) supports 10 MHz, 100MHz and 1G Ethernet for those businesses with a limited need for bandwidth and a short to medium-term investment strategy in infrastructure.

Version	U/UTP Cat.5e	F/UTP Cat.5e
EMC	Low	Medium
Cables	U/UTP Cat.5e	F/UTP Cat.5e
Cords	U/UTP	F/UTP
RJ45	UTP	FTP
Class D	100 Mb/s 1 Gb/s	100 Mb/s 1 Gb/s

Volition RJ45 Faceplates and modules

- Available in many different formats compatible with UTP and FTP Category 5e RJ45 jacks
- Have automatic dust shutter when fitted with a jack
- Low depth when fitted with a jack

Ordering Information

REF. NO.
FP4MF1KND
FP4MF2KND
VOL-0712B
VOL-0714B
VOL-CHUK-1K
VOL-CHUK-2K
VOL-EF-F-1K
VOL-EF-A-1K
VOL-EFUK-1K
VOL-EFUK-2K
VOL-EFUK-4K
VOL-EF-BEV-2K
VOL-EF-BEV-4K
VOL-LJ6C-F-1K
VOL-LJ6C-A-1K
VOL-FPUK-LJ6C-F1K
VOL-FPUK-LJ6C-F2K
VOL-FPUK-LJ6C-F4K



Volition™ Category 5e Cabling System

Ordering Information

Ref. No.
60-516-09200
60-516-09225
VOL-BLI-K6
VOL-BLG-K6
VOL-BLT-K6
VOL-BMA-K6
VOL-BMT-K6
VOL-BMX-K6
VOL-BXN-K6
VOL-BXA-K6
VOL-GPL-K6
VOL-GSB-K6
VOL-GSN-K6
VOL-VIB-K6
VOL-VIG-K6
VOL-VPL-K6

Accessories for USA Faceplates



Coloured identifiers

- For identification of different service (data or telephony)

Ref. No.
VOL0790BL
VOL0790YL
VOL0790RD
VOL0790GR

Accessories for France Faceplates



Coloured identifiers

- For identification of different service (data or telephony)

Ref. No.
VOL0790BLND
VOL0790YLND
VOL0790RDND
VOL0790GRND

Accessories for UK faceplates



Blanking Plates

Ref. No.
VOL-LJ6C-F1K BLANK
VOL-EF-BLANK-12.5*50
VOL-EF-BLANK-25*50

Volition™ Category 5e Cabling System

Volition RJ45 K5e keystone jack



- Tool-less termination
- Re-usable jack
- Connector can be terminated with both solid and stranded wires
- Integral shutter
- Separate wire guide indicating the contact number and the wiring codes TIA 568A and TIA 568B
- IP50
- UTP – coloured jacks available
- Bulk packaging available



Ordering Information

Ref. No.
OCK5ES8
OCK5EF8
OCK5EU8
VOLOCK5EUB
VOLOCK5EUG
VOLOCK5EUR
VOLOCK5EUY
VOLOCK5EUBK
VOLOCK5EUO
VOLOCK5EUA

Volition™ Category 5e Cabling System

Volition RJ45 19" Patch Panels for K5E Jacks

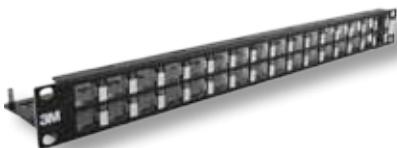
- Modular patch panel for RJ45 keystone jacks
- Delivered without connectors
- Can be equipped with Volition RJ45 K5E Jacks
- Direct and individual earthing protection upon insertion of jacks (FTP and STP)
- Delivered with screws and cage nuts
- Compatible with the RJ45 splitter locking system (Type CBV in 16 and 24 ports versions in black)

Ordering Information



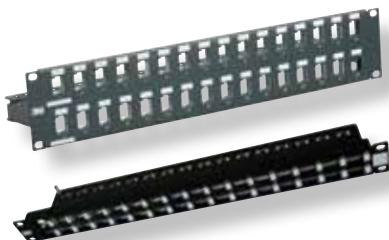
16 ports

Ref. No.
VOLPPCBF16K
VOLPPCBV16K
VOLPPCAF16K
VOLPPUDF16K



24 ports

Ref. No.
VOLPPCBF24K
VOLPPCBV24K
VOLPPCAF24K
VOLPPUDF24K



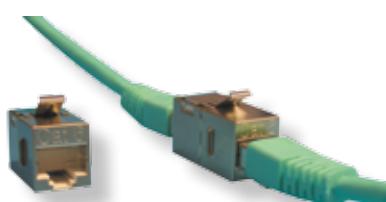
32 ports

Ref. No.
VOLPPCBF32K
VOLPPCAF32K
VOL-PPCBHD-F32K



48 ports

Ref. No.
VOLPPCBF48K
VOLPPCAF48K



Socket Connector RJ45 / RJ45

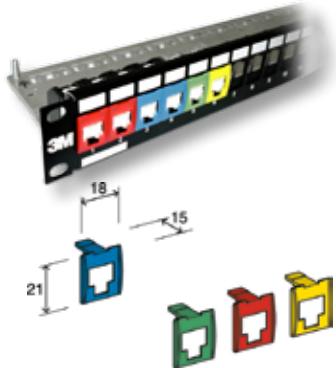
- Used to equip feed-through patch panels
- May be used in consolidation point applications as defined by ISO 11801

Category 5E, shielded

Ref. No.
VOL78005

Volition™ Category 5e Cabling System

Accessories for Volition RJ45 19" Patch Panels



Coloured identifiers

- Cannot be used with RJ45 splitters

Ref. No.
VOLPCCB
VOLPCCY
VOLPCCR
VOLPCCG



Coloured identifiers with label holder

Ref. No.
VOLPECB
VOLPECY
VOLPECR
VOLPECG



RJ45 keystone blanking caps

Ref. No.
VOL0300BK
VOL0300

Volition™ Category 5e Cabling System

Volition RJ45 patch cords

- Compliant to Category 5e hardware performance
- These cords allow the implementation of Class D ISO/IEC Channel and Category 5e TIA Channels at 100 MHz
- Round cable
- Moulded boot
- Straight wiring
- PVC or LSZH jacket
- Standard colour: Grey



Volition F/UTP LSZH grey

Grey		Ref. No.
1,00 m		VOL5EFLL1
2,00 m		VOL5EFLL2
3,00 m		VOL5EFLL3
5,00 m		VOL5EFLL5

Volition F/UTP LSZH red

Red		Ref. No.
1,00 m		VOL5EFLL1R
2,00 m		VOL5EFLL2R
3,00 m		VOL5EFLL3R
5,00 m		VOL5EFLL5R

Volition F/UTP LSZH yellow

Yellow		Ref. No.
1,00 m		VOL5EFLL1Y
2,00 m		VOL5EFLL2Y
3,00 m		VOL5EFLL3Y
5,00 m		VOL5EFLL5Y

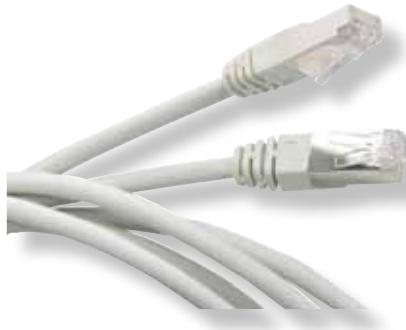
Volition F/UTP LSZH green

Green		Ref. No.
1,00 m		VOL5EFLL1G
2,00 m		VOL5EFLL2G
3,00 m		VOL5EFLL3G
5,00 m		VOL5EFLL5G

Volition F/UTP LSZH blue

Blue		Ref. No.
1,00 m		VOL5EFLL1B
2,00 m		VOL5EFLL2B
3,00 m		VOL5EFLL3B
5,00 m		VOL5EFLL5B

Volition™ Category 5e Cabling System



Volition U/UTP LSOH grey

Grey	Ref. No.
1,00 m	VOL5EULL1
2,00 m	VOL5EULL2
3,00 m	VOL5EULL3
5,00 m	VOL5EULL5

Volition U/UTP LSOH red

Red	Ref. No.
1,00 m	VOL5EULL1R
2,00 m	VOL5EULL2R
3,00 m	VOL5EULL3R
5,00 m	VOL5EULL5R

Volition U/UTP LSOH yellow

Yellow	Ref. No.
1,00 m	VOL5EULL1Y
2,00 m	VOL5EULL2Y
3,00 m	VOL5EULL3Y
5,00 m	VOL5EULL5Y

Volition U/UTP LSOH green

Green	Ref. No.
1,00 m	VOL5EULL1G
2,00 m	VOL5EULL2G
3,00 m	VOL5EULL3G
5,00 m	VOL5EULL5G

Volition U/UTP LSOH blue

Blue	Ref. No.
1,00 m	VOL5EULL1B
2,00 m	VOL5EULL2B
3,00 m	VOL5EULL3B
5,00 m	VOL5EULL5B

Volition U/UTP PVC grey

Grey	Ref. No.
1,00 m	VOL5EUPL1
2,00 m	VOL5EUPL2
3,00 m	VOL5EUPL3
5,00 m	VOL5EUPL5

Volition™ Category 5e Cabling System

Category 5e Cable

Volition Category 5E cables

- Volition™ Cables allow easy termination to RJ45 jacks. The Volition™ Category 5e cables are available in U/UTP and F/UTP versions, with PVC or LSZH (Low Smoke Zero Halogen) jacket.

Copper cable, 4 pairs, Category 5E, U/UTP, LS0H

Ref. No.
• 4 pairs, 305 m box
VOL5EUL4 305
• 4 pairs, 1000 m drum
VOL5EUL4 1000
• 2 x 4 pairs, 1000 m drum
VOL5EUL8 1000

Copper cable, 4 pairs, Category 5E, U/UTP, PVC

Ref. No.
• 4 pairs, 305 m box
VOL5EUP4305
• 4 pairs, 1000 m drum
VOL5EUP41000
• 2 x 4 pairs, 1000 m drum
VOL5EUP81000

Copper cable, 4 pairs, Category 5E, F/UTP, LS0H

Ref. No.
• 4 pairs, 305 m box
VOL5EFL4 305
• 4 pairs, 500 m drum
VOL5EFL4 500
• 4 pairs, 1000 m drum
VOL5EFL4 1000
• 2 x 4 pairs, 500 m drum
VOL5EFL8 500
• 2 x 4 pairs, 1000 m drum
VOL5EFL8 1000

Copper cable, 4 pairs, Category 5E, F/UTP, PVC

Ref. No.
• 4 pairs, 305 m box
VOL5EFP4305
• 4 pairs, 1000 m drum
VOL5EFP41000

Volition™ Category 5e Cabling System

Technical Specifications

Volition Category 5E F/UTP LSZH and PVC cable

Cabling standards

- EN 50173
- ISO/IEC 11801
- TIA/EIA 568
- EN 50288-2-1
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emissions IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P (LSZH)	Green	5,75	36	371	80
2x4P (LSZH)	Green	6,0x12,5	72	782	160
4P (PVC)	Green	5,75	35	417	80
2x4P (PVC)	Green	6,0 x 12,5	67	825	160

1 – Conductor material: copper wire Ø 0,50 mm (23AWG)

2 – Insulation material: Polyethylene Ø 0,95 mm

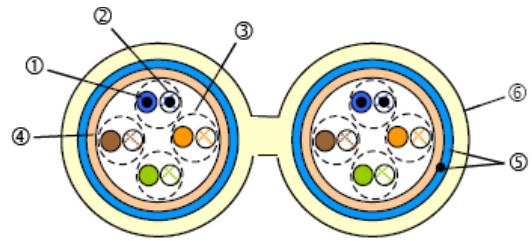
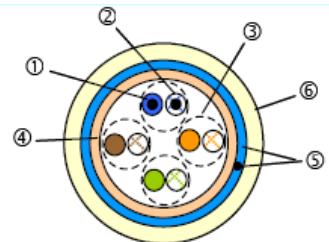
3 – Pairs: 4 and 8 (2x4)

4 – Synthetic tape

5 – Alu/polyester tape and copper drain wire

6 – Jacket material: LSZH or PVC

Colour: green



Electrical characteristics at 20°C

- Complete conductor resistance (max): ≤ 190 Ohm / km
- Insulation resistance (500V): ≥ 5000 MΩ·km
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: ≤ 1600 pF / km
- Propagation velocity (NVP): 78%
- Characteristic Impedance at 100 MHz: $100 \pm 5 \Omega$
- Transfer impedance at 1 MHz: $40 \text{ m}\Omega / \text{m}$
at 10 MHz: $40 \text{ m}\Omega / \text{m}$
at 30 MHz: $50 \text{ m}\Omega / \text{m}$
at 100 MHz: $200 \text{ m}\Omega / \text{m}$

Mechanical installation characteristics

- Minimum bending radius (installation): 50 mm
- Minimum bending radius (installed): 25 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

Electrical performance

Frequency (MHz)	4	10	20	62.5	100	155	200**
Max. Attenuat. (dB/100m)	Typical value	3.8	6	8.5	15.2	19.5	25
	Category 5* (max.)	4.1	6.5	9.3	17	22	-
Min. Next (dB)	Typical value	63	57	52	45	42	39
	Category 5* (min.)	56.3	50.3	45.8	38.4	35.3	-
Min. ACR (dB)	Typical value	59.2	51	43.5	29.8	22.5	14
	Category 5* (min.)	52.2	43.8	36.5	21.4	13.3	-
PS Next (dB)	Typical value	60	54	49	42	39	36
	Category 5* (min.)	53.3	47.3	42.8	35.4	32.3	-
ELFEXT (dB/100 m)	Typical value	63	55	48	39	35	31
	Category 5* (min.)	52	44	38	28	24	-
PS ELFEXT (dB/100 m)	Typical value	60	52	45	36	32	28
	Category 5* (min.)	49	41	35	25	21	-
Return Loss (dB)	Typical value	25	25	25	23.8	23	22
	Category 5* (min.)	23	25	25	21.5	20.1	-

*Category 5e acc. to IEC 61156-5 ** For information only

Copper Cabling Solutions

Volition™ Category 5e Cabling System

Technical Specifications

Volition Category 5E U/UTP LSZH and PVC cable

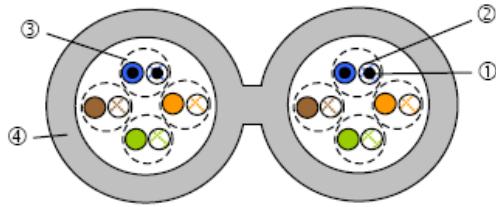
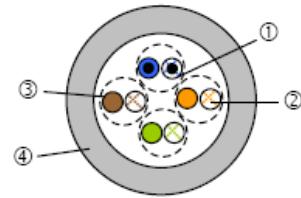
Cabling standards

- EN 50173
- ISO/IEC 11801
- TIA/EIA 568
- EN 50288-3-1
- IEC 61156-5

Environmental characteristics (LSZH)

- Flammability performance IEC 60332-1
- Smoke emissions IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter	Weight	Fire loading	Max. Pulling Tension (N)
		mm	kg/km	MJ/Km	
4P (LSZH)	Green	5,1	27	303	80
2x4P (LSZH)	Green	5,1 x 10,5	55	600	160
4P (PVC)	Green	5,1	28	392	80
2x4P (PVC)	Green	5,1 x 10,5	53	658	160



1 – Conductor material: copper wire Ø 0,51 mm (23AWG)

2 – Insulation material: Polyethylene Ø 0,90 mm

3 – Pairs: 4 and 8 (2X4)

4 – Jacket material: LSZH or PVC

Colour: green

Electrical characteristics at 20°C

- Complete conductor resistance (max): ≤ 190 Ohm / km
- Insulation resistance (500V): ≥ 5000 MΩ.km
- Dielectric strength at 50 Hz 1 kVdc / 1 min (no breakdown)
- Capacitance unbalance – pair to ground: ≤ 1600 pF / km
- Propagation velocity (NVP): 66%
- Characteristic Impedance at 100 MHz: 100 ± 5 Ω

Mechanical installation characteristics

- Minimum bending radius (installation) 40 mm
- Minimum bending radius (installed) 20 mm
- Temperature range (°C)
 - Transport / storage / installation: 0 to +50°C
 - Service: -20 to +60°C

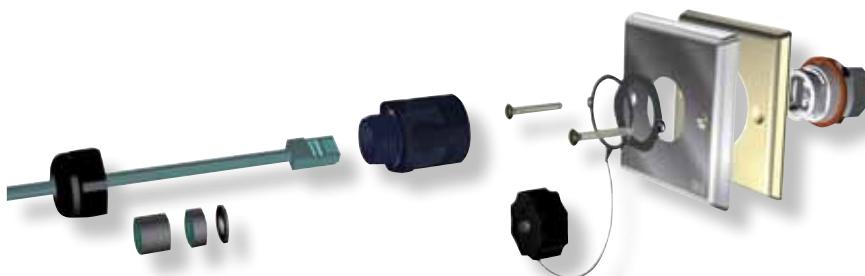
Electrical performance

Frequency (MHz)	4	10	20	62.5	100	155**	200**
Max. Attenuat. (dB/100m)	Typical value	3.8	6	8.5	15.2	19.5	25
	Category 5* (max.)	4.1	6.5	9.3	17	22	-
Min. Next (dB)	Typical value	63	57	52	45	42	39
	Category 5* (min.)	56.3	50.3	45.8	38.4	35.3	-
Min. ACR (dB)	Typical value	59.2	51	43.5	29.8	22.5	14
	Category 5* (min.)	52.2	43.8	36.5	21.4	13.3	-
PS Next (dB)	Typical value	60	54	49	42	39	36
	Category 5* (min.)	53.3	47.3	42.8	35.4	32.3	-
ELFEXT (dB/100 m)	Typical value	63	55	48	39	35	31
	Category 5* (min.)	52	44	38	28	24	-
PS ELFEXT (dB/100 m)	Typical value	60	52	45	36	32	28
	Category 5* (min.)	49	41	35	25	21	-
Return Loss (dB)	Typical value	25	25	25	23.8	23	22
	Category 5* (min.)	23	25	25	21.5	20.1	-

*Category 5e acc. to IEC 61156-5 ** For information only

Industrial RJ45 Connector

Description - Industrial RJ45 Connector



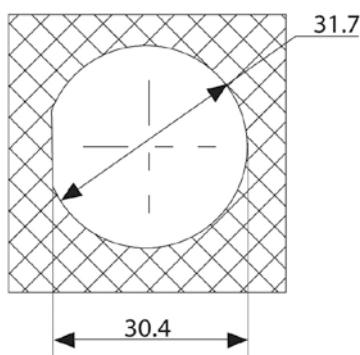
A complete, easy to use IP67 solution for an industrial network based on copper RJ45 connections. The system consists of shells which go over the RJ45 connection giving demountable IP67 protection that is waterproof and dustproof when connected. The system is suitable for use with 3M category 5e, 6 or 6A jacks and with 3M's patchcords, whether watertight or standard. A cap is available for the socket shell to protect the receptacle when it is not in use. The shell for the patchcord plug does not need to be fitted using a tool, so it is easy to move when required.

Features

- IP67 Solution
- Assembly of the shell on a patchcord does not require any tools
- Patchcord shell may be used on most cords in the market
- Installation of the connector and base plate does not require any tools
- Connector is removable from the base plate and reusable
- Cable entry to top or bottom of the 3M jack
- Integrated shutter protection on the jack when the patchcord is demounted
- May be used with solid or stranded wires AWG 26 to 22

Benefits

- Suitable for difficult or industrial environments
- Easily Implemented. Time saving
- Possibility to retrofit IP67 protection to existing systems
- Quality and speed of connection is not dependent on the state of the tools nor on the competence of the installer
- No wasted connectors. No time wasted waiting for a new delivery of product
- Easier to observe the minimum bend radius. Easier to use in boxes with shallow depth
- Sealing increased with dust, particularly during the installation or in dirty environment
- Compatible with many cables on the market



Technical Details

- Locking reversed bayonet
- Sealing IP67: conforms to IEC 60.512-5 test 9a
- Fire/Smoke: UL94 V0

Industrial RJ45 Connector



Ordering Information

IP67 Plastic shell for patchcords

- Easily fitted to most patchcords
- May be assembled without tools
- Reverse bayonet closing mechanism

IP67 Plastic shell

Ref. No.

I67M



IP 67 Receptacle

Ref. No.

I67B



Receptacle Cap

- For 6 IP67 receptacles

Cap

Ref. No.

I67C

Industrial RJ45 Connector

RJ45 Module for DIN Rail Mounting

- Does not include connector



Ref. No.

VOL78003

RJ45 Module for DIN Rail Mounting

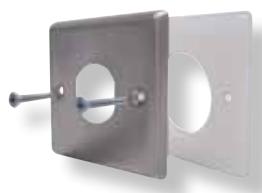


Left and Right Face Covers

- Does not include DIN Rail Module
- **Dust protection**

Ref. No.

VOL78006



Stainless Steel Faceplate for IP67 Receptacle

- Includes sealing gaskets and 2 M4 fixing screws
- Dimensions: 86 x 86 mm
- **Stainless Steel Faceplate for IP67**

Ref. No.

I67FP1S

Splitters

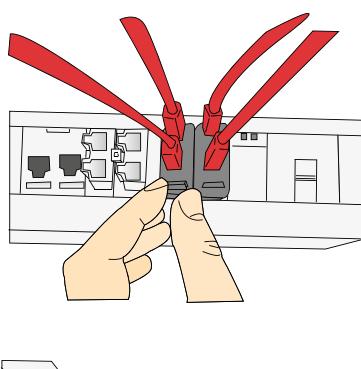


Description - Splitters

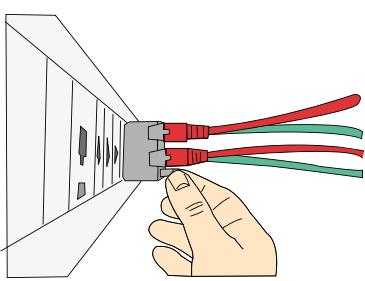
New splitters are compatible with older faceplates and panels. Lockable on new keystone panels of 16 and 24 ports. Lockable on all new 3M French style wall outlets. Overall dimension: 50 x 34 x 21 mm

New Splitter

- How to install the splitter in French Style Faceplates



Mounting	Locking	Unlocking and Removal
1	1	1
2	2	2
3		3



The new 3M splitter range offers:

- optimal reliability of connection
- locking function to selected patch panels and French style faceplates
- improved mechanical characteristics
- small overall dimensions
- retrofittable to older faceplates and panels, without the locking function

The new design allows:

- improved mechanical hold due to the creation of two zones of support on the splitter
- mechanical locking by expandable fitting
- Easy removal thanks to a pull knob patented by 3M laboratories

Diagrams of the New Installation Process

Features

- Two zones of support on the splitter
- Mechanical lock with expandable fitting
- Removal by pulling a knob
- Removal knob located in bottom of the splitter
- Improved ergonomics
- Complete range for 4 applications

Benefits

- Stability of the splitter on the faceplate or panel
- Secure fixing of the splitter
- Simple removal using only one hand
- Removal knob easily accessible on panel
- Less space taken up in the workspace
- Applications: Ethernet/Ethernet, Ethernet/Telephony, Ethernet/Numeris ISDN, Telephony/Telephony

Splitters

UTP and FTP RJ45 Splitters

- Consists of a RJ45 plug and 2 RJ45 sockets RJ45 for sharing pairs
- Adaptable to all RJ45 panels 16, 24, 32 and 48 ports and RJ45 Keystone faceplates
- Polycarbonate/ABS white colour



RJ45	P1	P2
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8

Parallel Telephony – Lockable

UTP

Ref. No.

P29659AA



RJ45	P1	P2
1	4	N.C.
2	5	N.C.
3	7	N.C.
4	N.C.	4
5	N.C.	5
6	8	N.C.
7	N.C.	7
8	N.C.	8

Telephone/Telephone – Lockable

UTP

Ref. No.

P29643AA



RJ45	P1	P2
1	1	N.C.
2	2	N.C.
3	3	N.C.
4	N.C.	1
5	N.C.	2
6	6	N.C.
7	N.C.	3
8	N.C.	6

Ethernet 100BASE-TX/ Ethernet 100BASE-TX – Lockable

FTP

Ref. No.

P29641AA



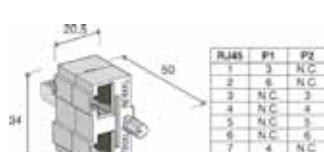
RJ45	P1	P2
1	1	N.C.
2	2	N.C.
3	3	N.C.
4	N.C.	4
5	N.C.	5
6	6	N.C.
7	N.C.	7
8	N.C.	8

Ethernet 100BASE-TX/ Digital Telephone – Lockable

FTP

Ref. No.

P29645AA



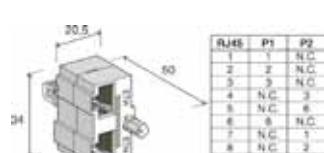
RJ45	P1	P2
1	3	N.C.
2	6	N.C.
3	N.C.	3
4	N.C.	4
5	N.C.	5
6	N.C.	6
7	4	N.C.
8	9	N.C.

Numeris (ISDN)/ Numeris (ISDN)

UTP

Ref. No.

P29324BA



RJ45	P1	P2
1	1	N.C.
2	2	N.C.
3	3	N.C.
4	N.C.	3
5	N.C.	6
6	8	N.C.
7	N.C.	1
8	N.C.	2

Ethernet 10BASE-T/ Ethernet 10BASE-T

FTP

Ref. No.

P29342BA

Boxes for Surface Mounting

Description - Boxes for Surface Mounting



A good choice of models

- For mosaic standard faceplates with the format 22,5 X 45 mm or 45 X 45 mm used for:
 - telephone points (PBI), data points (RJ45)
 - Clip on front plates

Easy to install

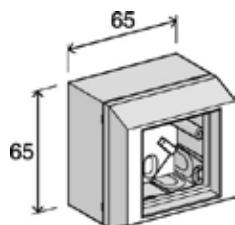
- Pre-pierced for cable entry or are provided with push in openings
 - Surface mounted boxes in ABS, single or multiple sockets

Safe to install

- All the models are equipped with either an insulating partition or distinct compartments

45 x 45 mm Module Supports

Single box in ABS

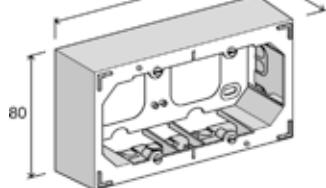


- PBM1 box for surface mounting 45 x 45 m faceplates
- White (RAL 9011)
- 65 x 65 x 48 mm

Ref. No.

P28420AA

Single box in ABS



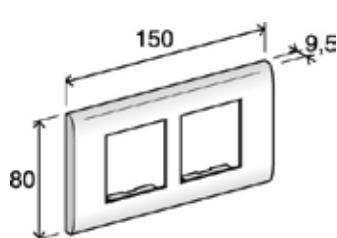
PBM2 box for surface mounting 45 x 45 m faceplates

- For two 45 x45 mm faceplates
- Fits PBM2 Cover (P28691AA)
- White (RAL 9011)
- 150 x 80 x 42 mm

Ref. No.

P28690AA

PBM2 box



PBM2 Cover

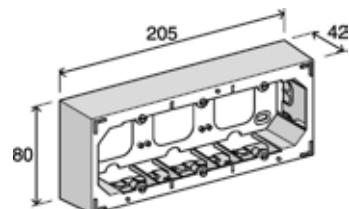
- For mounting on box PBM2
- Requires two faceplate supports (P28692AA)
- White (RAL 9011)
- 150 x 80 x 9,5 mm

Ref. No.

P28691AA

PBM2 Cover

Boxes for Surface Mounting



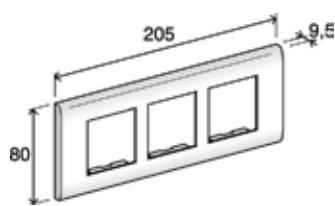
PBM3 Box for surface mounting 45 x 45 mm faceplates

- For three 45 x 45 mm faceplates
- Fits PBM3 Cover (P28691AA)
- White (RAL 9011)
- 205 x 80 x 42 mm

Ref. No.

P28695AA

PBM3 box

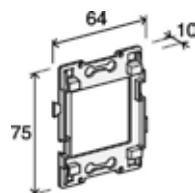


PBM3 Cover

- For mounting on box PBM3
- Requires three faceplate supports (P28692AA)
- White (RAL 9011)
- 205 x 80 x 9,5 mm

Ref. No.

P28696AA



Faceplate Support

- Fits between the box and the cover
- Polycarbonate with 30% fibre glass
- 75 X 64 X 10 mm

Ref. No.

P28692AA



Fibre Cabling Solutions

3M™ offers a complete line of single-mode & multimode fibre optic connectors including Volition VF-45™, ST, SC, FC and LC styles. These are available with a range of on-site termination processes including No Polish NPC, Hot Melt, Crimplok and VF-45. Also offered is preterminated MPO system for rapid deployment in backbones or data centre cabling. To complement this, connectors are also available terminated as pigtails for direct splicing or patch cords in a variety of lengths to complete the fibre links.

There is also an extensive range of assembly kits, mounting hardware & accessories including 19" patch panels and distribution boxes. The Fibrlok™ mechanical splice, available in single- and multifibre versions for single- and multimode fibre completes the offering of Fibre Interconnect Solutions.

2. Fibre Cabling Solutions	54 - 103
 2.1 Volition™ VF-45™	59 - 69
VF-45™ Socket	59 - 59
VF-45 Tools and Consumables	60 - 61
Volition™ Cleaning Kits	62 - 63
Outlets and faceplates for wall and trunking mounting	63 - 63
Volition™ 19" Patch Panels	64 - 64
Patch Cable, Multimode	65 - 65
50/125/250µm	65 - 65
62,5/125/250µm	66 - 66
Patch Cable, Single-mode	67 - 67
9/125/250µm	67 - 67
Test leads - Reference Cable Kits	68 - 68
Media Converters 10Mb/s and 100Mb/s	69 - 69
 2.2 Volition™ Installation Indoor Cable	70 - 73
Cable 50/125µm, 62,5/125µm, 9/125µm	70 - 73
Cable 50/125µm	71 - 71
Cable 62,5/125µm	72 - 72
Cable 9/125µm	73 - 73
 2.3 Volition™ Installation Indoor/Outdoor Cable	74 - 80
Indoor / Outdoor Cable, 50/125/250µm, 62,5/125/250um, Singlemode 9/125/250um	74 - 80
Cable, 50/125/250µm	75 - 76
Indoor/Outdoor glass yarn, with light rodent protection, multimode	75 - 75
Indoor/Outdoor cables with corrugated steel armouring for full rodent protection, multimode	76 - 76
Cable, 62,5/125/250µm, OM1	77 - 78
Indoor/Outdoor glass yarn, with light rodent protection, multimode	77 - 77
Indoor/Outdoor cables with corrugated steel armouring for full rodent protection, multimode	78 - 78
Cable, 9/125/250µm, OS2	79 - 80
Indoor/Outdoor glass yarn, with light rodent protection, multimode	79 - 79
Indoor/Outdoor cables with corrugated steel armouring for full rodent protection, multimode	80 - 80
 2.4 Volition™ Break-out Fibre Cable	81 - 83
Cable 50/125 um, 62.5/125 um, 9/125 um	81 - 83
Indoor breakout cable with light rodent protection	
Multimode 50/125, OM2, OM3, OM4	82 - 82
Indoor breakout cable with light rodent protection	
Multimode 62.5/125, OM1	83 - 83
Indoor breakout cable with light rodent protection	
Singlemode 9/125 OS1	83 - 83
 2.5 3M No Polish Connectors	84 - 87
SC No Polish Connector	84 - 85
LC No Polish Connector	86 - 86
3M Tools for NPC-SC	87 - 87

2.6	3M LC Connectors, Couplings and Pigtailed	88 - 89
	3M™ LC Connectors	88 - 88
	3M™ LC Couplings	89 - 89
	3M™ LC Pigtailed	89 - 89
2.7	3M SC Connectors, Couplings and Pigtailed	90 - 92
	3M™ SC Connectors	90 - 90
	3M™ SC Couplings	91 - 91
	3M™ SC Pigtailed	92 - 92
2.8	3M ST Connectors, Couplings and Pigtailed	93 - 94
	3M™ ST Connectors	93 - 93
	3M™ ST Couplings	94 - 94
	3M™ ST Pigtailed	94 - 94
2.9	3M FC Connectors, Couplings and Pigtailed	95 - 96
	3M™ FC Connectors	95 - 95
	3M™ FC Couplings	96 - 96
	3M™ FC Pigtailed	96 - 96
2.10	3M™ Hot Melt System	97 - 100
	3M Hot Melt optical fibre connector assembly system	97 - 99
	3M Hot Melt Autopolisher / 3M Tubing Kit	100 - 100
2.11	3M™ Crimplok Connector System	101 - 101
	Crimplok	101 - 101
2.12	3M MPO Preterminated System	102 - 103
2.13	3M™ Fibrlok System	104 - 109
	3M Fibrlok II Universal Optical Splice 2529	104 - 105
	3M Fibrlok II splice/holder	106 - 107
	Fibrlok 2540G Fibre Splice	108 - 109
2.14	3M™ Cable Assemblies - Multimode Patch Cords	110 - 112
	Patch Cords SC-LC / LC-LC	110 - 110
	Patch Cords ST-ST / SC-SC	111 - 111
	Patch Cords ST-SC	112 - 112

2.15 3M™ Cable Assemblies - Single-mode Patch Cords	113 - 114
Patch Cords ST-ST / ST-SC / SC-SC	113 - 113
Patch Cords SC/APC 8°-SC/PC SC/APC 8°-SC/APC 8° LC-LC	114 - 114
2.16 3M Preterminated Pigtail Modules	115 - 116
2.17 3M™ 19" Patchpanels	117 - 121
3M SPP3-E patchpanel	117 - 118
3M Eco-SPP3 range	119 - 121
2.18 3M™ Wall Outlets	122 - 124
3M 2552 SA Wall Mount Fibre Distribution Box	122 - 122
3M VOL-0255 FTTX Wall Outlet and Keystone adapter	123 - 123
3M 8686 Termination Box	124 - 124
2.19 3M™ Connection Boxes	125 - 138
PBPO/C Connection Box (Indoor)	125 - 125
PBPO 12	126 - 126
PBPO 24	127 - 127
PBPO 6-12	128 - 128
Ordering Information 3M™ Connection Boxes	129 - 129
3M VKA 2/GF	130 - 130
3M VKA 2/GF-EFM with single fibre management	131 - 131
3M VKA 4/GF, 3M VKA 8/GF	132 - 132
3M VKA 8 SCM for direct splicing	133 - 133
MDUO 12 Demarcation Box	134 - 134
Interface Box MDUO 24	135 - 135
MDUO 12 & 24	136 - 136
MDUO 48 Interface Box	137 - 137
MDUO 48	138 - 138
2.20 3M™ 19" MODF 2K Distribution Frame	139 - 142
3M MODF 2K/19" – Modular technology for 19" subracks	139 - 142

2. Fibre Cabling Solutions



Volition™ VF-45™

Description - VF-45™ Socket

The Volition socket is part of 3M's duplex, small form factor fibre optic interconnect system. It is designed for high density applications such as server racks, fibre-to-the-desk networks, fibre channel and storage area networks.

It is a direct replacement for the standard RJ45 modular jack, bringing the simplicity of the



Ref. No.

VOL-0001



• VF-45 Socket, Single-mode

- including fibre holder
- PU: 96 Units, MOQ: 1 PU

Ref. No.

VOL-0002



• Fibreholder for VF-45 Socket, Multimode and Single-mode

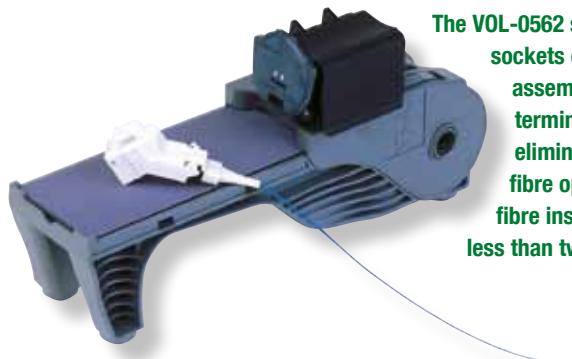
- Spare Part for VOL-0001 and VOL-0002
- PU: 96 Units, MOQ: 1 PU

Ref. No.

VOL-0011

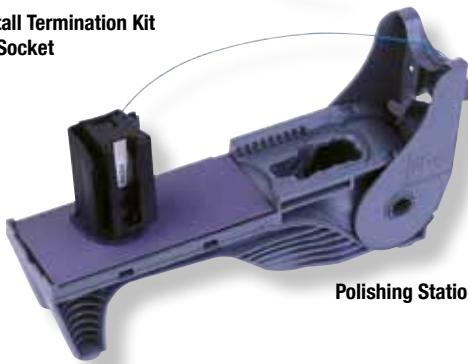
2.1 Volition™ VF-45™

Description - VF-45 Tools and Consumables



The VOL-0562 socket termination kit contains all the materials necessary to install VF-45 sockets onto duplex fibre optic cable. Cable and fibre strippers, polishing and socket assembly fixture and inspection viewer - all fit into a compact carrying case. The termination kit works in concert with the 'snap together' design of the socket to eliminate many of the steps and much of the labour associated with traditional fibre optic terminations. With the VF-45 socket termination kit, you can complete fibre installations faster and easier; duplex fibre terminations can be completed in less than two minutes.

Volition™ VF-45™ Quick Install Termination Kit
with ™ VF-45™ Socket



Polishing Station



Microscope 100x

Ordering Information



- VF-45 Quick Install VOL-0563 Termination Kit,
complete with 100x dual light microscope
- PU: 1 pc, MOQ: 1 pc

Ref. No.

VOL-0563



- Microscope, dual light
- PU: 1 pc, MOQ: 1 pc

Ref. No.

VOL-0563M



- Polishing Station Sub Assembly
- PU: 1 pc, MOQ: 1 pc

Ref. No.

VOL-0562H

2.1 Volition™ VF-45™

Tools and Consumables

Ref. No.
 <ul style="list-style-type: none"> • Polishing Puck Assembly • PU: 1, MOQ: 1
 <ul style="list-style-type: none"> • Lapping Film • PU: 50, MOQ: 1
 <ul style="list-style-type: none"> • Jacket Stripper • PU: 1, MOQ: 1
 <ul style="list-style-type: none"> • Kevlar Scissors • PU: 1, MOQ: 1
 <ul style="list-style-type: none"> • Buffer Tube Stripper • PU: 1, MOQ: 1
 <ul style="list-style-type: none"> • Fibre Stripper, 250μ coating • PU: 1, MOQ: 1
 <ul style="list-style-type: none"> • Bottle, Alcohol (empty) • PU: 12, MOQ: 1
 <ul style="list-style-type: none"> • Cleaning Wires (12 wires per tube) • PU: 1, MOQ: 1
 <ul style="list-style-type: none"> • Lint Free Wipes • PU: 100, MOQ: 1
 <ul style="list-style-type: none"> • Quick Polish Cleave Button • PU: 1, MOQ: 1
 <ul style="list-style-type: none"> • Polishing Puck Face • PU: 12, MOQ: 1

2.1 Volition™ VF-45™

Description - Volition™ Cleaning Kits



Volition™ VF-45™ Maintenance Cleaning Kit



Volition™ VF-45™ Mechanical Plug Cleaner

Ordering Information



- VF-45 Maintenance Cleaning Kit
- Incl. Cleaning Fluid
- PU: 1, MOQ: 1

Ref. No.

VOL-0573

- VF-45 Cleaning Fluid
- Bottle, 473 ml
- PU: 12, MOQ: 1

Ref. No.

VOL-0570A



- VF-45 Mechanical Plug Cleaner
- PU: 1, MOQ: 1

Ref. No.

VOL-0570B

- VF-45 Cleaning Wipes
- PU: 200, MOQ: 1

Ref. No.

VOL-0570C

2.1 Volition™ VF-45™

Outlets and faceplates for wall and trunking mounting

• Wall Mount

Volition wall mount outlets can house up to two VF-45 sockets; one VF-45 and one RJ45 or two RJ45 sockets, providing they employ keystone latching and that they are a compatible size.

• Flush Mount

The VOL-0257 flush mount outlet comprises a 45 x 90mm clip-in module that is used in conjunction with a separately supplied mounting and faceplates. Typically used in trunking or pillar applications, it can house up to two VF-45 sockets.

• Furniture

Volition modular furniture outlets will house a maximum of two VF-45 sockets. To save space, the VF-45 plug lays parallel to the furniture partition. The outlets are available in white.

• Multiway

The 2552 VF multiway outlet was developed primarily for zone cabling. Up to six VF-45 sockets can be installed. Very easy assembly and clearly laid-out fibre management are combined in this robust plastic box.

Specification

- Wall mount outlets available in white
- Guaranteed minimum bend radius of 25mm
- Integrated strain relief for horizontal cables

- Hybrid applications possible
- Compact design of wall mount outlet results in only a 28 mm protrusion from the wall

Ordering Information



- Wall Outlet for 2 x VF-45 Socket
- Plastic, white, similar to RAL 9010
- Size (H x W x D): 80 x 80 x 28 mm
- PU: 48 units, MOQ: 1

Ref. No.

VOL-0255W

Ref. No.

VOL-0256W



- Flush Mount Outlet for 2 x VF-45 Socket
- Plastic, white, similar to RAL 9010
- Size: 45 x 90 mm
- PU: 48 units, MOQ: 1

Ref. No.

VOL-0257W



- Furniture Outlet for 2 x VF-45 Socket, Plastic White
- Size: 118 x 75 x 30 mm
- PU: 48 units, MOQ: 1

Ref. No.

VOL-0350W



Further Information on 2552SA see page 122

2.1 Volition™ VF-45™

Description

Volition™ 19" Patch Panels

The Volition patch panel range offers a suitable patch panel for every installation requirement. The 'flush mount' technology of the VF-45™ sockets provides a smart and maximum port density solution resulting in efficient use of the space available in the 19" rack.

Specifications

- Versions: 1U 24 ports and 2U 48 ports
- Colour: - cream, similar to RAL 1013
- Internal features to ensure secure fixing of incoming cables and correct storage of excess fibre
- Sliding drawer feature for easy access
- Simple installation of the VF-45 sockets
- Easy cable management

Ordering Information



	Ref. No.
• Patch Panel, 24 Ports, 1U • sliding drawer version • PU: 1, MOQ: 1	VOL-430-ES
• Patch Panel, 48 Ports, 2U • sliding drawer version • PU: 1, MOQ: 1	VOL-432-ES



	Ref. No.
• Patchcord Management - Panel • PU: 1, MOQ: 1	VOL-499-E



	Ref. No.
Blanking plug for VF-45 Ports, PU: 50, MOQ: 1	VOL-0300B
• Bright White	
• Black	VOL-0300BK

2.1 Volition™ VF-45™

Description - Patch Cable, Multimode 50/125/250µm

Factory made VF-45 duplex patch cables in various lengths are used for patching between sockets or for making the connection to transceivers on the workstation, hub or switch. The patch cables are a universal type, which is both riser and LSZH rated. Hybrid cables to connect ST, SC, LC and MTRJ interfaces are also available.

Other Hybrids available upon request.

Specifications

- Duplex connection
- Factory made VF-45 duplex patch cables in various lengths
- Automatic dust protection protects fibres in unmated condition
- Tested to TIA/EIA and IEC performance requirements
- Patchcords made with 3M's innovative coated fibre, GGP, minimum bend radius 25 mm

Ordering Information



VF-45-Connector to VF-45-Connector, 50/125µm, LSZH

- PU: 12, MOQ: 1

Length:

• 1 m	VOL-V5L /R 1
• 2 m	VOL-V5L /R 2
• 3 m	VOL-V5L /R 3
• 5 m	VOL-V5L /R 5
• 8 m	VOL-V5L /R 8
• 15 m	VOL-V5L /R 15
• 30 m	VOL-V5L /R 30



VF-45-Connector to ST-Connector, 50/125µm, LSZH

- PU: 12, MOQ: 1

Length:

• 1 m	VOL-T5L /R 1
• 2 m	VOL-T5L /R 2
• 3 m	VOL-T5L /R 3
• 5 m	VOL-T5L /R 5
• 8 m	VOL-T5L /R 8
• 15 m	VOL-T5L /R 15
• 30 m	VOL-T5L /R 30



VF-45-Connector to SC-Connector, 50/125µm, LSZH

- PU: 12, MOQ: 1

Length:

• 1 m	VOL-C5L /R 1
• 2 m	VOL-C5L /R 2
• 3 m	VOL-C5L /R 3
• 5 m	VOL-C5L /R 5
• 8 m	VOL-C5L /R 8
• 15 m	VOL-C5L /R 15
• 30 m	VOL-C5L /R 30



VF-45™-Connector to MTRJ-Connector, 50/125µm, LSZH

- PU: 12, MOQ: 1

Length:

• 1 m	VOL-M5L /R 1
• 2 m	VOL-M5L /R 2
• 3 m	VOL-M5L /R 3
• 5 m	VOL-M5L /R 5
• 8 m	VOL-M5L /R 8



VF-45™-Connector to LC-Connector, 50/125µm, LSZH

- PU: 12, MOQ: 1

Length:

• 1 m	VOL-L5L /R 1
• 2 m	VOL-L5L /R 2
• 3 m	VOL-L5L /R 3
• 5 m	VOL-L5L /R 5
• 8 m	VOL-L5L /R 8

2.1 Volition™ VF-45™

Description - Patch Cable, Multimode 62,5/125/250µm

Factory made VF-45 duplex patch cables in various lengths are used for patching between sockets or for making the connection to transceivers on the workstation, hub or switch. The patch cables are a universal type, which is both riser and LSZH rated. Hybrid cables to connect ST, SC, LC and MTRJ interfaces are also available.

Other Hybrids available upon request.

Specifications

- Duplex connection
- Factory made VF-45 duplex patch cables in various lengths
- Automatic dust protection protects fibres in unmated condition
- Tested to TIA/EIA and IEC performance requirements
- Patchcords made with 3M's innovative coated fibre, GGP, minimum bend radius 25 mm

Ordering Information



VF-45-Connector to VF-45-Connector, 62,5/125µm, LSZH

- PU: 12, MOQ: 1

Length:	Ref. No.
• 1 m	VOL-V6L /R 1
• 2 m	VOL-V6L /R 2
• 3 m	VOL-V6L /R 3
• 5 m	VOL-V6L /R 5
• 8 m	VOL-V6L /R 8
• 15 m	VOL-V6L /R 15
• 30 m	VOL-V6L /R 30



VF-45-Connector to ST-Connector, 62,5/125µm, LSZH

- PU: 12, MOQ: 1

Length:	Ref. No.
• 1 m	VOL-T6L /R 1
• 2 m	VOL-T6L /R 2
• 3 m	VOL-T6L /R 3
• 5 m	VOL-T6L /R 5
• 8 m	VOL-T6L /R 8
• 15 m	VOL-T6L /R 15
• 30 m	VOL-T6L /R 30



VF-45-Connector to SC-Connector, 62,5/125µm, LSZH

- PU: 12, MOQ: 1

Length:	Ref. No.
• 1 m	VOL-C6L /R 1
• 2 m	VOL-C6L /R 2
• 3 m	VOL-C6L /R 3
• 5 m	VOL-C6L /R 5
• 8 m	VOL-C6L /R 8
• 15 m	VOL-C6L /R 15
• 30 m	VOL-C6L /R 30



VF-45™-Connector to MTRJ-Connector, 62,5/125µm, LSZH

- PU: 12, MOQ: 1

Length:	Ref. No.
• 1 m	VOL-M6L /R 1
• 2 m	VOL-M6L /R 2
• 3 m	VOL-M6L /R 3
• 5 m	VOL-M6L /R 5
• 8 m	VOL-M6L /R 8



VF-45™-Connector to LC-Connector, 62,5/125µm, LSZH

- PU: 12, MOQ: 1

Length:	Ref. No.
• 1 m	VOL-L6L /R 1
• 2 m	VOL-L6L /R 2
• 3 m	VOL-L6L /R 3
• 5 m	VOL-L6L /R 5
• 8 m	VOL-L6L /R 8

2.1 Volition™ VF-45™

Description - Patch cable, Single-mode 9/125/250µm

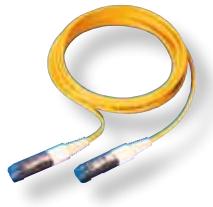
Factory made VF-45 duplex patch cables in various lengths are used for patching between sockets or for making the connection to transceivers on the workstation, hub or switch. The patch cables are a universal type, which is both riser and LSZH rated. Hybrid cables to connect ST, SC, LC and MTRJ interfaces are also available.

Other Hybrids available upon request.

Specifications

- Duplex connection
- Factory made VF-45 duplex patch cables in various lengths
- Automatic dust protection protects fibres in unmated condition
- Tested to TIA/EIA and IEC performance requirements
- Patchcords made with 3M's innovative coated fibre, GGP, minimum bend radius 25 mm

Ordering Information



VF-45-Connector to VF-45-Connector, 9/125µm, LSZH

- PU: 12, MOQ: 1

Length:

- 1 m VOL-V9L /R 1
- 2 m VOL-V9L /R 2
- 3 m VOL-V9L /R 3
- 5 m VOL-V9L /R 5
- 8 m VOL-V9L /R 8
- 15 m VOL-V9L /R 15
- 30 m VOL-V9L /R 30

VF-45-Connector to ST-Connector, 9/125µm, LSZH

- PU: 12, MOQ: 1

Length:

- 1 m VOL-T9L /R 1
- 2 m VOL-T9L /R 2
- 3 m VOL-T9L /R 3
- 5 m VOL-T9L /R 5
- 8 m VOL-T9L /R 8
- 15 m VOL-T9L /R 15
- 30 m VOL-T9L /R 30

VF-45-Connector to SC-Connector, 9/125µm, LSZH

- PU: 12, MOQ: 1

Length:

- 1 m VOL-C9L /R 1
- 2 m VOL-C9L /R 2
- 3 m VOL-C9L /R 3
- 5 m VOL-C9L /R 5
- 8 m VOL-C9L /R 8
- 15 m VOL-C9L /R 15
- 30 m VOL-C9L /R 30

VF-45™-Connector to LC-Connector, 9/125µm, LSZH

- PU: 12, MOQ: 1

Length:

- 1 m VOL-L9L /R 1
- 2 m VOL-L9L /R 2
- 3 m VOL-L9L /R 3
- 5 m VOL-L9L /R 5
- 8 m VOL-L9L /R 8

2.1 Volition™ VF-45™

Description - Test leads - Reference Cable Kits

Volition reference cable kits enable connections to be made to test equipment fitted with an ST or SC connector interface. The transmit cable consists of a VF-45 socket on one end and a choice of either 2 ST, SC or FC at the other end. The receive cable has a VF-45 socket housed in a protective casing on one end and at the other there are either 2 ST or 2 SC connectors.

Specifications

- Guaranteed high quality
- Receiver or transmitter cable with VF-45™ connector
- Available with either two SC or two ST connectors for connection to test equipment.

Ordering Information



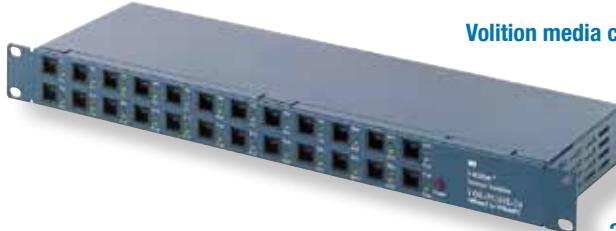
Ref. No.
VOL-UREF-050-ST
<ul style="list-style-type: none"> • VF-45 Connector to ST Connector and VF-45 Socket • PU: 1, MOQ: 1 • 50/125µm Connecting Cable • 50/125 Reference Cable <p>Reference Cable kit, beige, 1,5 m: ST Connector to VF-45 Socket (2x) ST Connector to VF-45 Connector (2x) VF-45 Connector to VF-45 Connector (1x)</p>
VOL-UREF-062-ST <ul style="list-style-type: none"> • VF-45 Connector to ST Connector and VF-45 Socket • PU: 1, MOQ: 1 • 62,5/125µm Connecting Cable • 62,5/125 Reference Cable <p>Reference Cable kit, beige, 1,5 m: ST Connector to VF-45 Socket (2x) ST Connector to VF-45 Connector (2x) VF-45 Connector to VF-45 Connector (1x)</p>
VOL-UREF-SM-ST <ul style="list-style-type: none"> • VF-45 Connector to ST Connector and VF-45 Socket • PU: 1, MOQ: 1 • 9/125µm Connecting Cable • 9/125 Reference Cable <p>Reference Cable kit, green, 1,5 m: ST Connector to VF-45 Socket (2x) ST Connector to VF-45 Connector (2x) VF-45 Connector to VF-45 Connector (1x)</p>



Ref. No.
VOL-UREF-050-SC
<ul style="list-style-type: none"> • VF-45 Connector to SC Connector and VF-45 Socket • PU: 1, MOQ: 1 • 50/125µm Connecting Cable • 50/125 Reference Cable <p>Reference Cable kit, beige, 1,5 m: SC Connector to VF-45 Socket (2x) SC Connector to VF-45 Connector (2x) VF-45 Connector to VF-45 Connector (1x)</p>
VOL-UREF-062-SC <ul style="list-style-type: none"> • VF-45 Connector to SC Connector and VF-45 Socket • PU: 1, MOQ: 1 • 62,5/125µm Connecting Cable • 62,5/125 Reference Cable <p>Reference Cable kit, beige, 1,5 m: SC Connector to VF-45 Socket (2x) SC Connector to VF-45 Connector (2x) VF-45 Connector to VF-45 Connector (1x)</p>
VOL-UREF-SM-SC <ul style="list-style-type: none"> • VF-45 Connector to SC Connector and VF-45 Socket • PU: 1, MOQ: 1 • 9/125µm Connecting Cable • 9/125 Reference Cable <p>Reference Cable kit, green, 1,5 m: SC Connector to VF-45 Socket (2x) SC Connector to VF-45 Connector (2x) VF-45 Connector to VF-45 Connector (1x)</p>

2.1 Volition™ VF-45™

Description - Media Converters 10Mb/s and 100Mb/s



Volition™ 10 Base T (Volition™ RJ45) 10 Base FL

Volition media converters allow simple and cost effective usage of existing network equipment (fitted with RJ45 connectors for copper wiring) with fibre optic cables. The Volition media converter converts a twisted pair signal into the corresponding optical signal.

The media converters are available as either a compact stand alone item for installation in the work place or as a 19" version with 12 and 24 x VF-45 (10 Mb/s) for rack mounting in distribution areas.

Specifications

- IEEE 802.3/802.3u and 802.3z compliant
- 32 bit bus mastering (10 and 100Mb/s cards)
- Most common operating systems supported

Ordering Information



- 10 Base T (RJ45) to 10 Base FL, VF-45™ Port
- 850nm, VF-45 Port with universal power supply
- PC-Version, PU: 1 pc, MOQ: 1

Ref. No.

VOL-10FL-U



- 10 Base T (RJ45) to 10 Base FL, VF-45 Ports
- 850nm, 24x VF-45 Ports with universal power supply
- Rackmount-Version, PU: 1 pc, MOQ: 1

VOL-M10FL-24-G



- 100 Base-TX (RJ45) to 100 Base-FX, VF-45 Port, 1300nm
- Auto-negotiating 10Mbit/100Mbit) copper part
- Power supply either via USB port or wall socket adapter
- PC-Version, PU: 6 pc, MOQ: 1

VOL-M100FX-AN

- 100 Base-TX (RJ45) to 100 Base-SX, VF-45 Port, 850nm
- Auto-negotiating (10Mb/s - 100Mb/s) copper
- PC-version

VOL-M100SX-U-G

- 100 Base-TX (RJ-45) to 100Base-SX, VF-45, 850nm
- 24x VF-45 ports
- rack-mount version

VOL-M100SX-24-G

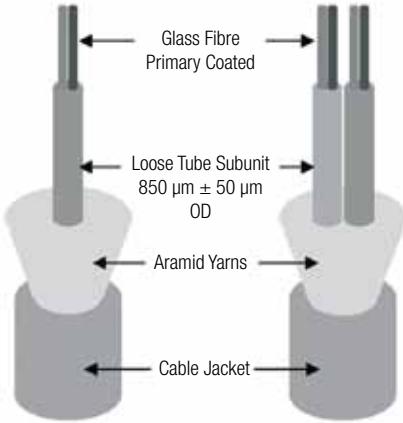
- 1000Base-TX (RJ45) to 1000Base-SX, VF-45 port, 850nm
- single port, 1Gb/s
- PC-version

VOL-M1000SX-G

Volition™ Installation Indoor Cable

Description - Cable 50/125µm, 62,5/125µm, 9/125µm

Indoor, horizontal and backbone cable



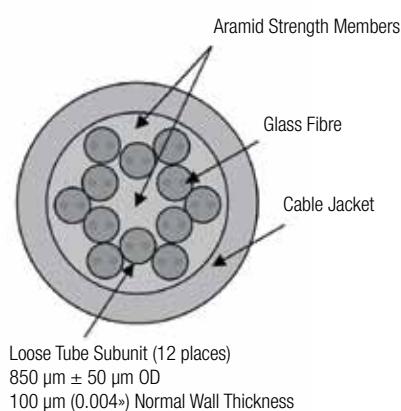
2 & 4 fibre Horizontal cable construction

All Volition™ multimode indoor cables are in accordance with the latest specifications as described in ISO/IEC 11801. Cables with 50/125 OM3 fibres are optimised for applications in the first window (850 nm) and are ideal for Fibre Channel and Ethernet at up to 10Gbit/s at distances up to 300 m. 50/125 OM2 cable is better suited to gigabit Ethernet (1000 BASE-SX and 1000BASE-LX) and slower speeds at distances up to 550 m. All single mode cables are OS1 category and 62.5/125 cables are OM1 category.

Indoor cables are suitable for a temperature range of -10°C to +60°C. All cable jackets are LSZH (low smoke zero halogen) rated to fulfill the safety requirements for internal cabling.

As standard, multimode cables are blue and single mode cables are green.

Specifications



24-fibre Backbone cable construction

Fibre	OM2	OM3
50/125µm	Bandwidth $\geq 500 \text{ MHz} \times \text{km} @ 850\text{nm}$ $\geq 500 \text{ MHz} \times \text{km} @ 1300\text{nm}$ Attenuation Indoor Cables $\leq 3,5 \text{ dB/km} @ 850 \text{ nm}$ $\leq 1,2 \text{ dB/km} @ 1300 \text{ nm}$ Numerical Aperture $0,200 \pm 0,015$ Index of refraction $1,482 @ 850 \text{ nm}$ $1,477 @ 1300\text{nm}$	Bandwidth (Overfilled Launch) $\geq 1500 \text{ MHz} \times \text{km} @ 850\text{nm}$ $\geq 500 \text{ MHz} \times \text{km} @ 1300\text{nm}$ Bandwidth (Effective Laser Launch) $\geq 2000 \text{ MHz} \times \text{km} @ 850 \text{ nm}$ Attenuation Indoor Cables $\leq 3,0 \text{ dB/km} @ 850 \text{ nm}$ $\leq 1,0 \text{ dB/km} @ 1300 \text{ nm}$ Numerical Aperture $0,200 \pm 0,015$ Index of refraction $1,482 @ 850 \text{ nm}$ $1,477 @ 1300\text{nm}$

Fibre		
62,5/125µm	Bandwidth $\geq 200 \text{ MHz} \times \text{km} @ 850\text{nm}$ $\geq 500 \text{ MHz} \times \text{km} @ 1300\text{nm}$ Attenuation Indoor Cables $\leq 3,5 \text{ dB/km} @ 850 \text{ nm}$ $\leq 1,0 \text{ dB/km} @ 1300 \text{ nm}$	
9/125µm	Attenuation Indoor Cables $\leq 0,7 \text{ dB/km} @ 1310 \text{ nm}$ $\leq 0,7 \text{ dB/km} @ 1550 \text{ nm}$	

Volition™ Installation Indoor Cable

Description - Cable 50/125µm

Indoor, horizontal and backbone cable multimode

Volition™ Indoor cables are in compliance with all existing industry standards. Each pair of 250 µm coated fibres is contained within a separate buffer tube, which allows for simpler and quicker terminations into the VF-45™ socket. This and the easy to use colour coding enable easy installation as well as convenient cable management.

Notes

1. Cable colour is blue for 50/125 µm and 62,5/125 µm cable and green for 9/125 µm cable
2. The short term bend radius is under installation conditions
3. MC = OM3 cable

Specifications

- Small cable diameter
- Produced to industry standards
- Two fibres per soft buffer tube
- Colour coded fibres
- Low friction jacket on backbone cables
- Available in both multimode and singlemode

Ordering Information



Ref. No.		
Indoor horizontal cable OM2 • 50 /125 / 250µm, LSZH 50 / 125, 1 x 2 Fibres	• Length: 1000 m	VOL-H52L1
Indoor horizontal cable OM2 • 50 /125 / 250µm, LSZH 50 / 125, 2 x 2 Fibres	• Length: 1000 m	VOL-H54L1
Indoor horizontal cable OM3 • 50 /125 / 250µm, LSZH 50 / 125, 1 x 2 Fibres	• Length: 1000 m	VOL-H52L1MC
Indoor horizontal cable OM3 • 50 /125 / 250µm, LSZH 50 / 125, 2 x 2 Fibres	• Length: 1000 m	VOL-H54L1MC
Indoor Cable for horizontal and backbone cabling OM2 or OM3 • 50 /125 / 250µm, LSZH 50 / 125, 6 Fibres	• Length: 1000 m	VOL-B56L1 VOL-B56L1MC
Indoor Backbone Cable OM2 or OM3 • 50 /125 / 250µm, LSZH 50 / 125, 12 Fibres	• Length: 1000 m • Length: 500 m	VOL-B512L1 VOL-B512L1MC VOL-B512L0,5 VOL-B512L0,5MC
Indoor Backbone Cable OM2 or OM3 • 50 /125 / 250µm, LSZH 50 / 125, 24 Fibres	• Length: 1000 m • Length: 500 m	VOL-B524L1 VOL-B524L1MC VOL-B524L0,5 VOL-B524L0,5MC
Indoor Backbone Cable OM2 or OM3 • 50 /125 / 250µm, LSZH 50 / 125, 48 Fibres	• Length: 1000 m • Length: 500 m	VOL-B548L1 VOL-B548L1MC VOL-B548L0,5 VOL-B548L0,5MC



Volition™ Installation Indoor Cable

Description - Cable 62,5/125µm

Indoor, horizontal and backbone cable multimode

Volition™ Indoor cables are in compliance with all existing industry standards. Each pair of 250 µm coated fibres is contained within a separate buffer tube, which allows for simpler and quicker terminations into the VF-45™ socket. This and the easy to use colour coding enable easy installation as well as convenient cable management.

Specifications

- Produced to industry standards
- Two fibres per soft buffer tube
- Colour coded fibres
- Low friction jacket on backbone cables
- Available in both multimode and singlemode



Ordering Information

Ref. No.
Indoor Backbone Cable • 62,5 /125 / 250µm, LSZH 62,5 / 125, 1 x 2 Fibres • Length: 1000 m VOL-H62L1
Indoor Backbone Cable • 62,5 /125 / 250µm, LSZH 62,5 / 125, 2 x 2 Fibres • Length: 1000 m VOL-H64L1
Indoor Cable for horizontal and backbone cabling • 62,5 /125 / 250µm, LSZH 62,5 / 125, 6 Fibres • Length: 1000 m VOL-H66L1



Indoor Backbone Cable • 62,5 /125 / 250µm, LSZH 62,5 / 125, 12 Fibres	• Length: 1000 m • Length: 500 m	VOL-B612L1 VOL-B612L0,5
Indoor Backbone Cable • 62,5 /125 / 250µm, LSZH 62,5 / 125, 24 Fibres	• Length: 1000 m • Length: 500 m	VOL-B624L1 VOL-B624L0,5
Indoor Backbone Cable • 62,5 /125 / 250µm, LSZH 62,5 / 125, 48 Fibres	• Length: 1000 m • Length: 500 m	VOL-B648L1 VOL-B648L0,5

Volition™ Installation Indoor Cable

Description - Cable 9/125µm

Indoor, horizontal and backbone cable singlemode

Volition™ Indoor cables are in compliance with all existing industry standards. Each pair of 250 µm coated fibres is contained within a separate buffer tube, which allows for simpler and quicker terminations into the VF-45™ socket. This and the easy to use colour coding enable easy installation as well as convenient cable management.

Specifications

- Produced to industry standards
- Two fibres per soft buffer tube
- Colour coded fibres
- Low friction jacket on backbone cables
- Available in both multimode and singlemode

Ordering Information

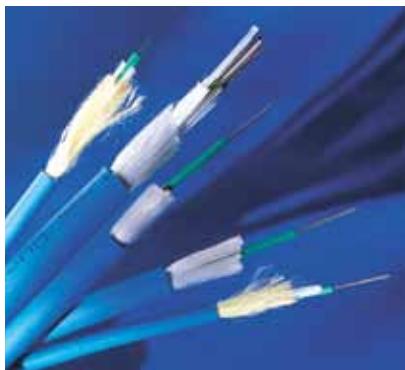


Ref. No.	
Indoor horizontal cable • 9 /125 / 250 µm, LSZH 9 / 125, 1 x 2 Fibres • Length: 1000 m	VOL-H92L1
Indoor horizontal cable • 9 /125 / 250 µm, LSZH 9 / 125, 2 x 2 Fibres • Length: 1000 m	VOL-H94L1
Indoor Cable for horizontal and backbone cabling • 9/125 / 250 µm, LSZH 9 / 125, 6 Fibres • Length: 1000 m	VOL-B96L1



Indoor Backbone cable • 9 /125 / 250 µm, LSZH 9 / 125, 12 Fibres • Length: 1000 m	VOL-B912L1
Indoor Backbone cable • 9 /125 / 250 µm, LSZH 9 / 125, 24 Fibres • Length: 1000 m	VOL-B924L1
Indoor Backbone cable • 9 /125 / 250 µm, LSZH 9 / 125, 48 Fibres • Length: 1000 m	VOL-B948L1

Volition™ Installation Indoor/Outdoor Cable



Description

Indoor / Outdoor Cable, 50/125/250µm, 62,5/125/250um, Singlemode 9/125/250um

The Volition Indoor / Outdoor fibre optic cable includes both horizontal and backbone cable with either 50/125µm OM2, OM3, or OM4, 62,5/125µm OM1 multimode or 9/125µm singlemode fibre.

The primary application of the cable is for indoor and outdoor installations into cable trays or ducts in LANs. All cable sheaths are LSZH (low smoke zero halogen) rated to fulfil the safety requirements for internal cabling. All cable variants have good resistance to water which is achieved by a combination of an expanding tape and gel filled tubes allowing for the cables to be installed in areas where water within ducts is a possibility.

Each category of Volition Indoor / Outdoor cable is available in fibre counts ranging from 2 to 48 fibres.

Other constructions are available upon request.

Specifications

- Cable construction with glass yarn fully dielectric for immunity against lightning
- All tubes containing fibres are gel filled for protection against water
- The cable core is protected against water ingress by an expanding tape.
- UV stabilised sheath makes the cable suitable for external use
- Fibres are colour coded for fast installation and organisation
- Operational temperature for 2 to 24 fibre cables: -20°C to 60°C; max attenuation variation is 0.5 dB/km
- Operational temperature for 48 corrugated steel fibre cables: -40°C to 60°C; max attenuation variation is 0.1 dB/km (up to the max specified value)

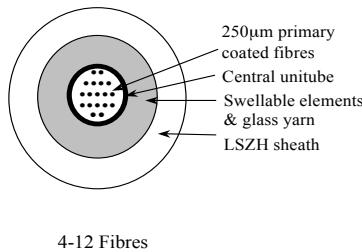
Technical Specifications

Type	Attenuation	Bandwidth	Index of Refraction
50/125 µm Multimode OM4	≤ 2,7 dB/km @ 850 nm ≤ 0,8 dB/km @ 1300 nm	(Overfilled Launch) ≥ 3500 MHz x km @ 850nm ≥ 500 MHz x km @ 1300nm (Effective Laser Launch) ≥ 4700 MHz x km @ 850 nm	1,482 1,477
50/125 µm Multimode OM3	≤ 2,7 dB/km @ 850 nm ≤ 0,8 dB/km @ 1300 nm	(Overfilled Launch) ≥ 1500 MHz x km @ 850nm ≥ 500 MHz x km @ 1300nm (Effective Laser Launch) ≥ 2000 MHz x km @ 850 nm	1,482 1,477
50/125µm Multimode OM2	≤ 2,7 dB/km @ 850 nm ≤ 0,8 dB/km @ 1300 nm	• 500 MHz-km @ 850 nm • 500 MHz-km @ 1300 nm	1,482 1,477
62,5/125µm Multimode OM1	≤ 3,2 dB/km @ 850 nm ≤ 1,0 dB/km @ 1300 nm	• 200 MHz-km @ 850 nm • 600 MHz-km @ 1300 nm	1,496 1,491
9/125µm Singlemode OS2	≤ 0,40 dB/km @ 1310 nm ≤ 0,40 dB/km @ 1550 nm	Cut off Wavelength Upper Limit 1260 nm	1.4640 1.4645

Volition™ Installation Indoor/Outdoor Cable

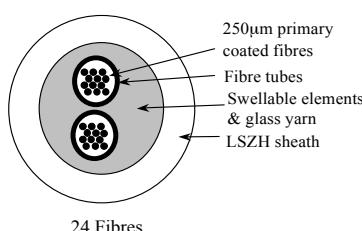
Ordering Information - Cable, 50/125/250µm

Indoor/Outdoor glass yarn, with light rodent protection, multimode

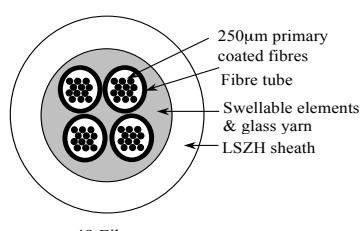


	Ref. No.
50/125 µm, 4 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m	• OM2 • OM3 • OM4 VOL-IO GL54 VOL-IO GL54 MC VOL-IO GL54 OM4
50/125 µm, 6 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m	• OM2 • OM3 • OM4 VOL-IO GL56 VOL-IO GL56 MC VOL-IO GL56 OM4

50/125 µm, 8 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m	• OM2 • OM3 • OM4 VOL-IO GL58 VOL-IO GL58 MC VOL-IO GL58 OM4
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50/125 µm, 12 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m	• OM2 • OM3 • OM4 VOL-IO GL512 VOL-IO GL512 MC VOL-IO GL512 OM4
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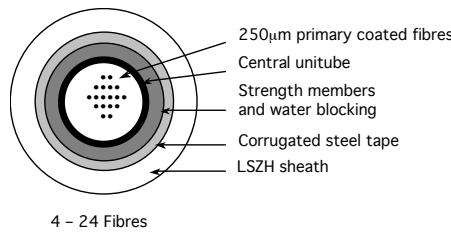


50/125 µm, 24 fibres LSZH with glass yarn, outer diameter: 7.3 mm • Length: 1000 m	• OM2 • OM3 • OM4 VOL-IO GL524 VOL-IO GL524 MC VOL-IO GL524 OM4
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50/125 µm, 48 fibres LSZH with glass yarn, outer diameter: 8.8 mm • Length: 1000 m	• OM2 • OM3 • OM4 VOL-IO GL548 VOL-IO GL548 MC VOL-IO GL548 OM4
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Volition™ Installation Indoor/Outdoor Cable

Indoor/Outdoor cables with corrugated steel armouring for full rodent protection, multimode



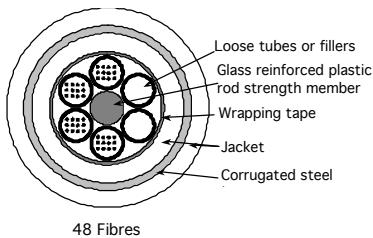
Ref. No.
50/125 µm, 4 fibres LSZH with aramid yarn and corrugated steel , outer diameter: 8.5 mm
• Length: 2000 m • OM2 • OM3 • OM4
VOL-IO S54 VOL-IO S54 MC VOL-IO S54 OM4

50/125 µm, 6 fibres LSZH with aramid yarn and corrugated steel , outer diameter: 8.5 mm
• Length: 2000 m • OM2 • OM3 • OM4
VOL-IO S56 VOL-IO S56 MC VOL-IO S56 OM4

50/125 µm, 8 fibres LSZH with aramid yarn and corrugated steel , outer diameter: 8.5 mm
• Length: 2000 m • OM2 • OM3 • OM4
VOL-IO S58 VOL-IO S58 MC VOL-IO S58 OM4

50/125 µm, 12 fibres LSZH with aramid yarn and corrugated steel , outer diameter: 8.5 mm
• Length: 2000 m • OM2 • OM3 • OM4
VOL-IO S512 VOL-IO S512 MC VOL-IO S512 OM4

50/125 µm, 24 fibres LSZH with aramid yarn and corrugated steel , outer diameter: 9.5 mm
• Length: 2000 m • OM2 • OM3 • OM4
VOL-IO S524 VOL-IO S524 MC VOL-IO S524 OM4

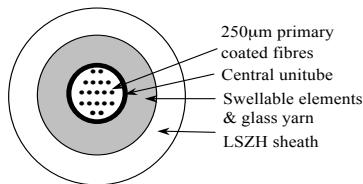


50/125 µm, 48 fibres LSZH with corrugated steel , outer diameter: 14.5 mm
• Length: 2000 m • OM2 • OM3 • OM4
VOL-IO S548 VOL-IO S548 MC VOL-IO S548 OM4

Volition™ Installation Indoor/Outdoor Cable

Ordering Information - Cable, 62,5/125/250µm, OM1

Indoor/Outdoor glass yarn, with light rodent protection, multimode



2-12 Fibres

Ref. No.
VOL-IO GL62

62,5/125 µm, 2 fibres
LSZH with glass yarn, outer diameter: 6.2 mm
• Length: 1000 m

• OM1

VOL-IO GL62

<p>62,5/125 µm, 4 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m</p>	<p>• OM1</p>	<p>VOL-IO GL64</p>
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VOL-IO GL64

<p>62,5/125 µm, 6 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m</p>	<p>• OM1</p>	<p>VOL-IO GL66</p>
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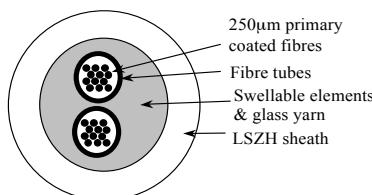
VOL-IO GL66

<p>62,5/125 µm, 8 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m</p>	<p>• OM1</p>	<p>VOL-IO GL68</p>
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VOL-IO GL68

<p>62,5/125 µm, 12 fibres LSZH with glass yarn, outer diameter: 6.2 mm • Length: 1000 m</p>	<p>• OM1</p>	<p>VOL-IO GL612</p>
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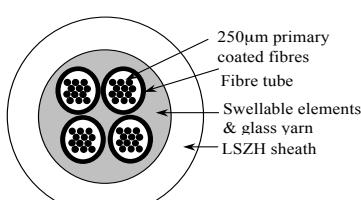
VOL-IO GL612



24 Fibres

<p>62,5/125 µm, 24 fibres LSZH with glass yarn, outer diameter: 7.3 mm • Length: 1000 m</p>	<p>• OM1</p>	<p>VOL-IO GL624</p>
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VOL-IO GL624



48 Fibres

<p>62,5/125 µm, 48 fibres LSZH with glass yarn, outer diameter: 8.8 mm • Length: 1000 m</p>	<p>• OM1</p>	<p>VOL-IO GL648</p>
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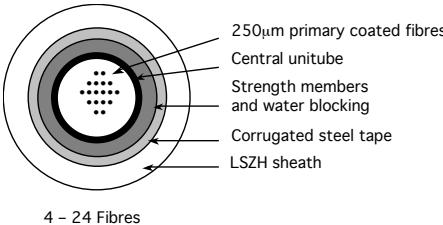
VOL-IO GL648

Volition™ Installation Indoor/Outdoor Cable

Indoor/Outdoor cables with corrugated steel armouring for full rodent protection, multimode

Ref. No.
62,5/125 µm, 4 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • Length: 2000 m • OM1 VOL-IO S64

62,5/125 µm, 6 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • Length: 2000 m • OM1 VOL-IO S66
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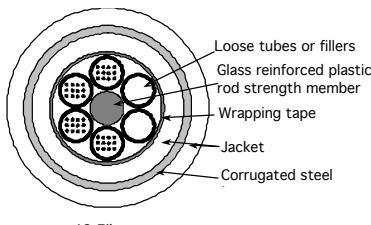


4 - 24 Fibres

62,5/125 µm, 8 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • Length: 2000 m • OM1 VOL-IO S68
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62,5/125 µm, 12 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • Length: 2000 m • OM1 VOL-IO S612
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62,5/125 µm, 24 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 9.5 mm • Length: 2000 m • OM1 VOL-IO S624
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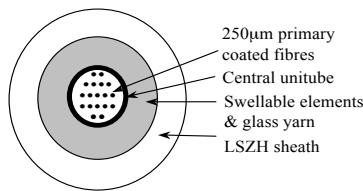
48 Fibres

62,5/125 µm, 48 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 14.5 mm • Length: 2000 m • OM1 VOL-IO S648

Volition™ Installation Indoor/Outdoor Cable

Ordering Information - Cable, 9/125/250µm, OS2

Indoor/Outdoor glass yarn, with light rodent protection, multimode



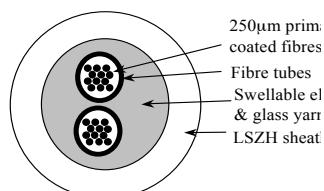
4-12 Fibres

Ref. No.
VOL-IO GL94

9/125 µm, 4 fibres
LSZH with glass yarn, outer diameter: 6.2 mm
• Length: 1000 m • OS2

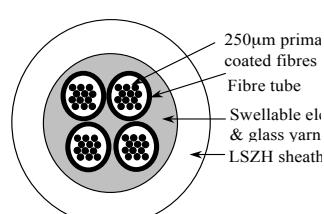
9/125 µm, 6 fibres LSZH with glass yarn , outer diameter: 6.2 mm • Length: 1000 m • OS2	VOL-IO GL96
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9/125 µm, 8 fibres LSZH with glass yarn , outer diameter: 6.2 mm • Length: 1000 m • OS2	VOL-IO GL98
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24 Fibres

9/125 µm, 12 fibres LSZH with glass yarn , outer diameter: 6.2 mm • Length: 1000 m • OS2	VOL-IO GL912
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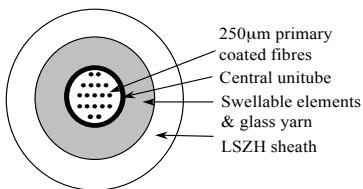
48 Fibres

9/125 µm, 24 fibres LSZH with glass yarn , outer diameter: 7.3 mm • Length: 1000 m • OS2	VOL-IO GL924
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9/125 µm, 48 fibres LSZH with glass yarn , outer diameter: 8.8 mm • Length: 1000 m • OS2	VOL-IO GL948
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Volition™ Installation Indoor/Outdoor Cable

Indoor/Outdoor cables with corrugated steel armouring for full rodent protection, multimode



4- 24 Fibres

Ref. No.
9/125 µm, 4 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • OS2 Length: 2000 m

VOL-IO S94

9/125 µm, 6 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • OS2 Length: 2000 m	• OS2	VOL-IO S96
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VOL-IO S96

9/125 µm, 8 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • OS2 Length: 2000 m	• OS2	VOL-IO S98
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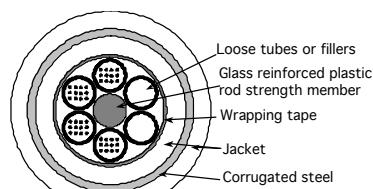
VOL-IO S98

9/125 µm, 12 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 8.5 mm • OS2 Length: 2000 m	• OS2	VOL-IO S912
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VOL-IO S912

9/125 µm, 24 fibres LSZH with aramid yarn and corrugated steel, outer diameter: 9.5 mm • OS2 Length: 2000 m	• OS2	VOL-IO S924
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VOL-IO S924



48 Fibres

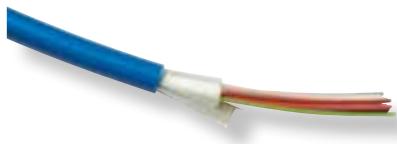
9/125 µm, 48 fibres LSZH with corrugated steel, outer diameter: 14.5 mm • OS2 Length: 2000 m	• OS2	VOL-IO S948
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VOL-IO S948

Volition™ Break-out Fibre Cable

Description - Cable 50/125 µm, 62.5/125 µm, 9/125 µm

Easy to Install and Handle

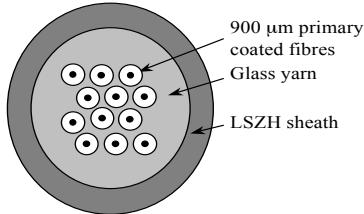


3M Volition Network Solutions from 3M includes 900um buffered fibre cable with 50/125 µm multimode OM2, OM3 and OM4, 62,5/125 µm multimode OM1 and 9/125 µm singlemode OS1 fibre as part of the system.

The primary application of the cable is for indoor use in cable trays or ducts as LAN cabling. All cable jackets are LSZH (Low Smoke Zero Halogen) rated to fulfil the safety requirements for internal cabling.

Each category of Volition Break-out Cable is available in fibre counts of 4, 6, 8, 12, 24 fibres.

Specifications



- 900 um coated fibres for fast and simple direct termination or splicing.
- Fibres are colour coded for fast installation and organisation
- Operational temperature for 2 to 24 fibre cables: -20°C to 70°C; max attenuation variation is 0.5 dB/km
- Glass yarn for light rodent protection
- Small cable diameter for easy installation

Technical Specifications

Type	Attenuation	Bandwidth	Index of Refraction
50/125 µm Multimode OM2	$\leq 2,7 \text{ dB/km} @ 850 \text{ nm}$ $\leq 0,8 \text{ dB/km} @ 1300 \text{ nm}$	$\geq 3500 \text{ MHz x km} @ 850\text{nm}$ $\geq 500 \text{ MHz x km} @ 1300\text{nm}$	1,482 1,477
50/125 µm Multimode OM3	$\leq 2,7 \text{ dB/km} @ 850 \text{ nm}$ $\leq 0,8 \text{ dB/km} @ 1300 \text{ nm}$	$\geq 1500 \text{ MHz x km} @ 850\text{nm} (\text{OFL}^*)$ $\geq 2000 \text{ MHz-km} @ 850\text{nm} (\text{LO}^*)$ $\geq 500 \text{ MHz-km} @ 1300 \text{ nm} (\text{OFL}^*)$	1,482 1,477
50/125 µm Multimode OM4	$\leq 2,7 \text{ dB/km} @ 850 \text{ nm}$ $\leq 0,8 \text{ dB/km} @ 1300 \text{ nm}$	$\geq 3500 \text{ MHz-km} @ 850 \text{ nm} (\text{OFL}^*)$ $\geq 4700 \text{ MHz-km} @ 850\text{nm} (\text{LO}^*)$ $\geq 500 \text{ MHz-km} @ 1300 \text{ nm} (\text{OFL}^*)$	1,482 1,477
62,5/125µm Multimode OM1	$\leq 3,2 \text{ dB/km} @ 850 \text{ nm}$ $\leq 1,0 \text{ dB/km} @ 1300 \text{ nm}$	• 200 MHz-km @ 850 nm • 600 MHz-km @ 1300 nm	1,496 1,491
9/125µm Singlemode OS1	$\leq 0,40 \text{ dB/km} @ 1310 \text{ nm}$ $\leq 0,25 \text{ dB/km} @ 1550 \text{ nm}$	Cut Off Upper Limit 1260 nm	1.467 1.467

* OFL = Over filled Launch, LO = Laser Optimised

Volition™ Break-out Fibre Cable

Ordering Information

Indoor breakout cable with light rodent protection Multimode 50/125, OM2, OM3, OM4

Ref. No.
50/125 µm, 4 fibres Breakout cable, LZSH with glass yarn, outer diameter: 5 mm
• OM2 • OM3 • OM4
VOL-B054 VOL-B054 MC VOL-B054 OM4
50/125 µm, 6 fibres Breakout cable, LZSH with glass yarn, outer diameter: 6 mm
• OM2 • OM3 • OM4
VOL-B056 VOL-B056 MC VOL-B056 OM4
50/125 µm, 8 fibres Breakout cable, LZSH with glass yarn, outer diameter: 6 mm
• OM2 • OM3 • OM4
VOL-B058 VOL-B058 MC VOL-B058 OM4
50/125 µm, 12 fibres Breakout cable, LZSH with glass yarn, outer diameter: 6 mm
• OM2 • OM3 • OM4
VOL-B0512 VOL-B0512 MC VOL-B0512 OM4
50/125 µm, 24 fibres Breakout cable, LZSH with glass yarn, outer diameter: 8 mm
• OM2 • OM3 • OM4
VOL-B0524 VOL-B0524 MC VOL-B0524 OM4

Volition™ Break-out Fibre Cable

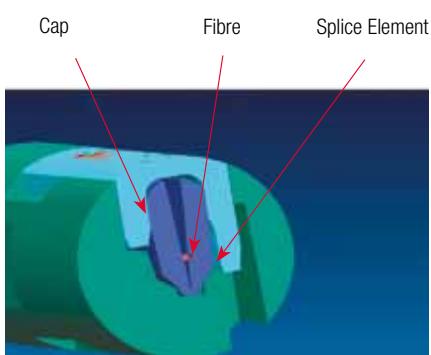
Indoor breakout cable with light rodent protection Multimode 62.5/125, OM1

Ref. No.
62,5/125 µm, 4 fibres Breakout cable, LSZH with glass yarn, outer diameter: 5 mm • OM1 VOL-B064
62,5/125 µm, 6 fibres Breakout cable, LSZH with glass yarn, outer diameter: 6 mm • OM1 VOL-B066
62,5/125 µm, 8 fibres Breakout cable, LSZH with glass yarn, outer diameter: 6 mm • OM1 VOL-B068
62,5/125 µm, 12 fibres Breakout cable, LSZH with glass yarn, outer diameter: 6 mm • OM1 VOL-B0612
62,5/125 µm, 24 fibres Breakout cable, LSZH with glass yarn, outer diameter: 8 mm • OM1 VOL-B0624

Indoor breakout cable with light rodent protection Singlemode 9/125 OS1

Ref. No.
9/125 µm, 4 fibres Breakout cable, LSZH with glass yarn, outer diameter: 5 mm • OS1 VOL-B094
9/125 µm, 6 fibres Breakout cable, LSZH with glass yarn, outer diameter: 6 mm • OS1 VOL-B096
9/125 µm, 8 fibres Breakout cable, LSZH with glass yarn, outer diameter: 6 mm • OS1 VOL-B098
9/125 µm, 12 fibres Breakout cable, LSZH with glass yarn, outer diameter: 6 mm • OS1 VOL-B0912
9/125 µm, 24 fibres Breakout cable, LSZH with glass yarn, outer diameter: 8 mm • OS1 VOL-B0924

3M No Polish Connectors



Description - SC No Polish Connector

3M No Polish Connector (NPC) enables fast, on-site installation of 250 μm and 900 μm connections utilizing a one piece, pre-assembled design.

The SC compatible connector consists of a factory-polished ceramic ferrule, fibre stub and a mechanical splice that is installed with a simple field tool. A bell-shaped boot is attached to the connector body, minimizing the chance of losing or forgetting to install the boot during the connection.

The No Polish Connector is tested for Premises and FTTP applications for indoor and outdoor locations and is available in SM, 62.5 μm , 50 μm and also 50 μm LOMMF (laser optimised multimode fibre OM3) for high data rate applications.

Cross-sectional view of actuated splice: After the fibre is inserted, the assembly tool depresses the cap to force clamping and locating surfaces against the fibre, looking and aligning the fibre place.



3M No Polish Connector Assembly Tool

Features

- Field installation
- One piece, pre-assembled design
- Simple assembly tool
- 900 μm buffer strain relief
- Fibre holder for assembly
- Factory-polished fibre stub in ferrule
- Bell-shaped boot

Benefits

- Always right cable length with no cable slack to store
- No small, loose parts
- Fast, easy installation
- Excellent pull out strength
- Designed to eliminate the need to touch bare fibre
- No on-site polish or adhesives required
- Helps prevent fibre from bending below minimum bend radius

3M No Polish Connectors

Specifications

	6800-50	Multimode 6800-50/LOMMF	6800-62.5	Singlemode 8800
Insertion loss typical @ 1300nm	0.2	0.2	0.2	0.3
Return loss typical (dB)	≥ 30	≥ 30	≥ 25	≥ 40
Connector Durability after 500 matings (dB)	<0.1 change	<0.1 change	<0.1 change	<0.2 change after 100 matings
Operating Temperature	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)	-40°C to 75°C (-40°F to 167°F)
Cable tension (in service)	< 0.1 dB decrease at 2.2 N (0.5 lbs) for 900µm	< 0.1 dB decrease at 2.2 N (0.5 lbs) for 900µm	< 0.1 dB decrease at 2.2 N (0.5 lbs) for 900µm	< 0.5 dB increase at 4.8 N (1.10lbf) for 250µm < 0.5 dB increase at 6.9 N (1.54lbf) for 900µm
Testing Specifications	TIA*	TIA*	TIA*	TIA*
Material				
Connector Ferrule	Zirconia ceramic	Zirconia ceramic	Zirconia ceramic	Zirconia ceramic
Connector housing and body	Engineered resin	Engineered resin	Engineered resin	Engineered resin
Boot	Thermoplastic elastomer	Thermoplastic elastomer	Thermoplastic elastomer	Thermoplastic elastomer
Flame retardancy	UL-94 V-0	UL-94 V-0	UL-94 V-0	UL-94 V-0
Connector Identification				
Backbone	Black	Black	Black	Black
Housing	Black	Aqua	Beige	Blue
Boot	White	White	White	White
Field Termination Kit	8865-C	8865-C	8865-C	8865-C

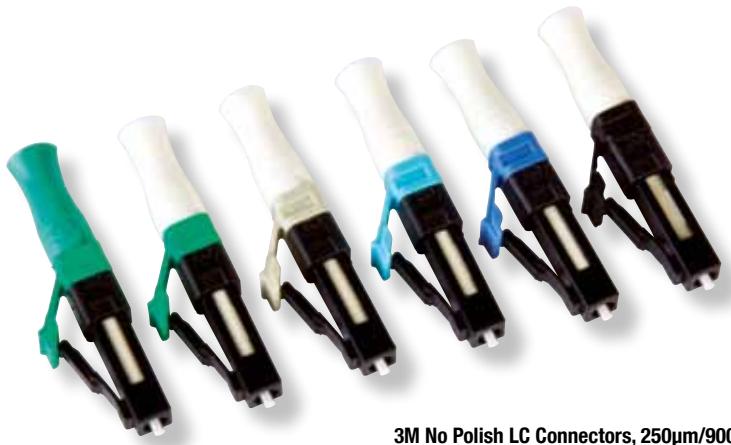
*TIA = TIA/EIA 568-B.3

Ordering Information

Product Description	Ref. No.
3M No Polish SC Connector SM Plug 250/900 (blue housing)	8800
3M No Polish SC Connector MM 50µm 250/900 (black housing)	6800-50
3M No Polish SC Connector MM 50µm LOMMF 250/900 (aqua housing)	6800-50/LOMMF
3M No Polish SC Connector MM 62.5µm 250/900 (beige housing)	6800-62.5

3M No Polish Connectors

Description - LC No Polish Connector



3M No Polish LC Connectors, 250µm/900µm

As the LC connector type becomes more and more the connector of choice in both FTTH and local area networks , 3M has developed a complete range of LC NPC connectors.

As for the SC range we offer single-mode versions with UPC and APC endface geometry. Multimode LC NPC connectors are available for all common fibre types, like 50/125µm OM2 and OM3, as well as for 62,5/12µm fibre.

Features

- Field installation
- One piece, pre-assembled design
- Simple assembly tool
- 900µm buffer strain relief
- Fibre holder for assembly
- Factory-polished fibre stub in ferrule

Benefits

- Always right cable length with no cable slack to store
- No small, loose parts
- Fast, easy installation
- Excellent pull out strength
- Designed to eliminate the need to touch bare fibre
- No on-site polish or adhesives required

Ordering Information

Ref. No.
6830-50
6830-50/LOMMF
6830-62.5

LC NPC Connectors, Multimode

- 6830-50 No Polish Connector LC MM 50UM 250/900UM W/Tool

6830-50

- 6830-50/LOMMF No Polish Connector LC MM 50UM 250/900UM W/Tool

6830-50/LOMMF

- 6830-62.5 No Polish Connector LC MM 62.5UM 250/900UM W/Tool

6830-62.5

LC NPC Connectors, Single-mode

- 8830 No Polish Connector LC SM Plug 250/900UM W/Tool

8830

3M No Polish Connectors

Description - 3M Tools for NPC-SC

3M Fibre Optic Kit 8865-C



3M No Polish Connector Kit 8865-C

Ordering Information

Product Description	Ref. No.
3M No Polish Connector Kit	8865
3M No Polish Connector Preparation Kit with Flat Cleaver	8865-C
3M No Polish SC Connector Assembly Tool 250/900 um	8865-AT
3M No Polish LC Connector Assembly Tool 250/900UM	8835-AT

3M LC Connectors, Couplings and Pigtails

Description - 3M™ LC Connectors / Couplings / Pigtails



3M™ LC Connectors Hot Melt



3M™ LC Couplings

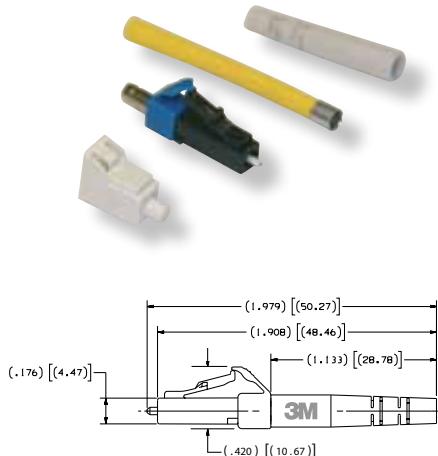
The LC small form factor connector has become the most popular interface for optical line equipment over the last few years and is well established in fibre backbones and data centres.

3M has expanded their easy to use product line of Hot Melt fibre optic connectors and now offers also LC Hot Melt connectivity for single and multimode applications.

The 3M Hot Melt system combines the ease of installation together with the advantage of spliceless direct termination in patch panels and outlets.

Due to its small size, the LC-Connector allows doubling of the port density in 19" cabinets. By design the LC is the perfect choice for high data rate applications.

Ordering Information



Ref. No.
6602-S
6602-D
8602-S
8602-D

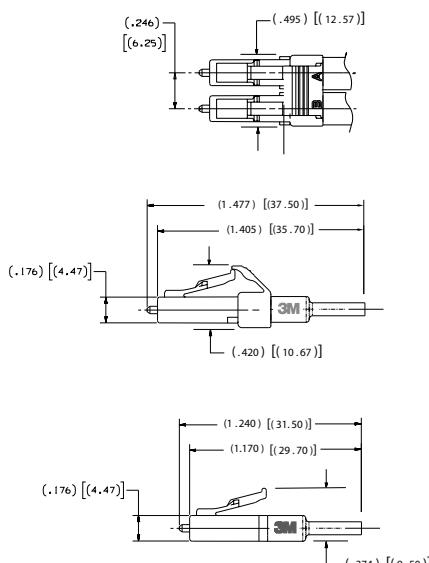
- **LC-Connector Hot Melt, multimode**
- Simplex, beige, PU: 60 pcs

- **LC-Connector Hot Melt, multimode**
- Duplex Clip, beige, PU: 60 pcs

- **LC-Connector Hot Melt, single-mode**
- Simplex, blue, PU: 60 pcs

- **LC-Connector Hot Melt, single-mode**
- Duplex Clip, blue, PU: 60 pcs

Technical Specifications



Type	6600 LC series	8600 LC series
Adhesive type	Hot Melt	Hot Melt
Fibre Type	50/125 62.5/125	9/125
Insertion loss in dB typ.	< 0,20	< 0,20
Return loss in dB typ.	≥ 25	≥ 55
Ferrule	Zirc. ceramic	Zirc. ceramic
Housing / Body	Plastic	Plastic
Boot colour	White White/beige Red/black	White White/beige
Operating temp. in °C	-10 to +60	-10 to +60
Storage temp. in °C	-40 to 85	-40 to 100

3M LC Connectors, Couplings and Pigtails

Ordering Information



- **LC-Coupling, multimode**
- Duplex, beige plastic housing in SC-Simplex format, PU: 60 pcs

Ref. No.

6661-DC

- **LC-Coupling, single-mode**
- Duplex, blue plastic housing in SC-Simplex format, PU: 60 pcs

8661-DC

- **LC-Coupling, single-mode**
- Simplex, blue plastic housing, PU: 60 pcs

8662-SC

- **LC-Pigtail 50/125, multimode**
- Green, length: 2 m, PU: 12 pcs

BDU00-ZK0002

- **LC-Pigtail 50/125, multimode OM3**
- Green, length: 2 m, PU: 12 pcs

BDU00-Z00002

- **LC-Duplex Pigtail 50/125, multimode**
- Green, length: 2 m, PU: 6 pcs

BDU00-CT0002

- **LC-Duplex Pigtail 50/125, multimode OM3**
- Green, length: 2 m, PU: 6 pcs

BDU00-CB0002

- **LC-Pigtail 62,5/125, multimode**
- Blue, length: 2 m, PU: 12 pcs

BDB00-AP0002

- **LC Pigtail 9/125, single-mode**
- Yellow, length: 2 m, PU: 12 pcs

ADVO0-AU0002

- **LC/APC Pigtail 9/125, single-mode**
- Yellow, length: 2 m, PU: 12 pcs

ADW00-AU0002

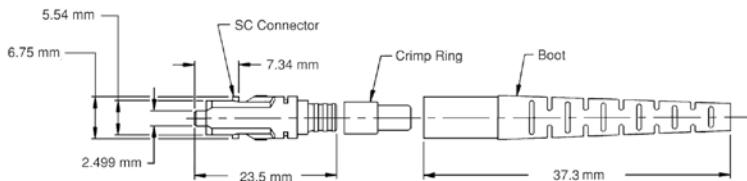
3M SC Connectors, Couplings and Pigtails

Ordering Information

3M™ SC Connectors



Ref. No.	
• SC-Connector Hot Melt, multimode, white boot • PU: 60 pcs • PU: 1000 pcs	6300-W 6300-W1K-S
• SC-Connector Hot Melt, single-mode, white boot • PU: 60 pcs • PU: 1000 pcs	8300-W 8300-W1K-S
• SC-Connector Epoxy, single-mode, white boot • PU: 60 pcs	8306
• SC-Connector Crimplok, single-mode, black boot • PU: 60 pcs	6900
• SC-Connector Crimplok, multimode, black boot • PU: 60 pcs	8900



Technical Specifications

SC Connector	6300 W	8200	8306	6900	8900
Adhesive type	Hot Melt	Hot Melt	Epoxy	None, crimp	None, crimp
Fibre Type	50/125 62.5/125	9/125	9/125	50/125 62.5/125	9/125
Insertion loss in dB typ.	< 0,20	< 0,20	< 0,30	< 0,20	< 0,20
Return loss in dB typ.	≥ 25	≥ 55	≥ 45	≥ 27	≥ 40
Ferrule	Zirc. ceramic	Zirc. ceramic	Zirc. ceramic	Zirc. ceramic	Zirc. ceramic
Housing / Body	Plastic	Plastic	Plastic	Plastic	Plastic
Boot colour	White	Blue	White	Black	Black
Operating temp. in °C	-40 to 85	-40 to 100	-40 to 85	-10 to 60	-10 to 60
Storage temp. in °C	-40 to 85	-40 to 100	-40 to 85	-40 to 80	-40 to 80

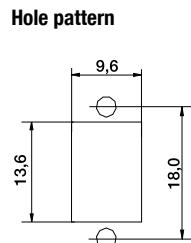
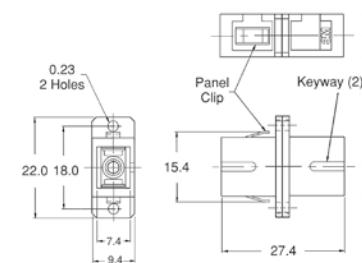
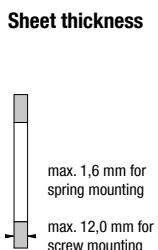
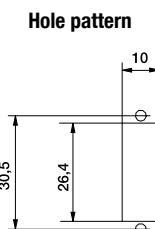
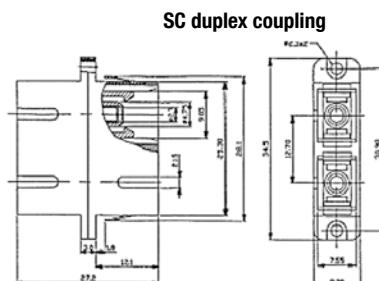
3M SC Connectors, Couplings and Pigtails

Ordering Information

3M™ SC Couplings



	Ref. No.
• SC Duplex Coupling, multimode • Plastic housing, grey, mounting bracket included • PU: 60 pcs	6313
• SC Duplex Coupling, single-mode • Plastic housing, blue, mounting bracket included • PU: 60 pcs	8313
• SC Coupling, multimode • Simplex, grey, mounting springs included • PU: 60 pcs	6310
• SC Coupling, single-mode • Simplex, blue, mounting springs included • PU: 60 pcs	8310
• SC/APC Coupling, single-mode • Simplex, green, mounting springs included • PU: 60 pcs	8310-G



Technical Specifications

Coupling/Connector type	6313	8313	6310	8310	8310 G
Type	Multimode	Single-mode	Multimode	Single-mode	Single-mode
Simplex/Duplex	for duplex	for duplex	simplex	simplex	simplex
Sleeve	Phosphor bronze	Zirconia ceramic	Zirconia ceramic	Zirconia ceramic	Zirconia ceramic
Housing	Plastic, grey	Plastic, blue	Plastic, grey	Plastic, blue	Plastic, green
Operating temp.	-40°C to 75°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C

3M SC Connectors, Couplings and Pigtails

Ordering Information

3M™ SC Pigtails

Ref. No.
BDB00-ZK0002
BDB00-Z00002
BDB00-AP0002



ADA00-AU0002



ADE00-AU0002
ABP00-AU0002



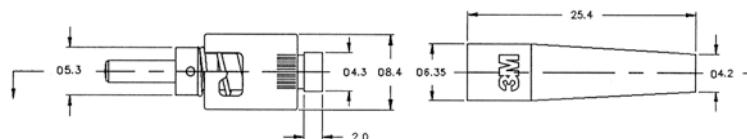
3M ST Connectors, Couplings and Pigtails

Ordering Information

3M™ ST Connectors



Ref. No.
<ul style="list-style-type: none"> • ST connector - Hot Melt - multimode, white boot • PU: 60 pcs • PU: 1000 pcs
<ul style="list-style-type: none"> • ST connector - Hot Melt - multimode, black boot • PU: 60 pcs • PU: 1000 pcs
<ul style="list-style-type: none"> • ST connector - Hot Melt - multimode, red boot • PU: 60 pcs • PU: 1000 pcs
<ul style="list-style-type: none"> • ST connector - Hot Melt - single-mode, yellow boot • PU: 60 pcs
<ul style="list-style-type: none"> • ST connector - Epoxy - multimode, black boot • PU: 60 pcs • PU: 1000 pcs
<ul style="list-style-type: none"> • ST connector Epoxy - single-mode, yellow boot • PU: 60 pcs
<ul style="list-style-type: none"> • ST connector - Crimplok - multimode, grey boot • PU: 60 pcs
<ul style="list-style-type: none"> • ST connector - Crimplok - multimode, blue boot • PU: 60 pcs



Technical Specifications

Connector type	6100	6105	6901	8100	8106	8901
Adhesive type	Hot Melt	Epoxy	None, crimp	Hot Melt	Epoxy	None, crimp
Fibre Type	50/125 62,5/125	50/125 62,5/125	50/125 62,5/125	9/125	9/125	9/125
Insertion loss in dB typ.	< 0,20	< 0,20	< 0,20	< 0,20	< 0,30	< 0,20
Return loss in dB typ.	≥ 25	≥ 25	≥ 40	≥ 40	≥ 45	≥ 40
Ferrule	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic
Housing / Body	Metal	Metal	Plastic	Metal	Metal	Plastic
Boot colour	white/black/red	black	grey/blue	yellow	yellow	blue
Operating temp. in °C	-40 to 85	-40 to 85	-10 to 60	-40 to 85	-40 to 85	-40 to 85
Storage temp. in °C	-40 to 85	-40 to 100	-40 to 85	-40 to 80	-40 to 80	-40 to 80

3M ST Connectors, Couplings and Pigtails

Ordering Information

3M™ ST Couplings / ST Pigtails

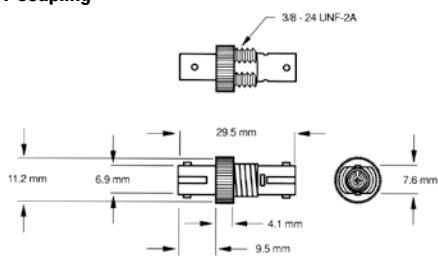


	Ref. No.
<ul style="list-style-type: none"> ST Coupling, multimode for D hole mounting, spacer and union nut included • PU: 60 pcs • PU: 1000 pcs 	6112 6112-1K
<ul style="list-style-type: none"> ST Coupling, single-mode for D hole mounting, spacer and union nut included • PU: 60 pcs 	8119

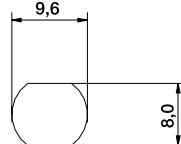


<ul style="list-style-type: none"> ST Pigtail 50/125, multimode Fibre, green, easy strip • Length: 2 m • PU: 12 pcs 	BAN00-ZK0002
<ul style="list-style-type: none"> ST Pigtail 62.5/125, multimode Fibre, blue, easy strip • Length: 2 m • PU: 12 pcs 	BNA00-AP0002
<ul style="list-style-type: none"> ST Pigtail 9/125, single-mode Fibre, yellow, easy strip • Length: 2 m • PU: 12 pcs 	AAM00-AU0002

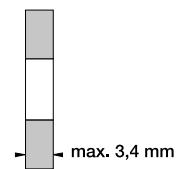
ST Coupling



Hole pattern



Sheet thickness



Technical Specifications

Coupling type	6112	8119
Type	Multimode	Single-mode
Sleeve	Phosphor bronze	Zirconia ceramic
Housing	Metal	Metal
Operating temp.	-40°C to 85°C	-40°C to 85°C

3M FC Connectors, Couplings and Pigtails

Ordering Information

3M™ FC/PC Connector



- **FC-Connector, Hot Melt, multimode, white boot**
- PU: 60 pcs

Ref. No.

6200



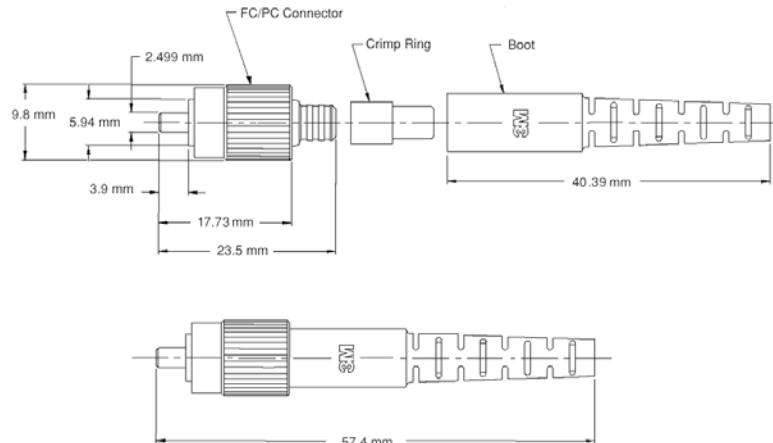
- **FC-Connector, Epoxy, single-mode, white boot**
- PU: 60 pcs

8203



- **FC-Connector, Hot Melt, single-mode, white boot**
- PU: 60 pcs

8200



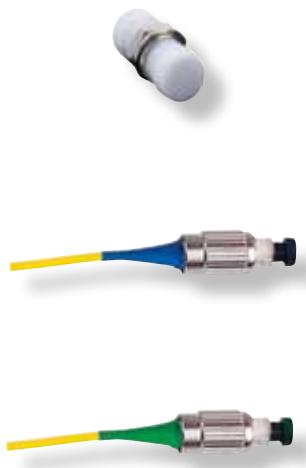
Technical Specifications

Connector type	8203	8200 8200-W1K U1K	6200
Adhesive type	Epoxy	Epoxy	Hot Melt
Fibre Type	E9/125	E9/125	G50/125 G62,5/125
Insertion loss in dB typ.	< 0,20	< 0,20	< 0,20
Return loss in dB typ.	≥ 55	≥ 55	≥ 25
Ferrule	Zirconia ceramic	Zirconia ceramic	Zirconia ceramic
Housing / Body	Plastic	Plastic	Plastic
Boot colour	white	blue	white
Operating temp. in °C	-40 to 85	-40 to 100	-10 to 85
Storage temp. in °C	-40 to 85	-40 to 100	-40 to 85

3M FC Connectors, Couplings and Pigtails

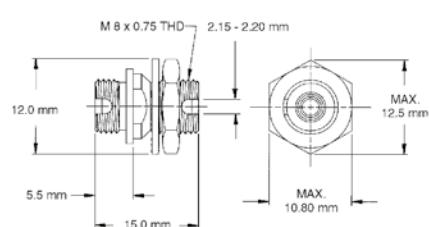
Ordering Information

3M™ FC Couplings/Pigtails

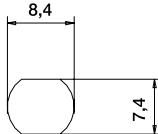


Ref. No.
8211-E
8211-APC
AEN00-AU0002
AEX00-AU0002

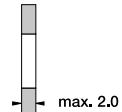
FC Coupling



Hole pattern



Wall thickness



Technical Specifications

Connector	8211-E	8211-APC
Type	Single-mode	Single-mode
Sleeve	Zirconia ceramic	Zirconia ceramic
Housing	Metal	Metal
Operating temp.	-40°C to 85°C	-40°C to 85°C

3M™ Hot Melt System

Description

3M Hot Melt optical fibre connector assembly system



The 3M Hot Melt system offers most convenient field connectivity for fibre optic connectors. From direct termination of breakout cables in patch panels over pigtails up to patchcords, Hot Melt connectors fit every application. The connectors are pre-filled with hot melt adhesive which just needs to be heated for easy termination.

All connectors have ceramic ferrules and different coloured boots enable clear port identification. A universal termination kit plus different upgrade kits enable to install all type of 3M Hot Melt connectors.

- Quick, simple and safe assembly in the field or factory
- Connector, adhesive and polishing film from one manufacturer guarantees a high quality connector
- Simple polishing process, either manually or with a polishing machine
- All connectors contain a zirconia ferrule and Hotmelt adhesive
- Boots are available in various colours for definite channel separation
- Suitable for all LAN and CATV applications
- Suitable for internal or external applications

Kit contents:

- Hotmelt oven with 230V power cords for Europe and UK
- Universal connector holder for ST, SC, FC connectors
- Polishing pad, classic, round («one step»)
- Polishing film 2µm, round, light green, 50 ea
- Polishing film 9µm, gray, 10 ea
- Polishing film 0,5µm, final polish, frosted, 20 ea
- Polishing jig
- Jacket/Buffer/coating stripper
- Kevlar scissors

- Universal crimp tool
- Carbide scribe blade
- Viewscope (200x)
- Express glue
- Lint free wipes with dispenser
- Bottles for water and isopropyl alcohol
- Safety container for fibre stubs
- Roll up pouch
- Fibre marking pen
- Training CD and instruction manual

Ordering Information

Ref. No.

6362

• Universal Hot Melt Termination Kit

The Hot Melt Termination Kit for ST, SC, FC and LC-Connectors contains all tools and consumeables, which are necessary to terminate 3M Hot Melt Connectors in the field.

3M™ Hot Melt System

Ordering Information



- **Extension kit LC Hot Melt**
- Polishing pad 11,5 x 14 mm (1 ea)
- LC connector holder (4 ea)
- LC polishing guide (2 ea)
- Polishing film starter kit
- LC crimp tool
- LC adapter for microscope 200x (1 ea)
- Heat shrink adapter (1 ea)
- Cleaning pins for connector holder (1 set)
- Instruction manual LC Hot Melt

Ref. No.

6650-LC



- **Classic Hot Melt consumables kit**
- Polishing film 2µm (200 ea)
- Polishing film 0,05µm (50 ea)
- Lint free tissues (200 ea)
- Universal polishing jig (1 ea)

6365-CC

- **LC Hot Melt single-mode polishing film set**
- Polishing film 2µm, "One Step" (100 ea)
- Polishing film 9µm (20 ea)
- Polishing film 0,5 µm (40 ea)
- Polishing film, final polish, 0,02µm (80 ea)

6650-LS

- **LC Hot Melt multimode polishing film set**
- Polishing film 2µm, "One Step" (100 ea)
- Polishing film 9µm (20 ea)

6650-LM

Accessories/Consumables



- **Polishing film 2µm, "one step", (254 X Classic), round for hand polish**
- PU: 50 pcs

Ref. No.

6192-A

- **Polishing film 0,5µm, diamond, (light gray)**
- PU: 5 pcs

661X-0,5S

- **Polishing film 0,5µm, final polish, (frosted)**
- PU: 50 pcs

863X-0,02S

- **Polishing film 0,02µm, single-mode, (light yellow)**
- PU: 50 pcs

263X

- **Polishing film 9µm, pre-polish LC-Hot Melt**
- PU: 50 pcs

461X

- **Polishing pad, round, hand polish, Classic Hot Melt**

6365-PP

- **Polishing pad 11,5 x 14 cm, for LC Hot Melt connectors**

6650-LP

- **Polishing guide Hotmelt, hand polish, ST, SC, FC**

8892

- **Polishing guide, hand polish, Hot Melt LC**

6650-LJ

3M™ Hot Melt System

Accessories/Consumables



- Weight for polishing guide, hand polish, Hot Melt LC

Ref. No.

6650-JW



- Hot Melt oven, 230V, with UK and EU power cord

6324



- Lint free tissues

05-00017



- Bottle for isopropyl alcohol

VOL-0560R



- Connector holder for ST Hot Melt connectors

6190



- Connector holder for SC Hot Melt connectors

SP-00504



- Connector holder for FC Hot Melt connectors

SP-00505



- Connector holder for LC Hot Melt connectors

6650-LH

3M™ Hot Melt System

Description

3M Hot Melt Autopolisher / 3M Tubing Kit

The 6851-E duplex Auto Polisher is a robust polishing machine designed for field polishing of 3M Hot Melt connectors with the performance of a factory polish.

The receptacle of the machine has a clamp mechanism, that allows to polish two Hot Melt (ST, SC or FC) connectors of the same type at a time.

This polishing machine is designed for high volume installations of Hot Melt connectors and ensures a consistent polishing quality.



Technical Specifications

3M Hot Melt Autopolisher

- Voltage (primary): 230V/50Hz, wallsocket PS
- Voltage (secondary): 15V DC / 1A, plus on centre
- Dimensions: 170 x 185 x 120 cm
- Weight: 1,7 kg
- Timer intervals: 30, 60, 90, 120 sec.

Ordering Information



Ref. No.

6851-E

Hot Melt Autopolisher, 230V

incl. 230V wall socket power supply and polishing film 2µm with hole (50 ea)
• PU: 1 pc

6192-B

Polishing film, 2µm

with hole for 6851-E Autopolisher
• PU: 50 pcs

DE-0100-0900-4

Tubing Kit

This Tubing or Breakout Kit is for direct termination of Hot Melt connectors on loose tube cables with 250µm primary coated fibres. The 900µm buffer tube slides over the primary coated fibre and offers more mechanical protection as well as better strain relief on the connector.

Kit Contents:

- Transparent PP-tube (60 m)
- Heatshrink tube 6,4, x 50 mm with glue (25 ea)
- Metal protection tube for the separation zone loose tube/buffer tubes (25 ea)
- Colour rings for coding (12 different colours, 10 ea colour)
- Instruction manual

3M™ Crimplok Connector System

Description

Crimplok

The Crimplok connector combines the speed of non-adhesive connectors with the performance characteristics of epoxy and Hot Melt connectors. Crimplok Connectors are the ideal solution for emergency restoration work or for quickly making fibre connections at the desk.

Crimplok connectors were designed to:

- Save time in installation
- Provide rugged, reliable performance, meeting or exceeding current EIA/TIA 568, ISO 11801 and EN 50173 specifications.
- Install cleanly and simply with fewer parts and tools.

Available in both SC and ST, single mode and multimode connector versions, Crimplok connectors are faster to install than epoxy connectors since there is no set-up or curing time. Crimplok connectors do not require special heating tools or ovens, so time spent searching for electrical outlets is eliminated. Polishing the connector is also a simple process that can be performed in seconds.

The Crimplok connector incorporates proven 3M malleable metal element fibre gripping technology. There is no fibre splice or second joint inside the connector, so there is no added attenuation at the connection. When the conformable metal element closes, it grips a length of the fibre, eliminating fibre movement associated with other crimp-style connectors. The strength of the metallic element ensures that Crimplok connectors meet industry standards for temperature and humidity.



ST Connector



SC Connector

Ordering Information

Ref. No.

6955

• Crimplok assembly case

The Crimplok assembly kit for ST and SC connectors, contains all the tools and consumables needed for assembly. Supplied in a convenient carrying case.



Contents of case:

1. Crimping pliers, universal
2. 6955-T Activation Tool
3. Polishing film 2µ, 200 discs
4. Polishing film 0,05µ, 50 discs
5. Polishing pad
6. Plastic bottle, empty
7. Special scissors
8. Stripping tool for cable sheath
9. Stripping tool for coating
10. Microscope, illuminated, 100X
11. Cleaning cloth, 100-pieces
12. Polishing puck
13. Assembly instructions
14. Carrying case



• Activation Tool, ST/SC

Ref. No.

6955-T



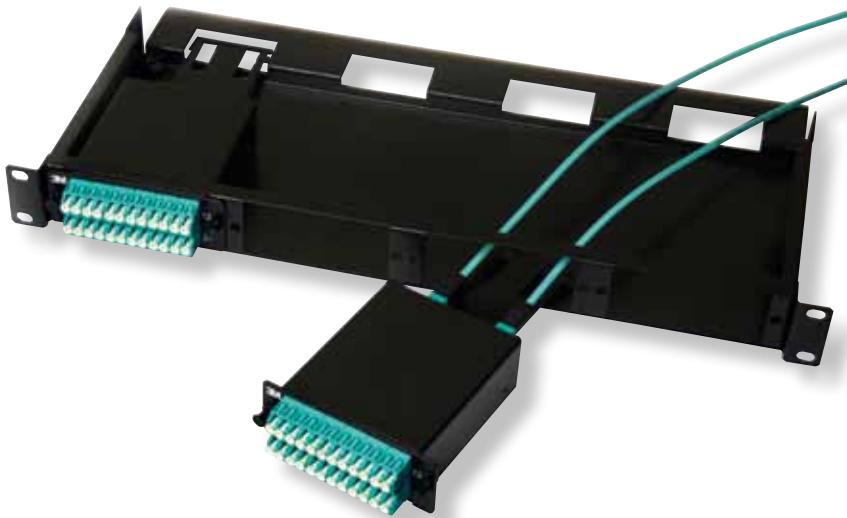
• Polishing film 2µm, oval with adhesive back

SP-00503

3M MPO Preterminated System

Description

With the introduction of this product line 3M offers state of the art connectivity for data centre cabling.



The patented modular construction combines the highest port density with typical 3M ease of installation.

The 19" sub-rack patch panel accommodates up to 4 preconnected modules with a port density of 24 LC connections per module. A total of 96 LC connectors can be connected on one height unit. The rear side of the module has two entry ports for 12 fibre MPO ribbon backplane cables.

The strain relief of the MPO backplane cable can be fixed with cable ties directly on the backplane of the modules. This allows full front access termination without the need to remove the 19" subrack and does not require a two part sliding construction of the sub-rack.

These installer friendly modules are available as pre-terminated 12- port MPO/LC duplex or as 12 port LC/LC duplex straight through versions.

The connection between two panels is made by either MPO/MPO or MPO/LC pre-terminated backplane 12 fibre ribbon cables with 50/125 μ m either OM3 or OM4 or singlemode fibres inside. The same fibre is used in the modules.

Features

- LC duplex connectivity
- Modular design
- Patented strain relief on the module backplane
- Pre-assembled modules
- Pre-connectorized MPO backplane cables
- EIA/TIA Version B cabling with pair flipped module

Benefits

- High port density of 48 (96 LC connectors) ports on 1U
- Flexibility for re-arrangements
- Full front access, no removal of patch panel required
- Ease of installation, no risk of fibre breakage
- Plug and play
- Straight through MPO/MPO backplane cables

Specification

- Insertion loss MPO, typical (dB): 0,35
- Insertion loss MPO, max. (dB): 0,75
- Insertion loss LC, typical (dB): 0,20
- Insertion loss LC, max. (dB): 0,40

3M MPO Preterminated System

Ordering Information



- **19" Subrack, for 4 MPO modules**
- Powder coated steel, RAL 9005, black
- Dimensions: 443,2 x 250 x 44 mm (W x D x H)
- Accessories: 4 cage nuts, 4 M6 cheesehead screws

Ref. No.

M-P4



- **MPO 12 Module, 12 ports LC duplex B, MM 50/125 OM3**
- Powder coated steel, RAL 9005, black
- Dimensions: 206 x 108x 38mm (W x D x H)
- Pre-assembled EIA/TIA Version B, 50/125µm OM3 fibre, pair flipped, A-type MPO coupling key up-key down.
- Accessories: 4 cable ties

M-MS



- **LC-Faceplate with 12 LC duplex couplings OM3**
- Powder coated steel, s RAL 9005, black
- Dimensions: 206 x 108 x 38mm (W x D x H)
- Pre-assembled with 12 LC duplex couplings, OM3, open structure
- Accessories: 4 cable ties

M-FLC



- **Blind Cover for MPO module ports**
- Powder coated steel, RAL 9005, black

M-BC



- **MPO 12/MPO 12 Backplane Patchcable, 5 m, OM3, Type B**
- **MPO 12/MPO 12 Backplane Patchcable, 10 m, OM3, Type B**
- **LC/MPO 12 Backplane Patchcable, 5 m, OM3, Type B**
- **LC/MPO 12 Backplane Patchcable, 10 m, OM3, Type B**

M-12-5-OM3-B
M-12-10-OM3-B
M-LC-12-5-OM3-B
M-LC-12-10-OM3-B



- **MPO 12/MPO 12 Backplane Patchcable, 20 m, OM3, Type B**
- **MPO 12/MPO 12 Backplane Patchcable, 30 m, OM3, Type B**
- **MPO 12/MPO 12 Backplane Patchcable, 40 m, OM3, Type B**

M-12-20-OM3-B
M-12-30-OM3-B
M-12-40-OM3-B

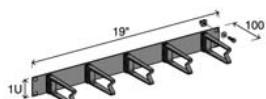


- **LC/MPO 12 Backplane Patchcable, 20m, OM3, Type B**
- **LC/MPO 12 Backplane Patchcable, 30m, OM3, Type B**
- **LC/MPO 12 Backplane Patchcable, 40m, OM3, Type B**

M-LC-12-20-OM3-B
M-LC-12-30-OM3-B
M-LC-12-40-OM3-B

Other lengths on request

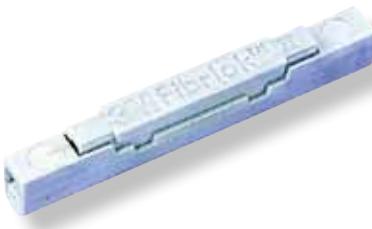
- Jacket Colour: aqua
- Jacket material: LSZH



- **Patchcord Management Panel**

P33410AA

3M™ Fibrlok System



3M Fibrlok II Universal Optical Splice 2529

Description

The right splice for today's applications. The 3M Fibrlok II Optical Fibre Splice 2529 has a proven record of consistent performance that makes it the right choice for FTTX, metro and enterprise network applications ranging from one Gigabit to 10 Gigabit data rates and above. The simplicity of the splice tool is the reason that the Fibrlok is so relevant to today's need for low cost rugged splicing equipment at multiple locations. The simple process minimizes the need for training and highly skilled technicians. The ability to reposition the fibres within the splice provides a high yield. All these features add up to faster installations and increased productivity in both restoration and construction applications.

Since the Fibrlok was released in 1988, more than 10 million Fibrlok splices have been installed around the world in many different types of applications, both indoor and outdoor. The Fibrlok II Splice 2529 uses a metallic splicing element held inside a moulded plastic body and cap that is designed for splicing any combination of 250 to 900 μ m coated fibres. The Fibrlok splice can be used with either single-mode or multimode fibres with a nominal glass cladding of 125 μ m and the splice insertion loss averages less than 0.1 dB. Fibre retention is greater than 4.4 N. The splice provides stable performance from -40° to 80° C.

The 3M Fibrlok splice can be used in aerial, buried, underground, pedestal applications, inside or outside buildings, or as a high-density substitute for Fibre optic connectors in FTTH (Fibre-to-the-Home).

Features

- Universal splice for single- and multimode fibres
- Installation time less than 30 seconds
- For all 250 μ m and 900 μ m coated fibres
- Identical strip lengths for all coatings
- Repositioning of the two fibres possible
- Extended life cycle (• 30 years)
- Complies with international standards

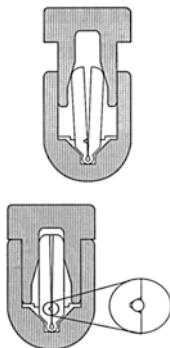
Benefits

- For all fibre connections (125 μ m)
- Quick and cost effective
- Universal applications
- Installer friendly
- Optimized insertion loss
- Reliable
- Saves investment

3M™ Fibrlok System

Specifications

Technical		Environmental	
Fibre diameter:	125µm	Operating temperature:	-40°C to 75°C
Coating diameter:	250 to 900µm	Thermal cycling:	Change in insertion loss <0.5 dB, -40° to 80° C
Shelf life:	• 30 years		
Installation time	< 30 seconds after fibre preparation	Fungus resistance:	ASTM G-21-70; rating 0
		Vibration:	EIA standard FOTP-11, test condition 1
Mean insertion loss:	< 0,1 dB	Water immersion:	7 Days @ 43° C; change in insertion loss 0.05 dB
Reflectance:	• 35 dB from -40°C to +80°C • 60 dB typical at room temperature	Dimensions (W x H x L):	12.9 mm x 12.0 mm x 66 mm
Tensile strength:	• 4,5 N, typical 13 N		
Material:	Engineering thermoplastic with aluminum alloy element; UL 94, V-0 rating		



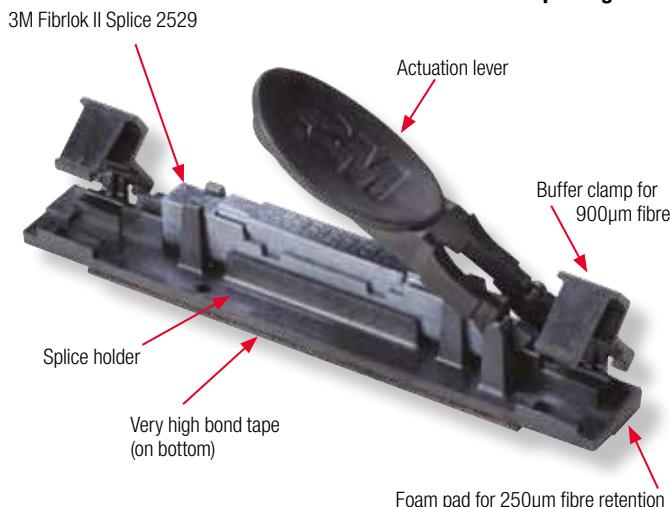
**Cross-sectional view of open and actuated
3M Fibrlok II Splice 2529**

After preparation, the fibres are inserted into the Fibrlok II splice element. The actuation lever is then used to close the cap, forcing the clamping and locating surfaces against the fibres and aligning the fibres precisely and permanently in place.

3M™ Fibrlok System

Description

3M Fibrlok II splice/holder integrates the 3M Fibrlok II splice 2529, actuation tool, and holder all in one package. It enables



fast, on-site installation without a separate assembly tool or splice tray.

Designed for restoration of broken fibre and the final Fibre-to-the-Premise (FTTP) drop connection, it can be easily used with singlemode or multimode fibres with 250µm or 900µm tight buffer coating.

Clamps on each side of the splice provide strain relief for the 900µm tight buffer for long-term stability and reliability. Very high bond tape on the bottom of the splice/holder permanently holds it at the splice location, which is especially useful at optical network terminals.



The Fibrlok II splice/holder is also available with a pre-terminated SC/APC or SC/UPC pigtail (0.75 m) for easy installation. Pigtail is fabricated with 10 mm bend radius, bend insensitive, zero water peak fibre.

Applications

- Inside or outside buildings
- Terminals
- Network interface devices (NIDs)
- Fibre distribution units
- Wall outlets

Features

- Integrated splice, holder & actuator
- Push button actuation
- Buffer clamps
- Foam retention pad
- Adhere with VHB tape
- Pre-terminated SC pigtail

Benefits

- No need for separate tray or actuation tool
- Easy splice operation
- Provide 900µm fibre strain relief
- Used for 250µm fibre splicing
- Flexible placement within terminal box
- Only one fibre needs to be prepared

3M™ Fibrlok System

Ordering Information



- **3M Fibrlok Universal Splice**

Ref. No.

2529



- **3M Fibrlok Universal Spliceholder**
- For 6 separate Fibrlok 2529 within the DIN Splicetray

2599-H



- **DIN Universal Splice Tray**

29026-500 31



- **Fibrlok II Splice/Holder**
- 60/package

2539



- **Fibrlok II Splice/Holder with SC/APC Pigtail**
- 12/package

2539 SC/APC



- **Fibrlok II Splice/Holder with SC/UPC Pigtail**
- 12/package

2539 SC/UPC



- **Fibrlok Splice Preparation Kit with Cleaver**
- 1 each

2504



- **Fibrlok Splice Preparation Kit without Cleaver**
- 1 each

2559

3M™ Fibrlok System

Description - Fibrlok 2540G Fibre Splice



3M Fibrlok 250µm Fibre Splice enables fast, easy splicing of 250µm single-mode or multi-mode fibre in Enterprise or Fibre-to-the-Premises (FTTP) installations. This low-loss reliable splice can be installed by non-specialized technicians.

A Fraction of the Tooling Cost

The simple rugged splicing tool is inexpensive, portable, requires no power and can be used in any environment. Several crews can be equipped for less than the cost of a fusion splicer.

Fast Installation Time

Installation rate is generally twice as fast as a fusion splicer where only one or two splices are required. No wait time for warm up needed.



Applications

- Inside or outside buildings
- Fibre Closures and Terminals
- FTTP Drop Cables

Features

- Low loss and back reflection
- Simple splicing process
- Strong fibre retention
- Superior matching gel
- Rugged portable splice tool

Benefits

- Reliable high yield splices
- Increased installation rate
- Prevents fibre movement for stable performance
- Maintains quality of transmission over time
- Low expense to equip crews

3M™ Fibrlok System

Specifications

Fibre type:	125µm fibre, 250µm coating
Operating temperature:	-40°C to 75°C (-40°F to 167°F)
Pull out strength:	4.4N (1.0 lbf)
Insertion loss:	0.06 dB mean (1310 nm)
Wavelengths:	1310 nm, 1490 nm, 1550 nm, 1625 nm
Reflection:	• 40dB typical (55dB mean at room temperature)
Dimensions (W x H x L):	4 mm x 4 mm x 36 mm

Ordering Information



Ref. No.

2540G

- **Fibrlok 250µm Fibre Splice**
- 5/pkg, 50 MOQ

2504G

- **Fibre Splice Assembly Tool**
- 1/pkg

2559

- **Fibre Splice Preparation Kit without Cleaver**
- 1/pkg

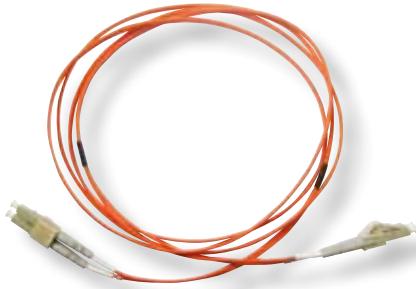
2504

- **Fibrlok Splice Preparation Kit with Cleaver**
- 1/pkg

2534

- **Cleaver CT-01A**
- 1/pkg

3M™ Cable Assemblies - Multimode Patch Cords



LC-LC Patch Cord

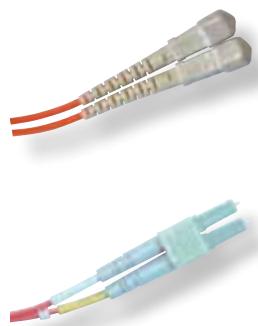
Description - Patch Cords SC-LC / LC-LC

Factory made duplex patch cables in various lengths are used for patching between sockets or for making the connection to switches or transceivers on the workstation. The patch cables are LSZH rated. Hybrid cables and other lengths are available.

Technical Specifications

• Adhesive type:	Epoxy
• Fibre type:	50/125, OM2 50/125, OM3
• Insertion Loss:	< 0,3 dB typ.
• Return Loss:	≥ 20 dB typ.
• Ferrule:	Zirconia Ceramic
• Housing:	Plastic, grey
• Boot colour:	White (LC) Black/beige (SC)
• Operating Temperature:	-40°C to 60°C
• Storage Temperature:	-40°C to 80°C
• Cable Type:	I-VH 250/125, LSZH
• Jacket colour:	grey or orange

Ordering Information



Ref. No.

• SC-LC Patch cords, multimode, duplex, OM2 50/125/2000µm, grey or orange jacket colour, zip cord	
• Length: 1 m PU: 12 pcs	BDBDU-AX0001
• Length: 2 m PU: 12 pcs	BDBDU-AX0002
• Length: 3 m PU: 12 pcs	BDBDU-AX0003
• Length: 5 m PU: 12 pcs	BDBDU-AX0005

• SC-LC Patch cords, multimode, duplex, OM3 50/125/2000µm, grey or orange jacket colour, zip cord	
• Length: 1 m PU: 12 pcs	BDBDU-CB0001
• Length: 2 m PU: 12 pcs	BDBDU-CB0002
• Length: 3 m PU: 12 pcs	BDBDU-CB0003
• Length: 5 m PU: 12 pcs	BDBDU-CB0005

• LC-LC Patch cords, multimode, duplex, OM2 50/125/2000µm, grey or orange jacket colour, zip cord	
• Length: 1 m PU: 12 pcs	BDUDU-AX0001
• Length: 2 m PU: 12 pcs	BDUDU-AX0002
• Length: 3 m PU: 12 pcs	BDUDU-AX0003
• Length: 4 m PU: 12 pcs	BDUDU-AX0004

• LC-LC Patch cords, multimode, duplex, OM3 50/125/2000µm, grey or orange jacket colour, zip cord	
• Length: 1 m PU: 12 pcs	BDUDU-CB0001
• Length: 2 m PU: 12 pcs	BDUDU-CB0002
• Length: 3 m PU: 12 pcs	BDUDU-CB0003
• Length: 5 m PU: 12 pcs	BDUDU-CB0005

3M™ Cable Assemblies - Multimode Patch Cords

Description - Patch Cords ST-ST / SC-SC



ST-ST Patch Cords

Factory made duplex patch cables in various lengths are used for patching between sockets or for making the connection to switches or transceivers on the workstation. The patch cables are LSZH rated. Hybrid cables and other lengths are available.

Technical Specifications

- Adhesive type: Epoxy
- Fibre type: 50/125, OM2
50/125, OM3
- Insertion Loss: < 0,3 dB typ.
- Return Loss: ≥ 20 dB typ.
- Ferrule: Zirconia Ceramic
- Housing: Metal (ST)
Plastic, grey (SC)
- Boot colour: Black/red (ST-duplex)
Black/beige (SC-duplex)
- Operating Temperature: -40°C to 60°C
- Storage Temperature: -40°C to 80°C
- Cable Type: I-VH 2G50/125, LSZH
- Jacket colour: grey or orange

Ordering Information



- **ST-ST Patch cords, multimode, duplex
50/125µm, grey or orange jacket colour, zip cord**
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

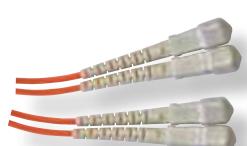
Ref. No.

BANAN-AX0001
BANAN-AX0002
BANAN-AX0003
BANAN-AX0005



- **SC-SC Patch cords, multimode, duplex
50/125µm, grey or orange jacket colour, zip cord**
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

BDBDB-AX0001
BDBDB-AX0002
BDBDB-AX0003
BDBDB-AX0005



- **SC-SC Patch cords, multimode, duplex, OM3
50/125µm, grey or orange jacket colour, zip cord**
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

BDBDB-CB0001
BDBDB-CB0002
BDBDB-CB0003
BDBDB-CB0005

3M™ Cable Assemblies - Multimode Patch Cords



ST-SC Patch Cord

Description - Patch Cords ST-SC

Factory made duplex patch cables in various lengths are used for patching between sockets or for making the connection to switches or transceivers on the workstation. The patch cables are LSZH rated. Hybrid cables and other lengths are available.

Technical Specifications

• Adhesive type:	Epoxy
• Fibre type:	50/125, OM2 50/125, OM3
• Insertion Loss:	< 0,3 dB typ.
• Return Loss:	≥ 20 dB typ.
• Ferrule:	Zirconia Ceramic
• Housing:	Metal (ST)
• Boot colour:	Black/red (ST) Black/beige (SC)
• Operating Temperature:	-40°C to 60°C
• Storage Temperature:	-40°C to 80°C
• Cable Type:	I-VH 250/125, LSZH
• Jacket colour:	grey or orange

Ordering Information



Ref. No.
BANDB-AX0001
BANDB-AX0002
BANDB-AX0003
BANDB-AX0005

• ST-SC Patch cords, multimode, duplex
50/125µm, grey or orange jacket colour, zip cord

- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

3M™ Cable Assemblies - Single-mode Patch Cords

Description - Patch Cords ST-ST / ST-SC / SC-SC



Factory made duplex patch cables in various lengths are used for patching between sockets or for making the connection to switches or transceivers on the workstation. The patch cables are LSZH rated. Hybrid cables and other lengths are available.

Technical Specifications

- Adhesive type: Epoxy
- Fibre type: 9/125
- Insertion Loss: < 0,2 dB typ.
- Return Loss: ≥ 55 dB typ.
- Ferrule: Zirconia Ceramic
- Housing: Plastic, blue (SC)
Metal (ST)
- Boot colour: Yellow (ST)
White (SC)
- Operating Temperature: -40°C to 85°C
- Storage Temperature: -40°C to 80°C
- Cable Type: I-VH 19/125, LSZH
- Jacket colour: yellow

Ordering Information



- ST-ST Patch cords, single-mode, simplex 9/125µm, yellow jacket colour
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

Ref. No.
AAMAM-AT0001
AAMAM-AT0002
AAMAM-AT0003
AAMAM-AT0005



- ST-SC Patch cords, single-mode, simplex 9/125µm, yellow jacket colour
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

AAMDA-AT0001
AAMDA-AT0002
AAMDA-AT0003
AAMDA-AT0005



- SC-SC Patch cords, single-mode, simplex 9/125µm, yellow jacket colour
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

ADADA-AT0001
ADADA-AT0002
ADADA-AT0003
ADADA-AT0005

3M™ Cable Assemblies - Single-mode Patch Cords

Description - Patch Cords SC/APC 8°-SC/PC SC/APC 8°-SC/APC 8° LC-LC



SC/APC 8°-SC/PC Patch Cord



SC/APC 8°-SC/APC 8° Patch Cord

Factory made duplex patch cables in various lengths are used for patching between sockets or for making the connection to switches or transceivers on the workstation. The patch cables are LSZH rated. Hybrid cables and other lengths are available.

Technical Specifications

- Adhesive type: Epoxy
- Fibre type: 9/125
- Insertion Loss: < 0,2 dB typ.
- Return Loss: ≥ 70 dB typ.
- Ferrule: Zirconia Ceramic
- Housing: Plastic, blue (SC/PC & LC/PC)
- Boot colour: Plastic, green (SC/APC)
- Boot colour: Green (APC)
- Boot colour: White (SC & LC)
- Operating Temperature: -40°C to 85°C
- Storage Temperature: -40°C to 80°C
- Cable Type: I-VH 19/125, LSZH
- Jacket colour: yellow

Ordering Information



- **SC/APC 8°-SC/PC Patch cords, single-mode, simplex
9/125µm, yellow jacket colour**
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

Ref. No.

AEPDA-AT0001
AEPDA-AT0002
AEPDA-AT0003
AEPDA-AT0005



- **SC/APC 8°-SC/APC 8° Patch cords, single-mode, simplex
9/125µm, yellow jacket colour**
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

AEPEP-AT0001
AEPEP-AT0002
AEPEP-AT0003
AEPEP-AT0005

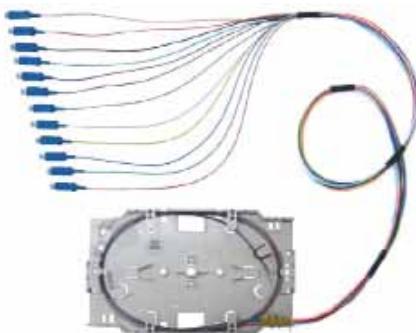


- **LC-LC Patch cords, single-mode, duplex
9/125µm, yellow jacket colour**
- Length: 1 m PU: 12 pcs
- Length: 2 m PU: 12 pcs
- Length: 3 m PU: 12 pcs
- Length: 5 m PU: 12 pcs

ADVDV-BW0001
ADVDV-BW0002
ADVDV-BW0003
ADVDV-BW0005

3M Preterminated Pigtail Modules

Description



These pre-terminated modules are designed for 19" patchpanels which have a central thread to allow the mounting of DIN splice cassettes.

These modules are easier and cheaper to install than standard pigtailed and trays.

12 each semi-tight buffered pigtails in different standard colours (IEC or Bellcore) are terminated in a DIN splice cassette. At the ends of the pigtailed, the 900 μ m buffer is stripped off 1m. All pigtailed are bundled and fixed with 2 cable ties at the entrance port of the cassette.

The stripped fibre ends are routed inside the cassette and are secured with tape as shipping protection.

Outside of the cassette the fibre bundle is held together by 4 short tubes, which can be slid over the bundle for flexible positioning.

The cassette is closed with a snap on lid.

6 twist tie clips with adhesive tape are included for more flexible fibre routing.

Features

- Pre-stripped pigtailed
- Terminated in DIN splice cassettes
- Colour coded pigtailed
- Fibre bundles with sliding tubes
- For all commonly used connector types
- Snap on lid
- Twist tie clips with adhesive tape

Benefits

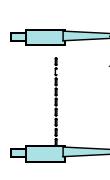
- Saves installation time and cost
- Fits most of the 19" fibre patchpanels
- Easier connection to backbone cable
- Best fibre management and routing of pigtailed in panel
- Universal solution for all fibre patchpanels
- Lid can be removed without moving cassette
- Flexible fibre routing

Specifications

- Material of cassette:
- Dimensions of cassette:
- Colour of cassette:
- Pigtail length:
- Pigtail colours IEC 304:
- Pigtail type:
- Fibre Routing support:
- Dimensions:

ABS
115 x 92 x 8 (W x D x H) without lid
(IEC 61073, DIN 47662 Draft)

RAL 9010
Stripped length inside 1m, buffered length outside 1m, staggered lengths
Red, green, blue, yellow, white, grey, brown, violet, aqua, black, orange, rose
900 μ m semi-tight buffer
6 each fibre routing clips with adhesive tape included
Total length of each pigtail is 2,0 m

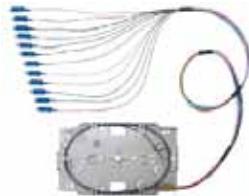


Length of 900 μ m buffered fibre bundle between cassette and connectors is 1 m

1m
Coil length of 250 μ m stripped fibre inside of the splice cassette is 1 m

3M Preterminated Pigtail Modules

Ordering Information



Ref. No.
FMP-12T5
FMP-12T6
FMP-12C9
FMP-12UPC9
FMP-12C5
FMP-12C50M3
FMP-12C6
FMP-12F9
FMP-12L9
FMP-12UPL9
FMP-12L5
FMP-12L50M3
FMP-12L6

• DIN-Cassette/Pigtail Modules

- Pigtail Module ST 50/125 w/DIN-Cassette
- Pigtail Module ST 62,5/125 w/DIN-Cassette
- Pigtail Module SC/PC 9/125 w/DIN-Cassette
- Pigtail Module SC/UPC 9/125 w/DIN-Cassette
- Pigtail Module SC 50/125 w/DIN-Cassette
- Pigtail Module SC 50/125 OM3 w/DIN-Cassette
- Pigtail Module SC 62,5/125 w/DIN-Cassette
- Pigtail Module FC/PC 9/125 w/DIN-Cassette
- Pigtail Module LC/PC 9/125 w/DIN-Cassette
- Pigtail Module LC/UPC 9/125 w/DIN-Cassette
- Pigtail Module LC/PC 50/125 w/DIN-Cassette
- Pigtail Module LC 50/125 OM3 w/DIN-Cassette
- Pigtail Module LC 62,5/125 w/DIN-Cassette

3M™ 19" Patchpanels



Description

The SPP3-E patchpanel range is designed as a universal fibre optic patchpanel for direct termination with, for example, the 3M Hot Melt- or NPC connectors, or as a splice drawer to store pigtails in DIN splice cassettes.

Multiple entry ports allow the use and fixing of 2 - 4 fibre horizontal cable as well as backbone cable with up to 48 fibres. The cable can be fixed either via cable glands or cable ties. The panels offer also fixing hooks for manifolds of pre-terminated backbone cable. A central thread allows stacking up to 4 DIN splice cassettes including the top lid.

The panels have a sliding mechanism with a defined hard stop, which prevents the drawer from being pulled out completely and therefore offers the installer a comfortable handling for both, new installation and re-arrangements.

The SPP3-E program offers two different versions.

- Empty panels
- Panels with pre-terminated couplings

Features

- Sliding design
- Multiple cable entry ports
- Fixing for breakout manifolds
- Fixing thread for splice tray (DIN)
- Port numbering on front panel
- Universal cage nuts and bolts for 19" frames
- For all common connector standards

Benefits

- Easy handling, installer friendly
- Handles all kind of backbone cable
- Handles also pre-terminated backbone cable
- Comfortable fibre management
- Easy traceability
- Comfortable installation
- One design fits all applications

Specifications

Design features:

- Sliding 1U patchpanel with defined stop for the drawer
- Un-detachable knurled nut to fix the drawer to the housing
- Fixed front panel, not exchangeable

Housing material: Steel

- Dimensions: 44 x 483 x 250 mm (H x W x D), [19", 1U]
- Colour: RAL 7035 Light grey
- Surface: Powder coated, slightly structured
- Port numbering: Black, screen printed

Included accessories:

- Universal cage nuts, screws and washers for 19" mounting
- Instruction manual

3M™ 19" Patchpanels

Ordering Information



Ref. No.
SPP3-E-1T
SPP3-E-2T
SPP3-E-6CD
SPP3-E-1CD
SPP3-E-2CD
SPP3-E-1CS
SPP3-E-2CS



Ref. No.
SPP3-E-1T-M
SPP3-E-2T-M
SPP3-E-6C-DM
SPP3-E-1C-DM
SPP3-E-2C-DM
SPP3-E-1C-SS
SPP3-E-2C-SS

3M™ 19" Patchpanels

Description



The Eco-SPP3 range offers only panels with already fitted couplings.

Pre-assembled pigtail-splice cassette modules are available for easy field assembly of a complete 19" patchpanel.

The 3M Eco-SPP3 range is designed as fibre optic patchpanels mainly for backbone cable with pigtail splicing in splice cassettes, but can also be used for direct termination with, for example, the 3M Hot Melt- or NPC connectors. Four entry ports allow the fixing of backbone cable with up to 48 fibres through cable glands (16 or 20 mm). The panels offer also fixing hooks for manifolds of pre-terminated backbone cable. A central thread allows the stacking of up to 4 DIN splice cassettes including the top lid. The cassettes are secured against rotation.

Pre-terminated pigtail/cassette modules are available separately as accessories.

The panels have a sliding mechanism with a defined hard stop, which prevents the drawer from being pulled out completely and therefore offers the installer a comfortable handling for both, new installation and re-arrangements.

Eco-SPP3 panels are available in light grey (RAL 7035) and in black (RAL 9005).



Features

- Sliding design
- Multiple cable entry ports
- Fixing for breakout manifolds
- Fixing thread for splice tray (DIN)
- Port numbering on front panel
- Universal cage nuts and bolts for 19" frames
- For all common connector standards

Benefits

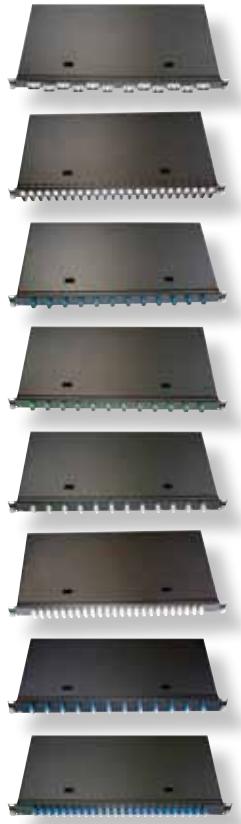
- Easy handling, installer friendly
- Handles all kind of backbone cable
- Handles also pre-terminated backbone cable
- Comfortable fibre management
- Easy traceability
- Comfortable installation
- One design fits all applications

3M™ 19" Patchpanels

Ordering Information



Ref. No.	
• Light grey Eco-SPP3 Patchpanels (RAL 7035)	
• Patchpanel, 1U with 12 ST MM Couplers	ECO-SPP3-E-1T-M
• Patchpanel, 1U with 24 ST MM Couplers	ECO-SPP3-E-2T-M
• Patchpanel, 1U with 6 SC Duplex MM Couplers	ECO-SPP3-E-6C-DM
• Patchpanel, 1U with 12 SC Duplex MM Couplers	ECO-SPP3-E-1C-DM
• Patchpanel, 1U with 24 SC Duplex MM Couplers	ECO-SPP3-E-2C-DM
• Patchpanel, 1U with 12 SC Simplex SM Couplers	ECO-SPP3-E-1C-SS
• Patchpanel, 1U with 24 SC Simplex SM Couplers	ECO-SPP3-E-2C-SS
• Patchpanel, 1U with 12 SC/APC Simplex SM Couplers	ECO-SPP3-E-1APC-SS
• Patchpanel, 1U with 24 SC/APC Simplex SM Couplers	ECO-SPP3-E-2APC-SS
• Patchpanel, 1U with 12 LC Duplex MM Couplers	ECO-SPP3-E-1LC-DM
• Patchpanel, 1U with 24 LC Duplex MM Couplers	ECO-SPP3-E-2LC-DM
• Patchpanel, 1U with 12 LC Duplex SM Couplers	ECO-SPP3-E-1LC-SS
• Patchpanel, 1U with 24 LC Duplex SM Couplers	ECO-SPP3-E-2LC-SS



Ref. No.	
• Black Eco-SPP3 Patchpanels (RAL 9005)	
• Patchpanel, 1U with 12 ST MM Couplers, black	ECO-SPP3-EB-1T-M
• Patchpanel, 1U with 24 ST MM Couplers, black	ECO-SPP3-EB-2T-M
• Patchpanel, 1U with 6 SC Duplex MM Couplers, black	ECO-SPP3-EB-6C-DM
• Patchpanel, 1U with 12 SC Duplex MM Couplers, black	ECO-SPP3-EB-1C-DM
• Patchpanel, 1U with 24 SC Duplex MM Couplers, black	ECO-SPP3-EB-2C-DM
• Patchpanel, 1U with 12 SC Simplex SM Couplers, black	ECO-SPP3-EB-1C-SS
• Patchpanel, 1U with 24 SC Simplex SM Couplers, black	ECO-SPP3-EB-2C-SS
• Patchpanel, 1U with 12 SC/APC Simplex SM Couplers, black	ECO-SPP3-EB-1APC-SS
• Patchpanel, 1U with 24 SC/APC Simplex SM Couplers, black	ECO-SPP3-EB-2APC-SS
• Patchpanel, 1U with 12 LC Duplex MM Couplers, black	ECO-SPP3-EB-1LC-DM
• Patchpanel, 1U with 24 LC Duplex MM Couplers, black	ECO-SPP3-EB-2LC-DM
• Patchpanel, 1U with 12 LC Duplex SM Couplers, black	ECO-SPP3-EB-1LC-SS
• Patchpanel, 1U with 24 LC Duplex SM Couplers, black	ECO-SPP3-EB-2LC-SS

3M™ 19" Patchpanels

Ordering Information



Ref. No.
29026-500 31



<ul style="list-style-type: none"> • Splicing cassette • Incl. splice protective holder for 12 crimp splice protectors and cable management • Dimensions: 155 x 92 x 8 mm (H x W x D) • Colour: RAL 9001 (cream white) • PU: 30 pcs 	29026-500 30
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<ul style="list-style-type: none"> • Lid • For splicing cassette • Dimensions: 155 x 92 x 2 mm (H x W x D) • Colour: RAL 9001 (cream white) • PU: 10 pcs 	29025-503 31
<ul style="list-style-type: none"> • PU: 30 pcs 	29025-503 30



<ul style="list-style-type: none"> • Hinge • To connect splicing cassette and lid • PU: 100 pcs 	03-756-00500
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<ul style="list-style-type: none"> • Strain relief • For 12 fibres with Ø 0.9 and 1.1 mm coating • PU: 50 pcs 	29031-000 30
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<ul style="list-style-type: none"> • Splicing protection holder, crimp • For 12x crimp splice protectors • PU: 10 pcs 	05-760-08000
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<ul style="list-style-type: none"> • Crimp splice protector • PU: 150 pcs 	05-760-08100
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<ul style="list-style-type: none"> • Splicing protection holder, shrink • For 6x shrink splice protectors • PU: 10 pcs 	05-760-11900
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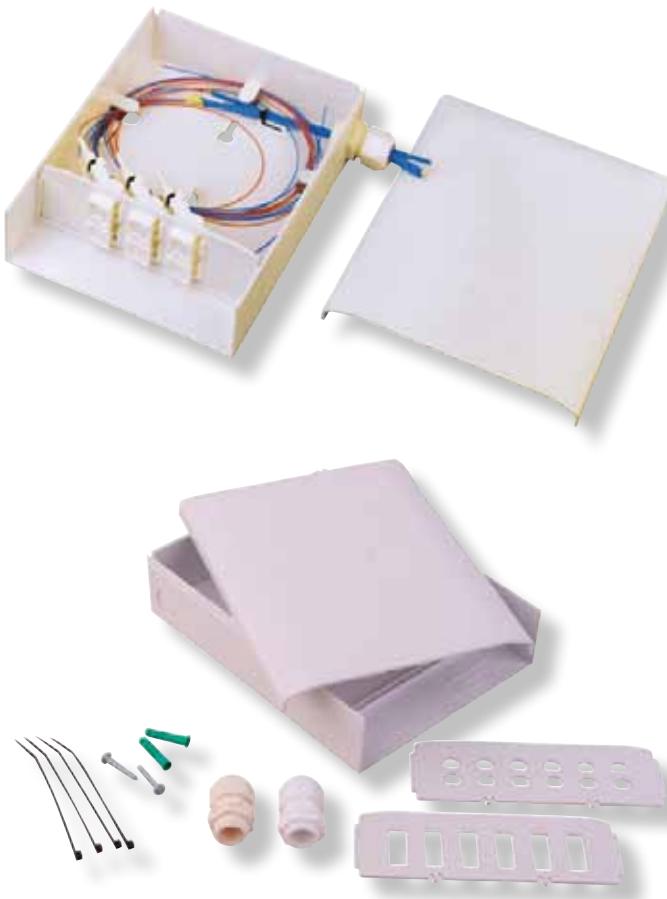
<ul style="list-style-type: none"> • FO heatshrink splice protector, 60 mm/3 mm diam. 	2170-S 3,0 X 60
<ul style="list-style-type: none"> • FO heatshrink splice protector, 45 mm/2,4 mm diam. 	2170-S 2,4 X 45
<ul style="list-style-type: none"> • FO heatshrink splice protector, 60 mm/2,4 mm diam. 	2170-S 2,4 X 60



<ul style="list-style-type: none"> • Splicing holder Fibrlok Universal • For 6x Fibrlok • PU: 20 pcs 	2529-H
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3M™ Wall Outlets

Description - 3M 2552 SA Wall Mount Fibre Distribution Box



The 3M 2552 SA offers excellent fibre management in an affordable box with an attractive, low profile design able to be wall mounted anywhere in your LAN network. The box is also suitable for housing consolidation points.

The 2552 SA series brings efficient use of space as well as functionality and rugged durability. The boxes have a unique sliding lid to provide easy access to couplings and fibre management.

Interchangeable connector panels are available to accommodate: ST simplex & duplex couplings, SC duplex couplings, FC flanged couplings, FC "D" mount couplings, and the 3M Volition VF-45 Socket.

Fibres can either be directly terminated or spliced to pigtailed using either Fibrlok or fusion splicing. The 2552 SA is constructed from flame retardant material.

Ordering Information



- **2552SA**
- Dimensions (H x W x D): 210 x 160 x 65 mm
- Weight: approx. 0,5 kg/ea.
- MOQ: 10 units

Contents:

Exchangeable face plates for:

- ST simplex
- FC-"D" Mount
- SC duplex plate up to 12x fibres
- VF-45

Ref. No.
2552SA

3M™ Wall Outlets



Description - 3M VOL-0255 FTTX Wall Outlet and Keystone adapter

The 8687 series are adapters that convert outlet ports with keystone latching to allow the fitting of SC simplex or LC duplex couplings.

This adapter can be used in patch panels as well as other outlets, like the 3M VOL-0255 or VOL-0256 Wall outlets.

An integrated spring loaded flap closes the port after unplugging the connector and protects against laser radiation as well as dust.

This adapter is the ideal product for wall and accommodates all SC simplex flanged couplings which are according to IEC 60874-14 or LC couplings with an SC footprint.

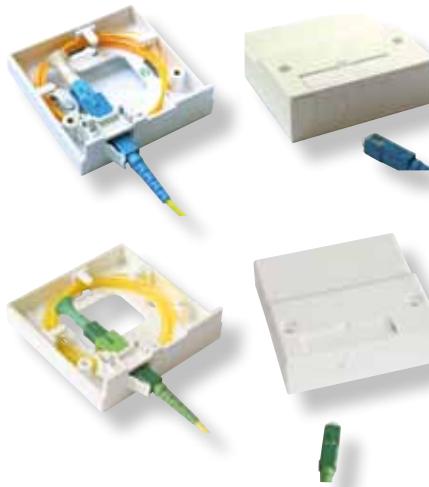
Features

- Keystone latching
- Spring loaded dust flap

Benefits

- Converts most keystone ports to SC simplex or LC duplex
- Protects against laser radiation and dust

Applications



Integration in VOL-0255
80 x 80 cm

Integration in VOL-0256
86 x 86 cm

Ordering Information



- Keystone SC or LC Adapter
- PU: 100 ea / box (10 ea. / bag; 10 bags / box)

Ref. No.

8687

3M™ Wall Outlets



Description - 3M 8686 Termination Box

8686

- Wall mount hybrid box
- 86 x 86 mm format for 2 SC simplex or LC duplex couplings and one RJ45 copper jack.
- Flexible optical installation - both splicing to pigtailed or field mountable connectors 3M NPC type or equivalent may be used.
- The box contains two holders for 3M Fibrlok mechanical splices or heat shrink fusion splice protectors.
- 6 slots for incoming cables and 1 additional opening in the centre for cable entry through an underwall box.
- Compatible with all 4 mm diameter round cable.

Contents

- Base
- Cover
- Holder for 2 Fibrlok splices or equivalent



Technical Specifications

Dimensions

- Height: 86 mm
- Width: 86 mm
- Depth: 35 mm

Minimum bending radius

- 30 mm for direct connector termination
- 20 mm on spliced pigtailed

Fixing

- Wall mount with two screws or directly on 60 mm underwall box

Optical connection

- Round customer cable 4 mm diameter
- Anchoring point for cable

Connection Compatibility

- SC simplex or LC duplex coupling
- Field mountable simplex SC or LC termination with 3M NPC type or equivalent
- SC or LC pigtailed with Fibrlok splices
- RJ45 keystone copper connection

Ordering Information

- 8686 FTTH Wall Outlet

Ref. No.
8686

3M™ Connection Boxes

Description - PBPO/C Connection Box (Indoor)

Indoor Connection Box.

Connection interface between backbone and horizontal wiring or as a fibre consolidation point box.

Installation on standard cables and window cut cables.



Product composition

- 1 cable path with 2 strain reliefs for backbone cable
- A storage area for buffered fibres and microtubes (cut or uncut).
- A 4 slot organiser from the 3M BPEO Evolution range
- A range of splices trays for fusion splices, mechanical splices or splitters. Capacity of 12 to 48 splices.
- 1 connector panel for 12 SC type couplings.
- The PBPO is available for direct connection of drop cables.

Technical Specifications

Dimensions

- Height: 204 mm
- Width: 158 mm
- Depth: 52 mm

Protection Performance (EN 60529)

- IP 40 and IK08

Fixing

- Wall mounted 2 x M4 screws

Material

- Thermoplastic

Cable anchoring

- Main: on 2 holders (2 cable ties + 2 strain reliefs)

Cable diameters

- Main : 13.5 mm
- Drops : 4.5 mm

Cable types

- Window cut cables, termination cables, or uncut cables.

Connection

- 4 slot organiser to accept any Evolution splice tray
- Buffered fibre management
- Large storage area for fibres and microtubes
- Maximum capacity: 48 fusion splices

Couplings

- Blank ports for SC/APC or SC/PC couplings
- Compatible with duplex LC/PC and LC/APC couplings with LC footprint



3M™ Connection Boxes

Description - PBPO 12

Floor Distribution Box.

Interface between backbone and horizontal wiring or as a fibre splicing box.

Installation on standard cables and window cut cables.



Product Composition

- 1 cable path with 2 strain reliefs for riser cable.
- A storage area for buffered fibres and microtubes (cut or uncut).
- A 4 slot organiser from the BPEO Evolution range.
- A range of splice trays for fusion splices, mechanical splices or splitters. Capacity of 12 to 48 splices.

PBPO 12 Model

- PBPO 12 is equipped with 12 ports for 12 drops cables. Each port is equipped with a strain relief for each drop, with anchoring for the cable strength member and a rubber gasket for sealing. These two parts are fixed on the cable first and then put into the entry port.

Technical Specifications

Dimensions

- Height: 204 mm
- Width: 158 mm
- Depth: 52 mm

Protection Performance (EN 60529)

- IP 40 and IK08

Fixing

- Wall mounted 2 x M4 screws

Material

- Thermoplastic

Cable anchoring

- Main: on 2 holders (2 cable ties + 2 strain reliefs)
- Drops : 12 entry ports with external anchoring for 1 or 2 drops by cable ties

Cable diameters

- Main: 13.5 mm
- Drops: 4.5 mm

Cable types

- Window cut cables, termination cables, or uncut cables.

Connection

- 4 slot organiser to accept any Evolution splice tray
- Buffered fibre management
- Large storage area for fibres and microtubes.
- Maximum capacity: 48 fusion splices.



3M™ Connection Boxes

Description - PBPO 24

Floor Distribution Box.

Interface between backbone and horizontal wiring or as splicing box.

Installation on standard cables and window cut cables.



Product Composition

- 1 cable path with 2 strain reliefs for riser cable
- A storage area for buffered fibres and microtubes (cut or uncut).
- A 4 slot organiser from the BPEO Evolution range
- A range of splice trays for fusion splices, mechanical splices or splitters. Capacity of 12 to 48 splices.

PBPO 24 Model

- PBPO 24 is equipped with ports for 12 to 24 drop cables. The drop cable strain relief is made outside the box before fitting into place. Anchoring is by cable ties.

Technical Specifications

Dimensions

- Height: 204 mm
- Width: 158 mm
- Depth: 52 mm

Protection Performance (EN 60 529)

- IP 40 and IK08

Fixing

- Wall mount with 2 x M4 screws

Material

- Thermoplastic

Drops Anchorage

- Main: on 2 holders (2 cable ties + 2 strain reliefs)
- Drops: 12 entry ports with external anchoring for 1 or 2 drops by cable ties

Cable diameters

- Main: 13.5 mm
- Drops: 4.5 mm

Cable types

- Window cut cables, termination cables, or uncut cables.

Connection

- 4 slot organiser to accept any Evolution splice tray
- Buffered fibre management
- Large storage area for fibres and microtubes.
- Maximum capacity: 48 fusion splices.



3M™ Connection Boxes

Description - PBPO 6-12



Content of the kit:

- 1 box with a cover
- 1 splice tray for 6 mechanical splices
- 12 fusion splicing adapters
- 1 anti-twist cable and fan out module devices
- 2 cover extensions

Features

- Extension covers to hide riser cable and cable drops
- Double sided tray
- Width of 64 mm
- Kit of plastic parts

Benefits

- Good protection of fibres at the point of box entry and exit
- Separation of connected fibres and the waiting ones in the protection tray
- Installation in narrow riser
- Easy access and fast assembly

Technical Specifications

Box

- Overall dimensions with extension covers: 404 x 64 x 40 mm
- Colour: white RAL 9010
- Material: Free halogen thermoplastic
- Fixing: 2 screws, Ø 3.5 mm (not supplied)
- Protection: IP40 / IK 08
- Fire resistance: UL 94 VO

Cable entries

- Main cable: 1 window cut cable, Ø 6.6 - 13.5 mm
- Drops: 16 drops, Ø 4.2 - 9 mm

Splicing Management

- 1 tray, one side for splice, one side for storage (capacity of 24 fibres – 1.2 m)

Splices

- 6 Fibrlok – 12 fusion splices

Packaging

- 1 kit = base and cover, plus accessories

Accessories

- 1 anti-twist cable module + 4 sets of 3 splicing fusion adapters + 1 tray + 2 extension covers

3MTM Connection Boxes

Ordering Information



Ref. No.
PBPO 24 Connection Box • Equipped with a 4 slot organiser • 12 blank ports for SC/APC or SC/PC couplings
N501506A
PBPO 12 Floor Box • Equipped with a 4 slots organiser • 12 individual cable relief system for customers branching
N501505A
PBPO 24 Floor Box • Equipped with a 4 slots organiser • 12 entry ports for 1 to 2 cables
N501504A
PBPO 6-12 with protection cover
N501621A
K7-2 slots-Universal for 12 splices • Accepts mechanical and fusion splices • Tray delivered with cover
N541121A
K7-1 slot-12 fusion • Compatible with 45 mm or 60 mm fusion splice protectors • Tray delivered with cover
N541106A
K7-1 slot-6 Fibrlok 4x4 • Compatible with Fibrlok mechanical splice 2540G • Tray delivered with cover
N541103A
K7-2 slot- 12 Fibrlok 4x4 • Compatible with Fibrlok mechanical splice 2540G • Tray delivered with cover
N541108A
K7-1 slot- 9 fusion and splitter • Can accommodate 70 x 10 x 6 mm PLC splitter • Splice holder for 9 fusion splices • Tray delivered with cover
N541113A
K7-2 slots-12 fusion and splitter • Compatible with 45 or 60 mm fusion splice protectors • Can accommodate 70 x 10 x 6 mm PLC splitter • Tray delivered with cover
N541104A
K7-2 slots- 10 Fibrlok 4x4 and splitter • Can accommodate 70 x 10 x 6 mm PLC splitter • Splice holder for 10 Fibrlok 2540G • Tray delivered with cover
N541110A

3M™ Connection Boxes

Description



3M VKA 2/GF

3M VKA 2/GF

The VKA 2/GF optical fibre distribution box is specifically designed as an interior transfer or termination point for optical fibre runs. It is well-suited to environments where space is limited and a cost effective solution is required.

The VKA 2/GF houses two FO splicing cassettes which can hold up to 24 splice connections. With the addition of a connector mounting plate (optional) the boxes can also be used as a patch distribution frame. If hybrid cables are used, the modular design of the VKA 2/GF makes it possible for either two 10 pair or one 20 pair copper connector blocks (3M SID-CD) to be accommodated.

Protection rating: IP 40 (DIN 40050)

- Splice or patch distribution frame for 24 splice connections (2 FO splicing cassettes)
- FO connector mounting plates for 12 connectors E2000/SC, ST/FC or 6 connectors SC duplex or 12 LC duplex
- Accommodates hybrid cables using copper connector blocks, either 2x10 pair or 1x20 pair (SID-CD). Overvoltage protection can be used
- Lockable
- Remote monitoring via lid contact

Ordering Information

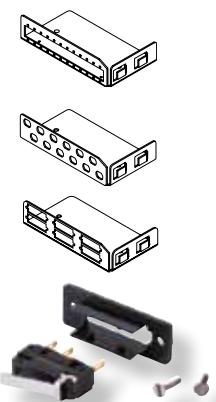


Ref. No.
52-303-00030

- **VKA 2/GF for 24 splice connections**
- Dimensions (H x W x D): 330 x 200 x 100 mm
- Weight: approx. 2.1 kg

Contents:

- Base plate with earth terminal and attachment for copper connector block
- Cassette tray for FO splicing cassettes
- 2 FO splicing cassettes with splice protection holder
- Housing lid with snap closure
- Cable management, assembly instructions



Ref. No.
52138-019 30
52138-018 30
52138-016 30
52096-519 00

- FO connector mounting plates 12 E2000/SC simplex or 12 LC duplex

- FO connector mounting plates 12 ST/FC

- FO connector mounting plates 6 SC duplex

- VKA-Monitoring switch

- Lid contact only useable in combination with lock kit

3M™ Connection Boxes

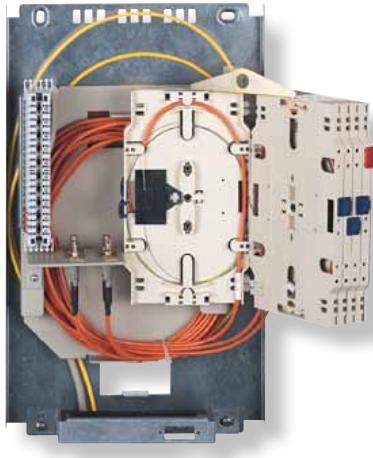
Description

3M VKA 2/GF-EFM with single fibre management

The VKA 2/GF-EFM serves as a final distribution or splice distribution frame in optical fibre networks and is capable of accommodating up to 12 splice connections in six FO splicing cassettes.

A feature of the VKA 2/GF-EFM is that it provides the opportunity for both single and multiple fibre management. This type of fibre management enables the storage of the splice for a connection to be separate from all other fibres. Ideally, two fibres will be stored in one splicing cassette. Using this method to manage the fibres, existing fibre connections will not be affected, even at later extensions or service work. By using different connector mounting plates, the VKA 2/GF-EFM can be used as a patch distribution frame. It is possible to install a 10 pair copper connector block (3M SID-CT) for use with hybrid cables.

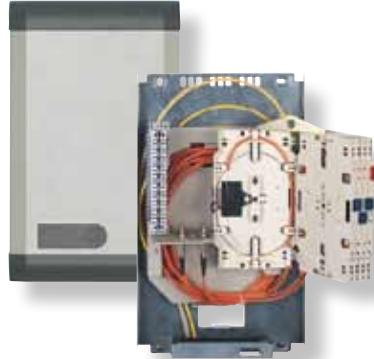
Protection rating: IP 40 (DIN 40050)



3M VKA 2/GF-EFM

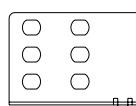
- Single-fibre management for up to 12 splicing connections (24 fibres)
- FO cassette stack, completely removable
- Separate cable guide levels for incoming and outgoing sides
- Connector holders for SC, LC, ST or FC connections
- Copper connector block for hybrid cables
- Lockable
- Remote monitoring via lid contact
- Utilises the same design as the VKA distribution frame

Ordering Information



- VKA 2/GF-EFM for 12 splice connections**
- Dimensions (H x W x D): 330 x 200 x 100 mm
 - Weight: approx. 2.1 kg
- Contents:**
- Base plate with earth terminal and attachment for copper connector block
 - Cassette stack with 6 FO splicing cassettes, hinges and cassette lids included
 - Unlocking tools
 - Cable management
 - Assembly instructions

Ref. No.
52-303-00000



- FO connector mounting plates holders 6 ST/FC**

Ref. No.
52138-009 30
VKA lock kit Q2
VKA lock kit Q3
VKA lock kit Q15



- VKA-Monitoring switch**
- Lid contact only useable in combination with lock kit

52096-519 00

3M™ Connection Boxes



3M VKA/8GF

Description

3M VKA 4/GF, 3M VKA 8/GF

VKA 4/GF and VKA 8/GF are optical fibre distribution frames capable of housing up to 48 and 96 splice connections in either four or eight FO splicing cassettes, respectively. These capacities can be further expanded to 72 or 144 splice connections by the addition of a further 2 or 4 splicing cassettes. In these cases it will not be possible to install a FO connector mounting plate.

Using optional connector mounting plates, the two splice distribution frames can be converted to patch distribution frames.

The VKA 4/GF can be equipped with one, the VKA 8/GF with two connector mounting plates. For the use of hybrid cables (with copper leads), there is a provision for the installation of 10 pair copper connector blocks (SID-CT).

Protection rating: IP 40 (DIN 40050)

- Capacity as:

Patch distribution frame, 48 (VKA 4/GF) or 96 (VKA 8/GF) splice connections

Splice distribution frame, 72 (VKA 4/GF) or 144 (VKA 8/GF) splice connections

- Connector mounting plates for SC, LC, E2000, FC or SC duplex connections

- Copper termination for hybrid cables possible with overvoltage protection

- Remote monitoring via lid contact

Ordering Information



3M VKA/4GF

Ref. No.
52-303-00100
52-303-00200

- VKA 4/GF for 48 splice connections

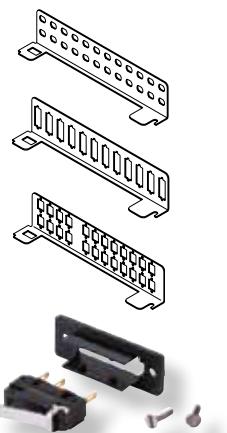
- VKA 8/GF for 96 splice connections

- Dimensions (H x W x D): 330 x 330 x 125 mm, 550 x 330 x 125 mm

- Weight: approx. 2.8 / 4.9 kg

Contents:

- Base plate with earth terminal and attachment materials for copper connector blocks
- Cassette tray for FO splicing cassettes
- 4 or 8 splicing cassettes with splice protection holder
- 1 or 2 splicing cassette lids
- Plastic cable inlets and clamping
- Housing lid with snap closure
- Cable management
- Assembly instructions



Ref. No.

- FO connector holders 24 ST/FC

52138-010 30

- FO connector holders 12 SC-Duplex

52138-012 30

- FO connector holders 24 E2000 / SC-Simplex / LC Duplex

- Installation above the FO splicing cassettes

52138-013 30

- VKA-Monitoring switch

- Lid contact only useable in combination with lock kit

52096-519 00

3M™ Connection Boxes

Description - 3M VKA 8 SCM for direct splicing



The VKA 8 SCM is an indoor splicing box. The organiser may be equipped with Evolution trays which well designed for fusion & mechanical splices as well as for splitter integration using up to 1x32 PLC splitters.

Content of the kit:

- 1 box with a cover
- 1 key lock
- 1 organiser 28 slots for 28 splice trays with max. 12 fusion splices
- Evolution trays have to be ordered separately and allow every kind of combination

Features

- Standard box and organiser
- Minimum thickness and dimensions
- Box and cover in plastic & metal
- Removeable cover
- Large cable entry ports
- Efficient locking mechanism

Benefits

- Wide number of trays available
- Will fit into small spaces
- Robust box
- Open access for splicing activities
- Perfect for multidrops distribution
- Tamper proof

Technical Specifications

Box

- Overall Dimensions with extension covers: 550 x 330 x 125 mm
- Colour: Cover beige and brown
- Material: Galvanised steel and thermoplastic
- Fixing: 4 screws, Ø 6 mm (not supplied)
- Protection: IP40 / IK 08
- Fire resistance: UL 94 VO
- Security: delivered with 1 key lock

Splicing Management

- 1 Organiser with 28 slots for Evolution trays

Splices

- Whole range of Evolution trays
(More information in chapter 2.1)

Ordering Information



- **VKA 8 SCM**
- 1 organiser with 28 slots

- Trays have to be ordered separately

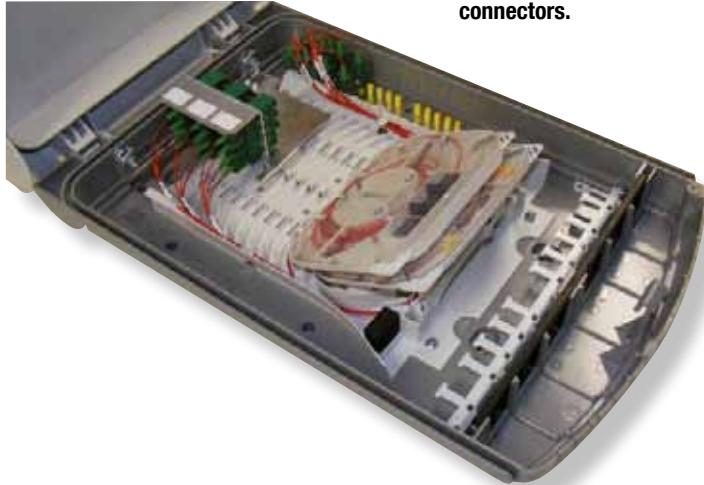
Ref. No.

N501561A

3M™ Connection Boxes

Description - MDUO 12 Demarcation Box

12 connections using SC/APC or SC/PC connectors.



Product composition

- One BDX3000/T2B box with hinged cover
- One 7 slot organiser type BPEO Evolution
- One hinged support plate 12 SC/PC or SC/APC couplings
- One cable strain relief anchor
- One buffer storage section for 24 pigtails

Pre-wiring

- MDUO 12 boxes are pre-wired in the 3M factory with :
 - Evolution trays inserted in the organiser and labelled
 - SC/PC or SC/APC couplings
 - SC/PC or SC/APC pigtails with label flags
 - Pre-connectorised splitters for PON Application

Technical Specifications

Dimensions

- Height: 400 mm
- Width: 255 mm
- Depth: 86 mm

Protection Performance

- IP 55 and IK 06

Dielectric strength for installation on an electrical support

- More than 4 kV

Fixing

- Wall mount - 4 x M6 screws
- Metal band (20 x 0.7 mm)
- On a metal frame

Colour

- Cover - Light grey RAL 7035
- Box - Dark grey RAL 7037

Material

- Thermoplastic and metal
- Flammability rating: UL94 (VO at 1.5 mm)

Cable Anchoring

- On strain relief bar with cable ties

Security

- May be pre-installed by the 3M factory
- A 1/4 turn triangle lock N691022A
- One lock with key (consult 3M)

Connection

- 7 slot organiser with the complete range of Evolution splice trays.
- Maximum capacity: 84 fusion splices

Couplings

- As standard, SC/APC is supplied

Passive Splitters

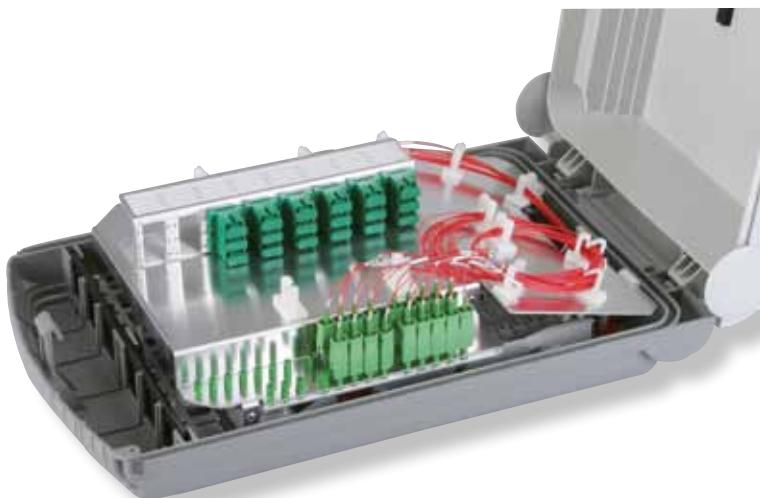
- As standard, PLC splitters with 250µm tails or pre-connectorised with SC/APC.



3M™ Connection Boxes

Description - Interface Box MDUO 24

24 connections on SC/PC or SC/APC connectors.



Product Composition

- One BDX3000 T2M box with hinged cover
- One 12 slot organiser model BPEO Evolution
- One hinged support plate for 24 SC or SC/APC couplings
- One strain relief bar for cables
- One buffer storage device for 30 pigtails

Prewiring

- The MDUO 24 boxes are prewired in the 3M factory with:
 - Evolution trays mounted and labelled
 - SC or SC/APC couplings
 - SC or SC/APC labelled pigtails
 - Bare fibres splitters or pre-connectorised for PON application

Technical Specifications

Dimensions

- Height: 400 mm
- Width: 255 mm
- Depth: 116 mm

Protection Performance

- IP 55 and IK 06

Dielectric strength for installation on an electrical support

- Better than 4 kV

Fixing

- Wall mount - 4 x M6 screws
- Metal band (20 x 0.7 mm)
- On a metal frame

Colour:

- Cover - Light grey RAL 7035
- Box - Dark grey RAL 7037

Material:

- Thermoplastic and metal



Cable Anchoring

- On strain relief bar with cable ties

Security

- May be pre-installed by the 3M factory
- A 1/4 turn triangle lock N691022A
- One lock with key (consult 3M)

Connection

- 12 slot organiser with the complete range of BPEO Evolution splice trays.
- Maximum capacity: 144 fusion splices

Couplings

- As standard, SC/APC is supplied

Passive Splitters

- As standard, PLC splitters with 250µm tails or pre-connectorised with SC/APC

3M™ Connection Boxes

MDUO 12 & 24

- MDUO 12 & 24 boxes are prepared in the 3M factory in different prewiring configurations.
- This table gives the options to define the right configuration (additional configurations on demand)

A - Box capacity

- Number of connectors: define the number of couplings installed on the connector support
MDUO 12 : from 6 to 12
MDUO 24 : from 5 to 24
- Type of couplings SC/APC

B - Network wiring side for point to point configuration

- Number of pigtails
- Type of coupling: SC/PC single mode or SC/APC
- Type of tray: for 12 fusion splices or 12 Fibrlok mechanical splices 2540G
- Number of trays: used for the network side

Or Network wiring side for PON configuration (i.e. with splitters)

- Number of splitters: PLC type
- Type of splitter: 1x2, 1x4, 1x8, 1x16
- Number of trays: splitter trays
- Type of tray: 1 slot for 9 fusion splices and 1 PLC splitter
2 slots for 12 fusion splices and 1 PLC splitter
- Type of termination on incoming fibre: 250µm fibre or preconnectorised
- Type of couplings: SC/PC or SC/APC
- Type of termination on outgoing fibre: 250µm fibre or preconnectorised
- Type of couplings: SC/PC or SC/APC

C - Building wiring side

- Number of pigtails
- Type of coupling: SC/PC single mode or SC/APC
- Type of tray: for 12 fusion splices or 12 Fibrlok mechanical splices 2540G
- Number of trays: used for the building side

Preparation

- All the links are labelled
- The pigtail connections or network side splitters are placed in the buffer storage device
- The building network side pigtauls are installed into the couplings
- All the pigtail terminations and splitter terminations are labelled

The configuration is on demand, please contact 3M.

Note: the MDUO product lines have been also designed with LC couplings plates.

Please contact 3M to get stock numbers

3M™ Connection Boxes

Description - MDUO 48 Interface Box

48 connections on SC/PC or SC/APC connectors.



Product Composition

- One BDX3000/T2H box with hinged cover
- One 12 slot organiser model BPEO Evolution
- One hinged support plate for 48 SC or SC/APC couplings
- One strain relief bar for cables
- One buffer storage device for 30 pigtails

Pre-wiring

- The MDUO 48 boxes are pre-wired in the 3M factory with:
 - Evolution trays mounted and labelled
 - SC or SC/APC couplings
 - SC or SC/APC labelled pigtails
 - Bare fibre splitters or pre-connectorised for PON application

Technical Specifications

Dimensions

- Height: 400 mm
- Width: 255 mm
- Depth: 146 mm

Protection Performance

- IP 55 and IK 06

Dielectric strength for installation on an electrical support

- Better than 4 kV

Fixing

- Wall mount - 4 x M6 screws
- Metal band (20 x 0.7 mm)
- On a metal frame

Colour:

- Cover - Light grey RAL 7035
- Box - Dark grey RAL 7037

Material:

- Thermoplastic and metal

Cable Anchoring

- On strain relief bar with cable ties

Security

- May be pre-installed by the 3M factory
- A ¼ turn triangle lock N691022A
- One lock with key (consult 3M)

Connection

- 12 slot organiser with the complete range of Evolution splice trays.
- Maximum capacity: 144 fusion splices

Couplings

- As standard, SC/APC is supplied

Passive Splitters

- As standard, PLC splitters with 250µm tails or pre-connectorised with SC/APC

3M™ Connection Boxes

MDUO 48

- MDUO 48 boxes are prepared in the 3M factory in different pre-wiring configurations.
- This table gives the options to define the right configuration (additional configurations on demand)

A - Box capacity

- Number of connectors: define the number of couplings installed on the connector support
MDUO 48 : from 5 to 48
- Type of couplings SC/APC

B - Network wiring side for point to point configuration

- Number of pigtailed SC/PC single mode or SC/APC (for LC/APC please consult 3M)
- Type of coupling: for 12 fusion splices or 12 Fibrlok mechanical splices 2540G
- Type of tray: used for the network side
- Number of trays:

Or Network wiring side for PON configuration (i.e. with splitters)

- Number of splitters: PLC type
- Type of splitter: 1x2, 1x4, 1x8, 1x16
- Number of trays: splitter trays
- Type of tray: 1 slot for 9 fusion splices and 1 PLC splitter
2 slots for 12 fusion splices and 1 PLC splitter
- Type of termination on incoming fibre: 250µm fibre or pre-connectorized
- Type of couplings: SC/PC or SC/APC (for LC/APC please consult 3M)
- Type of termination on outgoing fibre: 250µm fibre or pre-connectorized
- Type of couplings: SC/PC or SC/APC (for LC/APC please consult 3M)

C - Building wiring side

- Number of pigtailed SC/PC single mode or SC/APC (for LC/APC please consult 3M)
- Type of coupling: for 12 fusion splices or 12 Fibrlok mechanical splices 2540G
- Type of tray: used for the building side
- Number of trays:

Preparation

- All the links are labelled
- The pigtail connections or network side splitters are placed in the buffer storage device
- The building network side pigtailed are installed into the couplings
- All the pigtail terminations and splitter terminations are labelled

The configuration is on demand, please contact 3M.

3M™ 19" MODF 2K Distribution Frame

3M MODF 2K/19" – Modular technology for 19" subracks



With its modular optical fibre technology, 3M offers the user a complete system for central optical fibre distribution frames with high fibre counts.

Possible applications are centrally located FO main distribution frames for network providers or Fibre To The Desk cabling (FTTD) with single-level hierarchy.

Taking into account the specific characteristics of fibre optics, both applications require a compact and accessible solution for the termination of optical fibres. Furthermore, the system must guarantee trouble-free extension and no downtime maintenance. 3M's 2K modular technology provides the user with an extremely compact FO patching or splicing system which, as a patch distribution frame, offers a capacity of up to 144 fibres on three height units. If used as a splice distribution frame, the capacity increases to 288 fibres per 19" subrack.

The patch system's core is the 2K connector module, also available for various FO connector types. All connector modules are installed in 19" subracks and are easily accessible from the front. The 2K modular system is completed by an excess fibre tray to accommodate incoming bunched

fibre reserves, a patch panel for lateral exit of patch cords and a cable management system for 19" cabinets.

Specifications

- Complete system for optical fibre distribution frames
- Extremely high capacity, per subrack:
 - 144 fibres when used as patch distribution frame, or
 - 288 fibres when used as splice distribution frame per subrack
- Extremely easy to install and maintain
- Expandable any time
- Co-ordinated patch cord routing, observance of minimum bending radius
- Orderly storage of excess fibre
- 2K connector modules for SC/APC, SC, FC and ST technology

3M™ 19" MODF 2K Distribution Frame

Description - 3M MODF Components



2K Connector module

2K connector modules (7 distance units) for 10 or 12 connectors each and FO pigtailed, type E2000, SC, FC, and ST with printed port identification. The primary coat of the pigtails is offset, all pigtail ends are colour-coded.

Each 19" subrack can house up to twelve 2K connector modules. Splicing reserves and excess lengths of pigtailed are stored in two separate cassettes to simplify installation.



2K splice module

FO splicing module (7 DU) for the creation of high-capacity splice distribution frames.

A 2K splicing module permits the inclusion of up to 24 splice connections in two FO splicing cassettes.



FO 19" subrack

Subrack (84 DU, 3 HU) to accommodate up to twelve 2K connector or splice modules (7 DU) or dummy panels.



FO 19" excess fibre tray

Excess fibre tray (1 HU) for easy storage of bunched fibre reserves of incoming or outgoing FO cables. The excess fibre tray is installed below the 19" subrack and can be pulled out towards the rear during installation work.



FO 19" patch panel

Patch panel for lateral exit of patch cords, observing the minimum bending radius. Rotating radius limiters enable different routing directions. The patch panel is installed in front of the excess tray.

3M™ 19" MODF 2K Distribution Frame

Ordering Information

3M MODF Components

2K Connector module



- Single-mode 9/125µm with

	Ref. No.
SC-APC 8°, 12 fibres	40395-514 45
SC-PC, 12 fibres	40395-546 45
FC-PC, 12 fibres	40395-544 45
LC Duplex, 12 fibres	40395-551 00

- Multimode 50/125µm with

	Ref. No.
SC, 12 fibres	40395-514 55
ST, 12 fibres	40395-507 57
SC duplex, 12 fibres, horizontal	40395-523 57
LC Duplex, 12 fibres	40395-550 00

- Multimode 62.5/125µm with



SC, 12 fibres
ST, 12 fibres
SC duplex, 12 fibres

ST, 12 fibres
SC duplex, 12 fibres

SC duplex, 12 fibres

FO connector type	Single-mode 9/125 µm	Multi-mode 50/125 µm	Multi-mode 62.5/125 µm
SC (APC 8°) simplex/12 fibres	•		
SC (PC) simplex/12 fibres	•	•	•
ST (PC) 12 fibres		•	•
FC (PC) 12 fibres	•		
SC (PC) duplex/12 fibres		•	•
LC duplex, 12 fibres	•	•	

- Dimensions: 128 x 35 x 215 mm (H x W x D)
- Weight: approx. 0,3 kg

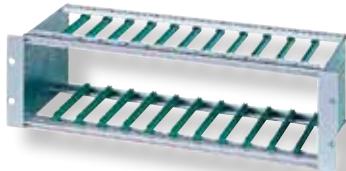
Delivery:

- Aluminium front panel (7 DU), installed with 12 connectors
- Port ID 1 through 12
- 1 FO splicing cassette and 1 FO excess fibre tray, mounted on cassette tray
- Secondary pigtail stripped and stored in splicing or excess fibre tray
- All pigtail ends are colour-coded or numbered
- Various cable straps
- Mounting materials for 19" subrack

3M™ 19" MODF 2K Distribution Frame

Ordering Information

3M MODF Components



Ref. No.
<ul style="list-style-type: none"> 2K splice module, 7 depth units, for up to 24 splicing connections Dimensions: 128 x 35 x 215 mm (H x W x D) Weight: approx. 0,3 kg <p>Delivery:</p> <ul style="list-style-type: none"> 7 DU aluminium front panel, with cassette tray 2 FO splicing cassettes with lid 2 splice protector holders for crimp splice protection Various cable straps Fastening materials for 19" subrack
<ul style="list-style-type: none"> 2K dummy front plate, 7 DU, to cover unused sockets in the 19" subrack Dimensions: 128 x 35 x 1,5 mm (H x W x D) <p>Delivery:</p> <ul style="list-style-type: none"> Aluminium front panel (7 DU), no imprint Fastening materials for 19" subrack
<ul style="list-style-type: none"> GF-19" subrack, 3 HU, 84 DU, to accommodate up to 12 2K connector modules/2K splice modules Dimensions: 135 x 483 x 190 mm (H x W x D) Weight: approx. 1,2 kg <p>Delivery:</p> <ul style="list-style-type: none"> 19" subrack, aluminium 24 guide rails, installed Attachment materials for 19" racks/frames
<ul style="list-style-type: none"> FO 19" excess fibre tray, 1 HU, for storage of excess bunched fibre, pull-out design Pull-out length: 200 mm Colour: RAL 7032 (pebble grey) Dimensions: 44 x 483 x 280 mm (H x W x D) Weight: approx. 3,3 kg <p>Delivery:</p> <ul style="list-style-type: none"> 1 Excess fibre tray 2 Cable guide rings to guide FO bunched fibre various cable straps Attachment materials for 19" racks
<ul style="list-style-type: none"> FO 19" patch panel, 1 HU, for attachment and radius limiting for FO patch cords. Rotary radius limiters, providing a choice of left or right side FO patch cord exit Colour: RAL 7032 (pebble grey) Weight: approx. 1,0 kg Dimensions: 73 x 485 x 100 mm (H x W x D) <p>Delivery:</p> <ul style="list-style-type: none"> Patch panel, installed with 6 rotating radius limiters Attachment materials for 19" racks





Volition™ Intelligent Management System

The 3M Volition™ Intelligent Management System (VIMS) offers an extensive range of comprehensive solutions for enterprise cabling needs, supporting the fastest possible throughput, streamlining cabling installation and maintenance and enhancing network continuity. The products maximise control of the entire data network.

Volition Intelligent Management System is an infrastructure management solution delivering quality, reliability, and ease of installation no matter how large or complex the project is.

The system includes a broad range of options for every component – shielded and unshielded copper cabling, as well as fibre optic cabling supporting LC and MPO connectors.

The 3M Volition Intelligent Management System successfully addresses many complex network challenges. Its capabilities include:

- Real-time monitoring of connectivity
- Asset management
- Real-time fault management
- Minimising planning, installation and maintenance time
- 100% accurate documentation
- Personalised management capabilities

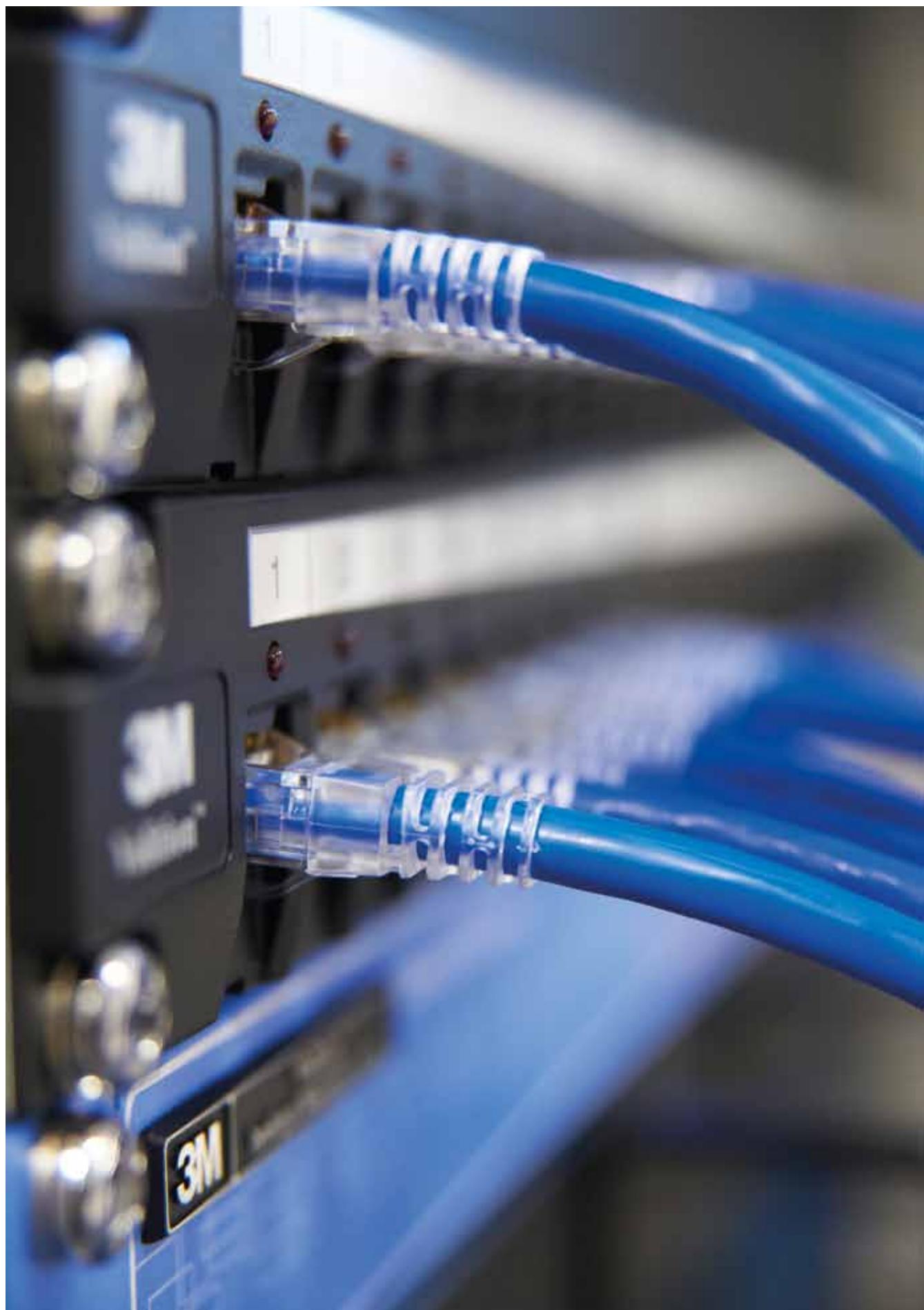
Using 3M Volition, network managers are able to manage cabinets and devices much more effectively.



3. Volition™ Intelligent Management System 144 - 154

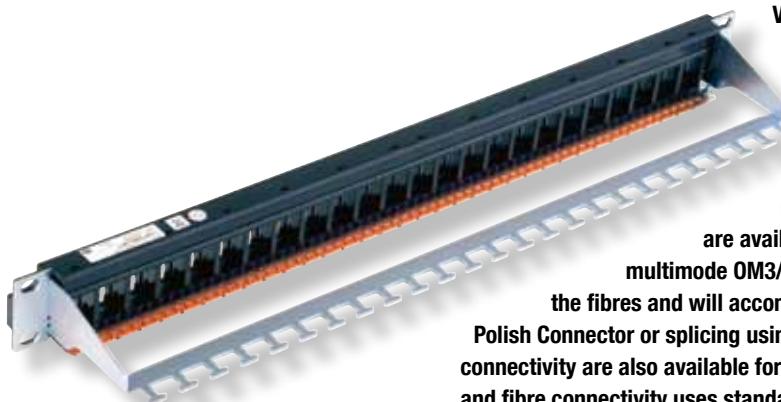
3.1 VIMS Patch Panels	147 - 148
3.2 VIMS Patch Cords.....	149 - 150
3.3 VIMS Hardware	151 - 152
3.4 VIMS Software	153 - 154

3. Volition™ Intelligent Management System



VIMS Patch Panels

Description - Patch Panels



Volition IMS uses 3M copper or fibre jacks as part of the intelligent management system connectivity. Copper panels are available in either shielded or unshielded version to take any of the 3M K series Category 6 or Category 6A jacks. These panels have all the advantages of standard 3M K series panels including simple assembly and installation. Fibre panels are available with 24 duplex LC adapters either in singlemode, multimode OM3/OM4. The panels have a sliding tray for easy access to the fibres and will accommodate both direct termination using the Hot Melt or No Polish Connector or splicing using Fibrlok or fusion splicing. Modular LC panels with MPO connectivity are also available for use with preterminated MPO backbones. Both copper and fibre connectivity uses standard 3M cable.

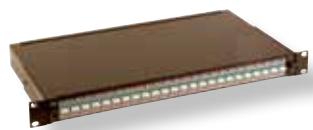


Features Benefits

- 24 intelligent copper or fibre ports in 1U
- Copper Jacks may be terminated and snapped into the panel
- Fibre connectors may be directly terminated or spliced
- Modular LC/ MPO connectivity system available
- Cable management bar for copper, slack storage for fibre
- Available in UTP or STP for copper and in singlemode or multimode OM3/OM4 for fibre
- High density, economical choice in space allocation
- Easy for termination and re-entry
- Can be used with preterminated systems
- Good strain relief and protection for terminations
- Solution for all connector choices

VIMS Patch Panels

Ordering Information



Ref. No.
VOL-IMS-301
• VIMS K Series Panel, UTP
• 24 Ports
VOL-IMS-302
• VIMS K Series Panel, STP
• 24 Ports
VOL-IMS-401
• VIMS Fibre Optic Panel, 48 LC
• Multimode
VOL-IMS-402
• VIMS Fibre Optic Panel, 48 LC
• Single mode PC
VOL-IMS-403
• VIMS Fibre Optic Panel, 48 LC with MPO connections
• Multimode

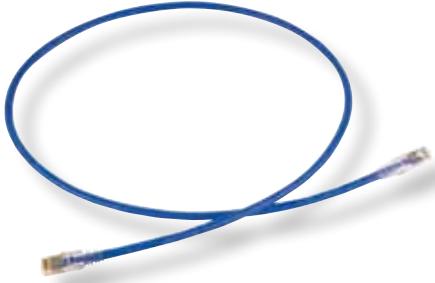
Accessories

Ref. No.
VOL-IMS-501
• Cable Routing Ring Kit (up to 48 fibres)
VOL-IMS-502
• F/O Cable Ground Kit
VOL-IMS-503
• Cable Entry Panel Kit
VOL-IMS-504
• Cable Entry Gland
VOL-IMS-505
• Fibre Management Clip

See chapters 1 and 2 for Volition cables and connectors and chapter 2 page 121 for splicing accessories

VIMS Patch Cords

Description - Patch Cords



Volition IMS uses patchcords which contain an extra wire to give the connectivity required for the intelligent management. In this way the data circuits are not compromised. Patchcords are available in a variety of lengths and connector types to match the patch panels and cabling types. The patchcords have flexible boots for enhanced life and reliability.



Features

- Flexible boots
- LSOH jacket
- Available in a range of cable types and lengths

Benefits

- Enhanced lifetime and flexibility – control of bending
- Suitable for indoor use
- Match 3M connectivity range and current applications.

Ordering Information



Ref. No.	
• VIMS Category 6 UTP Patchcord, LSOH • 1.0 m	VOL-IMS-310
• VIMS Category 6 UTP Patchcord, LSOH • 2.0 m	VOL-IMS-311
• VIMS Category 6 UTP Patchcord, LSOH • 3.0 m	VOL-IMS-312
• VIMS Category 6 UTP Patchcord, LSOH • 5.0 m	VOL-IMS-313
• VIMS Category 6 STP Patchcord, LSOH • 1.0 m	VOL-IMS-314
• VIMS Category 6 STP Patchcord, LSOH • 2.0 m	VOL-IMS-315
• VIMS Category 6 STP Patchcord, LSOH • 3.0 m	VOL-IMS-316
• VIMS Category 6 STP Patchcord, LSOH • 5.0 m	VOL-IMS-317

VIMS Patch Cords

Ordering Information



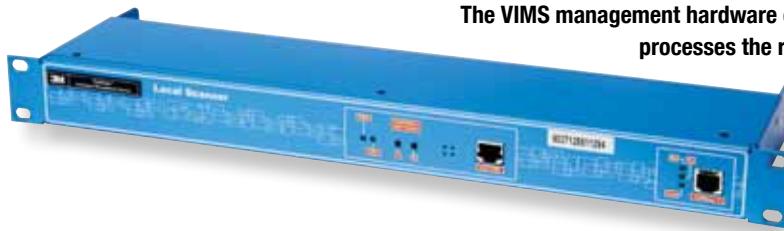
Ref. No.
VOL-IMS-321
• VIMS Category 6A STP Patchcord, LSOH • 2.0 m
VOL-IMS-322
• VIMS Category 6A STP Patchcord, LSOH • 3.0 m
VOL-IMS-323
• VIMS Category 6A STP Patchcord, LSOH • 5.0 m



Ref. No.
VOL-IMS-410
• VIMS Optical Fibre Patch Cord, LC, SM, PC • 1.0 m
VOL-IMS-411
• VIMS Optical Fibre Patch Cord, LC, SM, PC • 2.0 m
VOL-IMS-412
• VIMS Optical Fibre Patch Cord, LC, SM, PC • 3.0 m
VOL-IMS-413
• VIMS Optical Fibre Patch Cord, LC, SM, PC • 5.0 m
VOL-IMS-414
• VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 1.0 m
VOL-IMS-415
• VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 2.0 m
VOL-IMS-416
• VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 3.0 m
VOL-IMS-417
• VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 5.0 m
VOL-IMS-418
• VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 1.0 m
VOL-IMS-419
• VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 2.0 m
VOL-IMS-420
• VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 3.0 m
VOL-IMS-421
• VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 5.0 m

VIMS Hardware

Description - Hardware



The VIMS management hardware controls the scanning of the panel connectivity and processes the results to present to the management software. It collects, saves, and transmits connectivity data from the Volition™ Scanners via the Volition™ Expanders and updates the management station. The arrangement of the hardware allows the managed system to grow within and across buildings and locations.



Features

- Real time collection of data from copper or fibre connectivity
- Can collect data from many comms rooms within or between building and networks
- Interfaces with IP enabled equipment

Benefits

- Asset and connectivity tracking in real time. Aids moves, adds and changes
- Able to be used in medium to very large systems
- Aids asset tracking, moves, adds and changes
Gives enhanced network security

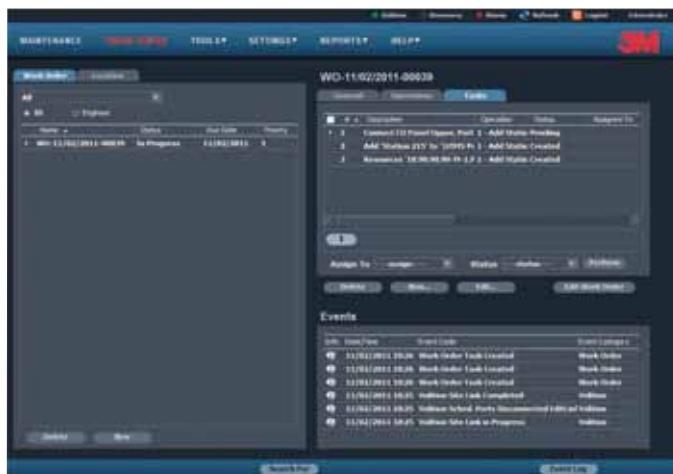
VIMS Hardware

Ordering Information

Ref. No.	
<ul style="list-style-type: none"> • VIMS Scanner 	VOL-IMS-104
<ul style="list-style-type: none"> • VIMS Mini Scanner 	VOL-IMS-105
<ul style="list-style-type: none"> • VIMS Scanner Attachment Cord <ul style="list-style-type: none"> • 1.5 m • 2.5 m • 4.0 m • 6.0 m • 12.0 m 	VOL-IMS-201 VOL-IMS-202 VOL-IMS-203 VOL-IMS-204 VOL-IMS-205
<ul style="list-style-type: none"> • VIMS Control Pad 	VOL-IMS-110
<ul style="list-style-type: none"> • VIMS Master 	VOL-IMS-101
<ul style="list-style-type: none"> • VIMS Master Expander 	VOL-IMS-102
<ul style="list-style-type: none"> • VIMS Expander 	VOL-IMS-103
<ul style="list-style-type: none"> • VIMS Local Scanner 	VOL-IMS-108
<ul style="list-style-type: none"> • VIMS Security Controller 	VOL-IMS-106
<ul style="list-style-type: none"> • VIMS Rack Indicator 	VOL-IMS-109
<ul style="list-style-type: none"> • VIMS Indicator Controller 	VOL-IMS-107

VIMS Software

Description - Software



Volition™ IMS Software manages Volition™ hardware, monitors the health of all the cabling components and also collects network data using its own discovery mechanism as well as data from external applications.

Volition IMS can be deployed in centralised or distributed configurations and can manage sites locally and remotely.

Using this 100% accurate data, it builds and maintains a database, a trusted source of information on all network components and their connectivity to other network components.

It immediately identifies disconnected devices and users, enabling proactive network troubleshooting and reducing mean-time-to-repair (MTTR).

Building on this accurate data, Volition IMS automates and accelerates a broad variety of previously manual tasks, including automated provisioning, work order planning and execution, reporting capabilities, production and management, guided moves, adds and changes (MAC) and maintenance forensics, web-based configuration, connection troubleshooting, security monitoring, utilisation optimisation and others.

Key Capabilities

Documentation & Compliance

- Provides a trusted source database for infrastructure and network assets
- Generates reports to document assets and operations
- Supports compliance with security and privacy legislation

Automated Provisioning

- Supports a 100%-automated and accurate provisioning process
- Provides control over power and space consumption for the datacenter environment
- Supports the user-specific policies

Incident Management

- Provides real-time alerts and effective troubleshooting tools

Asset Management

- Automatically discovers IP-driven devices in the organization
- Optimizes the management and utilization of all network assets

Security

- Helps mitigate security risks. Offers a range of advanced security features

VIMS software contains the following features

Work Order

- Created by the system manager and used to assign and track different tasks issued to the customer's technicians. These tasks can vary from creating and editing links to installing software and relocating terminal equipment, for example, telephones, printers etc.

VIMS hardware support

- With the collaboration with VIMS Hardware, the application provides real time accurate management of the VIMS Cabling System.

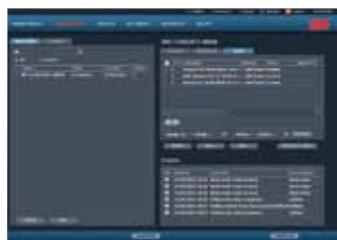
Secure Link

- Allows vital links in the organisation to be defined. Closely monitors information on any change or problems that occur on the secure link or on its end devices (stations).

VIMS Software

Ordering Information

The VIMS software is the basis of three packages. Additional modules may be purchased to complement the package to build the software suite required for a particular application.



Ref. No.
VOL-IMS-601
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VOL-IMS-609

* the number of ports to be supported must be defined

