3M Telecommunications
Solutions for Networks

Solutions for Enterprise Networks

Product Catalogue

3M

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

3M Enterprise Networks Solutions offer a complete range of products to support local area network and data centre applications over copper or fibre cabling., giving performance above the limits set by the standards ISO/IEC 11801, EN 50173 series and ANSI/TIA-568C series.

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.

CISCO DEVELOPER Registered

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

AllianceONE Partner

3M Telecommunications is an HP AllianceOne Partner

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Copper Cabling Solutions

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

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Volition
Volition

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

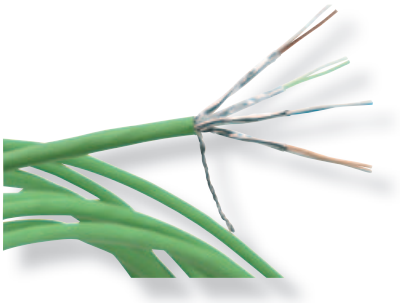
- Volition faceplates are available in many different formats, according to the most important national standards.

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

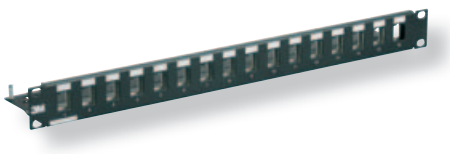
Advantages

- 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 LSOH (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

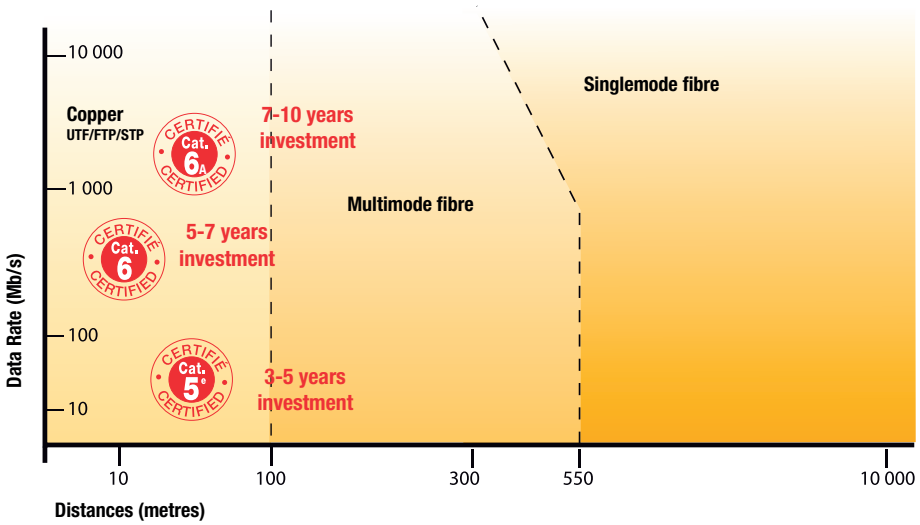
- Certification by an independent laboratory is a proof of the quality and reliability of the Volition™ range.
- 3M is using world-class laboratories for its certification.
- The Category 6_A and Category 6 systems are certified by the external laboratory Delta.
- The 3M certificates are updated annually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

Note: In international an 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 6_A 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.6_A	F/FTP Cat.6_A	S/FTP Cat.6_A
EMC	Low	Medium	Low	Medium	Medium	High	High
Cables	U/UTP	F/UTP	U/UTP	F/UTP	F/UTP Cat.6_A	F/FTP Cat.6_A	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 6_A

- Volition™ Class E_A / Category 6_A 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 6_A 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.

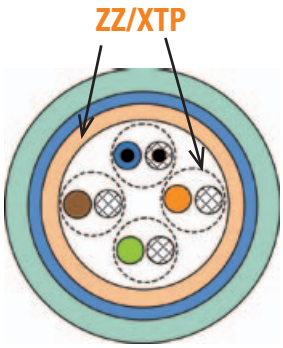
Copper Cabling Selection Guide

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)

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

1.1 Volition™ Class E_A / Category 6A Cabling System

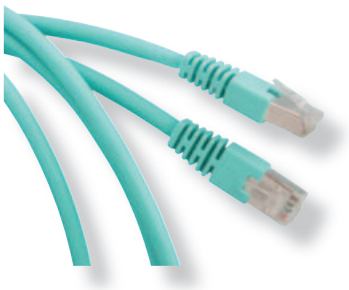
Description - Class E_A /Category 6A cabling system

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 a 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.

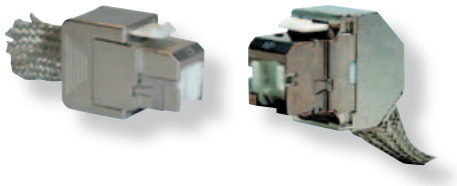
10 Gigabit per second copper cabling technologies

- 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.



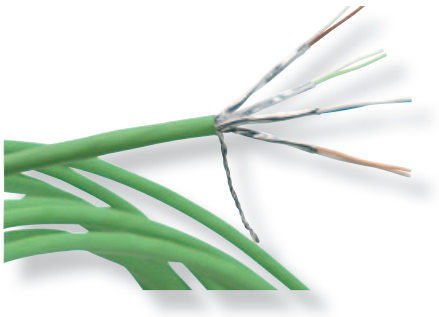
RJ45 Volition K6A jack

- 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 6_A 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.

1.1 Volition™ Class E_A / Category 6A Cabling System



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

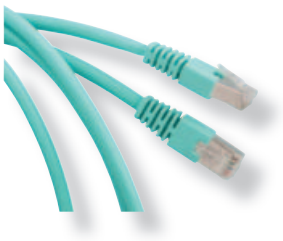
- The Volition Category 6_A and Category 7 cables have been specially developed to ensure excellent immunity against AXT up to 500 MHz (for Category 6_A) and 600 MHz (for Category 7). All cables of Volition design have a general shield and/or screen per pair. Volition cables benefit from unequalled immunity 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 6_A 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 6_A UTP cables is thus increased. Another technique consists of making Category 6_A 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 6_A cable with round design
- General shield and/or screen per pair
- Metric markings on exterior sheath

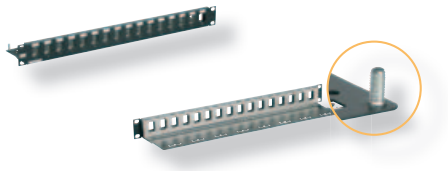
Advantages

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



Volition patch cables

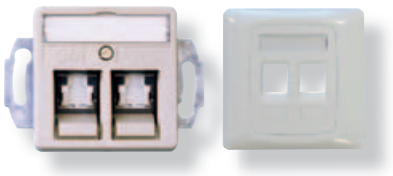
- Volition patch cables have been specially designed to give excellent immunity against AXT up to 500 MHz, in particular to reduce the effect of AXT in patching racks where there are many adjacent links. Volition patch cables have a general braid and a screen per pair. Volition patch cables are available with LSOH (Low Smoke Zero Halogen) sheath.



Volition patch panels

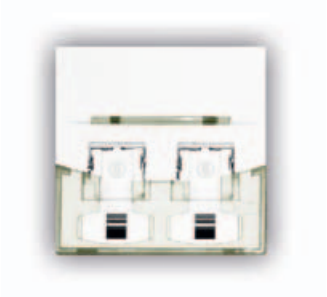
- Volition patch panels are modular and can accommodate up to 24 RJ45 ports in one unit of rack space (1U). Their modular design makes them easy to install on site in 19" racks. All Volition patch panels have an earth stud which permits continuity of earth with the RJ45 K6A jacks.

1.1 Volition™ Class E_A / Category 6A Cabling System



Volition RJ45 Faceplates

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



Ordering Information

> France	Ref. No.
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

1.1 Volition™ Class E_A / 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

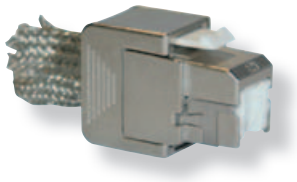
- For identification of different service (data or telephony)

	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

1.1 Volition™ Class E_A / 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

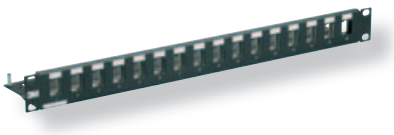
Ordering Information

	Ref. No.
STP Category 6_A Jack – bag of 8	VOLOCK6ASE

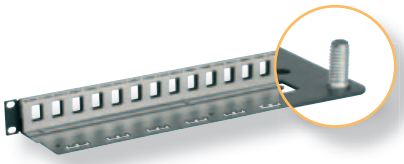
Volition RJ45 19" Patch Panels for K6A STP jacks

- 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

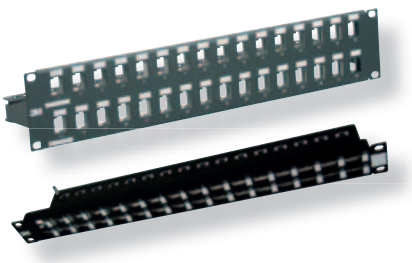
Ordering Information



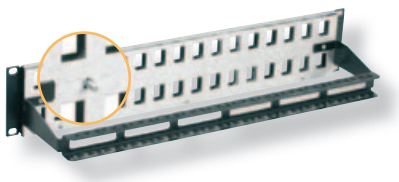
> 16 ports	Ref. No.
19" x 1U x 100 mm, Black aluminium	VOLPPCBF16K
19" x 1U x 100 mm, Black aluminium with locking system	VOLPPCBV16K
19" x 1U x 100 mm, Brushed aluminium	VOLPPCAF16K
19" x 1U x 11 mm, Black aluminium, Eco version	VOLPPUDF16K



> 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



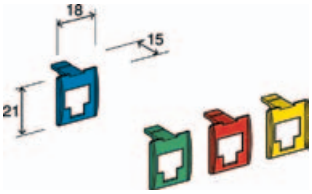
> 32 ports	Ref. No.
19" x 2U x 118 mm, Black aluminium	VOLPPCBF32K
19" x 2U x 118 mm, Brushed aluminium	VOLPPCAF32K
19" x 1U x 118 mm, Black aluminium, high density	VOL-PPCBHD-F32K



> 48 ports	Ref. No.
19" x 2U x 118 mm, Black aluminium	VOLPPCBF48K
19" x 2U x 118 mm, Brushed aluminium	VOLPPCAF48K

1.1 Volition™ Class E_A / Category 6A Cabling System

Accessories for Volition RJ45 19" Patch Panels



> Coloured identifiers

- Cannot be used with RJ45 splitters

	Ref. No.
Blue	VOLPCCB
Yellow	VOLPCCY
Red	VOLPCCR
Green	VOLPCCG

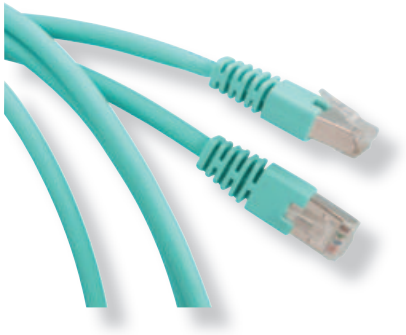
> Coloured identifiers with label holder

	Ref. No.
Blue	VOLPECB
Yellow	VOLPECY
Red	VOLPECR
Green	VOLPECG

> RJ45 keystone blanking caps

	Ref. No.
Black	VOL0300BK
White	VOL0300

1.1 Volition™ Class E_A / Category 6A Cabling System



Volition RJ45 Category 6_A patch cords

- These cords allow the implementation of Class E_A ISO or EN Channel and Category 6A TIA Channel.
- Round S/FTP cable
- Straight wiring
- LS0H jacket
- Standard colour: turquoise

> Volition S/FTP LS0H turquoise

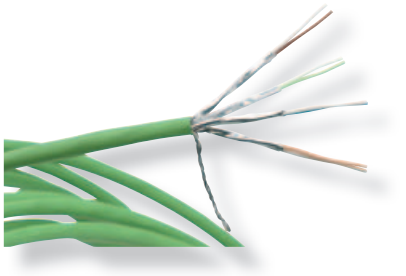
- Multistranded cable, foil wrapped pair by pair, general braid.

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

Volition Category 6_A and Category 7 cables

> Copper cable, 4 pairs, Category 7, S/FTP, LS0H
> 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 6_A, F/FTP, LS0H

	Ref. No.
4 pairs, 1000 m drum	VOL6AFFL41000
2 x 4 pairs, 1000 m drum	VOL6AFFL8500

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

	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 6_A, U/FTP, LS0H

	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 LSOH, Reduced Diameter

	Ref. No.
4 pairs, 500 m drum	VOLDCSFL4500
4 pairs, 1000 m drum	VOLDCSFL41000

1.1 Volition™ Class E_A / Category 6A Cabling System

Technical Specifications

Category 6_A S/FTP LSOH cable

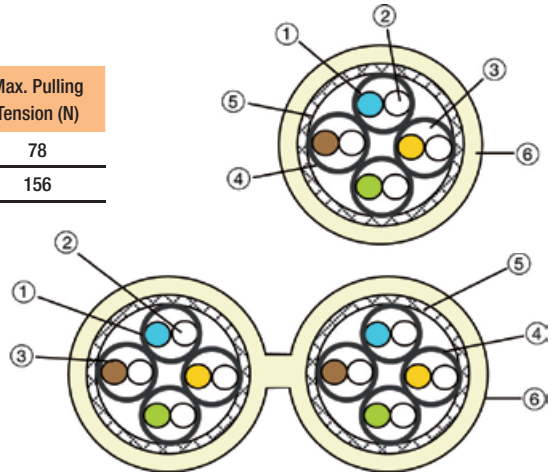
Cabling standards

- 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	7,70	58	626	78
2x4P	Green	7,90x16,00	117	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: ≤ 146.4 W / km
- Insulation resistance (500V): ≥ 5000 MW / 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 ± 5 W
- Transfer impedance at 1 MHz > 10 mW / m
  at 10 MHz > 10 mW / m
  at 30 MHz > 20 mW / m
  at 100 MHz > 30 mW / 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	550*
Max. Attenuat. (dB/100m)	Typical value	3.6	5.6	8	14.2	18.1	28.9	41.2	43.5
	Category 6_A (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	73
	Category 6_A (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	70
	Category 6_A (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	50
	Category 6_A (min.)	58	50	44	34.1	30	22	16	-
PS ELFEXT (dB/100 m)	Typical value	83	82	79	73	69	57	48	47
	Category 6_A (min.)	55	47	41	31.1	27	19	13	-
Return Loss (dB)	Typical value	26	26	26	26	24	19	16.7	16
	Category 6_A (min.)	23	25	25	21.4	20.1	17.3	15.2	-
PS ANEXT (dB)	Typical value	85	85	85	85	80	75	68	67
	Category 6_A (min.)	76.5	72.5	69.5	64.5	62.5	56.5	52	-

* For information only

1.1 Volition™ Class E_A / Category 6A Cabling System

Technical Specifications

Category 6_A F/FTP LSOH cable

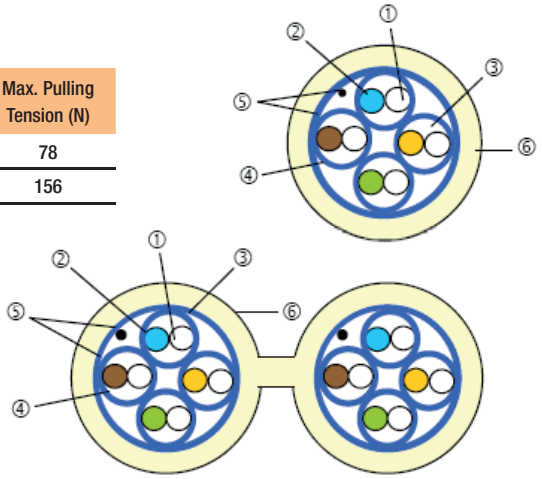
Cabling standards

- 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 mm	Weight kg/km	Fire loading MJ/Km	Max. Pulling Tension (N)
4P	Green	7,70	58	626	78
2x4P	Green	7,90x16,00	117	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: Aluminium foil with copper drain wire
6 – Jacket material: LSZH

Electrical characteristics at 20°C

- Complete conductor resistance (maxi): ≤ 146.4 W / km
- Insulation resistance (500V): ≥ 5000 MW / 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 ± 5 W
- Transfer impedance at 1 MHz > 30 mW / m
  at 10 MHz > 30 mW / m
  at 30 MHz > 50 mW / m
  at 100 MHz > 100 mW / 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	43.5
	Category 6_A (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	73
	Category 6_A (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	70
	Category 6_A (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	50
	Category 6_A (min.)	58	50	44	34.1	30	22	16	-
PS ELFEXT (dB/100 m)	Typical value	83	82	79	73	69	57	48	47
	Category 6_A (min.)	55	47	41	31.1	27	19	13	-
Return Loss (dB)	Typical value	26	26	26	26	24	19	18	16
	Category 6_A (min.)	23	25	25	21.5	20.1	17.3	17.3	-
PS ANEXT (dB)	Typical value	85	85	85	85	80	73	68	67
	Category 6_A (min.)	76.5	72.5	69.5	64.5	62.5	56.5	52	-

* For information only

1.1 Volition™ Class E_A / Category 6A Cabling System

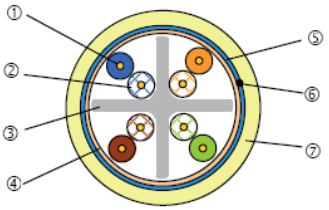
Technical Specifications

Category 6_A F/UTP LSZH cable

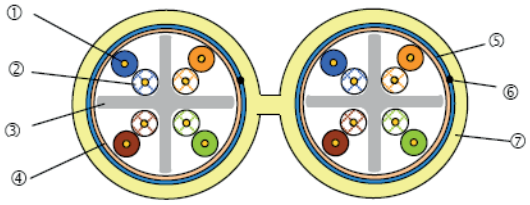
Cabling standards
- EN 50173
- ISO/IEC 11801
- ANSI/TIA-568-C
- EN 50288-10
- IEC 61156-5

Environmental characteristics (LSZH)
- Flammability performance IEC 60332-1
- Smoke emission IEC 61034
- Toxicity/acid gas IEC 60754-1/-2

Type	Colour	Max. Diameter mm	Weight kg/km	Fire loading MJ/Km	Max. Pulling Tension (N)
4P	Green	7,40	54	845	80
2x4P	Green	7,4x16,00	100	1595	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): ≤ 190 W / km
- Insulation resistance (500V): ≥ 5000 MW / 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 ± 5 W
- Transfer impedance at 1 MHz > 40 mW / m
  at 10 MHz > 40 mW / m
  at 30 MHz > 50 mW / m
  at 100 MHz > 200 mW / m

Mechanical installation characteristics
- Minimum bending radius (installation) 60 mm
- Minimum bending 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	550*
Max. Attenuat. (dB/100m)	Typical value	3.6	5.6	8	14.2	18.1	28.9	41.2	43.5
	Category 6_A (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 6_A (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 6_A (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 6_A (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 6_A (min.)	55	47	41	31.1	27	19	13	-
Return Loss (dB)	Typical value	27	27	27	25.8	25	22	18	17
	Category 6_A (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 6_A (min.)	76.5	72.5	69.5	64.5	62.5	56.5	52	-

* For information only

1.1 Volition™ Class E_A / Category 6A Cabling System

Technical Specifications

Category 6_A U/FTP LSZH cable

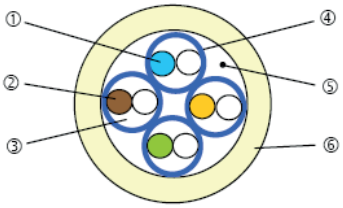
Cabling standards

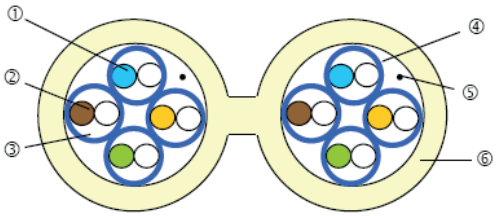
- EN 50173
- ISO/IEC 11801
- ANSI/TIA-568-C
- EN 50288-10
- IEC 61156-5

Environmental characteristics (LSZH)

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

Type	Colour	Max. Diameter mm	Weight kg/km	Fire loading MJ/Km	Max. Pulling Tension (N)
4P	Green	8,0	57	674	78
2x4P	Green	8,0x16,2	116	1308	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): ≤ 146,4 W / km
- Insulation resistance (500V): ≥ 5000 MW / 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 ± 5 W
- Transfer impedance at 1 MHz > 50 mW / m
  at 10 MHz > 50 mW / m
  at 30 MHz > 70 mW / m
  at 100 MHz > 100 mW / m

Mechanical installation characteristics

- Minimum bending radius (installation) 60 mm
- Minimum bending 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	550*
Max. Attenuat. (dB/100m)	Typical value	3.6	5.6	8	14.2	18.1	28.9	41.2	43.5
	Category 6_A (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	59
	Category 6_A (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	56
	Category 6_A (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	45
	Category 6_A (min.)	58	50	44	34.1	30	22	16	-
PS ELFEXT (dB/100 m)	Typical value	77	77	74	68	64	49	43	42
	Category 6_A (min.)	55	47	41	31.1	27	19	13	-
Return Loss (dB)	Typical value	25	26	26	23	22	19	18	16
	Category 6_A (min.)	23	25	25	21.5	20.1	17.3	17.3	-
PS ANEXT (dB)	Typical value	85	85	85	85	80	73	68	67
	Category 6_A (min.)	76.5	72.5	69.5	64.5	62.5	56.5	52	-

* For information only

1.1 Volition™ Class E_A / Category 6A Cabling System

Technical Specifications

S/FTP LSOH 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.

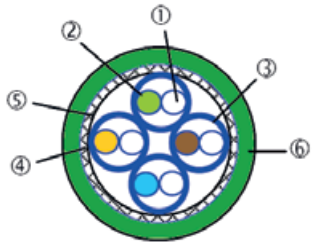
VOL-DCSFL4 cable, when associated with 3M K6AS and 3M K6ASE RJ45 Jacks, provides compliance with Category 6A/Class E_A performance in permanent link up to 65 m and in channel up to 70m.

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	5,60	37	626	45

1. Conductor Diameter: 0.40 mm (AWG 26)
2. Insulation Diameter: Pe < 0.95 mm
3. Cable assemblies: pairs
4. Individual Screen around pairs: Alu/Polyester tape conductor
5. Shield: Copper braid
6. Sheath material: LSOH
   Colour: green



Electrical characteristics at 20°C

- Complete conductor resistance (maxi): ≤ 300 Ohm / km
- Insulation resistance (500V): ≥ 5000 MOhm / 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 ± 5 Ohm
- Transfer impedance at 1 MHz > 10 mOhm / m
  at 30 MHz > 20 mOhm / m
  at 100 MHz > 30 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

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

1.2 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

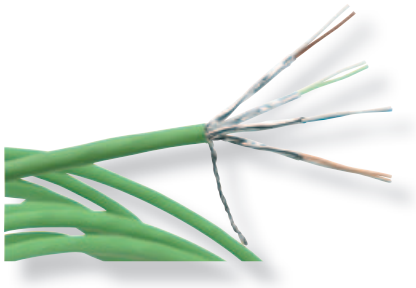
Volition™ RJ45 Jacks

- 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.

1.2 Volition™ Category 6 Cabling System

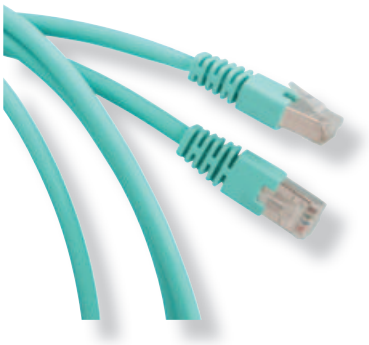
Volition™ RJ45 sockets and faceplates

- 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.



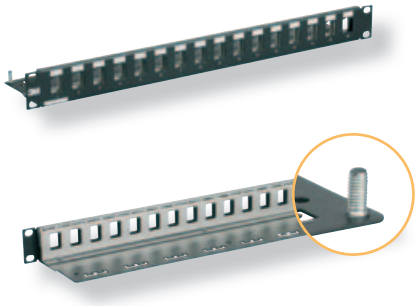
Volition™ Cables

- 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

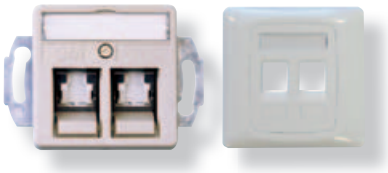
- Volition™ patch cords are designed to ensure electrical performance above ISO/IEC 11801, EN 50173 series and ANSI/TIA-568-C in channel configuration. The Volition™ Category 5e and Category 6 patch cords are available in unshielded and shielded versions, with PVC or LSZH (Low Smoke Zero Halogen) jacket.



Volition™ Patch Panels

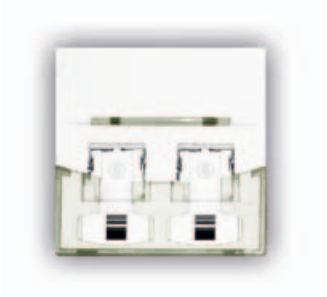
- Volition patch panels are modular and can accommodate up to 24 RJ45 ports in one unit of rack space (1U). Their modular design makes them easy to install on site in 19" racks. All Volition patch panels have an earth stud which permits continuity of earth with RJ45 FTP or STP jacks.

1.2 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

> France	Ref. No.
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

1.2 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

1.2 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

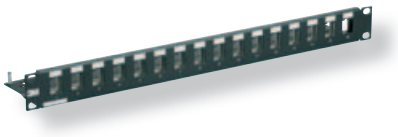
	Ref. No.
> **STP**	**OCK6S8**
> **FTP**	**OCK6F8**
> **UTP**	**OCK6U8**
> **UTP Coloured,** Blue	**VOLOCK6UB**
> **UTP Coloured,** Green	**VOLOCK6UG**
> **UTP Coloured,** Red	**VOLOCK6UR**
> **UTP Coloured,** Yellow	**VOLOCK6UY**
> **UTP Coloured,** Black	**VOLOCK6UBK**
> **UTP Coloured,** Orange	**VOLOCK6UO**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

1.2 Volition™ Category 6 Cabling System

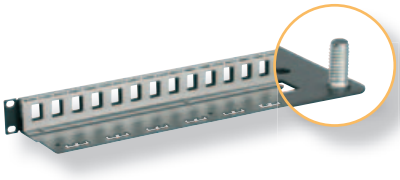
Volition RJ45 19" Patch Panels for K6 Jacks

- 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)

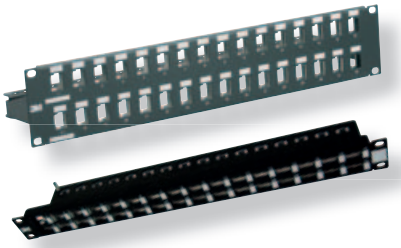
Ordering Information



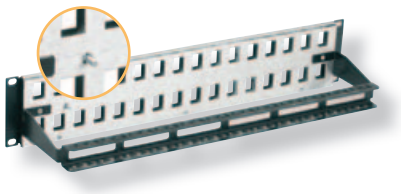
> 16 ports	Ref. No.
19" x 1U x 100 mm, Black aluminium	VOLPPCBF16K
19" x 1U x 100 mm, Black aluminium with locking system	VOLPPCBV16K
19" x 1U x 100 mm, Brushed aluminium	VOLPPCAF16K
19" x 1U x 11 mm, Black aluminium, Eco version	VOLPPUDF16K



> 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

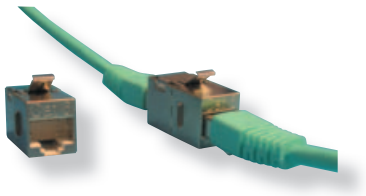


> 32 ports	Ref. No.
19" x 2U x 118 mm, Black aluminium	VOLPPCBF32K
19" x 2U x 118 mm, Brushed aluminium	VOLPPCAF32K
19" x 1U x 118 mm, Black aluminium, high density	VOL-PPCBHD-F32K



> 48 ports	Ref. No.
19" x 2U x 118 mm, Black aluminium	VOLPPCBF48K
19" x 2U x 118 mm, Brushed aluminium	VOLPPCAF48K

1.2 Volition™ Category 6 Cabling System

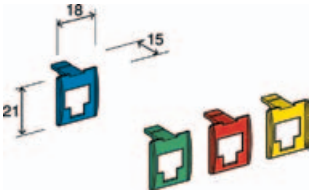


> Socket Connector RJ45 / RJ45

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

	Ref. No.
Category 6, shielded	VOL78004

Accessories for Volition RJ45 19" Patch Panels



> Coloured identifiers

- Cannot be used with RJ45 splitters

	Ref. No.
Blue	VOLPCCB
Yellow	VOLPCCY
Red	VOLPCCR
Green	VOLPCCG

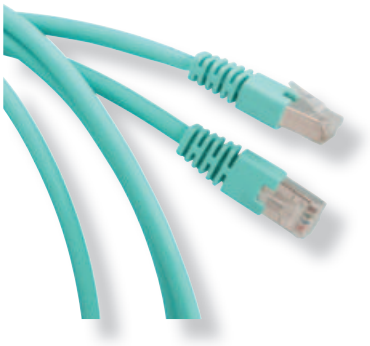
> Coloured identifiers with label holder

	Ref. No.
Blue	VOLPECB
Yellow	VOLPECY
Red	VOLPECR
Green	VOLPECG

> RJ45 keystone blanking caps

	Ref. No.
Black	VOL0300BK
White	VOL0300

1.2 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	VOL6SSLL1
2,00 m	VOL6SSLL2
3,00 m	VOL6SSLL3
5,00 m	VOL6SSLL5

> 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	VOL6SSLL1G
2,00 m	VOL6SSLL2G
3,00 m	VOL6SSLL3G
5,00 m	VOL6SSLL5G

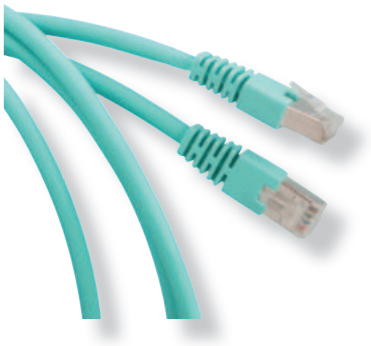
> Volition S/FTP LSOH blue

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

1.2 Volition™ Category 6 Cabling System



> Volition U/UTP LSOH turquoise

Turquoise	Ref. No.
1,00 m	VOL6ULL1
2,00 m	VOL6ULL2
3,00 m	VOL6ULL3
5,00 m	VOL6ULL5

> Volition U/UTP PVC turquoise

Turquoise	Ref. No.
1,00 m	VOL6UPL1
2,00 m	VOL6UPL2
3,00 m	VOL6UPL3
5,00 m	VOL6UPL5

> Volition U/UTP LSOH red

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

> Volition U/UTP LSOH yellow

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

> Volition U/UTP LSOH green

Green	Ref. No.
1,00 m	VOL6ULL1G
2,00 m	VOL6ULL2G
3,00 m	VOL6ULL3G
5,00 m	VOL6ULL5G

> Volition U/UTP LSOH blue

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

> Volition U/UTP LSOH white

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

1.2 Volition™ Category 6 Cabling System

Volition Category 6 cables

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

	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, LSOH

	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

1.2 Volition™ Category 6 Cabling System

Technical Specifications

Volition Category 6 F/UTP LSZH and PVC cable

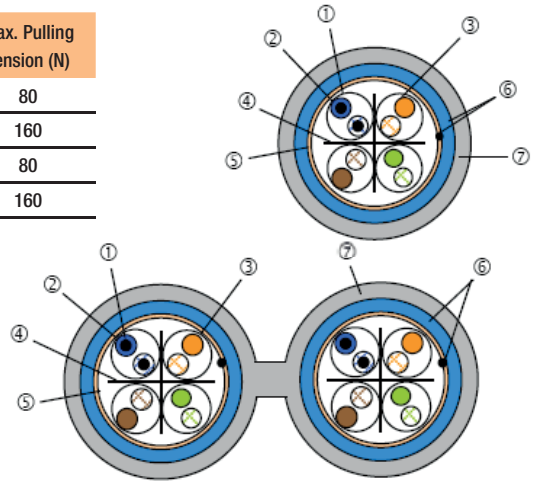
Cabling standards

- EN 50173
- ISO/IEC 11801
- TIA/EIA 568
- EN 50288-6-1
- 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 (LSZH)	Green	7,20	48	712	80
2x4P (LSZH)	Green	7,20x14,4	93	1354	160
4P (PVC)	Green	7,20	45	744	80
2x4P (PVC)	Green	7,20x14,4	92	1528	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 MOhm / 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 ± 5 W
- Transfer impedance at 1 MHz > 40 mW / m
  at 10 MHz > 40 mW / m
  at 30 MHz > 50 mW / m
  at 100 MHz > 200 mW / 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	300**	450**
Max. Attenuat. (dB/100m)	Typical value	3.6	5.7	8.3	14.8	19	31	34	43
	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	40
	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	37
	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	32
	Category 6* (min.)	58	50	44	34.1	30	22	-	-
ELFEXT (dB/100 m)	Typical value	70	62	56	46	42	34	32	29
	Category 6* (min.)	55	47	41	31.1	27	19	-	-
PS ELFEXT (dB/100 m)	Typical value	27	27	27	25.8	25	22	22	21
	Category 6* (min.)	23	25	25	21.5	20.1	17.3	-	-
Return Loss (dB)	Typical value								
	Category 6* (min.)								

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

1.2 Volition™ Category 6 Cabling System

Technical Specifications

Volition Category 6 U/UTP LSZH and PVC cable

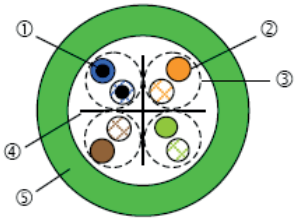
Cabling standards

- 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 mm	Weight kg/km	Fire loading MJ/Km	Max. Pulling Tension (N)
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): ≤ 190 Ohm / km
- Insulation resistance (500V): ≥ 5000 MOhm / 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 W

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	-

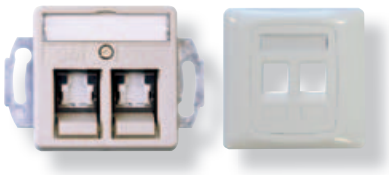
*Category 6 acc. to IEC 61156-5 ** For information only

1.3 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

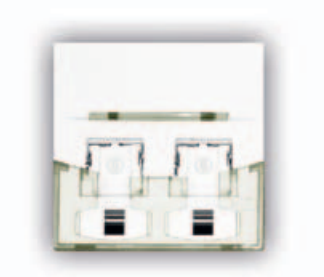


Volition RJ45 Faceplates and modules

- 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

> France	Ref. No.
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



1.3 Volition™ Category 5e Cabling System

Ordering Information

> Germany	Ref. No.
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

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

1.3 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

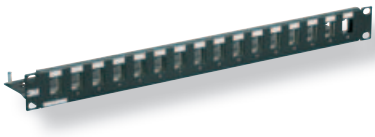
	Ref. No.
> **STP**	**OCK5ES8**
> **FTP**	**OCK5EF8**
> **UTP**	**OCK5EU8**
> **UTP Coloured,** Blue	**VOLOCK5EUB**
> **UTP Coloured,** Green	**VOLOCK5EUG**
> **UTP Coloured,** Red	**VOLOCK5EUR**
> **UTP Coloured,** Yellow	**VOLOCK5EUY**
> **UTP Coloured,** Black	**VOLOCK5EUBK**
> **UTP Coloured,** Orange	**VOLOCK5EUO**
> **UTP Coloured,** Almond	**VOLOCK5EUA**

1.3 Volition™ Category 5e Cabling System

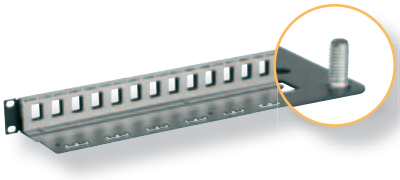
Volition RJ45 19" Patch Panels for K5E Jacks

- 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)

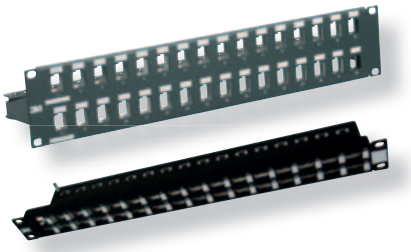
Ordering Information



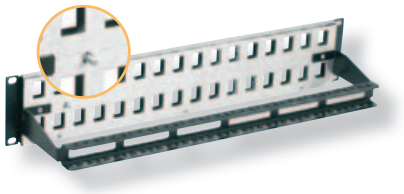
> 16 ports	Ref. No.
19" x 1U x 100 mm, Black aluminium	VOLPPCBF16K
19" x 1U x 100 mm, Black aluminium with locking system	VOLPPCBV16K
19" x 1U x 100 mm, Brushed aluminium	VOLPPCAF16K
19" x 1U x 11 mm, Black aluminium, Eco version	VOLPPUDF16K



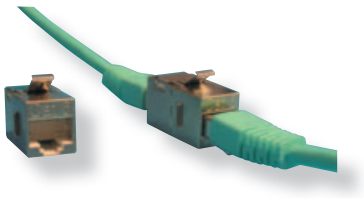
> 24 ports	Ref. No.
19" x 1U x 100 mm, Black aluminium	VOLPPCBF24K
19" x 1U x 100 mm, Black aluminium with locking system	VOLPPCBV24K
19" x 1U x 100 mm, Brushed aluminium	VOLPPCAF24K
19" x 1U x 11 mm, Black aluminium, Eco version	VOLPPUDF24K



> 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-PPCBHD-F32K



> 48 ports	Ref. No.
19" x 2U x 118 mm, Black aluminium	VOLPPCBF48K
19" x 2U x 118 mm, Brushed aluminium	VOLPPCAF48K



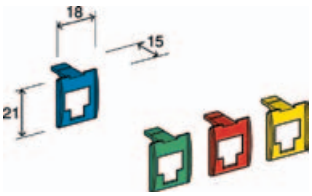
> Socket Connector RJ45 / RJ45

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

	Ref. No.
Category 5E, shielded	VOL78005

1.3 Volition™ Category 5e Cabling System

Accessories for Volition RJ45 19" Patch Panels



> Coloured identifiers

- Cannot be used with RJ45 splitters

	Ref. No.
Blue	VOLPCCB
Yellow	VOLPCCY
Red	VOLPCCR
Green	VOLPCCG

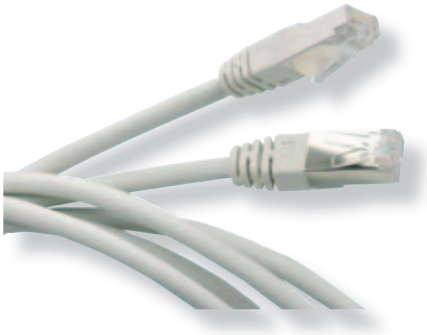
> Coloured identifiers with label holder

	Ref. No.
Blue	VOLPECB
Yellow	VOLPECY
Red	VOLPECR
Green	VOLPECG

> RJ45 keystone blanking caps

	Ref. No.
Black	VOL0300BK
White	VOL0300

1.3 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 LSOH jacket
- Standard colour: Grey

> Volition F/UTP LSOH grey

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

> Volition F/UTP LSOH red

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

> Volition F/UTP LSOH yellow

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

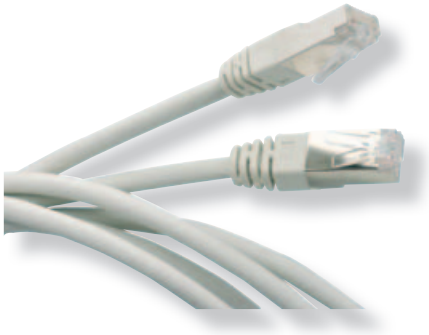
> Volition F/UTP LSOH green

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

> Volition F/UTP LSOH blue

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

1.3 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

1.3 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, LSOH

	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, LSOH

	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

1.3 Volition™ Category 5e Cabling System

Technical Specifications

Volition Category 5E F/UTP LSZH and PVC cable

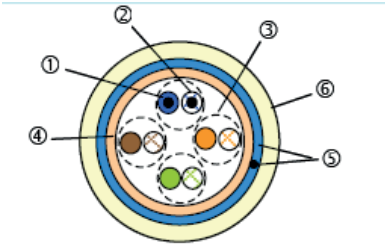
Cabling standards

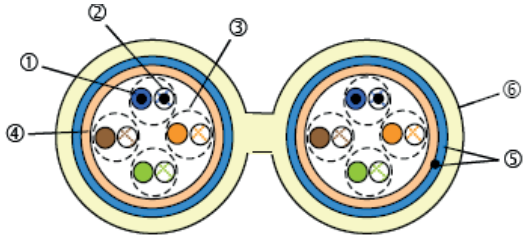
- EN 50173
- ISO/IEC 11801
- TIA/EIA 568
- EN 50288-2-1
- IEC 61156-5

Environmental characteristics (LSZH)

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

Type	Colour	Max. Diameter mm	Weight kg/km	Fire loading MJ/Km	Max. Pulling Tension (N)
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 MOhm / 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 ± 5 W
- Transfer impedance at 1 MHz > 40 mW / m
  at 10 MHz > 40 mW / m
  at 30 MHz > 50 mW / m
  at 100 MHz > 200 mW / 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	28
	Category 5* (max.)	4.1	6.5	9.3	17	22	-	-
Min. Next (dB)	Typical value	63	57	52	45	42	39	37
	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	9
	Category 5* (min.)	52.2	43.8	36.5	21.4	13.3	-	-
PS Next (dB)	Typical value	60	54	49	42	39	36	34
	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	29
	Category 5* (min.)	52	44	38	28	24	-	-
PS ELFEXT (dB/100 m)	Typical value	60	52	45	36	32	28	26
	Category 5* (min.)	49	41	35	25	21	-	-
Return Loss (dB)	Typical value	25	25	25	23.8	23	22	21
	Category 5* (min.)	23	25	25	21.5	20.1	-	-

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

1.3 Volition™ Category 5e Cabling System

Technical Specifications

Volition Category 5E U/UTP LSZH and PVC cable

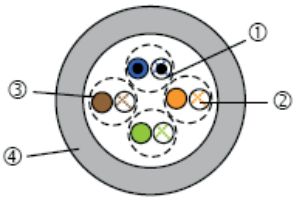
Cabling standards

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

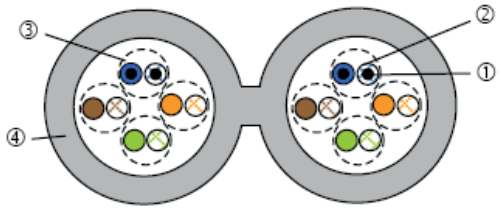
Environmental characteristics (LSZH)

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

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

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

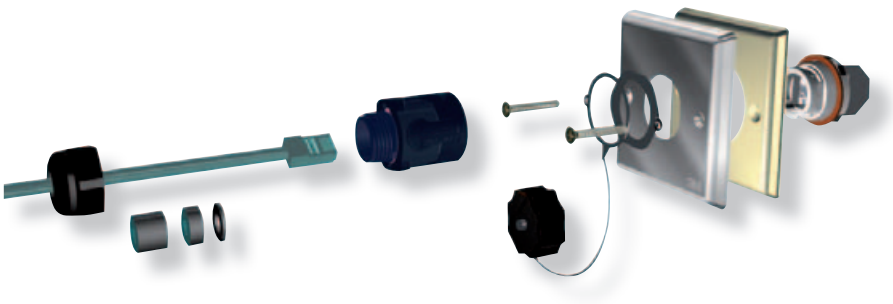
Electrical performance

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	28
	Category 5* (max.)	4.1	6.5	9.3	17	22	-	-
Min. Next (dB)	Typical value	63	57	52	45	42	39	37
	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	9
	Category 5* (min.)	52.2	43.8	36.5	21.4	13.3	-	-
PS Next (dB)	Typical value	60	54	49	42	39	36	34
	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	29
	Category 5* (min.)	52	44	38	28	24	-	-
PS ELFEXT (dB/100 m)	Typical value	60	52	45	36	32	28	26
	Category 5* (min.)	49	41	35	25	21	-	-
Return Loss (dB)	Typical value	25	25	25	23.8	23	22	21
	Category 5* (min.)	23	25	25	21.5	20.1	-	-

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

1.4 Industrial RJ45 Connector

Description - Industrial RJ45 Connector



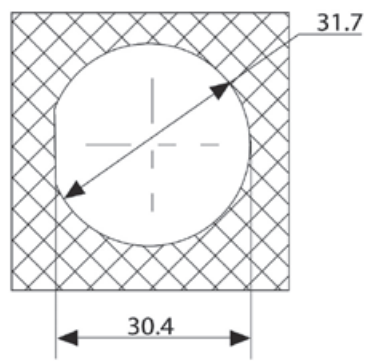
A complete, easy to use IP67 solution for an industrial network based on copper RJ45 connections. The system consists of shells which go over the RJ45 connection giving demountable IP67 protection that is waterproof and dustproof when connected. The system is suitable for use with 3M category 5e, 6 or 6_A 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

1.4 Industrial RJ45 Connector

Ordering Information

IP67 Plastic shell for patchcords

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

	Ref. No.
IP67 Plastic shell	**I67M**

IP 67 Receptacle

	Ref. No.
IP67 Receptacle	**I67B**

Receptacle Cap

- For 6 IP67 receptacles

	Ref. No.
Cap	**I67C**

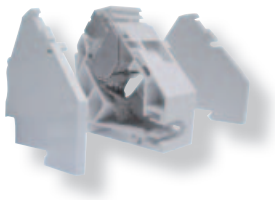
1.4 Industrial RJ45 Connector

RJ45 Module for DIN Rail Mounting

- Does not include connector

	Ref. No.
> RJ45 Module for DIN Rail Mounting	VOL78003

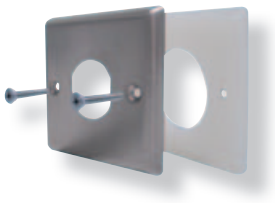
Left and Right Face Covers



- Does not include DIN Rail Module

	Ref. No.
> Dust protection	VOL78006

Stainless Steel Faceplate for IP67 Receptacle



- Includes sealing gaskets and 2 M4 fixing screws
- Dimensions: 86 x 86 mm

	Ref. No.
> Stainless Steel Faceplate for IP67	I67FP1S

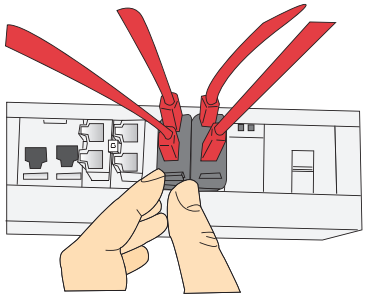
1.5 Splitters

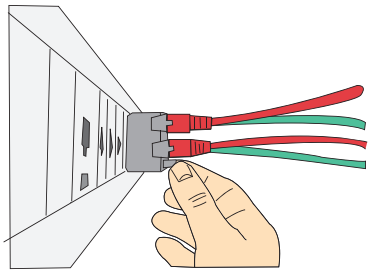
Description - Splitters

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

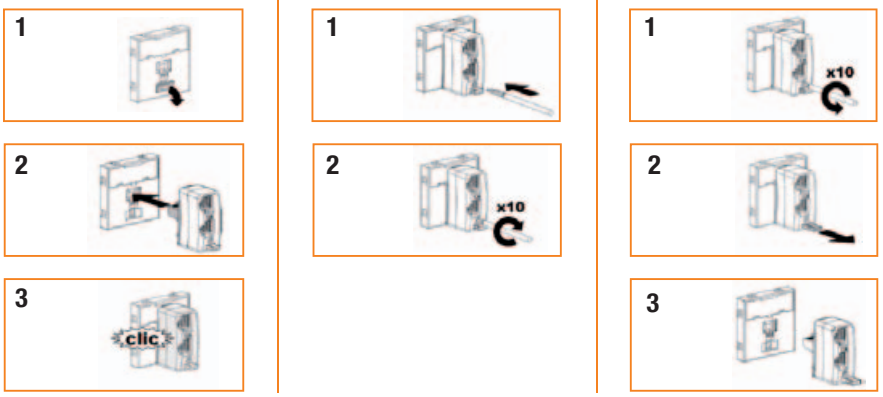
New Splitter

> How to install the splitter in French Style Faceplates





Diagrams of the New Installation Process



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

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

1.5 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
Ecran	Ecran	Ecran

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

FTP

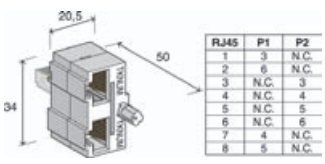
Ref. No.
P29641AA

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
Ecran	Ecran	Ecran

> Ethernet 100BASE-TX/ Digital Telephone – Lockable

FTP

Ref. No.
P29645AA

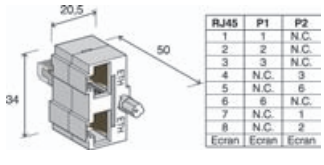


RJ45	P1	P2
1	3	N.C.
2	6	N.C.
3	N.C.	3
4	N.C.	4
5	N.C.	5
6	N.C.	6
7	4	N.C.
8	5	N.C.

> 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	6	N.C.
7	N.C.	1
8	N.C.	2
Ecran	Ecran	Ecran

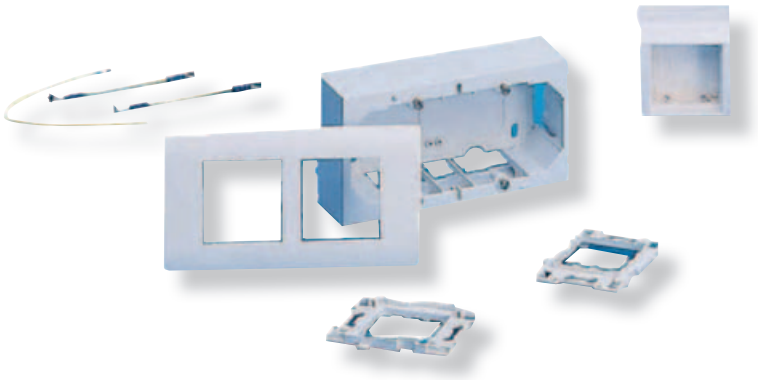
> Ethernet 10BASE-T/ Ethernet 10BASE-T

FTP

Ref. No.
P29342BA

1.6 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

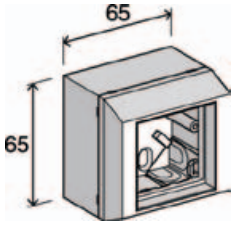
- Pre-pierced for cable entry or are provided with push in openings
  - Surface mounted boxes in ABS, single or multiple sockets

Safe to install

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

45 x 45 mm Module Supports

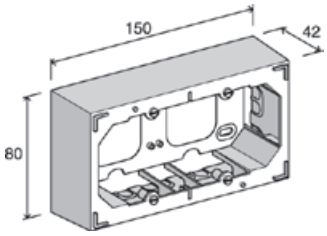
Single box in ABS



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

	Ref. No.
> Single box in ABS	P28420AA

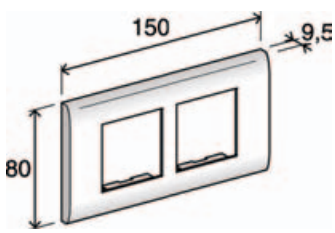
Wall Mounted Boxes



> **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.
> PBM2 box	P28690AA

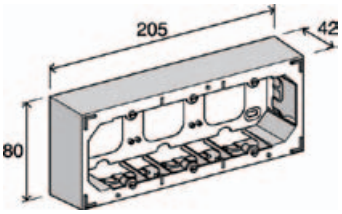


> **PBM2 Cover**

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

	Ref. No.
> PBM2 Cover	P28691AA

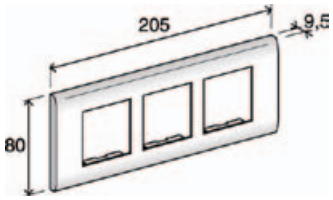
1.6 Boxes for Surface Mounting



> PBM3 Box for surface mounting 45 x 45 m faceplates

- For three 45 x45 mm faceplates
- Fits PBM3 Cover (P28691AA)
- White (RAL 9011)
- 205 x 80 x 42 mm

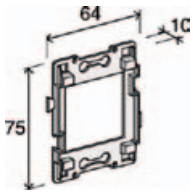
	Ref. No.
> PBM3 box	**P28695AA**



> PBM3 Cover

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

	Ref. No.
> PBM3 Cover	**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.

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2.1 Volition™ VF-45™

Description - VF-45™ Socket

The Volition socket is part of 3M's duplex, small form factor fibre optic interconnect system. Applications include affordable, high bandwidth systems, fibre-to-the-desk networks, fibre backbone systems, data centres, fibre LANs and storage area networks.

The VF-45 plug and socket work like an 8-pin modular jack, bringing the simplicity of the RJ45 jack to optical fibre applications.

Specification

- Simple installation using an unique termination process
- No expensive ceramic parts
- Footprint dimensions of a RJ45 copper connector
- High density of duplex connections
- Integral dust protection

Ordering Information

> VF-45 Socket, Multimode
- including fibre holder
- PU: 96 Units, MOQ: 1 PU

Ref. No.
VOL-0001

> VF-45 Socket, Single-mode
- including fibre holder
- PU: 96 Units, MOQ: 1 PU

Ref. No.
VOL-0002

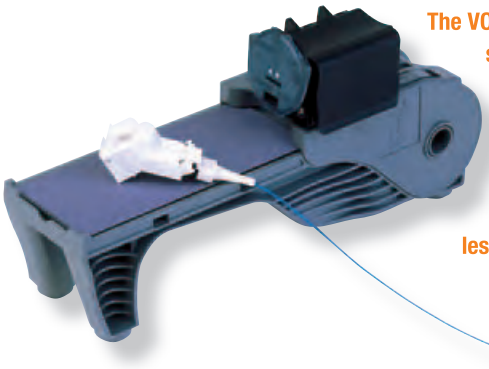
> Fibreholder for VF-45 Socket, Multimode and Single-mode
- Spare Part for VOL-0001 and VOL-0002
- PU: 96 Units, MOQ: 1 PU

Ref. No.
VOL-0011

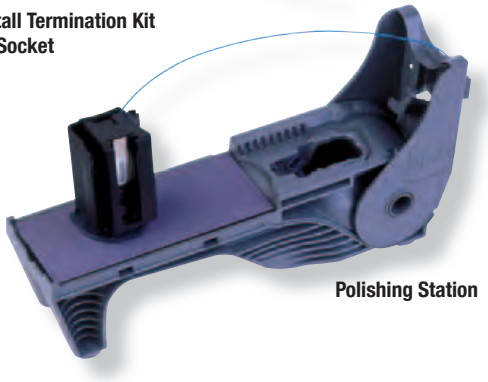
2.1 Volition™ VF-45™

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

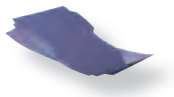
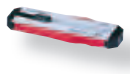
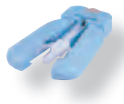
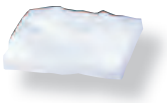
Ref. No.
VOL-0563M

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

Ref. No.
VOL-0562H

2.1 Volition™ VF-45™

Tools and Consumables

	Ref. No.
> **Polishing Puck Assembly** • PU: 1, MOQ: 1	**VOL-0560F**
 > **Lapping Film** • PU: 50, MOQ: 1	**VOL-0562K**
> **Jacket Stripper** • PU: 1, MOQ: 1	**6365-JS**
> **Kevlar Scissors** • PU: 1, MOQ: 1	**VOL-0560B**
 > **Buffer Tube Stripper** • PU: 1, MOQ: 1	**VOL-0560C**
 > **Fibre Stripper, 250µ coating** • PU: 1, MOQ: 1	**VOL-0560D**
> **Bottle, Alcohol (empty)** • PU: 12, MOQ: 1	**VOL-0560R**
> **Cleaning Wires (12 wires per tube)** • PU: 1, MOQ: 1	**VOL-0560W**
 > **Lint Free Wipes** • PU: 100, MOQ: 1	**05-00017**
> **Quick Polish Cleave Button** • PU: 1, MOQ: 1	**VOL-0562J**
> **Polishing Puck Face** • PU: 12, MOQ: 1	**VOL-0560G**

2.1 Volition™ VF-45™

Volition™ VF-45™ Maintenance Cleaning Kit

Description - Volition™ Cleaning Kits

The VOL-0570 maintenance cleaning kit keeps VF-45 fibre interconnects in wall boxes, patch panels or electronic equipment operating at a 'just installed' optical performance level. The system comprises a spray bottle of Volition HFE-based cleaning fluid and separate attachments designed for VF-45 socket and plug insertions. HFE based cleaning fluid is non-flammable and non-conductive. The maintenance cleaning kit is convenient, effective and a quick way to clean fibres and faces, without disassembly from face plates or panels.

To complement the VOL-0570, the VOL-0570B allows the cleaning of both fibres in VF-45 test leads. This kit provides a convenient, effective and quick way to clean both fibres in plugs on patch cords and reference test leads.

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™

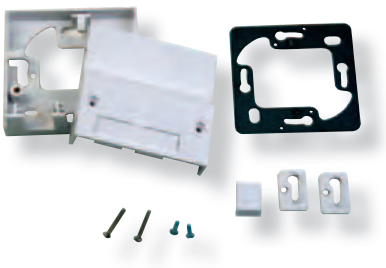
Outlets and faceplates for wall and trunking mounting

- **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

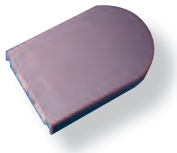
Ref. No.
VOL-0255W

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

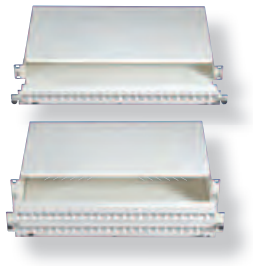
Volition™ 19" Patch Panels

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

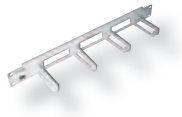


> Patch Panel, 24 Ports, 1U
- sliding drawer version
- PU: 1, MOQ: 1

Ref. No.
VOL-430-ES

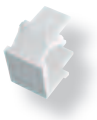
> Patch Panel, 48 Ports, 2U
- sliding drawer version
- PU: 1, MOQ: 1

Ref. No.
VOL-432-ES



> Patchcord Management - Panel - 1
- PU: 1, MOQ: 1

Ref. No.
VOL-499-E



Blanking plug for VF-45 Ports, PU: 50, MOQ: 1

Ref. No.
> Bright White VOL-0300B
> 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:	Ref. No.
> 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

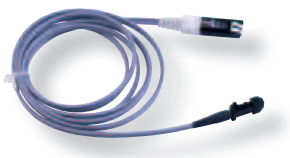
- PU: 12, MOQ: 1

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:	
> 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:	
> 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:	
> 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:	
> 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

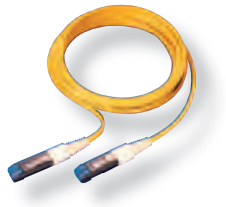
Factory made VF-45 duplex patch cables in various lengths are used for patching between sockets or for making the connection to transceivers on the workstation, hub or switch. The patch cables are a universal type, which is both riser and LSZH rated. Hybrid cables to connect ST, SC, LC and MTRJ interfaces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

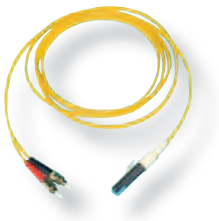
Other Hybrids available upon request.

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





		Ref. No.
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

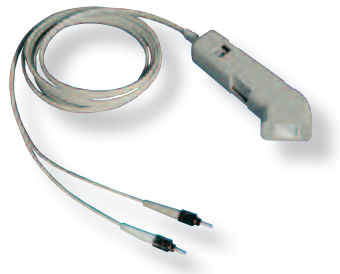
Volition reference cable kits enable connections to be made to test equipment fitted with an ST or SC connector interface. The transmit cable consists of a VF-45 socket on one end and a choice of either 2 ST, SC or FC at the other end. The receive cable has a VF-45 socket housed in a protective casing 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.
> VF-45 Connector to ST Connector and VF-45 Socket		**VOL-UREF-050-ST**
• PU: 1, MOQ: 1	Reference Cable kit, beige, 1,5 m:	
• 50/125µm Connecting Cable	ST Connector to VF-45 Socket (2x)	
	ST Connector to VF-45 Connector (2x)	
• 50/125 Reference Cable	VF-45 Connector to VF-45 Connector (1x)	
> VF-45 Connector to ST Connector and VF-45 Socket		**VOL-UREF-062-ST**
• PU: 1, MOQ: 1	Reference Cable kit, beige, 1,5 m:	
• 62,5/125µm Connecting Cable	ST Connector to VF-45 Socket (2x)	
	ST Connector to VF-45 Connector (2x)	
• 62,5/125 Reference Cable	VF-45 Connector to VF-45 Connector (1x)	
> VF-45 Connector to ST Connector and VF-45 Socket		**VOL-UREF-SM-ST**
• PU: 1, MOQ: 1	Reference Cable kit, green, 1,5 m:	
• 9/125µm Connecting Cable	ST Connector to VF-45 Socket (2x)	
	ST Connector to VF-45 Connector (2x)	
• 9/125 Reference Cable	VF-45 Connector to VF-45 Connector (1x)	



		Ref. No.
> VF-45 Connector to SC Connector and VF-45 Socket		**VOL-UREF-050-SC**
• PU: 1, MOQ: 1	Reference Cable kit, beige, 1,5 m:	
• 50/125µm Connecting Cable	SC Connector to VF-45 Socket (2x)	
	SC Connector to VF-45 Connector (2x)	
• 50/125 Reference Cable	VF-45 Connector to VF-45 Connector (1x)	
> VF-45 Connector to SC Connector and VF-45 Socket		**VOL-UREF-062-SC**
• PU: 1, MOQ: 1	Reference Cable kit, beige, 1,5 m:	
• 62,5/125µm Connecting Cable	SC Connector to VF-45 Socket (2x)	
	SC Connector to VF-45 Connector (2x)	
• 62,5/125 Reference Cable	VF-45 Connector to VF-45 Connector (1x)	
> VF-45 Connector to SC Connector and VF-45 Socket		**VOL-UREF-SM-SC**
• PU: 1, MOQ: 1	Reference Cable kit, green, 1,5 m:	
• 9/125µm Connecting Cable	SC Connector to VF-45 Socket (2x)	
	SC Connector to VF-45 Connector (2x)	
• 9/125 Reference Cable	VF-45 Connector to VF-45 Connector (1x)	

2.1 Volition™ VF-45™

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

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

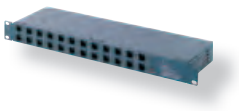
Volition media converters allow simple and cost effective useage of existing network equipment (fitted with RJ45 connectors for copper wiring) with fibre optic cables. The Volition media converter converts a twisted pair signal into the corresponding optical signal.

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

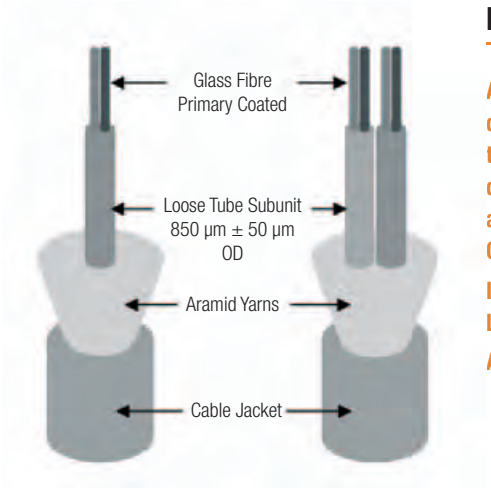
- IEEE 802.3/802.3u and 802.3z compliant
- 32 bit bus mastering (10 and 100Mb/s cards)
- Most common operating systems supported

Ordering Information

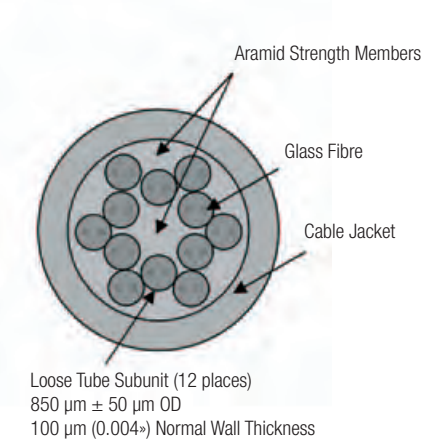


	Ref. No.
> 10 Base T (RJ45) to 10 Base FL, VF-45™ Port • 850nm, VF-45 Port with universal power supply • PC-Version, PU: 1 pc, MOQ: 1	**VOL-10FL-U**
> 10 Base T (RJ45) to 10 Base FL, VF-45 Ports • 850nm, 24x VF-45 Ports with universal power supply • Rackmount-Version, PU: 1 pc, MOQ: 1	**VOL-M10FL-24-G**
> 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**

2.2 Volition™ Installation Indoor Cable



2 & 4 fibre Horizontal cable construction



24-fibre Backbone cable construction

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

Indoor, horizontal and backbone cable

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 -10ºC to +60ºC. 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

Fibre	OM2	OM3
50/125µm	**Bandwidth** ≥ 500 MHz x km @ 850nm ≥ 500 MHz x km @ 1300nm **Attenuation Indoor Cables** ≤ 3,5 dB/km @ 850 nm ≤ 1,2 dB/km @ 1300 nm **Numerical Aperture** 0,200 ± 0,015 **Index of refraction** 1,482 @ 850 nm 1,477 @ 1300nm	**Bandwidth (Overfilled Launch)** ≥ 1500 MHz x km @ 850nm ≥ 500 MHz x km @ 1300nm **Bandwidth (Effective Laser Launch)** ≥ 2000 MHz x km @ 850 nm **Attenuation Indoor Cables** ≤ 3,0 dB/km @ 850 nm ≤ 1,0 dB/km @ 1300 nm **Numerical Aperture** 0,200 ± 0,015 **Index of refraction** 1,482 @ 850 nm 1,477 @ 1300nm

Fibre		
62,5/125µm	**Bandwidth** ≥ 200 MHz x km @ 850nm ≥ 500 MHz x km @ 1300nm **Attenuation Indoor Cables** ≤ 3,5 dB/km @ 850 nm ≤ 1,0 dB/km @ 1300 nm	
9/125µm	**Attenuation Indoor Cables** ≤ 0,7 dB/km @ 1310 nm ≤ 0,7 dB/km @ 1550 nm	

2.2 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.

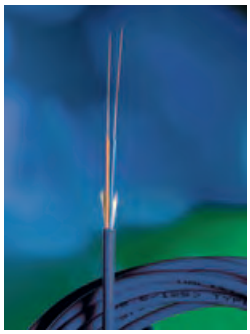
Notes

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**

2.2 Volition™ Installation Indoor Cable

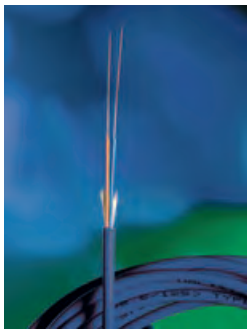
Description - Cable 62,5/125µm

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**

2.2 Volition™ Installation Indoor Cable

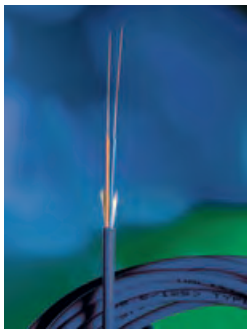
Description - Cable 9/125µm

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

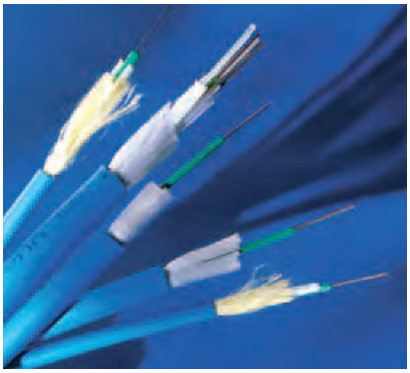


Ordering Information

		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**

2.3 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)

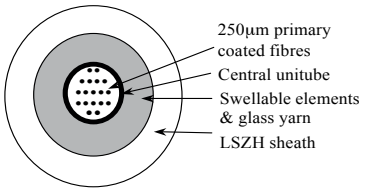
Technical Specifications

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

2.3 Volition™ Installation Indoor/Outdoor Cable

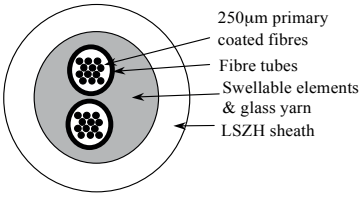
Ordering Information - Cable, 50/125/250µm

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



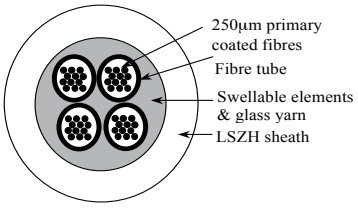
4-12 Fibres

		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**
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**



24 Fibres

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**

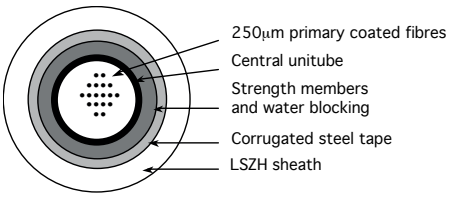


48 Fibres

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**

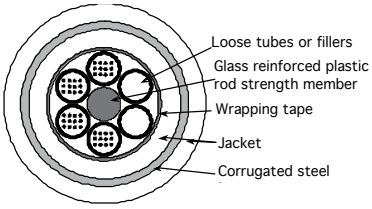
2.3 Volition™ Installation Indoor/Outdoor Cable

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



4 – 24 Fibres

		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**



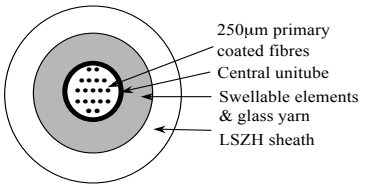
48 Fibres

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**

2.3 Volition™ Installation Indoor/Outdoor Cable

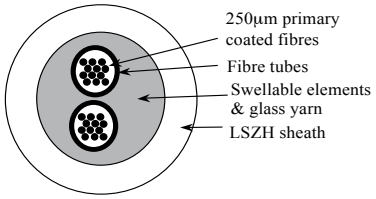
Ordering Information - Cable, 62,5/125/250µm, OM1

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



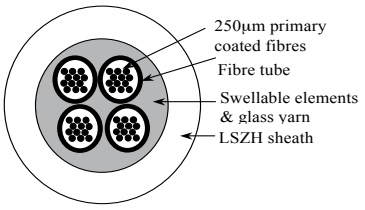
2-12 Fibres

		Ref. No.
62,5/125 µm, 2 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	> **OM1**	**VOL-IO GL62**
62,5/125 µm, 4 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	> **OM1**	**VOL-IO GL64**
62,5/125 µm, 6 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	> **OM1**	**VOL-IO GL66**
62,5/125 µm, 8 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	> **OM1**	**VOL-IO GL68**
62,5/125 µm, 12 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	> **OM1**	**VOL-IO GL612**



24 Fibres

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

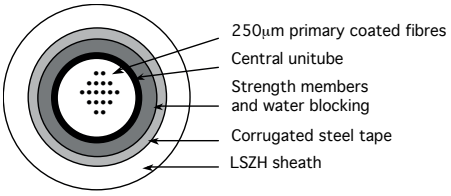


48 Fibres

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

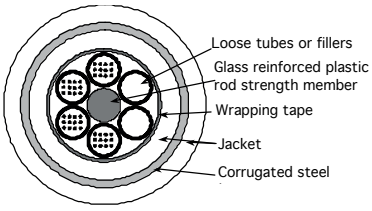
2.3 Volition™ Installation Indoor/Outdoor Cable

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



4 – 24 Fibres

	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**
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**
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**
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**



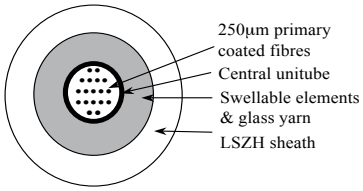
48 Fibres

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**

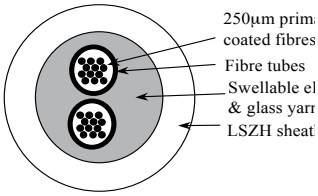
2.3 Volition™ Installation Indoor/Outdoor Cable

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

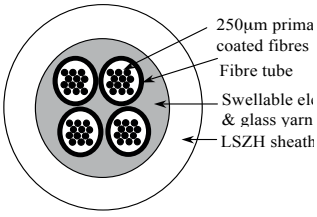
Indoor/Outdoor glass yarn, with light rodent protection, multimode



4-12 Fibres



24 Fibres

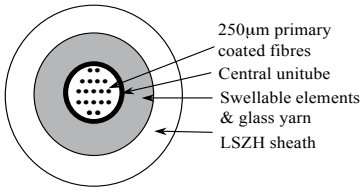


48 Fibres

		Ref. No.
9/125 µm, 4 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	**> OS2**	**VOL-IO GL94**
9/125 µm, 6 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	**> OS2**	**VOL-IO GL96**
9/125 µm, 8 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	**> OS2**	**VOL-IO GL98**
9/125 µm, 12 fibres **LSZH with glass yarn,** outer diameter: 6.2 mm • Length: 1000 m	**> OS2**	**VOL-IO GL912**
9/125 µm, 24 fibres **LSZH with glass yarn,** outer diameter: 7.3 mm • Length: 1000 m	**> OS2**	**VOL-IO GL924**
9/125 µm, 48 fibres **LSZH with glass yarn,** outer diameter: 8.8 mm • Length: 1000 m	**> OS2**	**VOL-IO GL948**

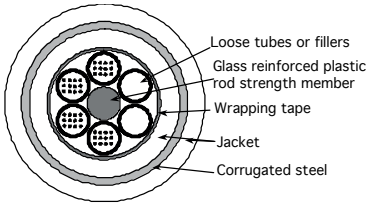
2.3 Volition™ Installation Indoor/Outdoor Cable

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



4- 24 Fibres

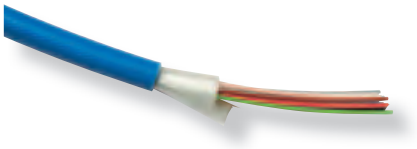
		Ref. No.
9/125 µm, 4 fibres **LSZH with aramid yarn and corrugated steel,** outer diameter: 8.5 mm • Length: 2000 m	> OS2	VOL-IO S94
9/125 µm, 6 fibres **LSZH with aramid yarn and corrugated steel,** outer diameter: 8.5 mm • Length: 2000 m	> OS2	VOL-IO S96
9/125 µm, 8 fibres **LSZH with aramid yarn and corrugated steel,** outer diameter: 8.5 mm • Length: 2000 m	> OS2	VOL-IO S98
9/125 µm, 12 fibres **LSZH with aramid yarn and corrugated steel,** outer diameter: 8.5 mm • Length: 2000 m	> OS2	VOL-IO S912
9/125 µm, 24 fibres **LSZH with aramid yarn and corrugated steel,** outer diameter: 9.5 mm • Length: 2000 m	> OS2	VOL-IO S924



48 Fibres

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

2.4 Volition™ Break-out Fibre Cable



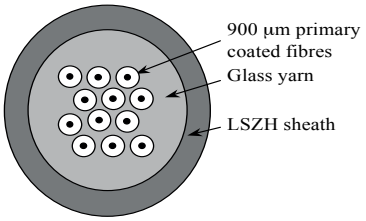
Description - Cable 50/125 um, 62.5/125 um, 9/125 um

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	≤ 2,7 dB/km @ 850 nm ≤ 0,8 dB/km @ 1300 nm	≥ 3500 MHz x km @ 850nm ≥ 500 MHz x km @ 1300nm	1,482 1,477
50/125 µm Multimode OM3	≤ 2,7 dB/km @ 850 nm ≤ 0,8 dB/km @ 1300 nm	≥ 1500 MHz x km @ 850nm (OFL*) ≥ 2000 MHz-km @ 850nm (LO*) ≥ 500 MHz-km @ 1300 nm (OFL*)	1,482 1,477
50/125 µm Multimode OM4	≤ 2,7 dB/km @ 850 nm ≤ 0,8 dB/km @ 1300 nm	≥3500 MHz-km @ 850 nm (OFL*) ≥ 4700 MHz-km @ 850nm (LO*) ≥ 500 MHz-km @ 1300 nm (OFL*)	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 OS1	≤ 0,40 dB/km @ 1310 nm ≤ 0,25 dB/km @ 1550 nm	**Cut Off** Upper Limit 1260 nm	1.467 1.467

* OFL = Over filled Launch, LO = Laser Optimised

2.4 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

2.4 Volition™ Break-out Fibre Cable

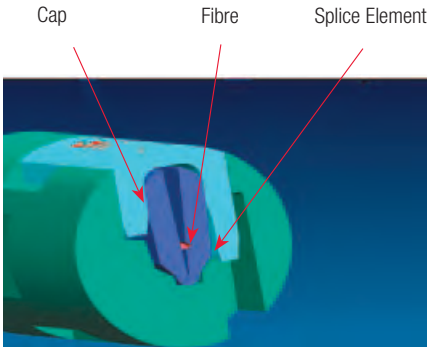
Indoor breakout cable with light rodent protection Multimode 62.5/125, OM1

		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

2.5 3M No Polish Connectors



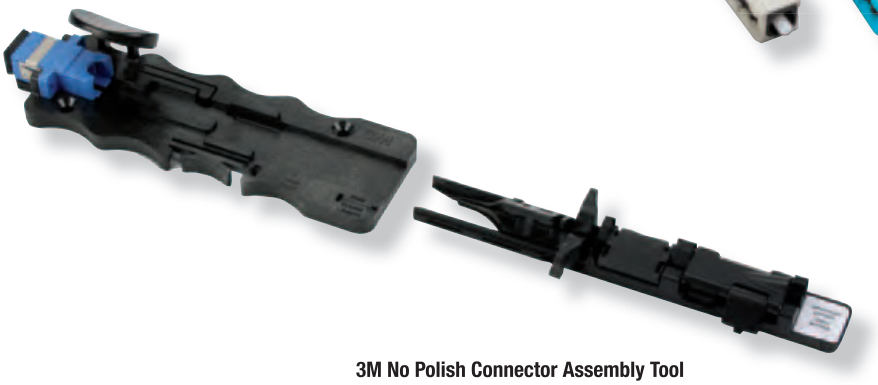
Cross-sectional view of actuated splice: After the fibre is inserted, the assembly tool depresses the cap to force clamping and locating surfaces against the fibre, looking and aligning the fibre place.

Description - SC No Polish Connector

3M No Polish Connector (NPC) enables fast, on-site installation of 250µm and 900µm 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, 62.5µm, 50µm and also 50µm LOMMF (laser optimised multimode fibre OM3) for high data rate applications.



3M No Polish Connector Assembly Tool

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
- 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

2.5 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

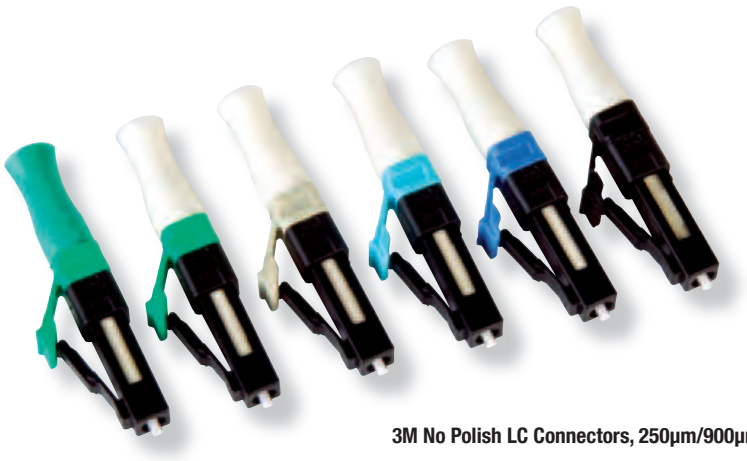
***TIA = TIA/EIA 568-B.3**

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**

2.5 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

> **LC NPC Connectors, Multimode**	Ref. No.
• 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**

2.5 3M No Polish Connectors

Description - 3M Tools for NPC-SC

3M Fibre Optic Kit 8865-C

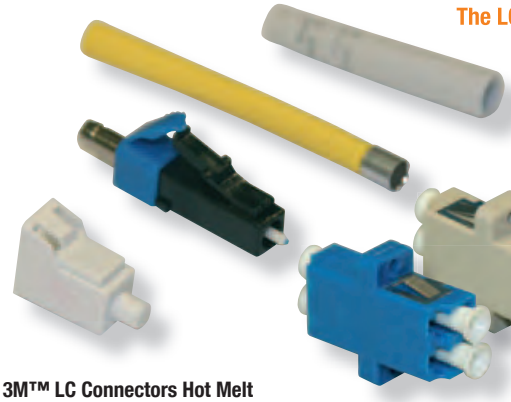
3M No Polish Connector Kit 8865-C

Ordering Information

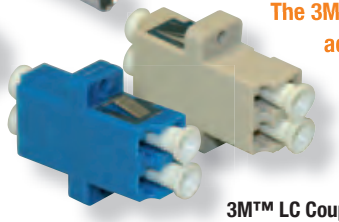
Product Description	Ref. No.
3M No Polish Connector Kit	**8865**
3M No Polish Connector Preparation Kit with Flat Cleaver	**8865-C**
3M No Polish SC Connector Assembly Tool 250/900 um	**8865-AT**
3M No Polish LC Connector Assembly Tool 250/900UM	**8835-AT**

2.6 3M LC Connectors, Couplings and Pigtails

Description - 3M™ LC Connectors / Couplings / Pigtails



3M™ LC Connectors Hot Melt



3M™ LC Couplings

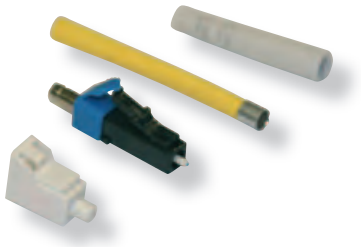
The LC small form factor connector has become the most popular interface for optical line equipment over the last few years and is well estabilshed in fibre backbones and data centres.

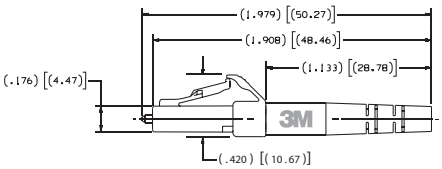
3M has expanded their easy to use product line of Hot Melt fibre optic connectors and now offers also LC Hot Melt connectivity for single and multimode applications.

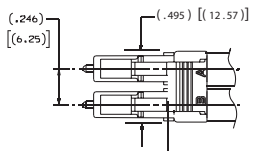
The 3M Hot Melt system combines the ease of installation together with the advantage of spliceless direct termination in patch panels and outlets.

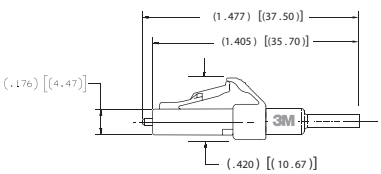
Due to its small size, the LC-Connector allows doubling of the port density in 19" cabinets. By design the LC is the perfect choice for high data rate applications.

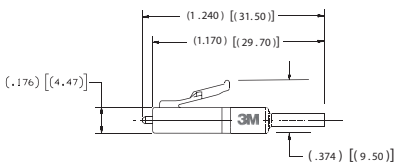
Ordering Information











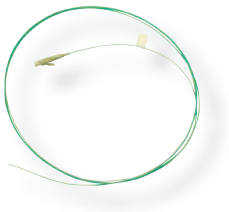
	Ref. No.
> **LC-Connector Hot Melt, multimode** • Simplex, beige, PU: 60 pcs	**6602-S**
> **LC-Connector Hot Melt, multimode** • Duplex Clip, beige, PU: 60 pcs	**6602-D**
> **LC-Connector Hot Melt, single-mode** • Simplex, blue, PU: 60 pcs	**8602-S**
> **LC-Connector Hot Melt, single-mode** • Duplex Clip, blue, PU: 60 pcs	**8602-D**

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

2.6 3M LC Connectors, Couplings and Pigtails

Ordering Information



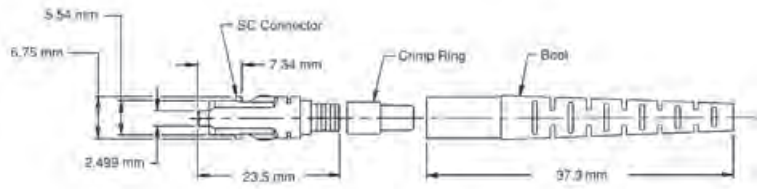
	Ref. No.
> **LC-Coupling, multimode** • Duplex, beige plastic housing in SC-Simplex format, PU: 60 pcs	**6661-DC**
> **LC-Coupling, single-mode** • Duplex, blue plastic housing in SC-Simplex format, PU: 60 pcs	**8661-DC**
> **LC-Coupling, single-mode** • Simplex, blue plastic housing, PU: 60 pcs	**8662-SC**
> **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	**ADV00-AU0002**
> **LC/APC Pigtail 9/125, single-mode** • Yellow, length: 2 m, PU: 12 pcs	**ADW00-AU0002**

2.7 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

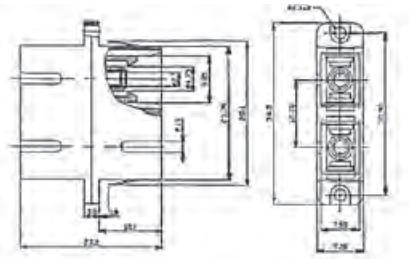
2.7 3M SC Connectors, Couplings and Pigtails

Ordering Information

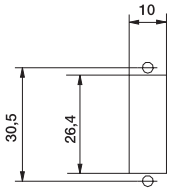
3M™ SC Couplings

	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**

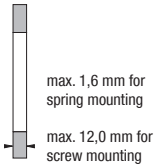
SC duplex coupling

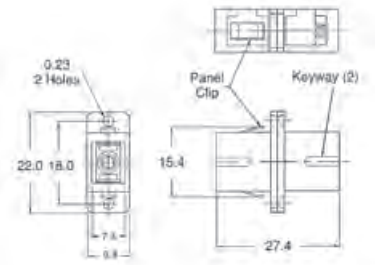


Hole pattern

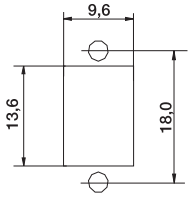


Sheet thickness





Hole pattern



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

2.7 3M SC Connectors, Couplings and Pigtails

Ordering Information

3M™ SC Pigtails

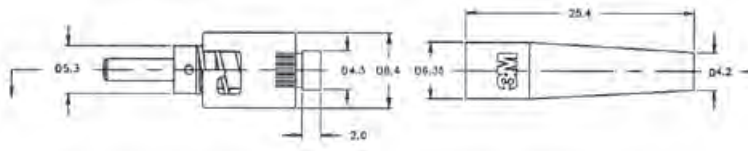
	Ref. No.
> **SC Pigtail 50/125, multimode Fibre** • Length: 2 m • PU: 12 pcs	**BDB00-ZK0002**
> **SC Pigtail 50/125, multimode OM3** • Length: 2 m • PU: 12 pcs	**BDB00-ZO0002**
> **SC Pigtail 62.5/125, single-mode Fibre** • Length: 2 m • PU: 12 pcs	**BDB00-AP0002**
> **SC Pigtail 9/125, single-mode Fibre** • Length: 2 m • PU: 12 pcs	**ADA00-AU0002**
> **SC APC 8° Pigtail 9/125, single-mode Fibre** • Length: 2 m • PU: 12 pcs	**ADE00-AU0002**
> **SC APC 9° Pigtail 9/125, single-mode Fibre** • Length: 2 m • PU: 12 pcs	**ABP00-AU0002**

2.8 3M ST Connectors, Couplings and Pigtails

Ordering Information

3M™ ST Connectors

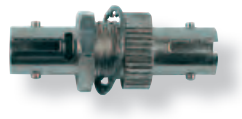
	Ref. No.
> **ST connector - Hot Melt - multimode,** white boot	
• PU: 60 pcs	**6100-W**
• PU: 1000 pcs	**6100-W1K**
> **ST connector - Hot Melt - multimode,** black boot	
• PU: 60 pcs	**6100-B**
• PU: 1000 pcs	**6100-B1K**
> **ST connector - Hot Melt - multimode,** red boot	
• PU: 60 pcs	**6100-R**
• PU: 1000 pcs	**6100-R1K**
> **ST connector - Hot Melt - single-mode,** yellow boot	
• PU: 60 pcs	**8100-YS**
> **ST connector - Epoxy - multimode,** black boot	
• PU: 60 pcs	**6105-B**
• PU: 1000 pcs	**6105-B1K**
> **ST connector Epoxy - single-mode,** yellow boot	
• PU: 60 pcs	**8106**
> **ST connector - Crimplok - multimode,** grey boot	
• PU: 60 pcs	**6901**
> **ST connector - Crimplok - multimode,** blue boot	
• PU: 60 pcs	**8901**



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

2.8 3M ST Connectors, Couplings and Pigtails

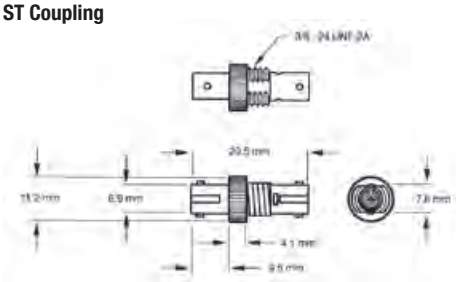


Ordering Information

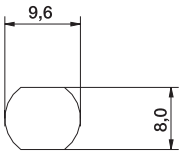
3M™ ST Couplings / ST Pigtails

	Ref. No.
> **ST Coupling, multimode** for D hole mounting, spacer and union nut included	
• PU: 60 pcs	**6112**
• PU: 1000 pcs	**6112-1K**
> **ST Coupling, single-mode** for D hole mounting, spacer and union nut included	
• PU: 60 pcs	**8119**
> **ST Pigtail 50/125, multimode Fibre, green, easy strip** • Length: 2 m • PU: 12 pcs	**BAN00-ZK0002**
> **ST Pigtail 62.5/125, multimode Fibre, blue, easy strip** • Length: 2 m • PU: 12 pcs	**BNA00-AP0002**
> **ST Pigtail 9/125, single-mode Fibre, yellow, easy strip** • Length: 2 m • PU: 12 pcs	**AAM00-AU0002**

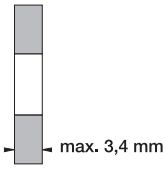
ST Coupling



Hole pattern



Sheet thickness



Technical Specifications

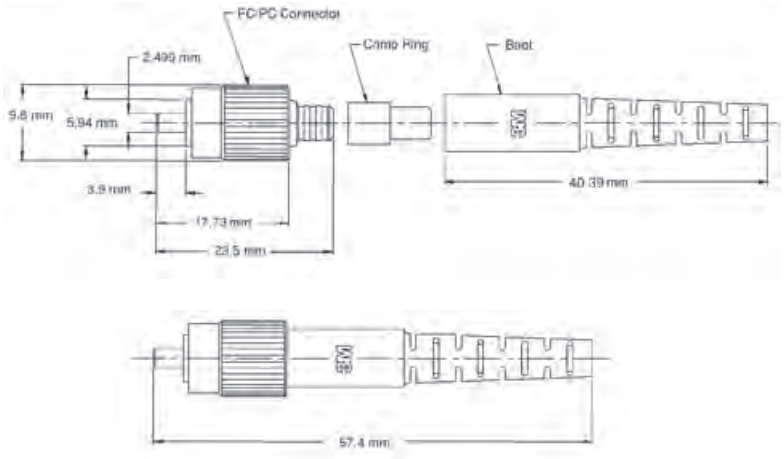
Coupling type	6112	8119
Type	Multimode	Single-mode
Sleeve	Phosphor bronze	Zirconia ceramic
Housing	Metal	Metal
Operating temp.	-40°C to 85°C	-40°C to 85°C

2.9 3M FC Connectors, Couplings and Pigtails

Ordering Information

3M™ FC/PC Connector

	Ref. No.
> **FC-Connector, Hot Melt, multimode,** white boot • PU: 60 pcs	**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

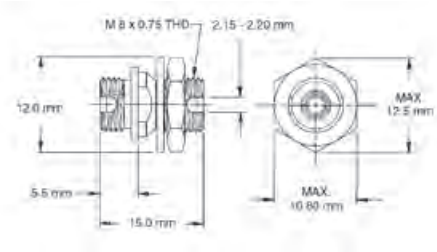
2.9 3M FC Connectors, Couplings and Pigtails

Ordering Information

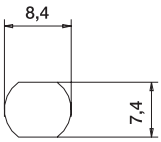
3M™ FC Couplings/Pigtails

	Ref. No.
> **FC-Coupling, single-mode** for D hole mounting spacers and nut included • PU: 60 pcs	**8211-E**
> **FC-APC-Coupling, single-mode** for D hole mounting spacers and nut included • PU: 60 pcs	**8211-APC**
> **FC-Pigtail 9/125, single-mode Fibre** • Length: 2 m • PU: 12 pcs	**AEN00-AU0002**
> **FC-APC 8° Pigtail 9/125, single-mode Fibre** • Length: 2 m • PU: 12 pcs	**AEX00-AU0002**

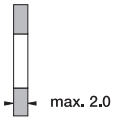
FC Coupling



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

2.10 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.
> **Universal Hot Melt Termination Kit** The Hot Melt Termination Kit for ST, SC, FC and LC-Connectors contains all tools and consumeables, which are neccesary to terminate 3M Hot Melt Connectors in the field.	**6362**

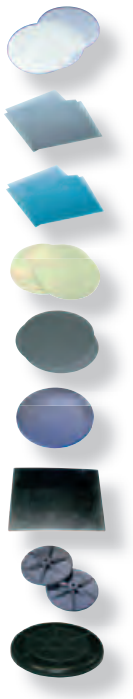
2.10 3M™ Hot Melt System

Ordering Information

	Ref. No.
> 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	**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**

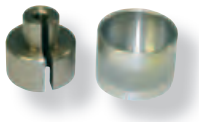
Accessories/Consumables



	Ref. No.
> Polishing film 2µm, "one step", (254 X Classic), round for hand polish • PU: 50 pcs	**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**

2.10 3M™ Hot Melt System

Accessories/Consumables



> **Weight for polishing guide, hand polish, Hot Melt LC** — **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**

2.10 3M™ Hot Melt System

3M Hot Melt Autopolisher

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 consistant polishing quality.

Technical Specifications

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

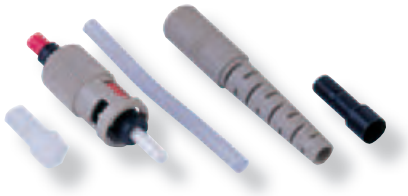
Ordering Information

	Ref. No.
> **Hot Melt Autopolisher, 230V** incl. 230V wall socket power supply and polishing film 2µm with hole (50 ea) • PU: 1 pc	**6851-E**
> **Polishing film, 2µm** with hole for 6851-E Autopolisher • PU: 50 pcs	**6192-B**
> **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.	**DE-0100-0900-4**

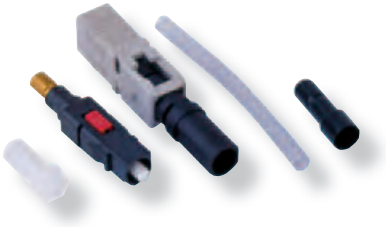
Kit Contents:

- 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

2.11 3M™ Crimplok Connector System



ST Connector



SC Connector

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.

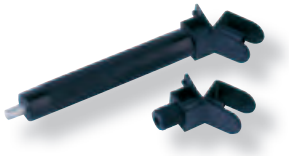
The Crimplok connector incorporates proven 3M malleable metal element fibre gripping technology. There is no fibre splice or second joint inside the connector, so there is no added attenuation at the connection. When the conformable metal element closes, it grips a length of the fibre, eliminating fibre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

Ordering Information

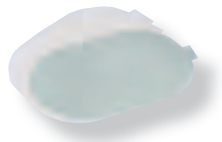
	Ref. No.
> **Crimplok assembly case** The Crimplok assembly kit for ST and SC connectors, contains all the tools and consumables needed for assembly. Supplied in a convenient carrying case.	**6955**

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



	Ref. No.
> **Activation Tool, ST/SC**	**6955-T**

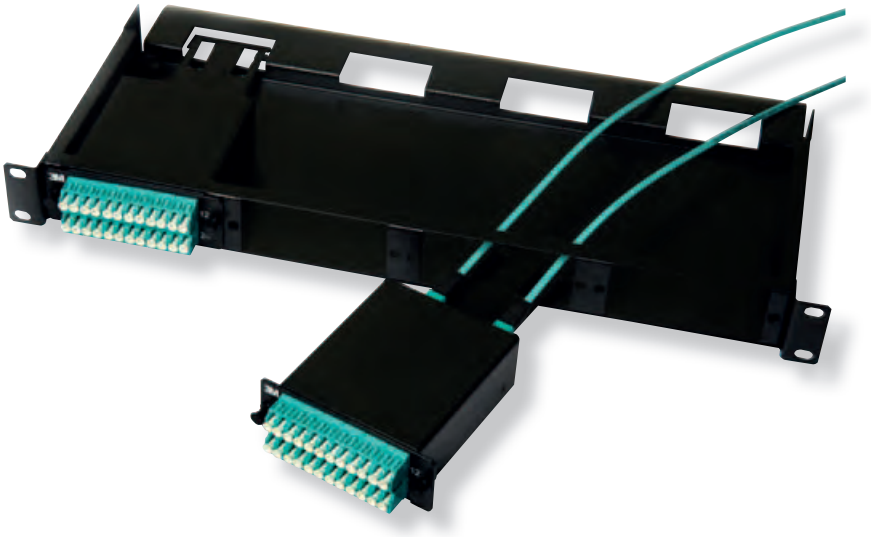


> **Polishing film 2µm, oval with adhesive back**	**SP-00503**

2.12 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 50/125µm 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

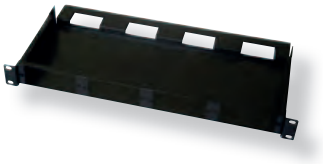
- High port density of 48 (96 LC connectors) ports on 1U
- Flexibility for re-arrangements
- Full front access, no removal of patch panel required
- Ease of installation, no risk of fibre breakage
- Plug and play
- Straight through MPO/MPO backplane cables

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

2.12 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

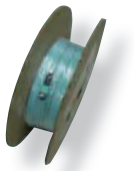
M-FLC

> **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 BackplanePatchcable, 30 m, OM3, Type B**
> **MPO 12/MPO 12 Backplane Patchcable, 40 m, OM3, Type B**

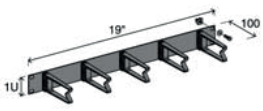
M-12-20-OM3-B
M-12-30-OM3-B
M-12-40-OM3-B

> **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

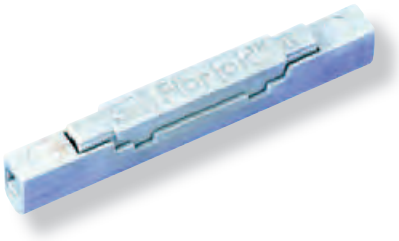
- Jacket Colour: aqua
- Jacket material: LSZH



> **Patchcord Management Panel**

P33410AA

2.13 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 900µm coated fibres. The Fibrlok splice can be used with either single-mode or multimode fibres with a nominal glass cladding of 125µm 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 250µm and 900µm coated fibres
- Identical strip lengths for all coatings
- Repositioning of the two fibres possible
- Extended life cycle (> 30 years)
- Complies with international standards

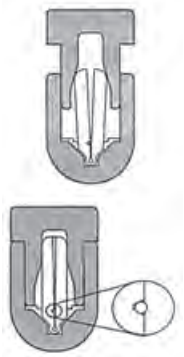
Benefits

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

2.13 3M™ Fibrlok System

Specifications

Technical		Environmental	
Fibre diameter:	125µm	**Operating temperature:**	-40ºC to 75ºC
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-O 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.

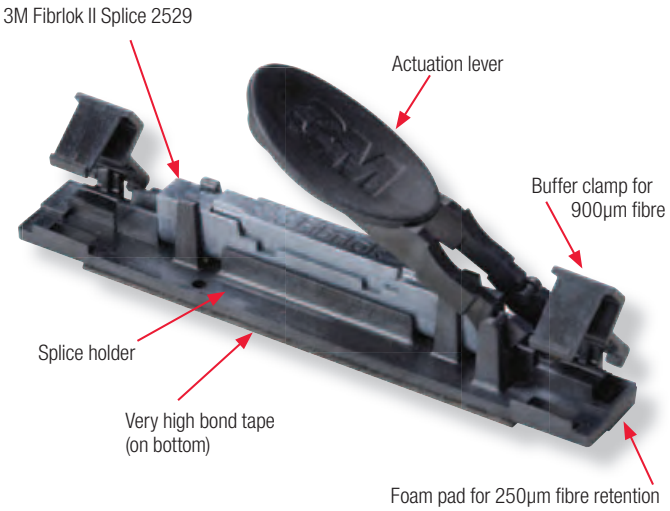
2.13 3M™ Fibrlok System

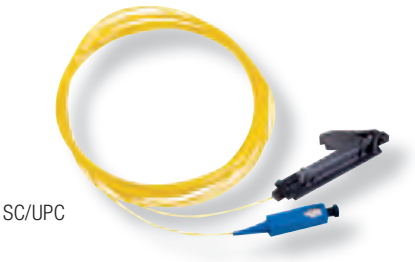
Description

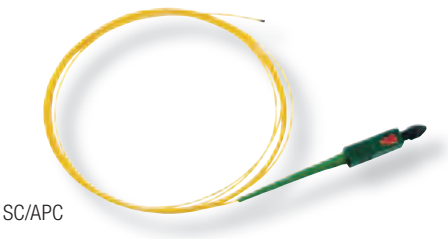
3M Fibrlok II splice/holder integrates the 3M Fibrlok II splice 2529, actuation tool, and holder all in one package. It enables fast, on-site installation without a separate assembly tool or splice tray.

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

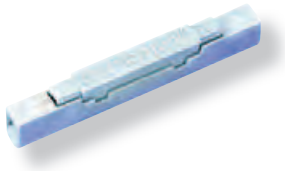
- Integrated splice, holder & actuator
- Push button actuation
- Buffer clamps
- Foam retention pad
- Adhere with VHB tape
- Pre-terminated SC pigtail

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

2.13 3M™ Fibrlok System

Ordering Information



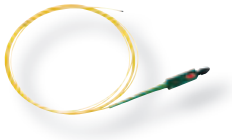
> **3M Fibrlok Universal Splice** — **2529**

> **3M Fibrlok Universal Spliceholder** — **2599-H**
- For 6 separate Fibrlok 2529 within the DIN Splicetray

> **DIN Universal Splice Tray** — **29026-500 31**

> **Fibrlok II Splice/Holder** — **2539**
- 60/package

> **Fibrlok II Splice/Holder with SC/APC Pigtail** — **2539 SC/APC**
- 12/package



> **Fibrlok II Splice/Holder with SC/UPC Pigtail** — **2539 SC/UPC**
- 12/package

> **Fibrlok Splice Preparation Kit with Cleaver** — **2504**
- 1 each

> **Fibrlok Splice Preparation Kit without Cleaver** — **2559**
- 1 each

	Ref. No.
> 3M Fibrlok Universal Splice	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

2.13 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

2.13 3M™ Fibrlok System

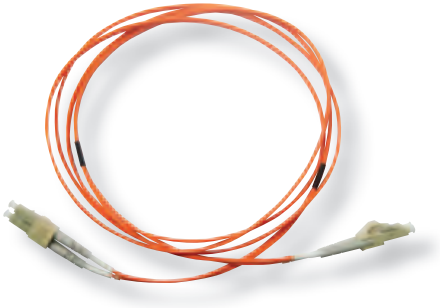
Specifications

Fibre type:	125µm fibre, 250µm coating
Operating temperature:	-40ºC to 75ºC (-40ºF to 167ºF)
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.
> **Fibrlok 250µm Fibre Splice** • 5/pkg, 50 MOQ	**2540G**
> **Fibre Splice Assembly Tool** • 1/pkg	**2504G**
> **Fibre Splice Preparation Kit without Cleaver** • 1/pkg	**2559**
> **Fibrlok Splice Preparation Kit with Cleaver** • 1/pkg	**2504**
> **Cleaver CT-01A** • 1/pkg	**2534**

2.14 3M™ Cable Assemblies - Multimode Patch Cords



LC-LC Patch Cord

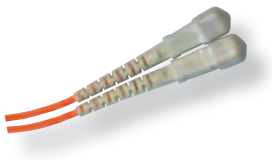
Description - Patch Cords SC-LC / LC-LC

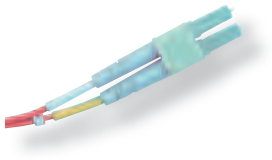
Factory made duplex patch cables in various lengths are used for patching between sockets or for making the connection to switches or transceivers on the workstation. The patch cables are LSZH rated. Hybrid cables and other lengths are available.

Technical Specifications

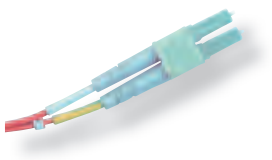
• Adhesive type:	Epoxy
• Fibre type:	50/125, OM2 50/125, OM3
• Insertion Loss:	< 0,3 dB typ.
• Return Loss:	≥ 20 dB typ.
• Ferrule:	Zirconia Ceramic
• Housing:	Plastic, grey
• Boot colour:	White (LC) Black/beige (SC)
• Operating Temperature:	-40°C to 60°C
• Storage Temperature:	-40°C to 80°C
• Cable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

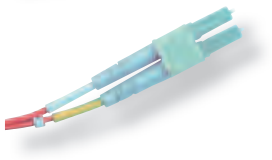
Ordering Information





	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**

2.14 3M™ Cable Assemblies - Multimode Patch Cords

ST-ST Patch Cords

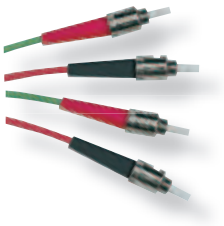
Description - Patch Cords ST-ST / SC-SC

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.

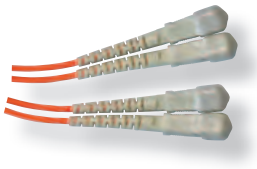
Technical Specifications

• Adhesive type:	Epoxy
• Fibre type:	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

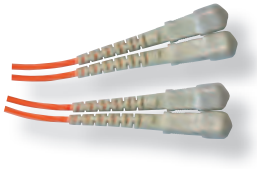
Ordering Information



	Ref. No.
> ST-ST Patch cords, multimode, duplex 50/125µm, grey or orange jacket colour, zip cord	
• Length: 1 m PU: 12 pcs	**BANAN-AX0001**
• Length: 2 m PU: 12 pcs	**BANAN-AX0002**
• Length: 3 m PU: 12 pcs	**BANAN-AX0003**
• Length: 5 m PU: 12 pcs	**BANAN-AX0005**

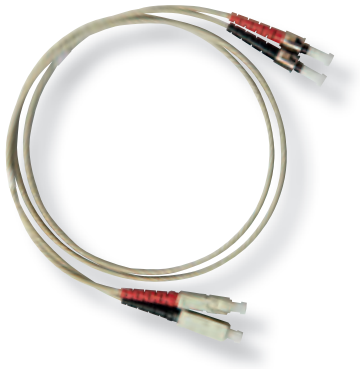


> SC-SC Patch cords, multimode, duplex 50/125µm, grey or orange jacket colour, zip cord	
• Length: 1 m PU: 12 pcs	**BDBDB-AX0001**
• Length: 2 m PU: 12 pcs	**BDBDB-AX0002**
• Length: 3 m PU: 12 pcs	**BDBDB-AX0003**
• Length: 5 m PU: 12 pcs	**BDBDB-AX0005**



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

2.14 3M™ Cable Assemblies - Multimode Patch Cords



ST-SC Patch Cord

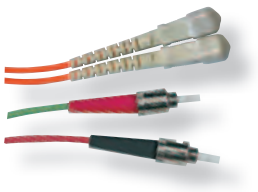
Description - Patch Cords ST-SC

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

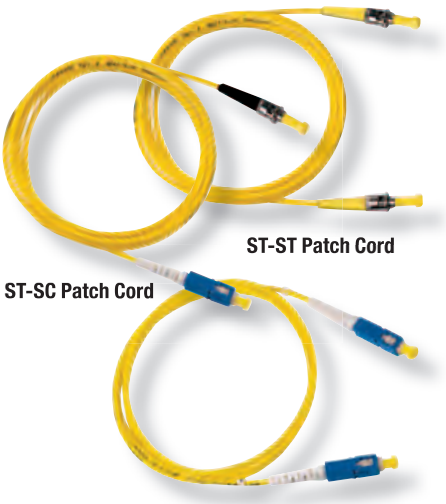
• Adhesive type:	Epoxy
• Fibre type:	50/125, OM2 50/125, OM3
• Insertion Loss:	< 0,3 dB typ.
• Return Loss:	≥ 20 dB typ.
• Ferrule:	Zirconia Ceramic
• Housing:	Metal (ST)
• Boot colour:	Black/red (ST) Black/beige (SC)
• Operating Temperature:	-40°C to 60°C
• Storage Temperature:	-40°C to 80°C
• Cable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

Ordering Information



		Ref. No.
> ST-SC Patch cords, multimode, duplex 50/125µm, grey or orange jacket colour, zip cord		
• Length: 1 m	PU: 12 pcs	**BANDB-AX0001**
• Length: 2 m	PU: 12 pcs	**BANDB-AX0002**
• Length: 3 m	PU: 12 pcs	**BANDB-AX0003**
• Length: 5 m	PU: 12 pcs	**BANDB-AX0005**

2.15 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

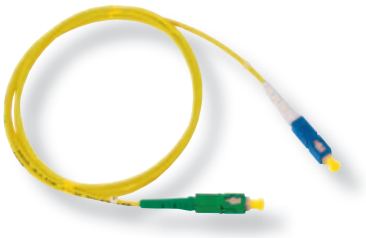
Ordering Information

	Ref. No.
> ST-ST Patch cords, single-mode, simplex 9/125µm, yellow jacket colour	
• Length: 1 m PU: 12 pcs	**AAMAM-AT0001**
• Length: 2 m PU: 12 pcs	**AAMAM-AT0002**
• Length: 3 m PU: 12 pcs	**AAMAM-AT0003**
• Length: 5 m PU: 12 pcs	**AAMAM-AT0005**

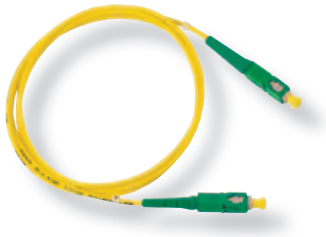
> ST-SC Patch cords, single-mode, simplex 9/125µm, yellow jacket colour	
• Length: 1 m PU: 12 pcs	**AAMDA-AT0001**
• Length: 2 m PU: 12 pcs	**AAMDA-AT0002**
• Length: 3 m PU: 12 pcs	**AAMDA-AT0003**
• Length: 5 m PU: 12 pcs	**AAMDA-AT0005**

> SC-SC Patch cords, single-mode, simplex 9/125µm, yellow jacket colour	
• Length: 1 m PU: 12 pcs	**ADADA-AT0001**
• Length: 2 m PU: 12 pcs	**ADADA-AT0002**
• Length: 3 m PU: 12 pcs	**ADADA-AT0003**
• Length: 5 m PU: 12 pcs	**ADADA-AT0005**

2.15 3M™ Cable Assemblies - Single-mode Patch Cords



SC/APC 8°-SC/PC Patch Cord



SC/APC 8°-SC/APC 8° Patch Cord

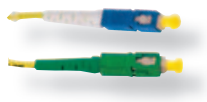
Description - Patch Cords SC/APC 8°-SC/PC SC/APC 8°-SC/APC 8° LC-LC

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:	9/125
• Insertion Loss:	< 0,2 dB typ.
• Return Loss:	≥ 70 dB typ.
• Ferrule:	Zirconia Ceramic
• Housing:	Plastic, blue (SC/PC & LC/PC) Plastic, green (SC/APC)
• Boot colour:	Green (APC) 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

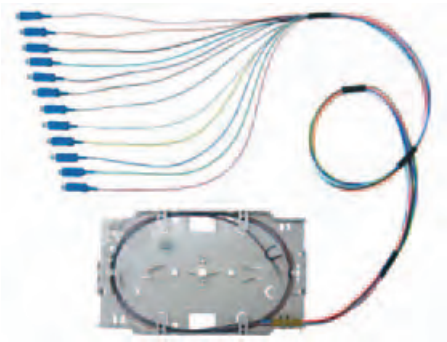


	Ref. No.
> SC/APC 8°-SC/PC Patch cords, single-mode, simplex 9/125µm, yellow jacket colour	
• Length: 1 m PU: 12 pcs	**AEPDA-AT0001**
• Length: 2 m PU: 12 pcs	**AEPDA-AT0002**
• Length: 3 m PU: 12 pcs	**AEPDA-AT0003**
• Length: 5 m PU: 12 pcs	**AEPDA-AT0005**

> SC/APC 8°-SC/APC 8° Patch cords, single-mode, simplex 9/125µm, yellow jacket colour	
• Length: 1 m PU: 12 pcs	**AEPEP-AT0001**
• Length: 2 m PU: 12 pcs	**AEPEP-AT0002**
• Length: 3 m PU: 12 pcs	**AEPEP-AT0003**
• Length: 5 m PU: 12 pcs	**AEPEP-AT0005**

> LC-LC Patch cords, single-mode, duplex 9/125µm, yellow jacket colour	
• Length: 1 m PU: 12 pcs	**ADVDV-BW0001**
• Length: 2 m PU: 12 pcs	**ADVDV-BW0002**
• Length: 3 m PU: 12 pcs	**ADVDV-BW0003**
• Length: 5 m PU: 12 pcs	**ADVDV-BW0005**

2.16 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 pigtails 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 pigtails, the 900µm buffer is stripped off 1m. All pigtails 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

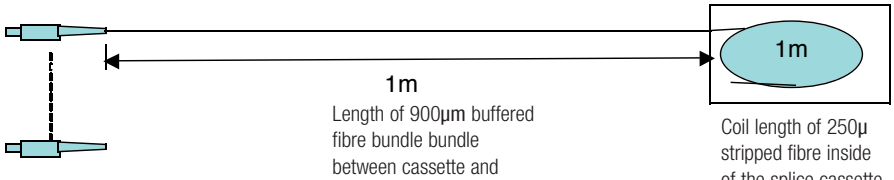
- Pre-stripped pigtails
- Terminated in DIN splice cassettes
- Colour coded pigtails
- Fibre bundles with sliding tubes
- For all commonly used connector types
- Snap on lid
- Twist tie clips with adhesive tape

Benefits

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

Specifications

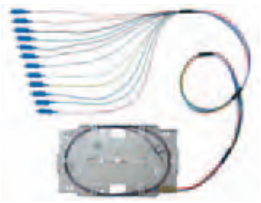
Material of cassette:	ABS
Dimensions of cassette:	115 x 92 x 8 (W x D x H) without lid (IEC 61073, DIN 47662 Draft)
Colour of cassette:	RAL 9010
Pigtail length:	Stripped length inside 1m, buffed length outside 1m, staggered lengths
Pigtail colours IEC 304:	Red, green, blue, yellow, white, grey, brown, violet, aqua, black, orange, rose
Pigtail type:	900µm semi-tight buffer
Fibre Routing support:	6 each fibre routing clips with adhesive tape included
Dimensions:	Total length of each pigtail is 2,0 m



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

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

2.16 3M Preterminated Pigtail Modules



Ordering Information

	Ref. No.
> DIN-Cassette/Pigtail Modules	
• Pigtail Module ST 50/125 w/DIN-Cassette	**FMP-12T5**
• Pigtail Module ST 62,5/125 w/DIN-Cassette	**FMP-12T6**
• Pigtail Module SC/PC 9/125 w/DIN-Cassette	**FMP-12C9**
• Pigtail Module SC/UPC 9/125 w/DIN-Cassette	**FMP-12UPC9**
• Pigtail Module SC 50/125 w/DIN-Cassette	**FMP-12C5**
• Pigtail Module SC 50/125 OM3 w/DIN-Cassette	**FMP-12C5OM3**
• Pigtail Module SC 62,5/125 w/DIN-Cassette	**FMP-12C6**
• Pigtail Module FC/PC 9/125 w/DIN-Cassette	**FMP-12F9**
• Pigtail Module LC/PC 9/125 w/DIN-Cassette	**FMP-12L9**
• Pigtail Module LC/UPC 9/125 w/DIN-Cassette	**FMP-12UPL9**
• Pigtail Module LC/PC 50/125 w/DIN-Cassette	**FMP-12L5**
• Pigtail Module LC 50/125 OM3 w/DIN-Cassette	**FMP-12L5OM3**
• Pigtail Module LC 62,5/125 w/DIN-Cassette	**FMP-12L6**

2.17 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

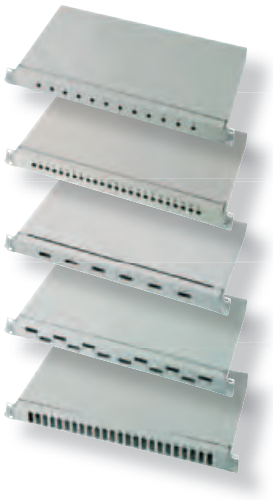
Included accessories:

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

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

2.17 3M™ 19" Patchpanels



Ordering Information

	Ref. No.
> Empty patchpanels	
• Patchpanel 1U for 12 ST or FC D-Mount	**SPP3-E-1T**
• Patchpanel 1U for 24 ST or FC D-Mount	**SPP3-E-2T**
• Patchpanel 1U for 6 SC Duplex	**SPP3-E-6CD**
• Patchpanel 1U for 12 SC Duplex	**SPP3-E-1CD**
• Patchpanel 1U for 24 SC Duplex	**SPP3-E-2CD**
• Patchpanel 1U for 12 SC Simplex or 12 LC Duplex	**SPP3-E-1CS**
• Patchpanel1U for 24 SC Simplex or 24 LC Duplex	**SPP3-E-2CS**

	Ref. No.
> Pre-assembled patchpanels with couplings	
• Patchpanel, 1U with 12 ST MM Couplers	**SPP3-E-1T-M**
• Patchpanel, 1U with 24 ST MM Couplers	**SPP3-E-2T-M**
• Patchpanel, 1U with 6 SC Duplex MM Couplers	**SPP3-E-6C-DM**
• Patchpanel, 1U with 12 SC Duplex MM Couplers	**SPP3-E-1C-DM**
• Patchpanel, 1U with 24 SC Duplex MM Couplers	**SPP3-E-2C-DM**
• Patchpanel, 1U with 12 SC Simplex SM Couplers	**SPP3-E-1C-SS**
• Patchpanel, 1U with 24 SC Simplex SM Couplers	**SPP3-E-2C-SS**

2.17 3M™ 19" Patchpanels

Description

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).

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.

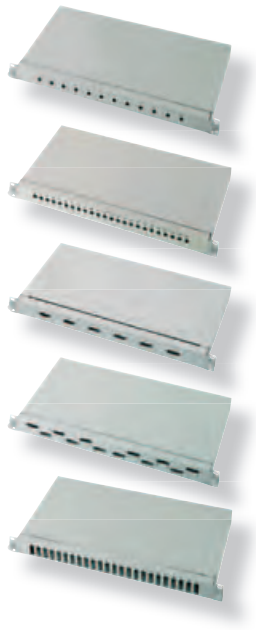
Features

- 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

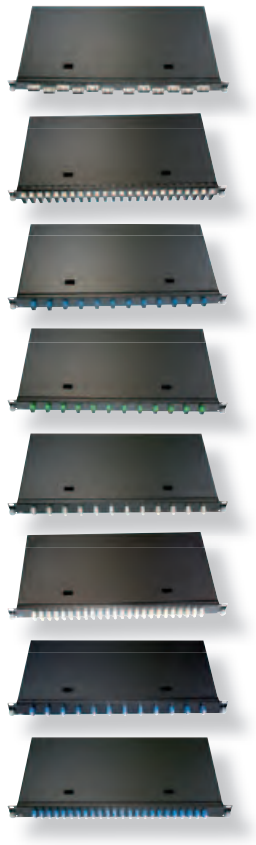
- Easy handling, installer friendly
- Handles all kind of backbone cable
- Handles also pre-terminated backbone cable
- Comfortable fibre management
- Easy traceability
- Comfortable installation
- One design fits all applications

2.17 3M™ 19" Patchpanels



Ordering Information

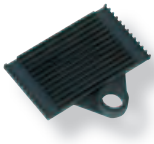
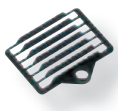
> Light grey Eco-SPP3 Patchpanels (RAL 7035)	Ref. No.
• Patchpanel, 1U with 12 ST MM Couplers	ECO-SPP3-E-1T-M
• Patchpanel, 1U with 24 ST MM Couplers	ECO-SPP3-E-2T-M
• Patchpanel, 1U with 6 SC Duplex MM Couplers	ECO-SPP3-E-6C-DM
• Patchpanel, 1U with 12 SC Duplex MM Couplers	ECO-SPP3-E-1C-DM
• Patchpanel,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



> Black Eco-SPP3 Patchpanels (RAL 9005)	Ref. No.
• 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

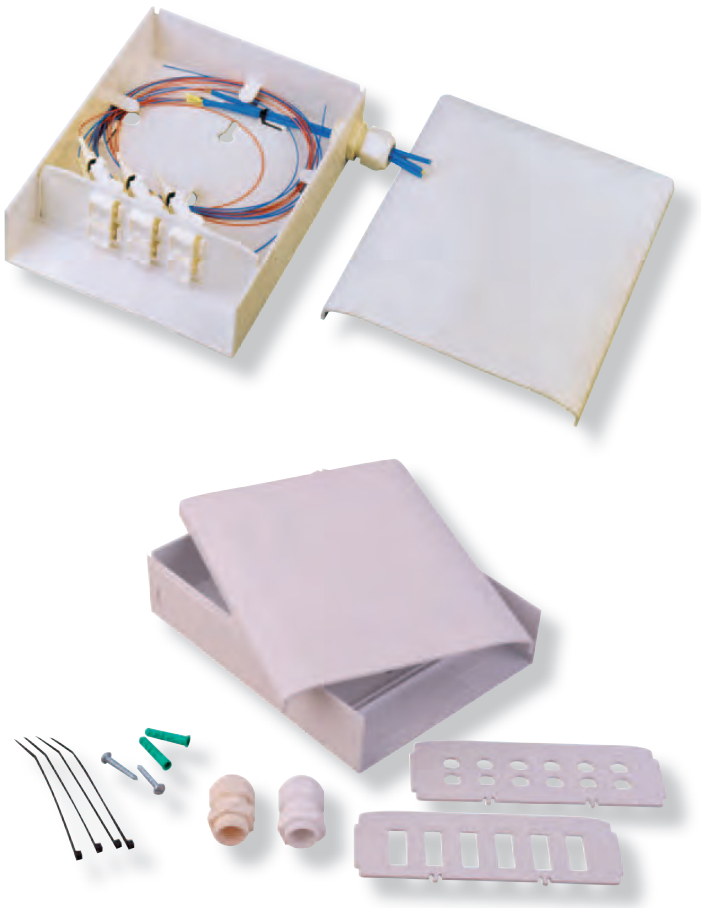
2.17 3M™ 19" Patchpanels

Ordering Information

	Ref. No.
 > Splicing cassette • Incl. strain relief and cable management • Dimensions: 155 x 92 x 8 mm (H x W x D) • Colour: RAL 9001 (cream white) • PU: 10 pcs	**29026-500 31**
 > 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**
 > 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**
• PU: 30 pcs	**29025-503 30**
 > Hinge • To connect splicing cassette and lid • PU: 100 pcs	**03-756-00500**
 > Strain relief • For 12 fibres with Ø 0.9 and 1.1 mm coating • PU: 50 pcs	**29031-000 30**
 **> Splicing protection holder, crimp** • For 12x crimp splice protectors • PU: 10 pcs	**05-760-08000**
 > Crimp splice protector • PU: 150 pcs	**05-760-08100**
 > Splicing protection holder, shrink • For 6x shrink splice protectors • PU: 10 pcs	**05-760-11900**
 > FO heatshrink splice protector, 60 mm/3 mm diam.	**2170-S 3,0 X 60**
> FO heatshrink splice protector, 45 mm/2,4 mm diam.	**2170-S 2,4 X 45**
> FO heatshrink splice protector, 60 mm/2,4 mm diam.	**2170-S 2,4 X 60**
 **> Splicing holder Fibrlok Universal** • For 6x Fibrlok • PU: 20 pcs	**2529-H**

2.18 3M™ Wall Outlets

Description - 3M 2552 SA Wall Mount Fibre Distribution Box



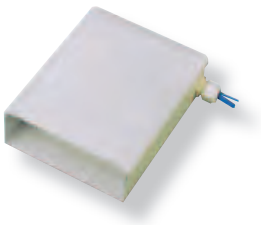
The 3M 2552 SA offers excellent fibre management in an affordable box with an attractive, low profile design able to be wall mounted anywhere in your LAN network. The box is also suitable for housing consolidation points.

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 pigtails using either Fibrlok or fusion splicing. The 2552 SA is constructed from flame retardant material.

Ordering Information



	Ref. No.
> **2552SA** • Dimensions (H x W x D): 210 x 160 x 65 mm • Weight: approx. 0,5 kg/ea. • MOQ: 10 units	**2552SA**

Contents:
Exchangeable face plates for:
- ST simplex
- FC-"D" Mount
- SC duplex plate up to 12x fibres
- VF-45

2.18 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.

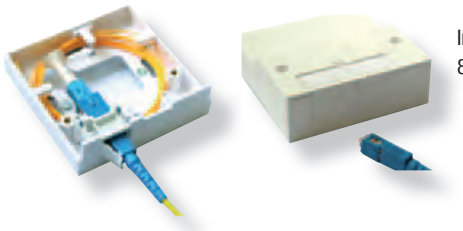
Features

- Keystone latching
- Spring loaded dust flap

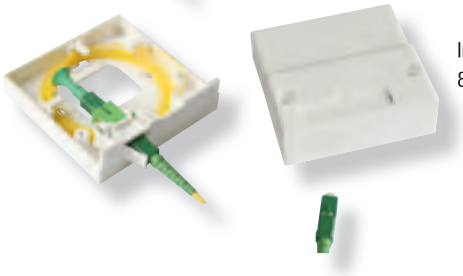
Benefits

- 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

	Ref. No.
> Keystone SC or LC Adapter • PU: 100 ea / box (10 ea. / bag; 10 bags / box)	**8687**

2.18 3M™ Wall Outlets

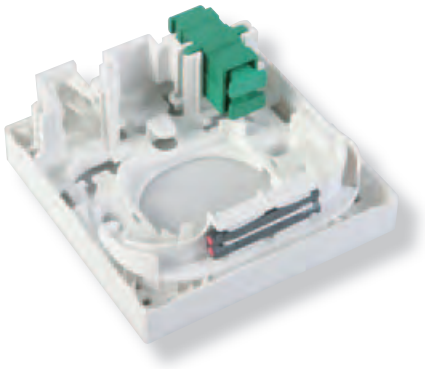
Description - 3M 8686 Termination Box

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 pigtails 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 pigtails

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 pigtails with Fibrlok splices
- RJ45 keystone copper connection

Ordering Information

	Ref. No.
> **8686 FTTH Wall Outlet**	**8686**

2.19 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

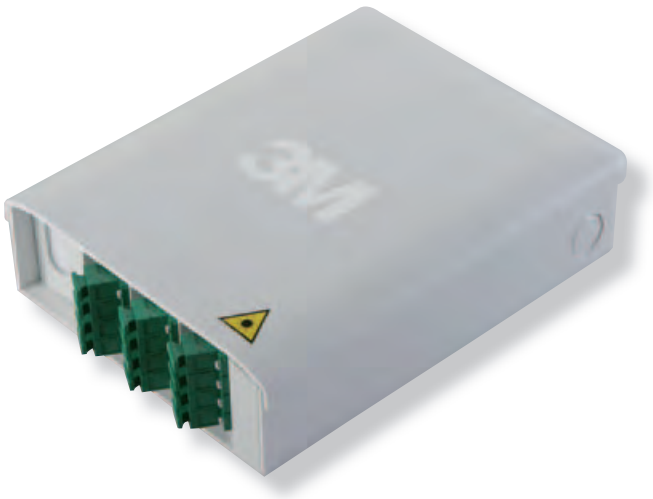
- Window cut cables, termination cables, or uncut cables.

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



2.19 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.

2.19 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.

2.19 3M™ Connection Boxes

Description - PBPO 6-12

The PBPO 6-12 is an indoor distribution box to splice up to 8 drops on a window cut riser cable. The splicing capacity is up to 12 fusion splices and 6 mechanical Fibrlok splices.

This box is designed with protective covers to hide the cables along the riser wireway.

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 V0

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

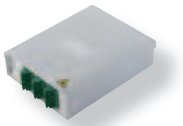
- 1 kit = base and cover, plus accessories

Accessories

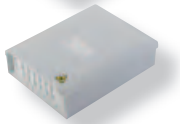
- 1 anti-twist cable module + 4 sets of 3 splicing fusion adapters + 1 tray + 2 extension covers

2.19 3M™ Connection Boxes

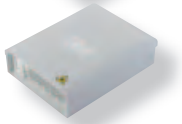
Ordering Information



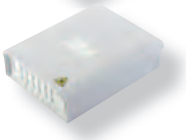
> **PBPO 24 Connection Box** — **N501506A**
- Equipped with a 4 slot organiser
- 12 blank ports for SC/APC or SC/PC couplings



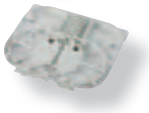
> **PBPO 12 Floor Box** — **N501505A**
- Equipped with a 4 slots organiser
- 12 individual cable relief system for customers branching



> **PBPO 24 Floor Box** — **N501504A**
- Equipped with a 4 slots organiser
- 12 entry ports for 1 to 2 cables

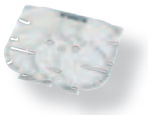


> **PBPO 6-12 with protection cover** — **N501621A**

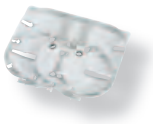


> **K7-2 slots-Universal for 12 splices** — **N541121A**
- Accepts mechanical and fusion splices
- Tray delivered with cover

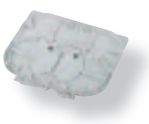
> **K7-1 slot-12 fusion** — **N541106A**
- Compatible with 45 mm or 60 mm fusion splice protectors
- Tray delivered with cover



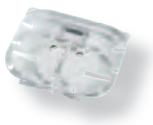
> **K7-1 slot-6 Fibrlok 4x4** — **N541103A**
- Compatible with Fibrlok mechanical splice 2540G
- Tray delivered with cover



> **K7-2 slot- 12 Fibrlok 4x4** — **N541108A**
- Compatible with Fibrlok mechanical splice 2540G
- Tray delivered with cover



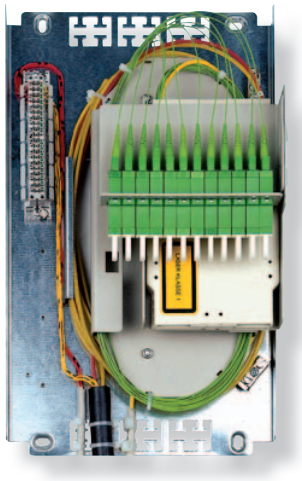
> **K7-1 slot- 9 fusion and splitter** — **N541113A**
- Can accommodate 70 x 10 x 6 mm PLC splitter
- Splice holder for 9 fusion splices
- Tray delivered with cover



> **K7-2 slots-12 fusion and splitter** — **N541104A**
- Compatible with 45 or 60 mm fusion splice protectors
- Can accommodate 70 x 10 x 6 mm PLC splitter
- Tray delivered with cover

> **K7-2 slots- 10 Fibrlok 4x4 and splitter** — **N541110A**
- Can accommodate 70 x 10 x 6 mm PLC splitter
- Splice holder for 10 Fibrlok 2540G
- Tray delivered with cover

2.19 3M™ Connection Boxes



3M VKA 2/GF

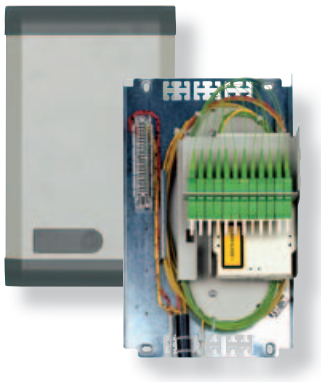
Description

3M VKA 2/GF

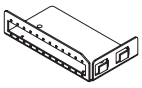
The VKA 2/GF optical fibre distribution box is specifically designed as an interior transfer or termination point for optical fibre runs. It is well-suited to environments where space is limited and a cost effective solution is required.
The VKA 2/GF houses two FO splicing cassettes which can hold up 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 accommodates.
Protection rating: IP 40 (DIN 40050)

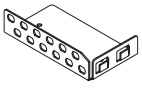
- Splice or patch distribution frame for 24 splice connections (2 FO splicing cassettes)
- FO connector mounting plates for 12 connectors E2000/SC, ST/FC or 6 connectors SC duplex or 12 LC duplex
- Accommodates hybrid cables using copper connector blocks, either 2x10 pair or 1x20 pair (SID-CD). Overvoltage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

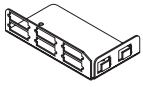
Ordering Information



	Ref. No.
> **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	**52-303-00030**



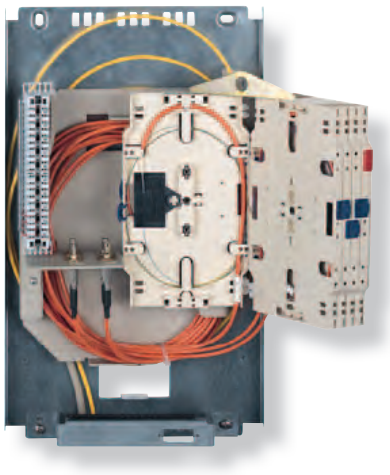




	Ref. No.
> **FO connector mounting plates 12 E2000/SC simplex or 12 LC duplex**	**52138-019 30**
> **FO connector mounting plates 12 ST/FC**	**52138-018 30**
> **FO connector mounting plates 6 SC duplex**	**52138-016 30**
> **VKA-Monitoring switch** • Lid contact only useable in combination with lock kit	**52096-519 00**

2.19 3M™ Connection Boxes

Description



3M VKA 2/GF-EFM

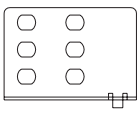
3M VKA 2/GF-EFM with single fibre management

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

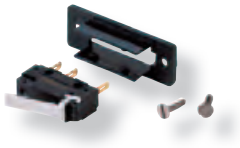
- Single-fibre management for up to 12 splicing connections (24 fibres)
- FO cassette stack, completely removable
- Separate cable guide levels for incoming and outgoing sides
- Connector holders for SC, LC, ST or FC connections
- Copper connector block for hybrid cables
- Lockable
- Remote monitoring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

Ordering Information

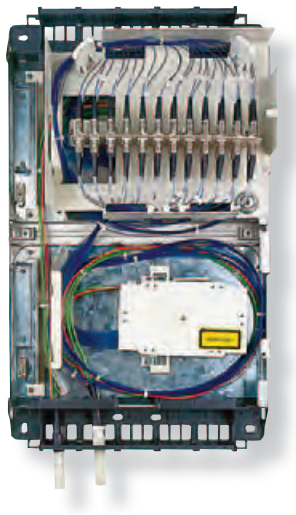
	Ref. No.
> VKA 2/GF-EFM for 12 splice connections • Dimensions (H x W x D): 330 x 200 x 100 mm • Weight: approx. 2.1 kg **Contents:** • Base plate with earth terminal and attachment for copper connector block • Cassette stack with 6 FO splicing cassettes, hinges and cassette lids included • Unlocking tools • Cable management • Assembly instructions	**52-303-00000**



		Ref. No.
> FO connector mounting plates holders 6 ST/FC		**52138-009 30**
> Lock kits	**VKA lock kit Q2** **VKA lock kit Q3** **VKA lock kit Q15**	**52096-523 00** **52096-521 00** **52096-526 00**
> VKA-Monitoring switch • Lid contact only useable in combination with lock kit		**52096-519 00**



2.19 3M™ Connection Boxes



3M VKA/8GF

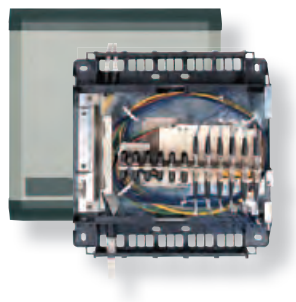
Description

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)

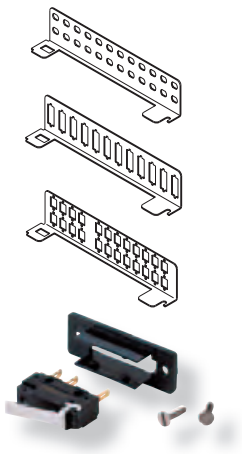
- Capacity as:
  Patch distribution frame, 48 (VKA 4/GF) or 96 (VKA 8/GF) splice connections
  Splice distribution frame, 72 (VKA 4/GF) or 144 (VKA 8/GF) splice connections
- Connector mounting plates for SC, LC, E2000, FC or SC duplex connections
- Copper termination for hybrid cables possible with overvoltage protection
- Remote monitoring via lid contact

Ordering Information



3M VKA/4GF

	Ref. No.
> VKA 4/GF for 48 splice connections	**52-303-00100**
> VKA 8/GF for 96 splice connections	**52-303-00200**
• 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	**52138-013 30**
• Installation above the FO splicing cassettes	
> VKA-Monitoring switch	**52096-519 00**
• Lid contact only useable in combination with lock kit	

2.19 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 V0
- Security: delivered with 1 key lock

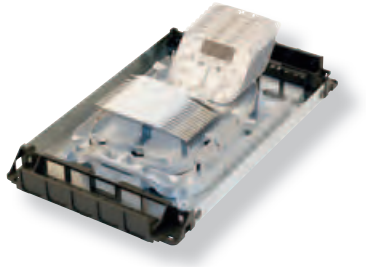
Splicing Management

- 1 Organiser with 28 slots for Evolution trays

Splices

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

Ordering Information

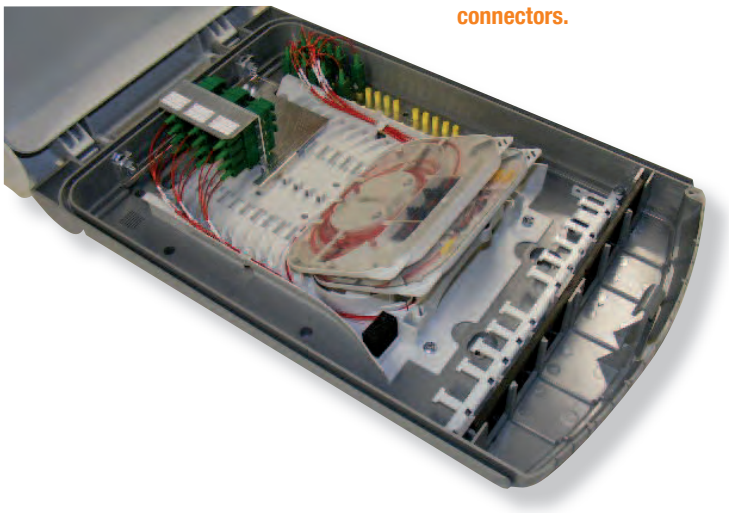


	Ref. No.
> **VKA 8 SCM** • 1 organiser with 28 slots	**N501561A**

- Trays have to be ordered separately

2.19 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 (V0 at 1.5 mm)

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

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

Couplings

- As standard, SC/APC is supplied

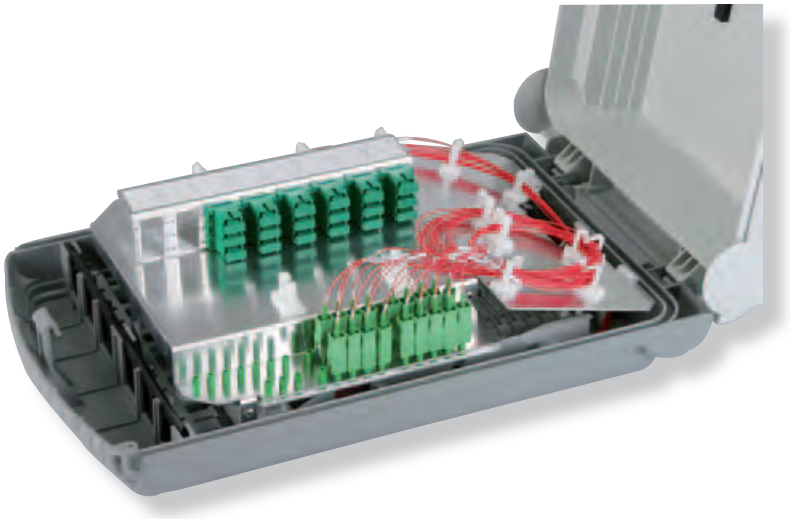
Passive Splitters

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

2.19 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 ¼ 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

2.19 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 pigtails are installed into the couplings
- All the pigtail terminations and splitter terminations are labelled

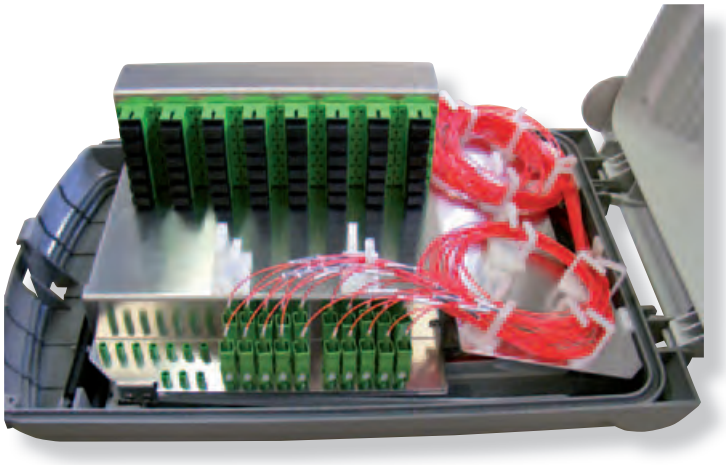
The configuration is on demand, please contact 3M.

Note: the MDUO product lines have been also designed with LC couplings plates.
Please contact 3M to get stock numbers

2.19 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

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

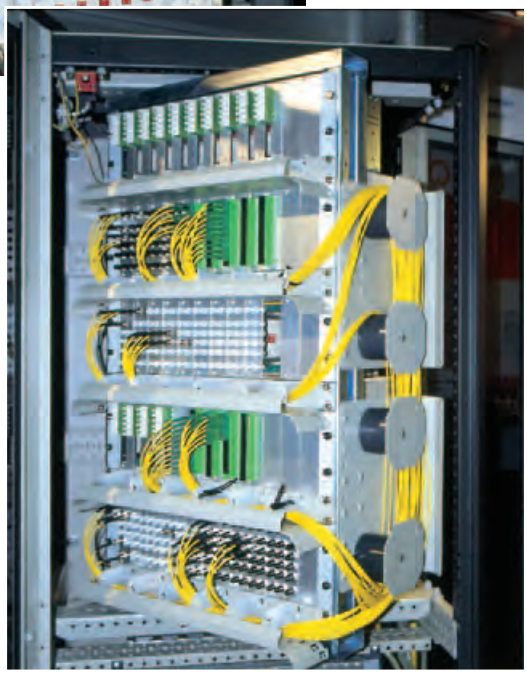
Preparation

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

The configuration is on demand, please contact 3M.

2.20 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.

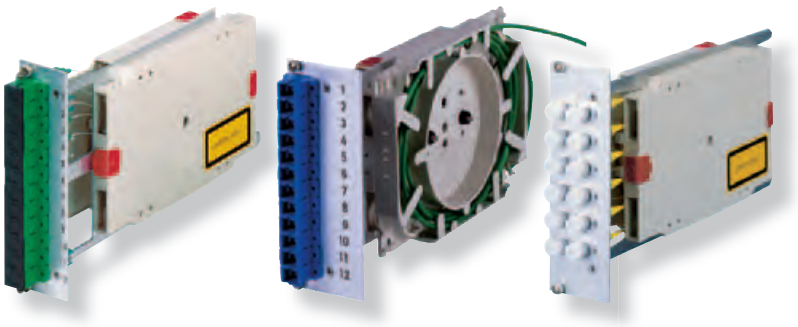
The patch system's core is the 2K connector module, also available for various FO connector types. All connector modules are installed in 19" subracks and are easily accessible from the front. The 2K modular system is completed by an excess fibre tray to accommodate incoming bunched fibre reserves, a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

2.20 3M™ 19" MODF 2K Distribution Frame

Description - 3M MODF Components



2K Connector module

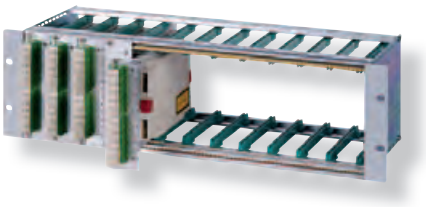
2K connector modules (7 distance units) for 10 or 12 connectors each and FO pigtails, type E2000, SC, FC, and ST with printed port identification. The primary coat of the pigtails is offset, all pigtail ends are colour-coded.

Each 19" subrack can house up to twelve 2K connector modules. Splicing reserves and excess lengths of pigtails 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.

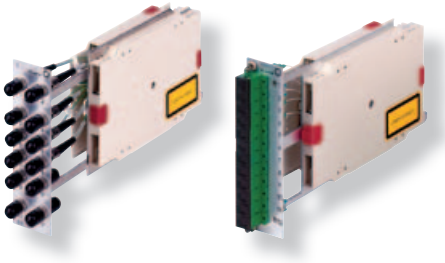
FO 19" patch panel

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.

2.20 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	Ref. No.
SC, 12 fibres	40395-514 65
ST, 12 fibres	40395-507 67
SC duplex, 12 fibres	40395-523 67

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

2.20 3M™ 19" MODF 2K Distribution Frame

Ordering Information

3M MODF Components

> **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

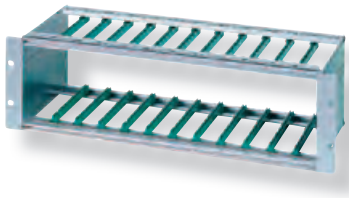
Delivery:
- 7 DU aluminium front panel, with cassette tray
- 2 FO splicing cassettes with lid
- 2 splice protector holders for crimp splice protection
- Various cable straps
- Fastening materials for 19" subrack

Ref. No.
40395-517 30

> **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)

Delivery:
- Aluminium front panel (7 DU), no imprint
- Fastening materials for 19" subrack

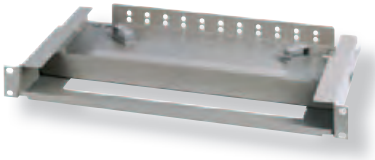
Ref. No.
40018-018 30



> **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

Delivery:
- 19" subrack, aluminium
- 24 guide rails, installed
- Attachment materials for 19" racks/frames

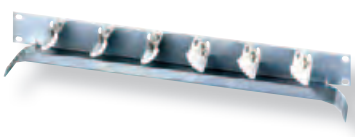
Ref. No.
40026-515 30



> **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

Delivery:
- 1 Excess fibre tray
- 2 Cable guide rings to guide FO bunched fibre
- various cable straps
- Attachment materials for 19" racks

Ref. No.
40040-502 30



> **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)

Delivery:
- Patch panel, installed
- with 6 rotating radius limiters
- Attachment materials for 19" racks

Ref. No.
40036-521 30

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

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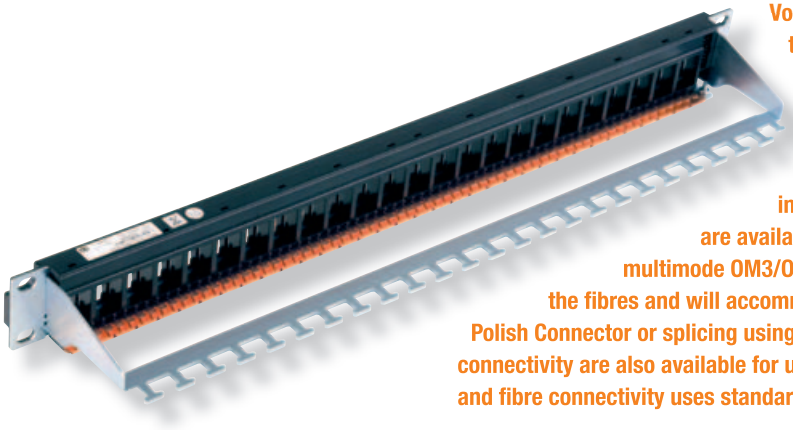
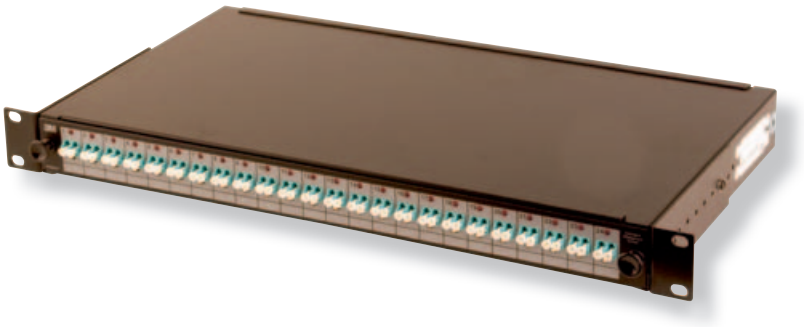
3M

3.1 VIMS Patch Panels

Description - Patch Panels

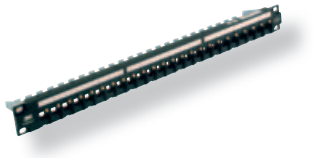


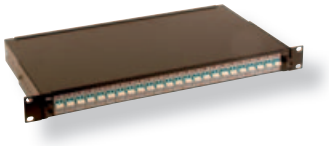
Volition IMS uses 3M copper or fibre jacks as part of the intelligent management system connectivity. Copper panels are available in either shielded or unshielded version to take any of the 3M K series Category 6 or Category 6A jacks. These panels have all the advantages of standard 3M K series panels 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	• High density, economical choice in space allocation
• Copper Jacks may be terminated and snapped into the panel	• Easy for termination and re-entry
• Fibre connectors may be directly terminated or spliced	
• Modular LC/ MPO connectivity system available	• Can be used with preterminated systems
• Cable management bar for copper, slack storage for fibre	• Good strain relief and protection for terminations
• Available in UTP or STP for copper and in singlemode or multimode OM3/OM4 for fibre	• Solution for all connector choices

3.1 VIMS Patch Panels





Ordering Information

	Ref. No.
> **VIMS K Series Panel, UTP** • 24 Ports	**VOL-IMS-301**
> **VIMS K Series Panel, STP** • 24 Ports	**VOL-IMS-302**
> **VIMS Fibre Optic Panel, 48 LC** • Multimode	**VOL-IMS-401**
> **VIMS Fibre Optic Panel, 48 LC** • Single mode PC	**VOL-IMS-402**
> **VIMS Fibre Optic Panel, 48 LC with MPO connections** • Multimode	**VOL-IMS-403**

Accessories

	Ref. No.
> **Cable Routing Ring Kit (up to 48 fibres)**	**VOL-IMS-501**
> **F/O Cable Ground Kit**	**VOL-IMS-502**
> **Cable Entry Panel Kit**	**VOL-IMS-503**
> **Cable Entry Gland**	**VOL-IMS-504**
> **Fibre Management Clip**	**VOL-IMS-505**

See chapters 1 and 2 for Volition cables and connectors and chapter 2 page 121 for splicing accessories

3.2 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**

3.2 VIMS Patch Cords

Ordering Information

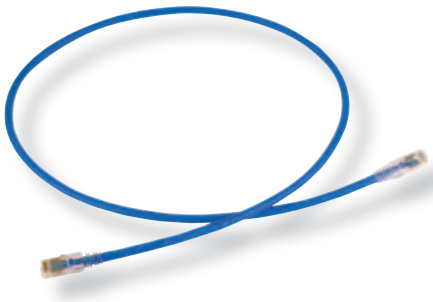
	Ref. No.
> VIMS Category 6A STP Patchcord, LSOH • 2.0 m	VOL-IMS-321
> VIMS Category 6A STP Patchcord, LSOH • 3.0 m	VOL-IMS-322
> VIMS Category 6A STP Patchcord, LSOH • 5.0 m	VOL-IMS-323

	Ref. No.
> VIMS Optical Fibre Patch Cord, LC, SM, PC • 1.0 m	VOL-IMS-410
> VIMS Optical Fibre Patch Cord, LC, SM, PC • 2.0 m	VOL-IMS-411
> VIMS Optical Fibre Patch Cord, LC, SM, PC • 3.0 m	VOL-IMS-412
> VIMS Optical Fibre Patch Cord, LC, SM, PC • 5.0 m	VOL-IMS-413
> VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 1.0 m	VOL-IMS-414
> VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 2.0 m	VOL-IMS-415
> VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 3.0 m	VOL-IMS-416
> VIMS Optical Fibre Patch Cord, LC, MM50, OM3 • 5.0 m	VOL-IMS-417
> VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 1.0 m	VOL-IMS-418
> VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 2.0 m	VOL-IMS-419
> VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 3.0 m	VOL-IMS-420
> VIMS Optical Fibre Patch Cord, LC, MM62.5, OM1 • 5.0 m	VOL-IMS-421

3.3 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

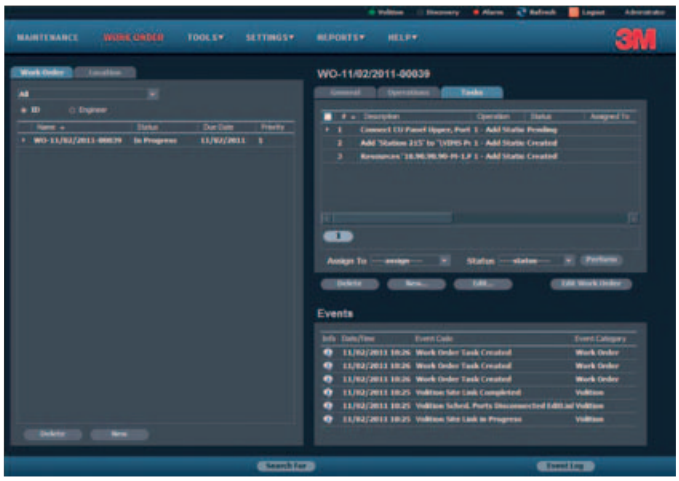
3.3 VIMS Hardware

Ordering Information

	Ref. No.
> VIMS Scanner	VOL-IMS-104
> VIMS Mini Scanner	VOL-IMS-105
> VIMS Scanner Attachment Cord • 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
> VIMS Control Pad	VOL-IMS-110
> VIMS Master	VOL-IMS-101
> VIMS Master Expander	VOL-IMS-102
> VIMS Expander	VOL-IMS-103
> VIMS Local Scanner	VOL-IMS-108
> VIMS Security Controller	VOL-IMS-106
> VIMS Rack Indicator	VOL-IMS-109
> VIMS Indicator Controller	VOL-IMS-107

3.4 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.

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 hardware support

- With the collaboration with VIMS Hardware, the application provides real time accurate management of the VIMS Cabling System.

3.4 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.
> VIMS Core *	VOL-IMS-601
> VIMS Standard *	VOL-IMS-602
> VIMS Advanced *	VOL-IMS-603
> VIMS Discovery Module *	VOL-IMS-605
> VIMS Provisioning Module *	VOL-IMS-606
> VIMS PBX Module *	VOL-IMS-607
> VIMS Cable Test Results Module	VOL-IMS-608
> VIMS SDK Runtime *	VOL-IMS-609

* the number of ports to be supported must be defined

Copper Interconnect Solutions

Our Copper Interconnect Solutions include an extensive line of insulation displacement connector (IDC) products for voice and data applications and a comprehensive portfolio of complementary accessories including mounting frames, distribution boxes and installation tooling.

All the products in the Copper Interconnect Solutions range have gained industry acceptance and recognition for consistent performance and ease of termination.

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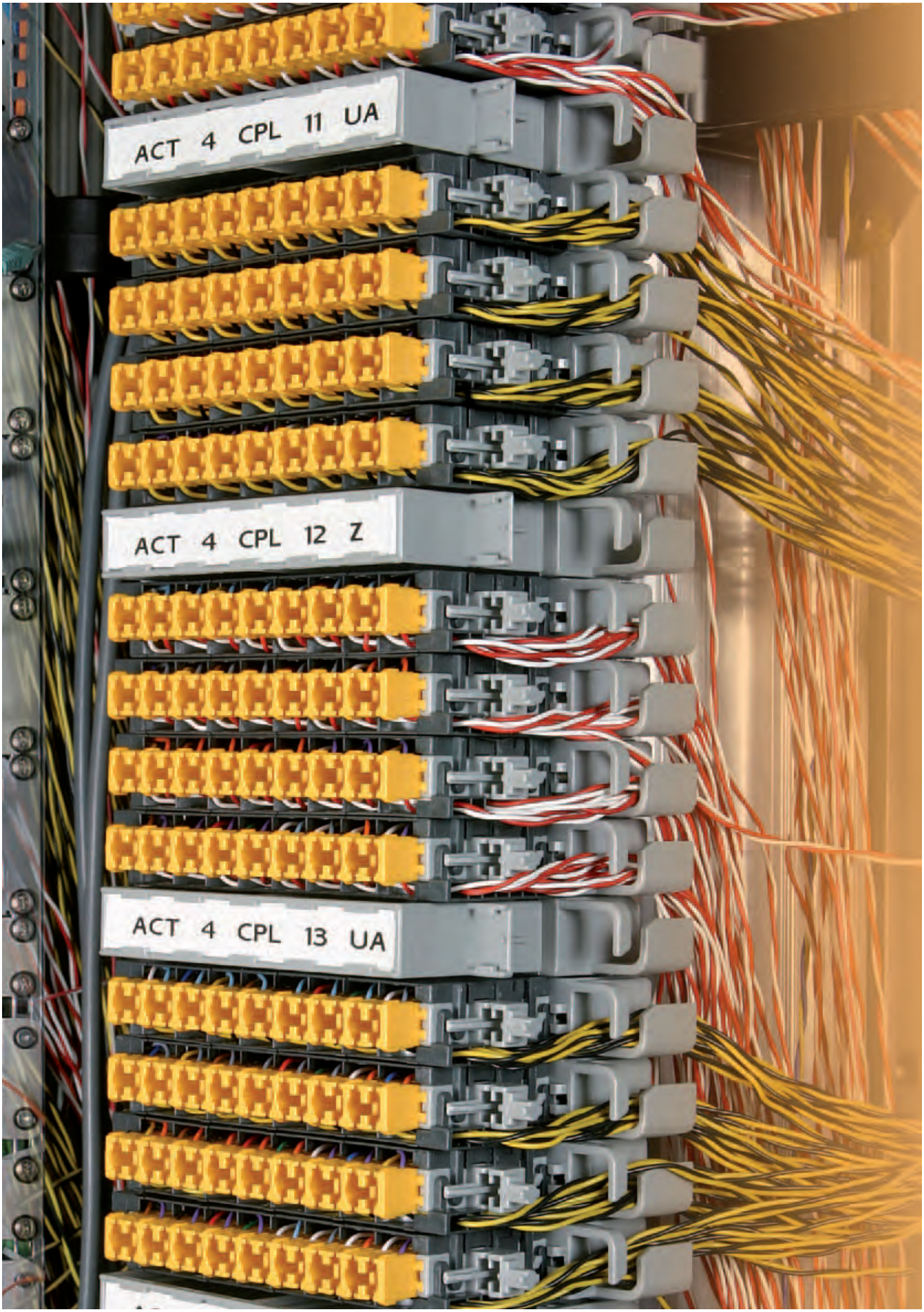

ACT 4 CPL 11 UA
ACT 4 CPL 12 Z
ACT 4 CPL 13 UA

4.1 Connection Blocks

Description

Technical overview

Technical Data	SID-C	SID-CT	SID-C abs	QSA	STG
general product features:					
module or block configuration:	module	module	module	module	module
capacity:	8/10 pair	8/10 pair	8 x abs	10 pair	8/10 pair
dimensions (w x h x d) in mm	112 x 17,3 x 37	124 x 17,3 x 37	118 x 17,3 x 37	123 x 18 x 39	146/126 x 16 x 50
wire guide channels:	no	no	yes	no	no
capacity per 2,8 metre vertical:	1600 pair	1200/1280 pair	1600 pair	1600 pair	1600/1280 pair
type of circuit:	disconnection/ connection	disconnection/ connection	disconnection	disconnection/ connection	disconnection/ connection
mounting solution:	with SID backmount frame or Flexirail	with SID or QSA back- mount frame or Flexirail	with SID backmount frame or Flexirail	with QSA backmount frame	backmount frame E8: 8 p. / E10: 10 pairs
connection features:					
conductor range (solid copper) wire diameter: overall insulation sheath diameter:	0,4 - 0,8 mm 1,4 mm max.	0,4 - 0,8 mm 1,4 mm max.	0,4 - 0,8 mm 1,4 mm max.	0,4 - 0,8 mm 1,4 mm max.	0,4 - 0,8 mm 1,5 mm max.
Number of reterminations (0,6 mm)	> 100	> 100	> 100	> 100	> 100
Insertion tools:	SID Standard/ Comfort insertion tool multi-termination tool	SID Standard/ Comfort insertion tool multi-termination tool	SID Standard/ Comfort insertion tool multi-termination tool	Comfort insertion tool multi-termination tool	SOR OC tool (scissor action) multi-termination tool
t-connection facility:	switching adapter	switching adapter	adapter no	no	no
Number of insertions (with disconnection plug)	> 1000	> 1000	> 1000	> 1000	> 1000
electrical features:					
contact resistance (IDC):	< 1 mΩ	< 1 mΩ	< 1 mΩ	< 1 mΩ	< 1 mΩ
leading through resistance:	< 10 mΩ	< 10 mΩ	< 10 mΩ	< 10 mΩ	< 25 mΩ
insulation resistance @ 500 V:	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 50 GΩ	> 10000 MΩ
impulse discharge current @ 8/20 µs:	> 10 kA	> 10 kA	> 5 kA	> 10 kA	> 10 kA
dielectric strength @ 50 Hz:	2 kV	2 kV	2 kV	2 kV	2 kV
axial retention force: **transversal retention force:**	> 70% > 30%	> 70% > 30%	> 70% > 30%	> 70% > 30%	> 70% > 30%
attenuation @ 20 MHz:	< 0,01 dB	< 0,01 dB	< 0,01 dB	< 0,01 dB	< 0,1 dB
cross talk @ 100 MHz:	> 34 dB	> 34 dB	> 60 dB	> 36 dB	> 100 dB
transmission performance:	Cat. 3	Cat. 3	Cat. 5e	Cat. 3	Cat. 5

4.1 Connection Blocks

Description

Technical overview

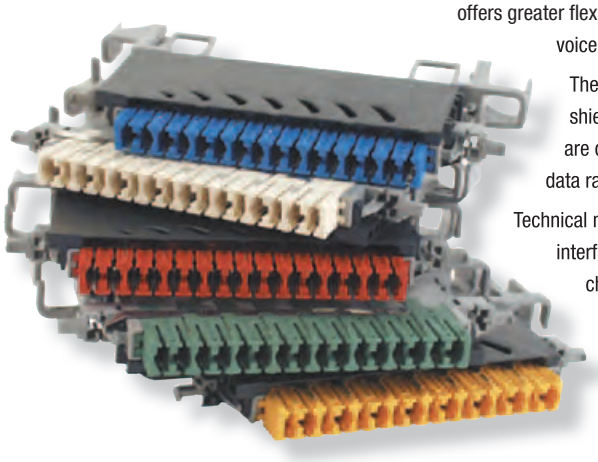
Technical Data	SID-C	SID-CT	SID-C abs	QSA	STG
design features:					
contact material:	special brass	special brass	special brass	special brass	bronze
contact surface coating:	silver	silver	silver	silver	tin > 5µm
plastic parts:	PBT	PBT	PBT	PBT	PC
self-extinguishing plastic material class:	UL 94 V0	UL 94 V0	UL 94 V0	UL 94 V0	UL 94 V0
colour:	light grey	light grey	light grey	light grey	light grey

	Impulse discharge µs @ 8/20	AC discharge current @ 50 Hz	Insulation resistance	Failsafe response time @ 5A	Line resistance per wire	cross capaci-tance	operating tempera-ture	storage tempera-ture
overvoltage protection:								
SID overvoltage protection magazine 3 pole	> 10 A	> 10 A	> 50 GΩ	< 10 s	< 100 mΩ	< 2 pF	-40°C -80°C	-40°C -90°C
SID Single Pair Protection plug Primary protection plug:	> 5 kA	< 5 A	> 50 GΩ	< 10 s	< 100 mΩ	< 2 pF	-40°C -80°C	-40°C -90°C
SID Single Pair Protection plug overvoltage and current protection plug:	> 5 kA	< 5 A	> 50 GΩ	< 10 s	< 12 Ω	< 2 pF	-40°C -80°C	-40°C -90°C
SID Single Pair Protection plug ultra fast over-voltage and current protection plug:	> 5 kA	< 5 A	> 100 MΩ	< 10 s	< 12 Ω	< 50 pF	-40°C -80°C	-40°C -90°C

4.1 Connection Blocks

Description - Category 6 RCP

RCP - Category 6 punch down blocks



In a cabling system, connection by modules generally offers greater flexibility at the patching level for both voice and data applications.

The RCP range consists of a range of shielded and technical modules which are designed to be used within high data rate applications.

Technical modules enable a fast installation of interfaces between cables with various characteristics (for example a single cable with a RJ45 modular jack).

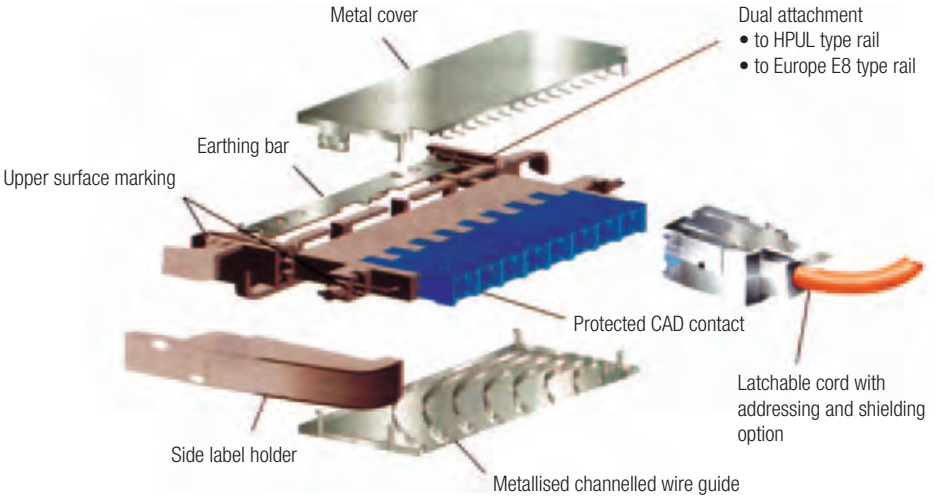
The interchangeable technical modules are fitted with removable electronic boards allowing for a complete solution for protection, display, adaptation, etc. In case of maintenance the electronic board can be replaced without removal of the connection module.

The range of shielded RCP 2000 modules guarantees shielding efficiency from one end of the connection chain to the other and permits considerable reduction of the effects of electromagnetic interference.

The cable management uses label holders and colour codes for easier identification.

Specifications

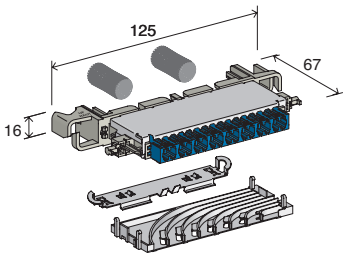
- faster cabling with time saving estimated at 20%
- net improvement in transmission performance above 100 MHz
- different solutions for numerous interfaces
- twisted pair on D-Sub, coax, RJ45
- line and error monitoring
- world-wide IDC technique
- compact design
- category 6



4.1 Connection Blocks

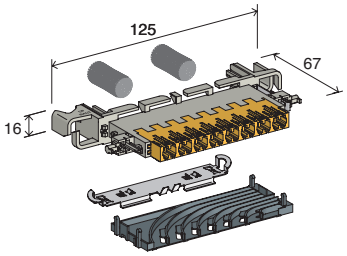
Ordering Information

RCP Category 6 – Cabling Modules



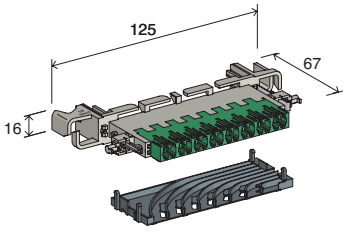
> Shielded rear-cable modules
with metal cover. Protects against conducted and radiated electromagnetic interference. Single-wire and multi-wire cables can be connected to either the upper or lower contacts. Equipped with a bonding comb, bonding strip, a channelled wire guide (with the lower half metallised) and a metal cover on the upper half. Requires shielded cords. 8 pair disconnection module.

	Ref. No.
Blue	**P45920DH**
Yellow	**P45840DH**
Green	**P45839DH**
Red	**P45809DH**
Ivory	**P45734DH**



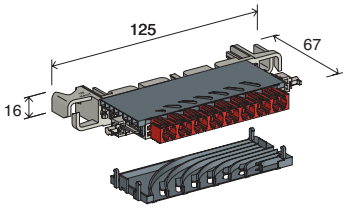
> Cabling modules for solid wires (rear cabling)
Disconnection module, category 6, 8P, FTP. Equipped with spring, earthing strip and 1 wire guide channel.

	Ref. No.
Blue	**P46920DF**
Yellow	**P46840DF**
Green	**P46839DF**
Red	**P46809DF**



> Cabling modules for solid wires (side cabling)
Disconnection module, category 6, 8P, UTP. Equipped with 2 wire guide channels.

	Ref. No.
Blue, with spring and 2 wire guide channels	**P46920CE**
Yellow	**P46840CE**
Green, with spring and 2 wire guide channels	**P46839CE**
Red	**P46809CE**
Ivory	**P46734CE**



> Cabling modules for multi-stranded wires (rear cabling)
Disconnection module, category 6, 8P, UTP. Equipped with spring and 1 wire guide channel.

	Ref. No.
Blue	**P46920DA**
Yellow	**P46840DA**
Green	**P46839DA**

4.1 Connection Blocks

Description - RCP 2000

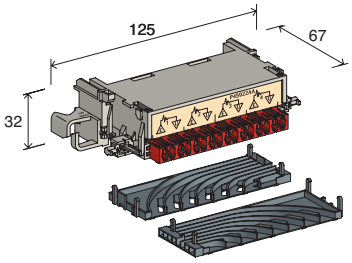
RCP - Technical Modules

Essential complement to the RCP 2000 connection modules, the technical module range permits the protection of equipment lines, Ethernet computer networks, additional functions for PABX's and also provides connection interfaces with active elements in the network.

Specifications

- Series protection limiting transient voltage surges
- Double deck protection with 3-pole surge arrestor and transyl or varistor
- Earthing through the rail
- Maintains constant voltage at equipment terminals
- Nominal current of 300mA
- Fuses reset automatically
- 2 step modules

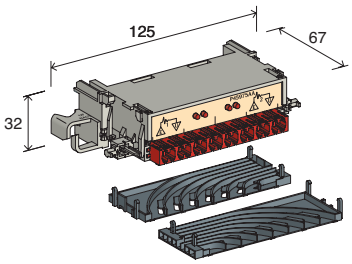
Ordering Information



> **Telephone and special links protection module**
For telephony applications (4 pair). Working Voltage (V): 48/90 AC/DC. Bandwidth: 5MHz. Ability to handle (8/20 µs spike): 10 shocks 5kA. Limiting voltage in common mode:

- 0.5/700 µs spike 6kV: 200V
- 8/20 µs spike 5kA: 250V

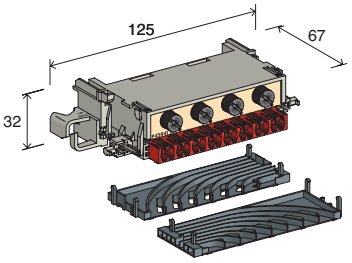
Ref. No.
P45922AA



> **Bipole module, protection and viewing 2 pairs (lines)**
All 3 functions available for 2 lines. Mounts directly on network lines. Meets TCI requirements. Working Voltage (V): 48/90 AC/DC. Bandwidth: 5MHz. Ability to handle (8/20 µs spike): 10 shocks 5kA. Limiting voltage in common mode:

- 0.5/700 µs spike 6kV: 200V
- 8/20 µs spike 5kA: 250V

Ref. No.
P45975AA

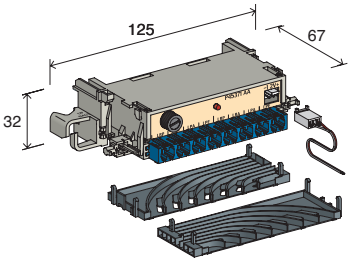


> **Module for 4 fuses**
Accommodates cylindrical fuses 5 x 20 mm 100mA fuses supplied. pair / pair protection against overcurrents.

- Disconnection IDC
- Colour: Red

Ref. No.
P45941AA

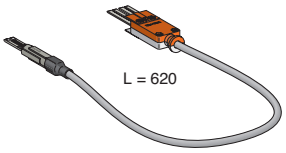
4.1 Connection Blocks



Ordering Information

> Line re-routing module
Re-routes 2 units directly to telephone network in case of PABX power failure. Equipped with 4 RT relays that permit the use of any telephone in the system.

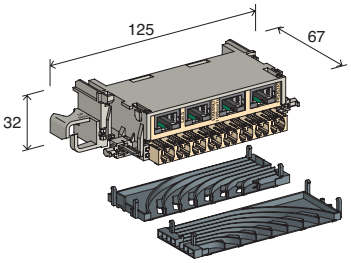
	Ref. No.
> 48V version	**P45370AA**



	Ref. No.
> 1-pair cord for 2 and 4 wire ELS	**P44927AA**

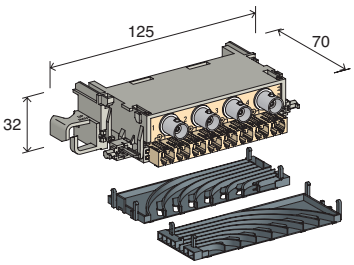
SUB D
Interface ID connector, patching with plug or cord/connector
Supplied with 10 contacts crimped to wires
- Colour: yellow

	Ref. No.
> 9-pin Sub D male	**P45632AA**
> 9-pin Sub D pins female	**P45633AA**
> 25-pin Sub D pins female	**P45629AA**



9-pin modular jack connector ISO 8877
With automatic shielding continuity on the profile, providing an interface between the active equipment that has an RJ45 and the distributor frame

	Ref. No.
> 4 modular jacks for Ethernet 100 Base Tx SCQ cabling, ivory	**P45362A5**
> 2 modular jacks RJ45 SCQ cabling, ivory	**P45368A5**
> BCS 2 Cabling, yellow	**P45363AA**

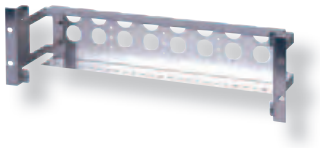


Quadruple Baluns
Permits the connection of pairs to coax RG 62 AU for IBM Type 3278 terminals

	Ref. No.
> 9-pin Sub D male	**P45400AA**

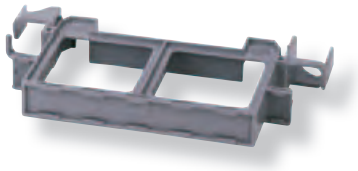
Ordering Information

RCP Accessories

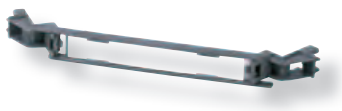


	Ref. No.
> **19" Rack** Subrack for 26 vertical mounting, 16 mm pitch modules. When mounted within a 19" rack, cabinet or wall mounted box the modules are recessed in relation to the front face of the mounting uprights. Mounting screws supplied.	P33040AA0000

	Ref. No.
Multi termination tool, scissor action, colour blue	
> **for IDC systems STG, STG 2000; STC,STR, RCP, RCP 2000, BRCP, RIM, RCAF, Infra+, ID 3000, Trucco, System 71, S5000, 2810**	C234056A
> **for IDC systems STG, STG 2000; STC,STR, RCP, RCP 2000, BRCP, RIM, RCAF, Infra+, ID 3000, System 71, S5000, LSA PLUS, 2810**	C234058A
> **for IDC systems STG, STG 2000; STC,STR, RCP, RCP 2000, BRCP, RIM, RCAF, Infra+, ID 3000, System 71, S5000, LSA PLUS, SID, 2810**	C234062A



	Ref. No.
> **Label holder -** 8 pair Attached directly to the mounting profile. Colour light grey	P44223AA0000



	Ref. No.
> **Rotating Label holder -** 8 pair Attached to the modules it prevents the attachment of patching wires. Colour light grey	P44506AA0000

	Ref. No.
> **Patching Cord Metal shells SFTP cable** connected 360° to the braid or the screen Straight cabling LS0H Sheath, 1m	P39135A50000

A comprehensive range of accessories is available - please ask for further details

4.1 Connection Blocks

Description - BSTG / STG overview

STG 2000 blocks

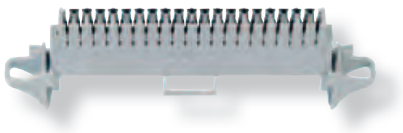
The BSTG block with STG 2000 modules is a modular cat.5 transmission performance MDF solution. Suitable for line side and exchange side the BSTG blocks (with a pitch of 16mm) is the highest density system on the market.

1600 pair can be installed on a 2,6 m vertical.

A comprehensive range of single pair or multipair protection is available.

Specifications

- Cat. 5 transmission performance
- Very compact system
- High density
- 0,4 - 0,8 mm wire diameter



STG 2000 modules: cat. 5 transmission performance as standard

These modules can be used in any modern network and are fully compatible with applications such as xDSL or Pair gain. Suitable for high-density applications STG2000 is available in two different mounting options:

- Mounting on our standard backmount frame.

- Mounting on both the standard and the QSA backmount frame.

The system offers connection and disconnection modules as well as switching modules in 8 and 10 pair version.

Protection can be provided by single pair protection or multipair facility.

Specifications

- Cat. 5 as standard
- Pitch of 16 mm
- 0,4 - 0,8mm wire diameter
- Comprehensive range of circuits and accessories

4.1 Connection Blocks

Technical characteristics

	Insulation Displacement Contacts IDC		
Circuit	**STG U**	**STG C**	**STG O**
Function and accessories			
Type of contact			
Continuity (normally closed circuit)	●	●	
Normally opened circuit			●
Parallel test	●	●	●
Serial test		●	●
T-connection	(1)	(1)	(1)
Disconnection		●	
Protection magazine	● (2)	● (2)	● (2)
Single pair protection plugs		● (3)	● (3)
Multipair parallel test		●	●
Fuse protection			●
Transmission performance	cat. 5	cat. 5	cat. 5

(1) T-connection: two wires in the same slot
(2) modules with earth contacts
(3) connection modules with earth grid

Instructions to read product abbreviations (example: STG C2 10 P)

STG: type of module
C: type of circuit (C, U, O)
2: IDC
10: 10 pair (8 for 8 pair)
P: contacts for automatic earthing (for protection magazine)
PU: earthing grid for single pair protection plugs

4.1 Connection Blocks

Ordering Information

STG 2000 system

with protection facility for OVP Magazines

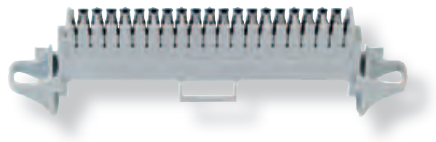
	Ref. No.
> **BSTG2-C2 10P 100P** • 100 pair disconnection block (ivory casing) • 1 label holder	**C252853A0000**
> **BSTG2-C2 8P 128P** • 100 pair disconnection block (ivory casing) • 1 label holder	**C252854A0000**

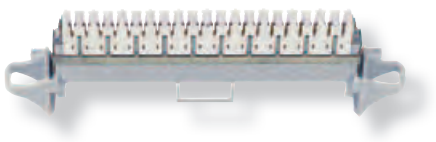
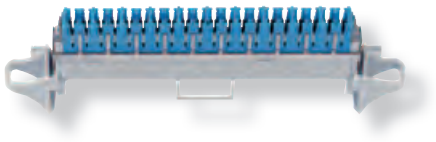
with protection facility for single pair protection plugs

	Ref. No.
> **BSTG2-C2 10P 100PU** • 100 pair disconnection block for single pair protection plugs	**C252852A0000**

without protection facility

	Ref. No.
> **BSTG2-C2 10P 100P** • 100 pair disconnection block (ivory casing) • 1 label holder	**C252851A0000**
> **BSTG2-C2 8P 128P** • 128 pair disconnection block (ivory casing) • 2 label holder	**C252847A0000**



Description - 3M™ STG 2000 overview

STG 2000 modules

STG 2000 is the latest evolution of STG range of connection modules. This module offers category 5 transmission performance as a standard. As a result this module can be used in any modern network and is fully compatible with all kind of applications (xDSL, Pair gain...). Termination is easy, cables and jumpers can be managed from the rear or from the side.

Reliability and performance straight IDC technology offers outstanding performances:

- Multiple reterminations with conductor gauges in the 0,4 mm to 0,8 mm range
- Improved wire retention (in all directions)
- Gas-tight connection area - corrosion proof
- Tin-lead plating on contacts prevents corrosion
- Transmission performances meet cat 5 (100 MHz)
- 2 wires can be accommodated in the same slot
- Very compact connection module
- Specific contacts for stranded wires upon request.

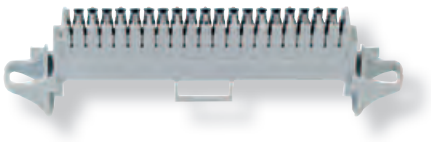
Application in network

- Suitable for high-density installation (2400 pair single sided cross connection cabinets, 1600 pairs on 2,6 metre vertical MDF, containerised exchanges...)
- STG 2000 modules are suitable for public telephony (MDF, cross connection cabinets, building distribution) as well as for private telephony and high data rates transmission.

Specifications

- Category 5 as a standard
- Very compact size (16 mm pitch)
- 0,4 - 0,8 mm wires
- Optional IDC for stranded wires (on request)
- Specific module with rear cable termination
- Multiple reterminations
- Comprehensive range of protection circuits and accessories

4.1 Connection Blocks

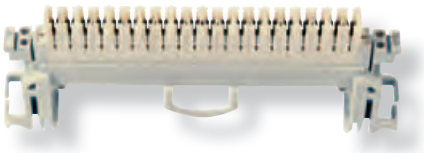


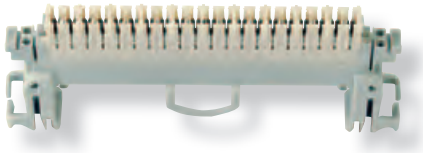
Ordering Information

STG 2000 for STG backmount frame

Colour: light grey base
Dimensions (L x W x D): 126 x 14 x 50 mm (8 pair)
146 x 14 x 50 mm (10 pair)

	Ref. No.
connection modules light grey casing	
> **STG2 U2 8** • numbered 1...8 on jumper side	**C252806A0000**
> **STG2 U2 10** • numbered 1...10 on jumper side	**C252824A0000**
disconnection modules white casing	
> **STG2 C2 8** • numbered 1...8 on jumper side	**C252800A0000**
> **STG2 C2 10** • numbered 1...10 on jumper side	**C252818A0000**
connection modules with multipair protection facility light grey casing	
> **STG2 U2 8 P** • numbered 1...8 on jumper side	**C252807A0000**
> **STG2 U2 10 P** • numbered 1...10 on jumper side	**C252825A0000**
disconnection modules with multipair protection facility white casing	
> **STG2 C2 8 P** • numbered 1...8 on jumper side	**C252801A0000**
> **STG2 C2 10 P** • numbered 1...10 on jumper side	**C252819A0000**
switching modules with multipair protection facility light blue casing	
> **STG2 O2 10 P** • numbered 1...10 on jumper side	**C252831A0000**
disconnection modules with single pair protection facility white casing	
> **STG2 C2 8 PU** • numbered 1...8 on jumper side	**C252802A0000**
> **STG2 C2 10 PU** • numbered 1...10 on jumper side	**C252820A0000**
switching modules with single pair protection facility light blue casing	
> **STG2 O2 8 PU** • numbered 1...8 on jumper side	**C252814A0000**
> **STG2 O2 10 PU** • numbered 1...10 on jumper side	**C252832A0000**





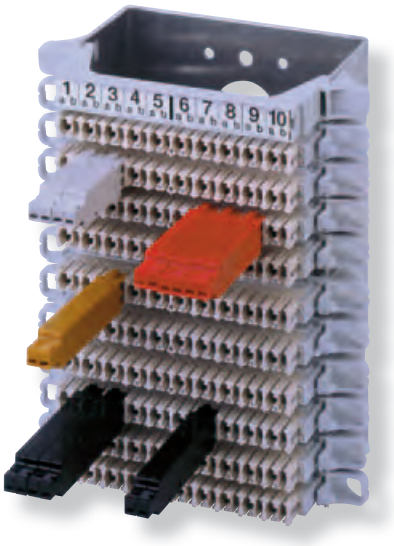
Ordering Information

STG 2000 for STG and QSA backmount frames

Colour: light grey base
Dimensions (L x W x D): 113 x 15,9 x 50 mm (8 pair)
133 x 15,9 x 50 mm (10 pair

	Ref. No.
connection modules light grey casing	
> **STG2 U2 K8**	**C252809A0000**
• numbered 1...8 on jumper side	
disconnection modules white casing	
> **STG2 C2 K8**	**C252803A0000**
• numbered 1...8 on jumper side	
> **STG2 C2 K10**	**C252821A0000**
• numbered 1...10 on jumper side	
connection modules with multipair protection facility light grey casing	
> **STG2 U2 K8 P**	**C252810A0000**
• numbered 1...8 on jumper side	
> **STG2 U2 K10 P**	**C252828A0000**
• numbered 1...10 on jumper side	
disconnection modules with multipair protection facility white casing	
> **STG2 C2 K8 P**	**C252804A0000**
• numbered 1...8 on jumper side	
> **STG2 C2 K10 P**	**C252822A0000**
• numbered 1...10 on jumper side	

4.1 Connection Blocks



Description - 3M™ STG 2000 system

STG 2000 protection solutions

Protection solutions for STG are composed of multi pair protection magazines as well as of a complete range of single pair protection plugs.

Protection magazine

Front facing magazines suitable for all IDC STG connection modules and BSTG modular blocks, with the relevant protection facilities.
Automatic earthing through the backmount frame - 5 kA drain current capacity.
Magazine with earth cord for upgrading standard connection modules or blocks with protection.

Single pair protection plugs

This range of single pair protection modules is designed to increase flexibility in network management (protection can be removed separately only on faulty lines).

Wide range of protection circuits is available, from standard overvoltage protection, to overvoltage and current protection, up to fast 5 pole protection. A disconnection access on the protection plugs allows using all STG disconnection and test accessories without removing protection.

1 circuit = 1 colour

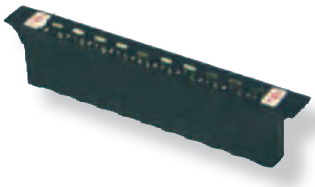
Single pair protection modules are suitable for the standard 16 mm pitch.

Specifications

- Comprehensive range of protection
- Fast 5 pole protection
- Compact design
- Automatic earthing

Ordering Information

STG protection for overvoltage solutions

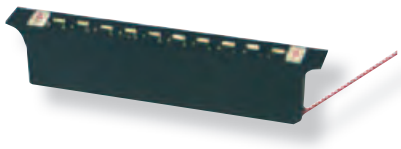
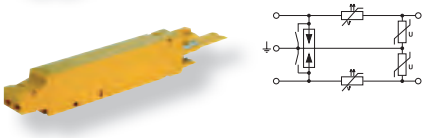


STG protection magazines

Overvoltage Protection Magazine for STG / BSTG	**Ref. No.**
without arresters	
> **10 pair magazine**	**C233726B0000**
with 250 V arrester with fail-safe	
> **8 pair magazine**	**C233736B0000**
> **10 pair magazine**	**C233740B0000**
with 350 V arrester with fail-safe	
> **10 pair magazine**	**C233741B0000**

Ordering Information

STG protection for overvoltage solutions

	Ref. No.
STG protection magazines	
 **Magazines with 0,75 m earthing cord** (for standard STG/BSTG without protection facility)	
without arresters	
> **8 pair magazine**	**C233727C0000**
> **10 pair magazine**	**C233728B0000**
with 250 V arrester with fail-safe	
> **8 pair magazine**	**C233744B0000**
3-pole arrester with fail-safe	
> **250 V**	**C231039A0000**
> **350 V**	**C231040A0000**
Combined insertion/extraction tool	
> **for protection magazine**	**C222053A0000**
Single pair protection plugs	
> **SOR PU 1C** Single pair protection plugs for STG with earthing grid (STG PU) with test and disconnection facility Overvoltage protection 250 V (grey)	**C233796A0000**
> **SOR PU 2C** Overvoltage (250 V) and current protection (PTCRs) (orange)	**C233797A0000**
 > **SOR PU 3C (varistors)** Fast 5 pole (varistors) overvoltage and current protection (yellow)	**C233798A0000**

4.1 Connection Blocks

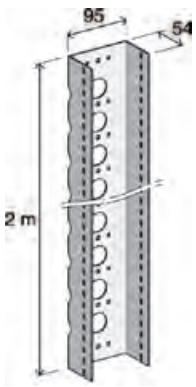
Ordering Information

STG accessories

		Ref. No.
> **Disconnection plugs** Bag of 100 disconnection plugs (red)		**C222909A0000**
> **Serial display plug/1 network line**		**C242628A0000**
Multiple parallel test plug		
> **10 pair, test plug**		**C222059A0000**
PCB type test cords, 3 m		
> **Parallel test cord 2 wires** with banana plugs		**C222048B0000**
> **Serial test cord 4 wires** with banana plugs **silver coated**		**C222014B0000**
PCB type patch cords		
> **4 wire cord, 3 m**		**C222024B0000**
> **2 wire cord, 3 m**		**C222025B0000**
> **2 wire cord, 2 m (single-sided PCB)**		**C242612A0000**
> **2 wire cord, 1 m (single-sided PCB)**		**C242611A0000**
Test cords with plugs, 1,5 m		
> **Serial test plug, 4 wires 1 plug + 4 cable terminals**		**MPA025DB0000**
> **4 wire cord 1 plug on each end**		**MPA025EB0000**
> **Parallel test plug for RJ 11 connector**		**MPA0781A0000**
Label-holders Bag of 100 side label-holders		
> **with blank label (space for 3 digits)**		**C222903A0000**
> **with marked label from 000 to 100**		**C222918A0000**
Plug-in numbers Colour: grey		
> PU: 1 pc	**10-100**	**79170-503 26**
> Weight: 0,001 kg	**1- 0**	**79170-503 28**
Label-holder numbered from 1 to 8 or from 1 to 10 (to be clipped onto Quante-Pouyet backmount frame)		
> **Base 8 pair**		**C220673B0000**
> **Base 10 pair** (packaging: 20 elements)		**C220674B0000**
Bag of 10 swivelling label-holders (not compatible with patch cords and wire-wrap modules) can not be used on STG K modules		
> **Base 8 pair**		**C222950A0000**
> **Base 10 pair**		**C222951A0000**

Ordering Information

STG accessories



	Ref. No.
CKD test plugs	
> **Serial test plug, 4 pole (CKD)**	**M004725A0000**
> **Parallel test plug, 2 pole (CKD)**	**M004726A0000**
> **Bag of 100 marking caps: (black)** marked from 0 to 9 (ten caps marked “0”, ten caps marked “1”, ten caps marked “2”, etc.)	**C222916B0000**
Black	**C222920A0000**
Grey	**C222921A0000**
Red	**C222922A0000**
Yellow	**C222923A0000**
Blue	**C222924A0000**
Green	**C222925A0000**
> **Bag of 100 marking caps marked from 0 to 9** (to be clipped onto the side of the module) black digits	**C222917A0000**
> **Miscellaneous** Bag of 20 sets of 2 wire-guide channels for 8 pair modules (to be clipped on both sides of the modules)	**C223765A0000**
Impact tools for IDC To terminate and remove wires from IDC, PU: 1 unit Each impact tool is for IDC systems STG, STG 2000, STC, RCP, RCP 2000, BRCP, RIM, RCAF, Infra+, ID 3000, System 71, S5000 and 2810	
> **Multi termination tool. Scissor action**	
Colour: blue	**C234056A0000**
additional for IDC system LSA PLUS*	**C234058A0000**
additional for IDC system LSA PLUS* and SID	**C234062A0000**
> **STG backmount frame pitch 16 mm depth 55 mm** PU: 2 pcs	
for 10 modules and 1 labelling frame	**C226004A0000**
for 10 pair STG modules (2 metre, 125 positions)	**C232280A0000**
for 8 pair STG modules (2 metre, 125 positions)	**C232281A0000**

* LSA PLUS is a trademark of ADC Krone

4.1 Connection Blocks

Description - 3M™ SID overview

SID-C
High density system

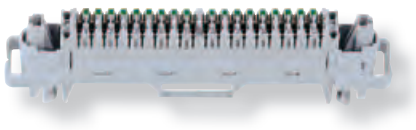
SID-C connection and disconnection modules (8 and 10 pair) for mounting on individual profile FlexiRail and backmount frame SID-C are available in the following different types:

- Connection module 8 and 10 pair, printing black
- Disconnection module 8 and 10 pair, printing green.

Both types can be protected with primary overvoltage protection magazines or 1 pair Single Pair Protection plugs (SPP).

- Earthing modules, printing red for 40 wires

SID-CT
Compact top model for all standard backmount frames



The modified fixing system offers the possibility to use all standard backmount frames with only one type of module.
Therefore SID-C backmount frames with a pitch of 17,5 mm, as well as, LSA PLUS* / QSA backmount frames with a pitch of 22,5 mm are suitable for the SID-CT module. Due to the slim design of the module SID-CT offers nearly twice as much jumpering space between two modules.
SID-CT can also be used on the individual profile system - FlexiRail. Individual movement on the profile guarantees a maximum of flexibility by optimised handling. Due to the click-on system, SID-CT can be easily unclamped by hand; no tool is necessary.

SID-C abs DDF
high transmission performance

Based on the reliable SID technique, the new SID DDF module is designed to offer a cable block solution with a maximum of 80 pair DDF to be terminated and jumpered. With a special construction of the backmount frame it is possible to manage all cable screens.

Specifications

- Compact system with a pitch of 17,5 mm
- Wire diameters from 0,4 mm to 0,8 mm
- Assembling on SID-C backmount frames and FlexiRail profiles
- Removable by hand without tools
- Fits on SID-C and LSA PLUS* / QSA backmount frames and on profile system
- FlexiRail
- Pitch of 17,5 mm
- Nearly twice as much jumpering space between the modules when using LSA PLUS* / QSA backmount frame
- Simple removal by hand without tool
- Comprehensive accessories from SID-C range can be used
- Category 5e transmission performance
- Capacity up to 40 ports
- Application in co-location rooms
- Same connection technology for analogue and high data rate application in colocation rooms
- 8x3 abs contact arrangement
- wire guide channel for cable management

* LSA PLUS is a trademark of ADC Krone

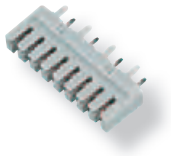
4.1 Connection Blocks

Description - 3M™ SID overview

SID-CD
Screw mounted strips with DIN mounting dimensions for small distribution boxes

SID-CD the handy screw-on solution with DIN mounting dimensions of 96 mm for 8/10 pair or 170 mm for 20 pair. Its main application is in small to medium telecommunications and data distribution boxes. The SID-CD strips are available both as connection and disconnection modules for 8, 10 and 20 pair cables. Earthing strips for 40 and 80 wires made up with two earthing connections each, are fixed at the right and left hand side of the module. A complete range of accessories allows optimum use of the SID-CD system.

SID-P
strips for PCB boards

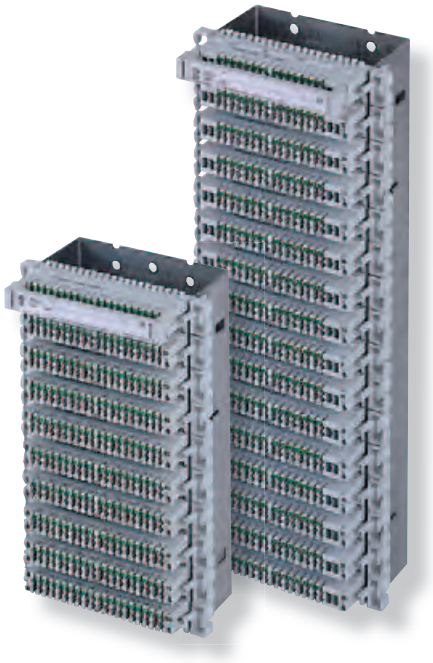


The SID- P product range has been specially designed for applications with printed circuit boards.
SID-P/3,81
These items are used in all areas where circuit boards make contact with copper leads, e.g. on patch panels. In combination with its compact design, it guarantees easy connection within the most restricted spaces a considerable advantage in those areas which require connection under restricted ratios, e.g. in outlets.

Specifications

- One wire per slot 0,4 - 0,8 mm
- 8, 10 and 20 pair modules
- Also available as disconnection strips
- Supplementary earth connection
- World wide approved SID Technology
- Stripping, terminating and cutting in one process
- Compact design
- SID-P can be connected with a 3 mm screwdriver (DIN5264 form A)

4.1 Connection Blocks



Description - 3M™ SID system

With the SID product family 3M is setting the standards for high density IDC termination combined with improved handling. The main applications are in telecommunications and data networks.

The SID insulation displacement contacts are enclosed by the plastic housing of the module. This improves the insulation performance and helps in providing a safe working practice.

The SID product family is available in 8 and 10 pair connection and disconnection modules.

3M´s individual mounting systems reflects the trend towards improved handling. Backmount frames or profile rails are available as required, and also „FlexiRail“ as an individual mounting system for targeted applications.

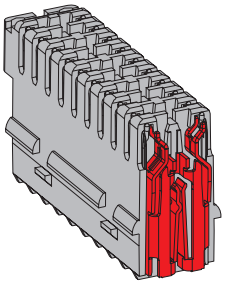
A significantly increased capacity compared to other techniques is achieved with the compact SID-C module.

A wide range of accessories and a comprehensive overvoltage protection complete the product family.

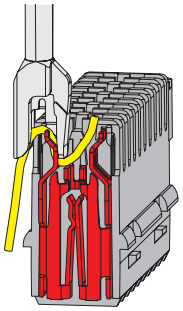
Specifications

- High density
- One wire per slot 0,4 - 0,80 mm
- Optimised cable conductor guide
- Long-life tools
- Flexible mounting systems
- Removal without a special tool
- Comprehensive overvoltage protection system

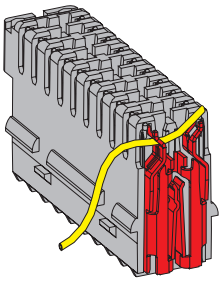
Cable management



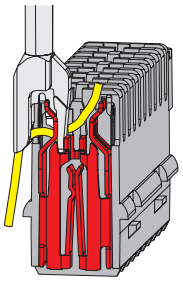
1. Sectional view of SID-C module.



3. Locate insertion tool in a straight position on the module. The printed scissors should face the centre of the module. Push the tool firmly into the slot.

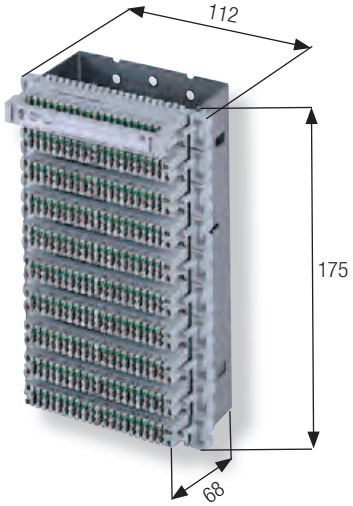


2. Push wires into connection slot. Allow enough of wire to overhang the far side of the module.



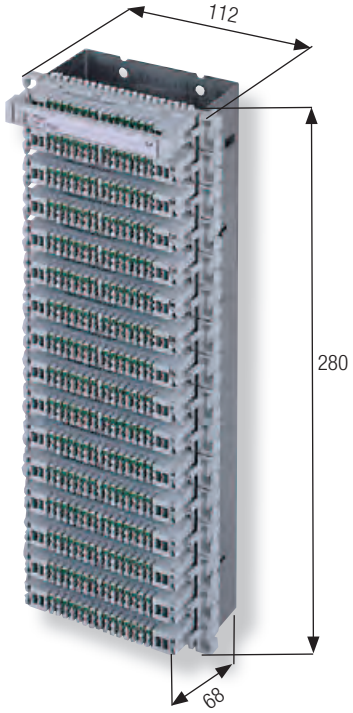
4. The clicking sound indicates that the wire is terminated and automatically cut to length in the process.

4.1 Connection Blocks



Ordering Information

	Ref. No.
> **SID-C disconnection block 100 pair** Each block is equipped with: • 10 disconnection modules (10 pair) • 1 label holder • 1 plug in numbers 10-100 • 1 mounting material • 1 backmount frame • PU: 1 pc, Weight: 0,8 kg	**15-100-00700**



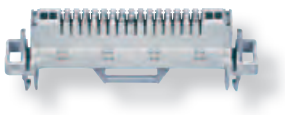
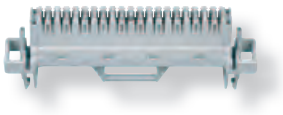
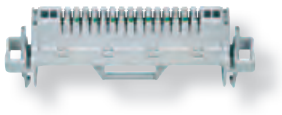
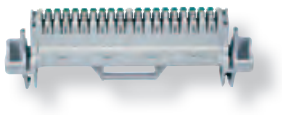
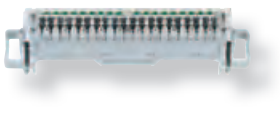
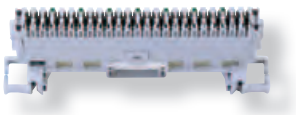
	Ref. No.
> **SID-C disconnection block 128 pair** Each block is equipped with: • 16 disconnection modules (8 pair) • 1 label holder • 2 plugs in numbers 8-64 • 1 mounting material • 1 backmount frame • PU: 1 pc, Weight: 1,2 kg	**15-628-00200**

4.1 Connection Blocks

Ordering Information

SID-C modules

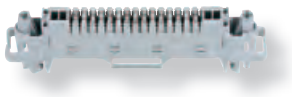
Dimensions (L x W x D): 112 x 17,3 x 37 mm, minimum vertical pitch: 17,5 mm

SID-C connection modules Colour: grey	Ref. No.
 **> connection module for 8 pair** • numbered 1...8 • black printing • PU: 5 pcs, Weight: 0,35 kg	**79101-561 00**
 **> connection module for 10 pair** • numbered 1...0 • black printing • PU: 5 pcs, Weight: 0,35 kg	**79101-553 00**
SID-C disconnection modules Colour: grey	
 **> disconnection module for 8 pair** • numbered 1...8 • green printing • PU: 5 pcs, Weight: 0,35 kg	**79103-540 00**
 **> disconnection module for 10 pair** • numbered 1...0 • green printing • PU: 5 pcs, Weight: 0,35 kg	**79103-534 00**
 **> disconnection module jelly filled version with dust cover for 10 pair** • green printing • PU: 5 pcs, Weight: 0,45 kg	**79103-534 35**
 > abs circuit disconnection module 8xabs for 3-wire circuits 8x3 with wire guide housing left and right • green printing • PU: 10 pcs, Weight: 0,70 kg	**79103-576 30**
 **> abs circuit disconnection module 8xabs** for 3-wire circuits 8x3 • green printing • PU: 10 pcs, Weight: 0,70 kg	**79103-577 30**
 > abs disconnection module with wire guide housing right side with 10 label holders • green printing • 1abs...8abs	**79103-578 32**

Ordering Information

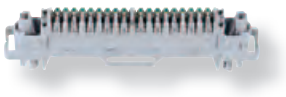
SID-CT modules

The SID-CT is suitable for LSA PLUS backmount frames.
Dimensions (L x W x D): 124 x 17,3 x 37 mm, minimum pitch: 17,5 mm and 22,5 mm (for legacy networks)



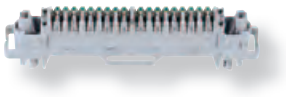
SID-CT connection modules
Colour: grey

	Ref. No.
> **connection module for 10 pair** • numbered 1...0 • black printing • PU: 5 pcs, Weight: 0,35 kg	**79101-589 00**

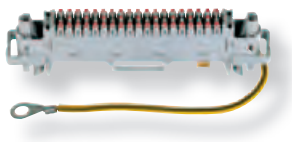


SID-CT disconnection modules
Colour: grey

> **disconnection module for 8 pair** • numbered 1...8 • green printing • PU: 5 pcs, Weight: 0,35 kg	**79103-564 00**



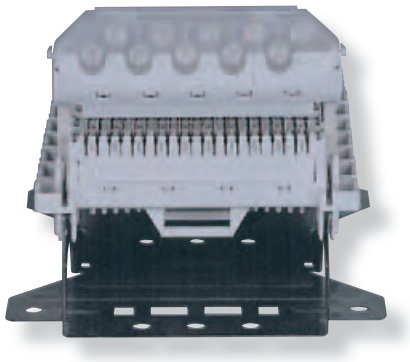
> **disconnection module for 10 pair** • numbered 1...0 • green printing • PU: 5 pcs, Weight: 0,35 kg	**79103-557 00**



SID-CT earthing module
Colour: grey

> **earthing module for 40 wires** • red printing • PU: 10 pcs, Weight: 0,70 kg	**79101-591 00**

4.1 Connection Blocks



Description - 3M™ SID system

SID protection for overvoltage solutions

Instruction

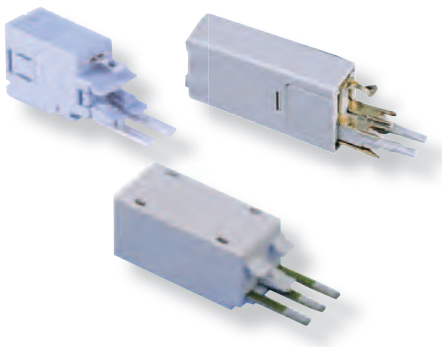
The SID overvoltage protection magazines are designed for the 8/10 pair SID-C/CT/CD modules for use in telecommunications circuits. Earthing of the overvoltage protection magazine is achieved through the magazine to the back-mount (backmount earth connection). It must be earthed according to local regulations.

The magazine is inserted into the test access contacts. Standard surge arresters are used in the magazines. If necessary fail-safe devices can also be inserted. Dust covers can also be used with magazines installed.

As a result of the SID-system philosophy, SID-SPP makes it possible to individually protect DIN-connections and terminal strips (SID-CD).

The SID-SPP is designed to give protection to the equipment. Testing of the circuit and jumper re-termination can be carried out with the SID-SPP in-situ.

There are three different application specific versions of the SID-SPP, protection concept making it the ideal solution for the most varied in-house and telecom network connection demands.

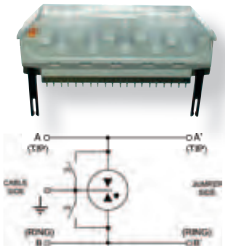


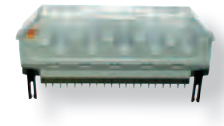
Specifications

- one overvoltage protection magazine for 8 or 10 pair modules
- magazines for 3-pole surge arrester
- surge arrester with and without fail-safe
- single pair protection plugs (SPP)

Ordering Information

SID protection for overvoltage solutions

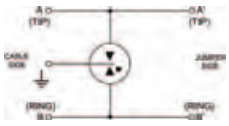
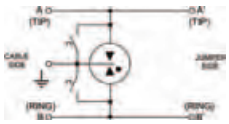
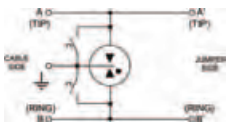
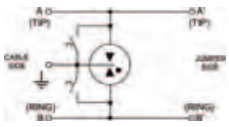
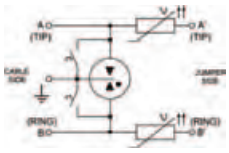
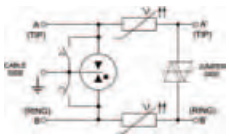




	Ref. No.
> **SID-C overvoltage protection magazine for 3-pole surge arrester** • for insertion in 8/10 pair SID modules • Dimensions (L x W x D): 98 x 17,3 x 31,5 mm incl. cover. • PU: 10 pcs, Weight: 0,5 kg	**79126-510 00**
> **SID-C overvoltage protection magazine with 3-pole arrester** • 230V - 2x 5A / 2x 5kA with integrated fail-safe	**79126-514 28**
> **SID-CT overvoltage protection magazine for 3-pole surge arrester** • for insertion in 8/10 pair SID modules • Dimensions (L x W x D): 98 x 17,3 x 31,5 mm incl. cover. • PU: 10 pcs, Weight: 0,5 kg	**79126-512 00**
> **SID-CD/SID-CP overvoltage protection magazine for 3-pole surge arrester** • for insertion in 8/10 pair SID modules • Dimensions (L x W x D): 98 x 17,3 x 31,5 mm incl. cover. • PU: 10 pcs, Weight: 0,5 kg	**79126-511 00**

Ordering Information

SID protection for overvoltage solutions

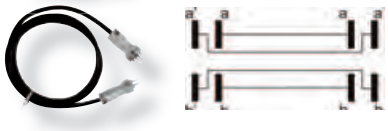
	Ref. No.
 **> 3-pole surge arrester without fail-safe** • 230V - 2x 10A / 2x 10kA • Weight: 0,23 kg	**39081-728 00**
 **> 3-pole surge arrester with integrated fail-safe** • 230V - 2x 5A / 2x 5kA; n (100 °C) ts ≤ 10 s • Weight: 0,35 kg	**05-661-02600**
 **> 3-pole surge arrester with integrated fail-safe** • 230V - 2x 10A / 2x10kA; n (100 °C) ts ≤ 10 s • Weight: 0,35 kg	**05-661-02800**
 > Extraction tool • for removal of overvoltage protection magazines • PU: 1 pc, Weight: 0,03 kg	**79397-515 00**
 > SID-SPP earthing rails • **SID-C**, PU: 1 pc, Weight: 0,008 kg/1 for 8/10 pair • **SID-CD/CP**, PU: 1 pc, Weight: 0,008 kg/1 for 8/10 pair	**79114-542 00** **79114-544 00**
 **> SID-SPP 230 V/G** 1-pair overvoltage protection plug • Primary protection with integrated fail-safe. • Weight: 0,32 kg	**79104-505 00**
 **> SID-SPP 230 V/GS** 1-pair overvoltage and current protection plug, with integrated fail-safe • Weight: 0,32 kg	**79104-508 00**
 **> SID-SPP 185 V/GFS** 1-pair ultra fast overvoltage and current protection plug. With integrated fail-safe • Weight: 0,32 kg	**79104-507 00**
 > SID-SPP 230 V/G abs 1 pair overvoltage protection plug for SID-C abs modules primary protection with integrated fail-safe • No additional earthing rail necessary	**79104-510 00**

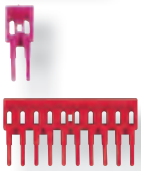
4.1 Connection Blocks

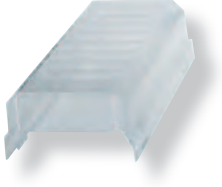
Ordering Information

SID accessories

		Ref. No.
	> SID label holder • plug-in type, for 10-pair SID module • PU: 1 pc, Weight: 0,005 kg	**79156-516 00**
	> SID label holder for 8x3 abc module • PU: 5 pcs	**79156-521 30**
	> Multi termination tool, scissor action • Colour: blue • **for IDC systems STG, STG 2000; STC,STR, RCP, RCP 2000, BRCP, RIM, RCAF, Infra+, ID 3000, LSA PLUS, SID, System 71, S5000, 2810**	**C234062A**
	> SID-standard insertion tool • Colour: red, PU: 1 pc, Weight: 0,070 kg	**79397-512 00**
	> SID-comfort tool • scissor action, PU: 1 pc, Weight: 0,07 kg	**79397-519 00**
	> SID scissor kit • for Impact tool • PU: 10 pcs	**79027-524 00**
	> SID Earthing Rail • for parallel connection of wires on SID-CT modules / pair, PU: 10 pcs	**79114-536 00**
	> Test plug kit, 4-poles • with separate contacts, solderable a b a' b'	**79096-533 00**
	> Test cord, 2-poles • with 2 banana sockets, PU: 1 pc, Weight: 0,016 kg	**79054-552 00**
	> Test cord, flex, 4-poles • with 4 banana sockets, PU: 1 pc, Weight: 0,2 kg	**79054-567 00**
	> Test cord, flex, 4-poles • with 4 banana sockets with marker, PU: 1 pc, Weight: 0,2 kg	**79054-567 25**
	> Test cord flex 4-poles single ended • Length: 1,5 m • PU: 1 pc	**79054-571 00**





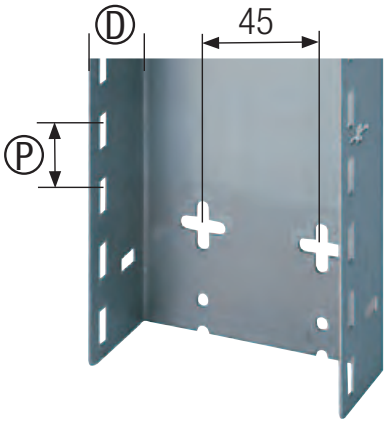


Ordering Information

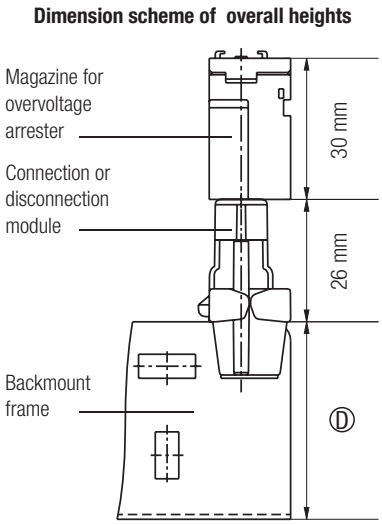
SID accessories

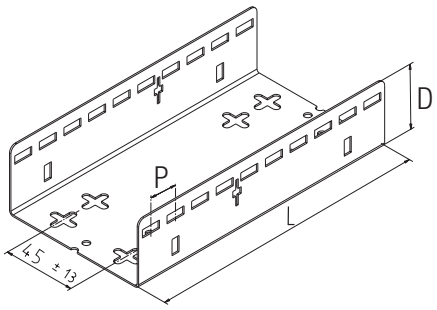
			Ref. No.
> SID patch cord, 2-pole			
• Length: 2 m			79054-569 25
• Length: 4 m			79054-569 26
> SID patch cord, 4-poles with two plugs with separate contacts			
• Length: 1 m, Weight: 0,03 kg			79054-561 00
• Length: 2 m, Weight: 0,05 kg			79054-561 25
• Length: 4 m, Weight: 0,11 kg			79054-561 26
• PU: 1 pc			
> Adapter cord SID-QSA			79054-570 00
• PU: 1 pc			
> Switching adapter for 1 pair			79058-502 00
• PU: 100 pcs, Weight: 0,2 kg			
• **for 10 pair**			79058-503 00
• PU: 10 pcs, Weight: 0,14 kg			
> Cover strips for 10 pair			
• for connection modules	**1-100**	**grey**	79169-517 28
• PU: 1 pc, Weight: 0,01 kg			
> Disconnection plug for 1 pair		**red**	79122-544 00
• PU: 100 pcs, Weight: 0,3 kg		**brown**	79122-544 30
> for 5 pair		**red**	79122-545 00
• PU: 20 pcs, Weight: 0,3 kg		**brown**	79122-545 30
> Dummy plug for 1 pair		**red**	79122-543 00
• PU: 100 pcs		**green**	79122-543 26
• Weight: 0,03 kg		**black**	79122-543 29
> Plug-in numbers	**10- 100**	**grey**	79170-503 26
• Weight: 0,001 kg	**1- 0**	**grey**	79170-503 28
> Marking caps		**red**	79004-506 00
• PU: 100 pcs		**green**	79004-506 26
• Weight: 0,006 kg		**black**	79004-506 29
> Marking strip for 10 pair allowing testing and disconnection		**grey**	79169-510 28
• PU: 10 pcs, Weight: 0,010 kg			
> SID-C Dust cover, Pitch: 17,5 mm, 100 pair			15014-505 00
• Weight: 0,098 kg			

4.1 Connection Blocks



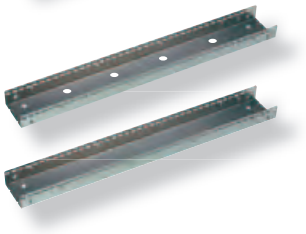
Description - 3M™ SID Backmount frame





Ordering Information

SID Backmount frame



Weight	Length (L)	Pair	Ref. No.
Pitch 17,5 mm PU: 2 pcs, Depth (D): 42 mm, Material: 1.4301 (stainless steel)			
ca. 0,4 kg/2	175 mm	100 pair	**79148-518 00**
ca. 0,8 kg/2	280 mm	160 pair	**79148-542 00**
ca. 7,2 kg/2	578 mm	330 pair	**79148-578 00**
Pitch 22,5 mm PU: 2 pcs, Depth (D): 42 mm, Material: 1.4301 (stainless steel)			
ca. 1,2 kg/2	225 mm	100 pair	**79148-523 00**
ca. 3,6 kg/2	675 mm	300 pair	**79148-525 00**

> **Wireguide hook, top** — **79113-500 00**
- for SID backmount frames
- weight: 0,17 kg, PU: 20 pcs

> **Wireguide hook, side** — **79113-501 00**
- for SID backmount frames
- weight: 0,04 kg, PU: 20 pcs

4.1 Connection Blocks

QSA Series 1
10 pair connection module

QSA Series 1
20 pair connection module

QSA Series 2
connection/disconnection modules
100 pair distribution block

Description - QSA Cross Connect Overview

QSA Series 1

Connection modules for screw fixing in small distribution units. The fixing dimensions of the connection modules for 10 or 20 pairs (colour: grey) are 96 or 170 mm according to DIN 47608 (part 1 and 2). The earthing strips (colour: red) for 44 or 84 wires complete the product range.

QSA Series 2

Connection and disconnection modules for mounting on back mount frames. The following types of modules are available:

- 10 pair connection modules (colour: grey) for overvoltage protection magazines.
- 10 pair disconnection modules (colour: white) for overvoltage and fine protection.
- Earthing modules (colour: red) for 38 wires.

Technical Specifications

QSA Series 1	
Connection modules:	•
Disconnection modules:	–
Earthing modules:	•
10 pair modules:	•
20 pair modules:	•
Wire diameter in mm:	0.40 - 0.80
Overall diameter in mm (over insulation):	0.70 - 1.50
Number of reterminations: ≤ 0,65 wire-Ø	> 50 x
Number of reterminations: 0,8 wire-Ø*	≤ 50 x
Contact material: special brass	•
Contact surface: Silver	•
Housing material: PBT	•
Flame protection: UL 94 V0	•
Insulation resistance: 5 x 10^4 MΩ	•
Volume resistance: < 10 mΩ	•
Dielectric strength: 2kVeff/50Hz	•

QSA Series 2	
Connection modules:	•
Disconnection modules:	•
Earthing modules:	•
10 pair modules:	•
20 pair modules:	–
Wire diameter in mm:	0.40 - 0.80
Overall diameter in mm (over insulation):	0.70 - 1.50
Number of reterminations: ≤ 0,65 wire-Ø	> 50 x
Number of reterminations: 0,8 wire-Ø*	≤ 50 x
Contact material: special brass	•
Contact surface: Silver	•
Housing material: PBT	•
Flame protection: UL 94 V0	•
Insulation resistance: 5 x 10^4 MΩ	•
Volume resistance: < 10 mΩ	•
Dielectric strength: 2kVeff/50Hz	•

4.1 Connection Blocks

Description - QSA Cross Connect System

Cable terminal blocks series 2

Cable head block for cabinets with vertical frame. The backmount frames are designed to accommodate either grease filled distribution cables or air pressured main cables with a cast pressure blocking kit.

Comes with rear cable entry holes and protective grommet. Cable strength relief is provided with enclosed accessories.

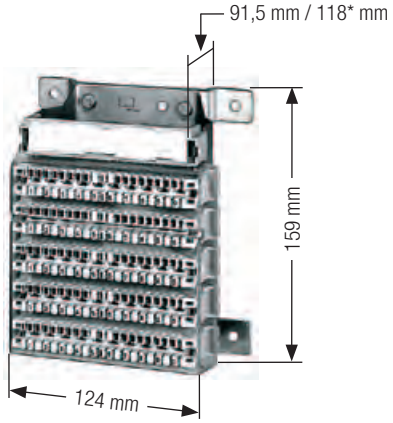
Cable designation label and fixing material included.

Delivery content:

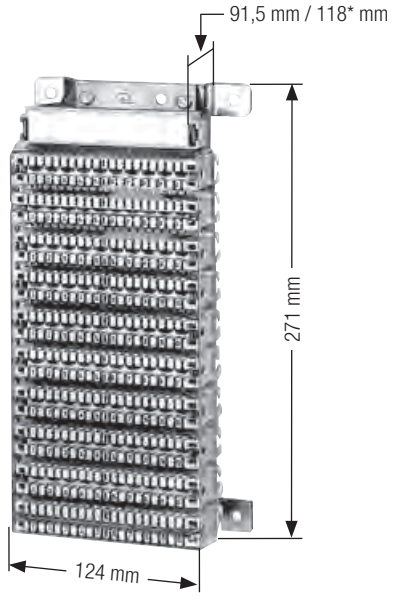
Backmount frames (stainless steel); fitted with:

- 5 or 10 connection or disconnection modules for each 10 pairs, numbered 1 - 0
- 1 dust cover, flat version for 100 pairs, high version for 50 pairs
- 1 labelling frame
- 1 plug-in number set
- 2 edge protection
- 1 fixing set for mounting

Ordering Information



	Ref. No.
> **Connection block / 50 pairs** • with 5 connection modules 10 pairs	**10-550-00140**
> **Disconnection block / 50 pairs** • with 5 connection modules 10 pairs	**15-450-00140**



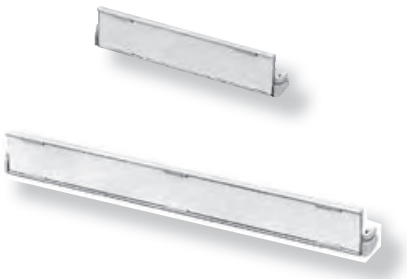
	Ref. No.
> **Connection block / 100 pairs** • with 10 connection modules 10 pairs	**10-600-00140**
> **Disconnection block / 100 pairs** • with 10 connection modules 10 pairs	**15-500-00140**

Ordering Information

IDC modules and accessories series 1

	Ref. No.
> Connection module • for 10 pairs • Colour: grey, Numbered 1-0	**79101-517 00**
> Earthing module • for 44 wires • Colour: red • Dimensions (L x W x D): 105 x 26 x 21.5 mm • Mounting dimension: 96 mm	**79101-533 00**

	Ref. No.
> Connection module • for 20 pairs • Colour: grey, Numbered 2 x 1-0	**79101-518 00**
> Earthing module • for 84 wires • Colour: red • Dimensions (L x W x D): 178 x 26 x 25.5 mm • Mounting dimension: 170 mm	**79101-534 00**



	Ref. No.
> Labelling frame • for 10 pairs module • Marking surface: 85 x 15 mm	**79156-505 00**
> Labelling frame • for 20 pairs module • Marking surface: 160 x 15 mm	**79156-506 00**

	Ref. No.
> Test cord • 2 poles, with jacks for banana plugs • cable length: 0.2 m	**79054-555 00**

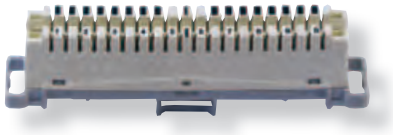
4.1 Connection Blocks

Ordering Information

IDC modules and accessories series 2

> **Connection module**
- standard
- Colour: grey, Numbered 1 - 0
- Dimensions (L x W x D): 123 x 18 x 39 mm

Ref. No. 79101-510 40



> **Disconnection module**
- standard
- Colour: grey, Numbered 1 - 0
- Dimensions (L x W x D): 123 x 18 x 39 mm

Ref. No. 79103-510 40

> **Earthing module**
- for 38 wires
- Colour: red, Connection cable,
- Dimensions (L x W x D): 123 x 18 x 39 mm

Ref. No. 79101-516 00

> **Labelling frame**
- With clear cover and marking strip (neutral) 95 x 17 mm
- Dimensions (L x W x D): 117 x 21 x 24 mm

Ref. No. 79156-501 00

> **Labelling frame**
- Plug-in, hinged, with clear cover, with marking strip (neutral) 103 x 11 mm
- Dimensions (L x W x D): 110 x 17 x 8 mm

Ref. No. 79156-503 25

> **Insertion tool**
- for connecting of the wires,
- Dimensions (L x W x D): 176 x 37 x 21 mm
- For wire diameter: 0.4 - 0.8 mm
  AWG 26 - 20

Ref. No. 79397-500 27

> **Impact tools for IDC**
To terminate and remove wires from IDC, PU: 1 unit

Each impact tool is for IDC systems STG, STG 2000, STC, RCP, RCP 2000, BRCP, RIM, RCAF, Infra+, ID 3000, System 71, S5000 and 2810

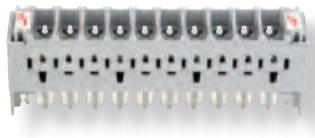
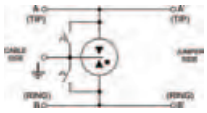
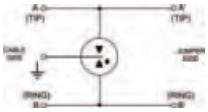
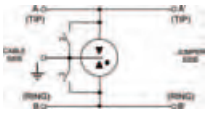
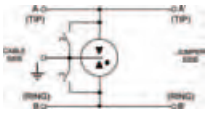
> **additional for IDC system LSA PLUS*** **Ref. No.** C234058A0000
> **additional for IDC system LSA PLUS* and SID** **Ref. No.** C234062A0000

* LSA PLUS is a trademark of ADC Krone

4.1 Connection Blocks

Ordering Information

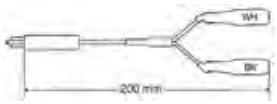
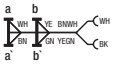
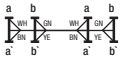
Accessories series 2

		Ref. No.
	**> Magazine 10 pair** • For arrester shape 3-pole, insertion on connection and disconnection modules, Dimension (L x W x D): 112 x 22 x 43 mm	**38126-502 40**
	**> QSA 10 pair OVP magazine with 3-pole arrester with integrated fail-safe** • 230 V, 2 x 5 kA, 2 x 5 A	**38126-508 00**
	**> 3-pole surge arrester without fail-safe** • 230V - 2x 10A / 2x 10kA • Weight: 0,23 kg	**39081-728 00**
	**> 3-pole surge arrester with integrated fail-safe** • 230V - 2x 5A / 2x 5kA; n (100 °C) ts ≤ 10 s • Weight: 0,35 kg	**05-661-02600**
	**> 3-pole surge arrester with integrated fail-safe** • 230V - 2x 10A / 2x10kA; n (100 °C) ts ≤ 10 s • Weight: 0,35 kg	**05-661-02800**
	> Disconnection plug for 1 pair	**red** **79122-500 00** **white** **79122-500 25** **black** **79122-500 29** **brown** **79122-500 30**
	> Disconnection plug • for 10 pair	**white** **79122-505 00**
	> Dummy plug • for 1 pair	**red** **79072-500 00**
	> Marker caps • for 1 pair	**red** **79004-500 00** **yellow** **79004-500 25** **blue** **79004-500 31**

4.1 Connection Blocks

Ordering Information

Accessories series 2

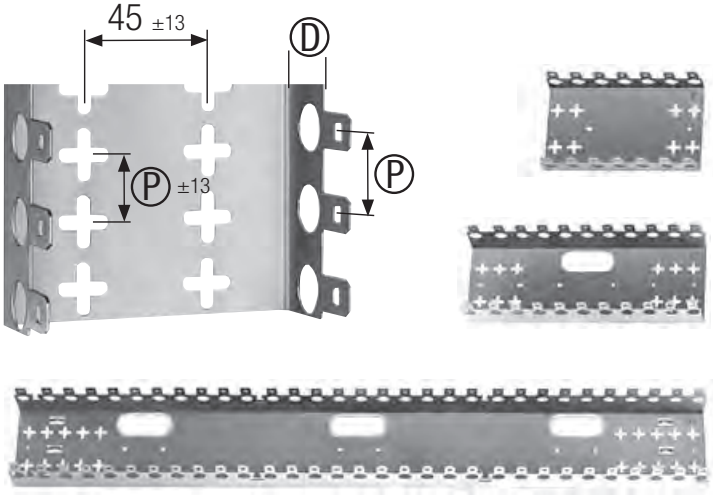
	Ref. No.
> **Test plug kit**	
• with connection contacts, solderable	
• **2 pole**	**79096-500 00**
• with disconnected contacts, solderable	
• **4 pole**	**79096-501 00**
 	
> **Test cord**	
• with 2 jacks for banana plug	
• **2 pole**	**79054-501 00**
• with 4 jacks for banana plug	
• **4 pole**	**79054-524 00**
	
> **Connection cord**	
• with 2 connection plugs	
• **2 pole**, Length: 2 m	**79054-502 26**
• **2 pole**, Length: 6 m	**79054-502 28**
• with 2 4-pole disconnection plugs	
• **4 pole**, Length: 2 m	**79054-504 26**
• **4 pole**, Length: 6 m	**79054-504 28**

4.1 Connection Blocks

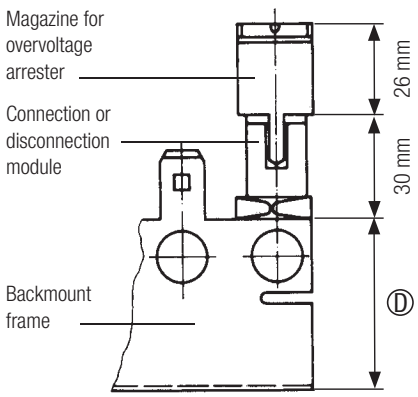
Ordering Information

Backmount frames series 2

Pitch (P)	Depth (D) LH*	Dimensions (L x W x D)	Version	Ref. No.
25 mm	22 mm	45 x 105 x 42 mm	for 2 modules	**79151-533 00**
		70 x 105 x 42 mm	for 3 modules	**79151-534 00**
		170 x 105 x 42 mm	for 7 modules	**79151-536 00**
25 mm	22 mm			
		111 x 105 x 42 mm	for 4 modules	**79151-502 25**
	LH*	358,8 x 105 x 42 mm	for 13 modules	**79151-505 25**
	30 mm			
		156 x 105 x 50 mm	for 6 modules	**79151-506 25**
	LH*	246 x 105 x 50 mm	for 9 modules	**79151-507 25**
	LH*	268,5 x 105 x 50 mm	for 10 modules	**79151-508 25**
	LH*	291 x 105 x 50 mm	for 11 modules	**79151-509 25**
	LH*	358,5 x 105 x 50 mm	for 13 modules	**79151-510 25**
	49 mm			
	LH*	300 x 105 x 69 mm	for 1 x 10 + 1 module	**79151-511 25**
	LH*	580 x 105 x 69 mm	for 2 x 10 + 1 module	**79151-512 25**
	LH*	860 x 105 x 69 mm	for 3 x 10 + 1 module	**79151-513 25**
	LH*	1575 x 105 x 69 mm	for 55 + 1 module	**79151-550 00**
22,5 mm	49 mm			
	LH*	253 x 105 x 69 mm	for 1 x 10 + 1 module	**79151-511 00**
	LH*	486 x 105 x 69 mm	for 2 x 10 + 1 module	**79151-512 00**
	LH*	719 x 105 x 69 mm	for 3 x 10 + 1 module	**79151-513 00**



Dimension scheme of overall heights



*version of back mount frames with long hole (LH) on the back 30 x 70 mm. Delivered with 4 screws M4 x 8 with spring locks

4.2 Patchcords

Description - CBE patchcords for RCP, RCPT and STG

The CBE family is a range of patchcords for data and telephony cabling systems that have a snap-on system which allows direct connection on to both RCP Category 6A, RCP 2000, RCPT and STG 2000 connection modules. They are available in both shielded and unshielded versions.

The shielded version consists of metal shell with the braid screen in 360° contact with the metal parts providing an efficient drain to earth of any electromagnetic interference. The products are characterised by their optimised transmission performance, easy installation and identification.

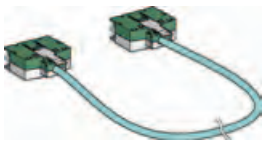
2 and 4 pair cords with PVC sheaths are available in both shielded and unshielded versions.

Features

- 100 Ohm 2 and 4 pair cables consisting of 7 x 0.15 mm stranded conductors
- Quick and easy installation
- Available in shielded and unshielded versions
- Mixed CBE/RJ45 patch cords available for connection to equipment
- Attenuation @ 100 MHz - 29 dB/m
- Cross talk @100MHz - 35 dB

Ordering Information

Category 6/Class E 100 Ohm Cords

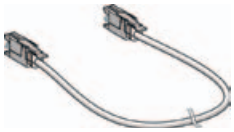


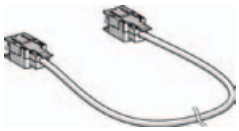
		Ref. No.
F/UTP CBE - CBE Patchcords • Polycarbonate shell • F/UTP cable with LSOH jacket • Straight cabling • Drain connected to cable shield • Length: 2,00 m	**> 2 pairs** **> 4 pairs**	**P46136A5** **P46138A5**

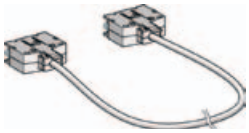
		Ref. No.
F/UTP CBE - RJ45 Patchcords • Polycarbonate shell • F/UTP cable with LSOH jacket • Straight cabling • Drain connected to cable shield • Length: 2,00 m	**> 2 pairs** **> 4 pairs**	**P46366A5** **P46368A5**

Ordering Information

Category 5e/Class D Shielded Patch Cords







		Ref. No.
Screened CBE-CBE Patchcords • Polycarbonate shell • S/FTP cable with LSOH jacket • Straight cabling • Drain connected to cable shield • Length: 2,00 m	**> LSOH, 1 pair** **> LSOH, 2 pairs** **> LSOH, 4 pairs**	**P39135A5** **P39136A5** **P39138A5**

		Ref. No.
SF/UTP CBE-RJ45 Patchcords • Metal Shell and shielded RJ45 • S/FTP cable • 360° connection of the braid to the connector screen • Length: 2,00 m	**> Cabled 7-8, LSOH, 1 pair**	**P39378A5**

SF/UTP CBE-RJ45 Patchcords • Metal Shell and shielded RJ45 • S/FTP cable • 360° connection of the braid to the connector screen • Length: 2,00 m	**> Cabled 4-5, LSOH, 1 pair**	**P39380A5**

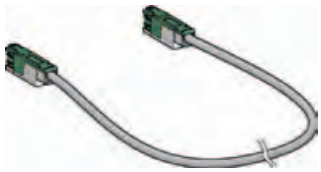
SF/UTP CBE-RJ45 Patchcords • Metal Shell and shielded RJ45 • S/FTP cable • 360° connection of the braid to the connector screen • Length: 2,00 m	**> Cabled 568A, LSOH, 2 pairs**	**P39366A5**

SF/UTP CBE-RJ45 Patchcords • Metal Shell and shielded RJ45 • S/FTP cable • 360° connection of the braid to the connector screen • Length: 2,00 m	**> Cabled 568A, LSOH, 4 pairs**	**P39368A5**

4.2 Patchcords

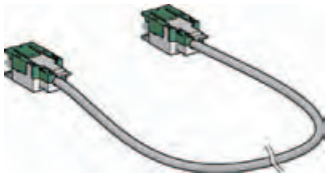
Ordering Information

Category 5e, 100 Ohm, Screened Cable



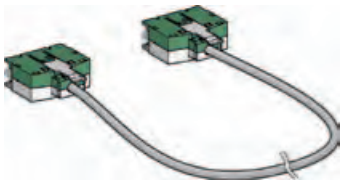
CBE-CBE Patchcords, Straight Cabling, Screened **> 1 pair**
- Grey/green polycarbonate shells
- F/UTP cable
- Drain connected to cable shield
- Straight cabling
- Length: 2,00 m

Ref. No. **P29362A5**



CBE-CBE Patchcords, Straight Cabling, Screened **> 2 pairs**
- Grey/green polycarbonate shells
- F/UTP cable
- Drain connected to cable shield
- Straight cabling
- Length: 2,00 m

P39482A5



CBE-CBE Patchcords, Straight Cabling, Screened **> 4 pairs**
- Grey/green polycarbonate shells
- F/UTP cable
- Drain connected to cable shield
- Straight cabling
- Length: 2,00 m

P39484A5

Ref. No.

CBE-RJ45 Patchcords, Screened **> 568A cabling, 2 pairs**
- Green/grey polycarbonate shell and F/UTP RJ45
- F/UTP cable with PVC jacket
- Drain connected to cable shield
- T568A Cabling
- Length: 2,00 m

P39370A5

CBE-RJ45 Patchcords, Screened **> 568A cabling, 4 pairs**
- Green/grey polycarbonate shell and F/UTP RJ45
- F/UTP cable with PVC jacket
- Drain connected to cable shield
- T568A Cabling
- Length: 2,00 m

P39374A5

Ref. No.

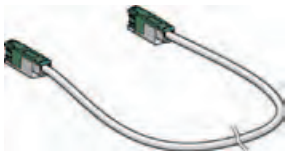
100 Ohm Patchcords for Ground Testing **> EIA/TIA cabling**
- Patchcord - screened RJ45 jack and CBE
- Drain connected to cable shield
- Length: 2,00 m

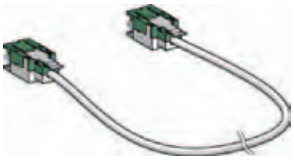
P12103A5

4.2 Patchcords

Ordering Information

Category 5e 100 Ohm U/UTP patchcords





		Ref. No.
CBE-CBE patchcords, U/UTP, straight cabling • Grey/green polycarbonate shells • U/UTP cabling • Straight cabling • Length: 2,00 m	**> LSOH, 1 pair**	**P39431A5**
CBE-CBE patchcords, U/UTP, straight cabling • Grey/green polycarbonate shells • U/UTP cabling • Straight cabling • Length: 2,00 m	**> LSOH, 2 pairs**	**P39432A5**

		Ref. No.
CBE-RJ45 Patchcables, U/UTP • Latched shell for 1 pair and UTP RJ45 • Length: 2,00 m	**> Cabling 7-8, PVC, 1 pair**	**P39827A5**

CBE-RJ45 Patchcables, U/UTP • Latched shell for 1 pair and UTP RJ45 • Length: 2,00 m	**> Cabling 4-5, PVC, 1 pair**	**P39829A5**

CBE-RJ45 Patchcables, U/UTP • Green/grey polycarbonate shell and UTP RJ45 • Length: 2,00 m	**> 568A Cabling, LSOH, 2 pairs**	**P39362A5**

CBE-RJ45 Patchcables, U/UTP • Green/grey polycarbonate shell and UTP RJ45 • Length: 2,00 m	**> 568A Cabling, LSOH, 4 pairs**	**P39364A5**

CBE-RJ45 Patchcables, U/UTP • Green/grey polycarbonate shell and UTP RJ45 • Length: 2,00 m	**> 568A Cabling, PVC, 2 pairs**	**P39824A5**

CBE-RJ45 Patchcables, U/UTP • Green/grey polycarbonate shell and UTP RJ45 • Length: 2,00 m	**> 568A Cabling, PVC, 4 pairs**	**P39826A5**

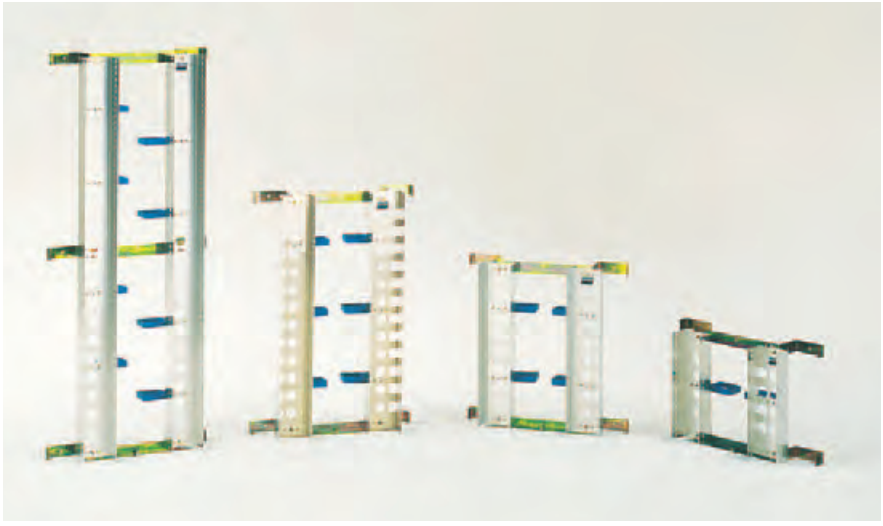
4.3 Frames, cabinets

Description - Small capacity 3M™ MRE / CIPE

A comprehensive range of wall mount frames for STG and RCP DDF connection modules. Suitable for both rear, side or mixed cabling (Rear cabling method or flat cabling method).

These frames can be delivered CKD and are manufactured using corrosion proof materials. A complete range of covers are also available which offer a further degree of protection.Suitable for all STG accessories and protection solutions (earth post).

CKD = Completely Knocked Down.



Specifications

- From 300 to 400 pair
- High density (16 mm pitch)
- Wide range
- CKD configuation
- Flat wall mount version (MRE)

4.3 Frames, cabinets

Technical Specifications

Type of frame	Number of ways	Maximum Capacity		Outline dimensions (mm)		
		8 pair	10 pair	width	height	depth (without modules)
CIPE 2 x 18	2 x 18	288	360	450	310	135
CIPE 2 x 28	2 x 28	448	560	450	460	135
CIPE 2 x 41	2 x 41	656	820	450	660	135
CIPE 2 x 65	2 x 65	1040	1300	450	1060	135
CIPE 2 x 90	2 x 90	1440	1800	450	1500	135
CIPE 2 x 124	2 x 124	1984	2480	450	2000	135
MRE 21 B 10	2 x 21	336	420	420	322	80
MRE 35 B 10	2 x 35	560	700	420	530	80
MRE 60 B 10	2 x 60	960	1200	420	930	80

Ordering Information

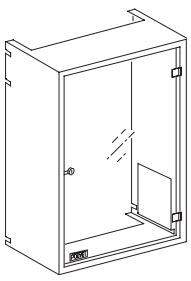
MRE frame for bottom cable access

Very flat wall mount frame, with cable access at the bottom of each backmount frame

Standard equipment

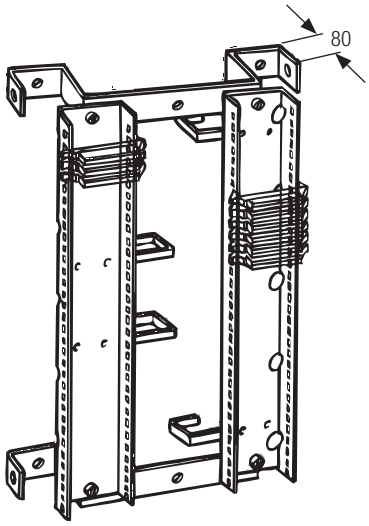
- 2 wall fixing bars
- 4 vertical jumper rings at the top
- 2 backmount frames (55 mm deep)
- Cable strain relief devices at the bottom of each profile

Assembled frames	**Ref. No.**
Assembled frames for 8 pair STG modules	
> **MRE 21 B8 2 x 21 ways**	**(on request)**
> **MRE 35 B8 2 x 35 ways**	**(on request)**
> **MRE 60 B8 2 x 60 ways**	**(on request)**
Assembled frames for 10 pair STG modules	
> **MRE 21 B10 2 x 21 ways**	**C232014A0000**
> **MRE 35 B10 2 x 35 ways**	**C232011A0000**
> **MRE 60 B10 2 x 60 ways**	**C232015A0000**



Cover for assembled frames	**Ref. No.**
> **MRE 21 B8 - steel door**	**NN3740630000**
> **MRE 35 B8 - steel door**	**NN374061VA00**
> **MRE 60 B8 - steel door**	**NN374062VA00**

4.3 Frames, cabinets

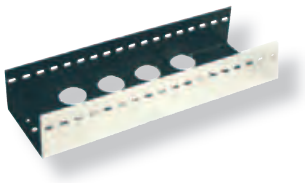


Ordering Information

CIPE frame for rear cable access
The cables come from the rear of the backmount frames

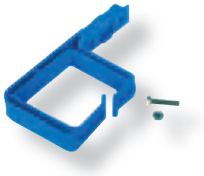
	Ref. No.
Frame for 8 pair STG modules	
> CIPE 2 x 18 ways	C232740A0000
> CIPE 2 x 28 ways	C232741A0000
> CIPE 2 x 41 ways	C232742A0000
> CIPE 2 x 65 ways	C232743A0000
> CIPE 2 x 90 ways	563121000000
> CIPE 2 x 124 ways	463392VA0000
Frames for 10 pair modules	
> CIPE 2 x 18 ways	C232750A0000
> CIPE 2 x 41 ways	C232752A0000
> CIPE 2 x 65 ways	C232753A0000

Accessories for CIPE frames



Set of 2 x 2 metre backmount frame for STG	Ref. No.
> 10 pair	C232280A0000
> 8 pair	C232281A0000

Wall mount supports	Ref. No.
> For 1 backmount frame	P6008AAA0000
> For 2 backmount frames	P6093AAA0000
Jumper routing devices	



	Ref. No.
> Set of 5 vertical jumper rings 50 x 55 mm	P24940AA0000

Horizontal routing rings to be mounted on backmount frame	Ref. No.
> Small size 38 x 50	P26665AA0000
> Large size 50 x 70	P26675AA0000

Description - Small capacity 3M™ QVG

The 3M distribution frame QVG is of use wherever a number of telecommunication components have to be clearly and practically mounted and connected in back mount frame, block, profile and DIN designs.

The 3M distribution frame, QVG, is a modular design using mounting rails, QRS, and wall mounting sets.

Mounting rail set QRS

Contains the mounting rail, wire guide ring for 1000 pairs for horizontal jumpers, a wire guide rail and wire guide rings for the vertical jumpers, plus system-related mounting material.

The mounting rail is available in three sizes - 700, 1000 and 1600 mm. The wire guide ring for 1000 pairs is locked onto the tail piece of the mounting rail. By locking a further wire guide ring onto the first, a second horizontal jumper level is added.

The design of the distribution frame allows the cable and jumper levels to be separated.

It is also possible to mount a cable channel (see order examples) and secure cables to the wire guide rail. In order to connect telecommunication components (except in back mount frames), the wire guide rings are attached to the mounting rail.

When using back mount frames (e.g. SID-C), the wire guide rings are mounted on the wire guide rail simply by re-plugging them. An additional wire guide rail can be added (see order examples). Three distribution frames are available: QVG 700, QVG 1000 and QVG 1600

Wall mounting rail set

Required for mounting the QRS. This contains two wall mounting rails with four tail-pieces plus mounting material. The tail-pieces serve for mounting the wall mounting rails to the wall, and, at the same time, provides an opportunity for bridgeless additions. The spaces between the mounting rails have various adjustments by using slide nuts. Cables are clamped via cable ties or hoop clamps (aperture width 16 mm).

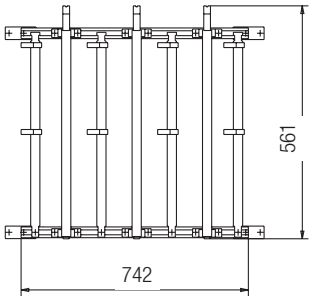
Two lengths are available:

- 550 mm for 2 QRS
- 750 mm for 3 QRS

Material

- Mounting rail set: stainless steel, diecast zinc
- Wall mounting rail set: sheet steel, chromed
- Synthetic parts: PA.

4.3 Frames, cabinets



Ordering Information

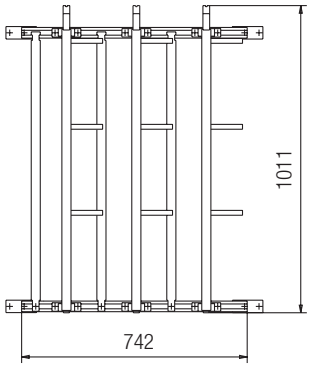
QVG 700 vertical wall mounted distribution frame

	Ref. No.
> **QRS 700** Mounting rail kit QRS 700 incl. wire guide rail	**41096-565 00**
Wall mounting rail kit	
> **WBS 550 mm** for 2 rows; Width: 550 mm	**41096-568 25**
> **WBS 750 mm** for 3 rows; Width: 750 mm	**41096-569 25**
> **DFS 700 mm** Wire guide rail kit 700 mm	**41096-562 00**
ID 3000 blocks can be fixed on the mounting rails	

Ordering example:

3-mounting frames for DIN design

3 x mounting rail kit QRS 700, incl. 1 wire guide rail	**41096-565 00**
1 x DFS 700 mm, wire guide rail kit 700 mm	**41096-562 00**
1 x wall mounting rail kit 750 mm long	**41096-569 25**



Ordering Information

QVG 1000 vertical wall mounted distribution frame

	Ref. No.
> **QRS 1000** Mounting rail kit QRS 700 incl. wire guide rail	**41096-566 00**
Wall mounting rail kit	
> **WBS 550 mm** for 2 rows; Width: 550 mm	**41096-568 25**
> **WBS 750 mm** for 3 rows; Width: 750 mm	**41096-569 25**
> **DFS 1000 mm** Wire guide rail kit 1000 mm	**41096-563 00**
> **SID-C FlexiRail QRS** for 46 strips (R=17.5) or 36 strips (R=22.5)	**79096-570 25**
ID 3000 blocks can be fixed on the mounting rails	

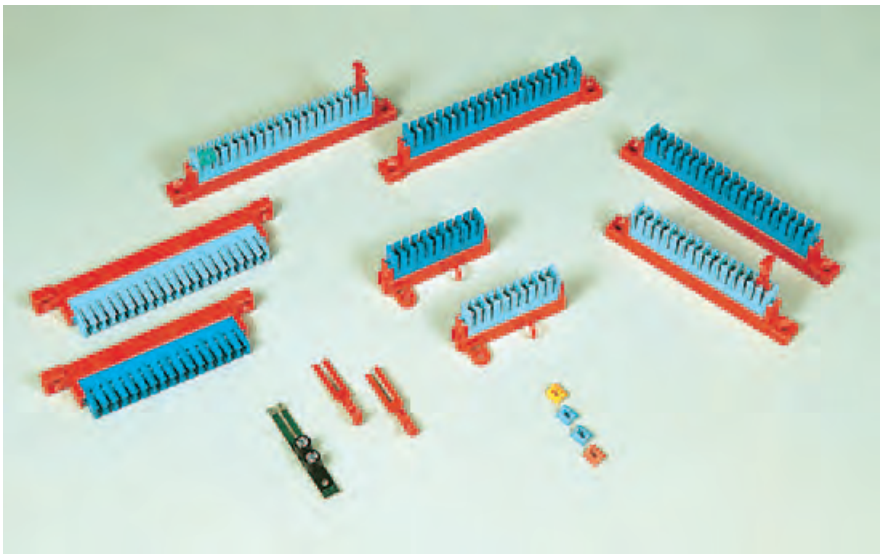
Ordering example:

3-mounting frames for DIN design

3 x mounting rail kit QRS 1000, incl. 1 wire guide rail	**41096-566 00**
1 x DFS 1000 mm, wire guide rail kit 1000 mm	**41096-563 00**
1 x wall mounting rail kit 750 mm long	**41096-569 25**

4.4 Building Distribution

Description - Connectors for distribution boxes 3M™ STS



- Connection strips with insulation displacement contacts (IDC) designed for screw mounting to a flat base (wall, box, channel).
- These strips can be screw fitted to any level surface and require no back mount profile or special support.
- The full range of modules comprises the following:
  - Disconnection module (STS C2)
  - STS modules are compatible with all STG accessories
  - To be upgraded with protection STS modules have to be equipped with multipair protection magazines with cord. (Refer to STG protection solutions)
- Extremely compact design 14 mm
  - insulated body in self-extinguishing polycarbonate (V0 rating to standard UL 94).

Distance between holes
5 pairs: 45 mm
10 pairs: 120 mm

Specifications

- Category 5
- Compact 14 mm pitch
- 5 and 10 pairs
- 0,4 to 0,8 mm wires

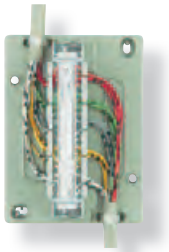
Ordering Information

Modules with disconnection and test in series facilities

	Ref. No.
disconnection modules	
> **STS C2,** 5 pairs cat 3	**MPA0210A0000**
> **STS C2,** 10 pairs cat 5	**C223756B0000**

Description - Building distribution boxes 3M™ VKK overview

3M VKK distribution boxes for 10 - 20 pair SID-CD



VKK 1

VKK 2

VKK 3

VKK distribution boxes for 10 and 20-pair, are a range of empty plastic boxes for use in surface mount indoor applications. Their primary use is for the mounting of SID-CD or DIN connection strips in 'dry room' environments.

Manufactured from thermoplastic synthetic material (ABS) the boxes offer a high degree of impact resistance. Knockouts are provided on all sides of the cover and within the base plate to provide cable inlets / outlets.

Each box is supplied complete with screws for the mounting of component parts. Maximum allowable height of internal components is 38 mm.

Protection Rating: **IP31 (EN 60529)**
Colour: **RAL 7032, Pebble grey**
Material: **ABS**

Possible Configurations

VKK 1

- 1 component part, hole-spacing 96 mm (e.g. 10-pair connection strip SID-CD or type A*)

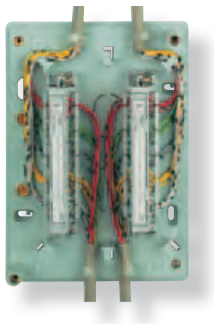
VKK 2

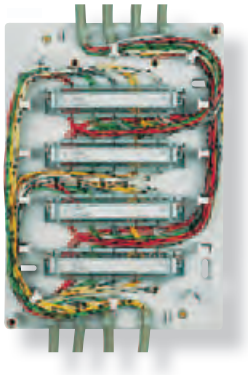
- 1 component part, hole-spacing 170 mm (e.g. 20-pair connection strip SID-CD/10, 20-pair type B*)

VKK 3

- 2 component parts, hole-spacing 170 mm (e.g. 20-pair connection strip SID-CD/10, 20-pair type B*)

3M VKK distribution boxes for 20 - 40 pair SID-CD





VKK distribution boxes for 20 and 40-pair, are a range of empty plastic boxes for use in surface mount indoor applications. Their primary use is for the mounting of SID-CD or DIN connection strips in 'dry room' environments.

Manufactured from thermoplastic synthetic material (ABS) the boxes offer a high degree of impact resistance. Knockouts are provided on all sides of the screw-on cover and within the base plate to provide cable inlets / outlets.

Each box is supplied complete with screws for the mounting of component parts, wire guide hooks and cable tie holders. Maximum allowable height of internal components is 38 mm.

Protection Rating: **IP31 (EN 60529)**
Colour: **RAL 7032, Pebble grey**
Material: **ABS**

Possible Configurations

K10/20

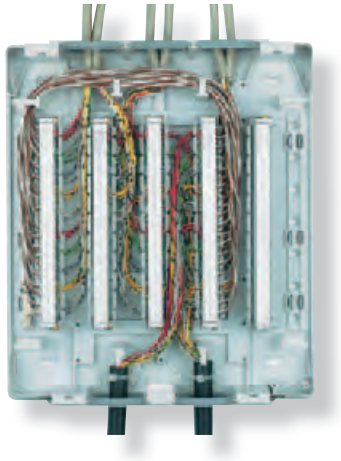
- 2 component parts, hole-spacing 96 mm (2 x 10-pair connection strips SID-CD)

K10/40

- 4 component parts, hole-spacing 96 mm (4 x 10-pair connection strips SID-CD)

*) Connection strip according to DIN 47614

4.4 Building Distribution



Description - Building distribution boxes 3M™ VKA 3K

3M Distribution box for 100 pair SID-CD

The VKA 3K distribution box is a surface mount empty housing for mounting connection strips in a 'dry room' environment.

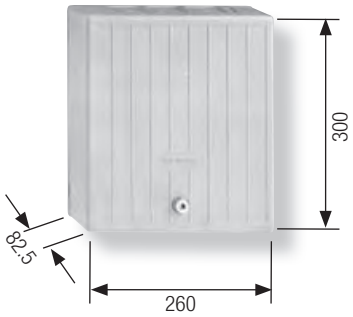
Manufactured in thermoplastic synthetic material (ABS) the housing offers both high impact and flame resistance.

Each housing includes a screw-on cover and base-plate that include 5 slide in plates with contoured knockouts, (3 in the top and 2 in the bottom). Cable strain relief is also provided at the cable inlet areas.

Protection Rating: **IP31 (EN 60529)**
Colour: **RAL 7032, Pebble grey**
Material: **ABS**

Possible Configurations

- Connection strips (hole-spacing 96 mm or 170 mm, respectively), 3 pcs. for 10 or 20 pairs each (screwing and soldering connections)
- SID-CD-strips:
  5 pcs. for 10 or 20 pairs each (max. 100 pairs)
- Or other components on the baseplate



Ordering Information

	Ref. No.
> **VKA 3K** PU: 1 pc, Weight: 0,9 kg	**50-100-00300**

Accessories for 3M VKA 3K

	Ref. No.
> **"Q2" lock** PU: 1 pc, Weight: 0,075 kg	**50096-505 00**

4.4 Building Distribution

Description - Building distribution boxes 3M™ VKA overview

3M VKA distribution boxes for 60 - 640 pairs

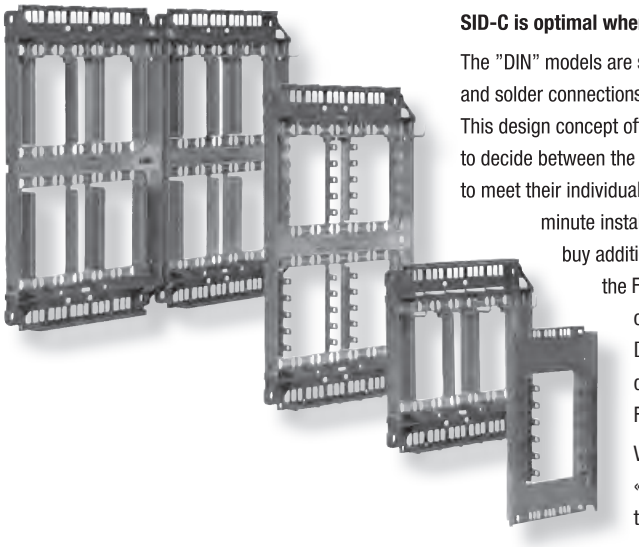
The VKA distribution boxes are designed to accommodate component parts with a mounting measurement of 170 mm (DIN strips), SID-C, SID-CD, as well as overvoltage protection modules.

The distribution boxes are available in four sizes capable of accommodating from 60 to 480 pairs for DIN strips. The SID-C system (depending on the housing size) accommodates a maximum of 80 to 640 pairs (recommended capacity: 480 pairs).

The distinguishing feature of this generation of distribution boxes is the rotating baseplate - "FlexiBase".
FlexiBase allows for flexible mounting: SID-CD strips (DIN design) can be mounted on one side, with a back mount frame or FlexiRail for SID-C integrated on the other side. FlexiRail allows for continuously variable module configuration.

"DIN-SID-C" - based on FlexiBase - is offered for VKA 4, VKA 8 and VKA 12.

"DIN-SID-C" stands for combined DIN and SID-C FlexiRail systems in a single housing.



SID-C is optimal where high density is required.

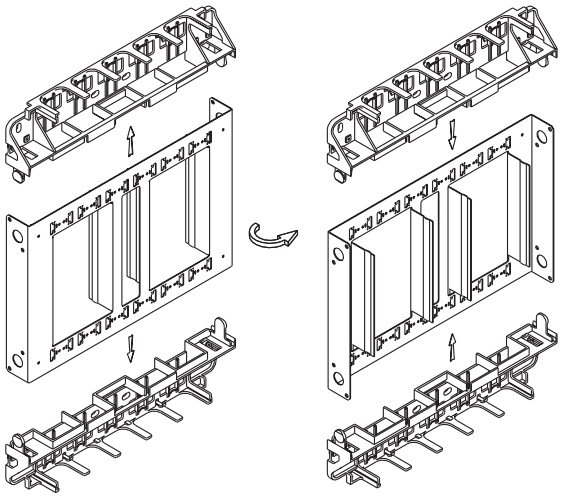
The "DIN" models are suitable for DIN strips (screw and solder connections).
This design concept offers users the possibility to decide between the DIN and frame systems to meet their individual needs for on-site, last-minute installation, without having to buy additional frames. Thanks to the FlexiBase, a quick "turn of the hand" transforms a DIN distributor into a frame distributor for SID-C with FlexiRail.

VKA2 / DIN as well as the «DIN-SID-C» models provide the ultimate solution for mounting SID-C strips even in DIN format (mounting measurement 170 mm). The strips are simply secured to the baseplate by means of special retaining clips without having to be screwed on which is a distinct assembly advantage. Furthermore, the retaining clips can be simultaneously used as wire guide hooks.

Cables are inserted through plastic caps with knockout contours, which are fastened to VKA 4, VKA 8 and VKA 12 mounting profiles and allow easy cover installation and removal in a mounted distribution box.

The distribution boxes are standard equipped with snap locks.
Safety locks are a retrofit option.

4.4 Building Distribution



Technical Specifications

Models

VKA 2 / DIN: Baseplate for DIN component parts
VKA 2 / SID-C: Baseplate with integrated SID-C FlexiRail

VKA 4, VKA 8 and VKA 12 in the following versions

DIN: With baseplate for all DIN component
With FlexiBase for SID-CD (DIN strips) and integrated FlexiRail for SID-C

Material

Baseplate: Galvanised steel
Cover: Powder-coated sheet steel with plastic caps.
Lock: Snap lock; lock kits optional.
Protection type: IP 40 (EN 60529)

Standard equipment

Baseplate with integrated SID-C FlexiRail.
Retaining clips / wire guide hooks for DIN models with Flexibase and VKA 2 / DIN; wire guide hooks for SID models;
ground terminals.

	Capacity/Max. Connections [pairs]	
Circuit	**DIN**	**SID-C**
VKA 2 / DIN	60	–
VKA 2 / SID-C	–	80
VKA 4 / DIN	120	160
VKA 8 / DIN	240	320
VKA 12 / DIN	480	(max.) 640 (recom.) 480

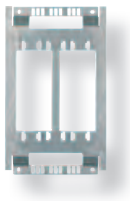
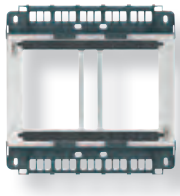
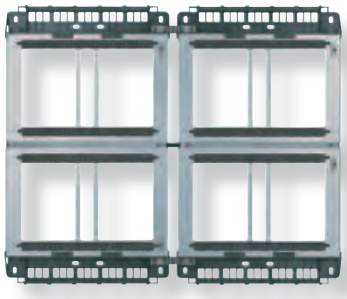
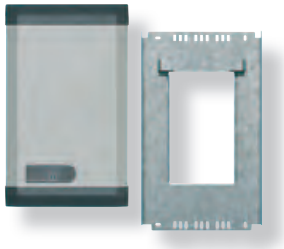
Ordering Information

Locking system for 3M VKA distribution boxes

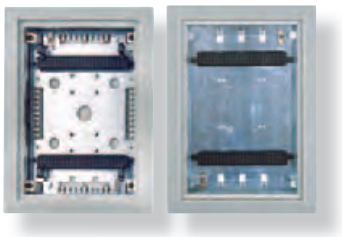
	Ref. No.
> **Q2 lock kit for VKA 4, VKA 8 and VKA 12** Weight: 0,5 kg	**52096-522 00**
> **Q3 lock kit for VKA 4, VKA 8 and VKA 12** Weight: 0,5 kg	**52096-520 00**
> **Q2 lock kit for VKA 2** Weight: 0,2 kg	**52096-523 00**
> **Q3 lock kit for VKA 2** Weight: 0,2 kg	**52096-521 00**
> **Monitoring switch** Cover contact applicable only in conjunction with lock kit. Weight: 0,05 kg	**52096-519 00**

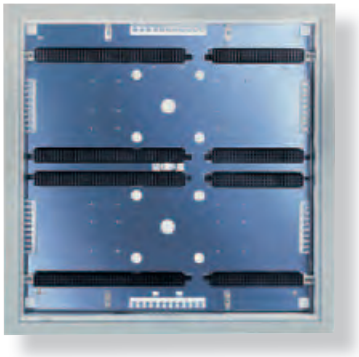
Ordering Information

Building distribution boxes 3M VKA 2 to 12/DIN, boxes for 60 - 640 pairs

	Ref. No.
	
> **VKA 2 /DIN** • Dimensions (H x W x D) 330 x 200 x 100 mm • Optional configurations: - 2 strips of 20 pairs (screw/solder type) - 3 strips 20 pairs SID-CD • Use of overvoltage protection possible • PU: 1 pc, Weight: 1,7 kg	**52-300-00000**
	
> **VKA 4 / DIN** • Dimensions (H x W x D) 330 x 330 x 125 mm • Optional configurations: - 4 strips of 20 pairs (screw/solder type) - 6 strips 20 pairs (SID-CD) - 16 strips 10 pairs (SID-C) • Use of overvoltage protection possible • PU: 1 pc, Weight: 2,8 kg • For use with SID-C please order 2x wire guide hooks • SID-C per distribution box	**52-302-00100**
> **VKA 8 / DIN** • Dimensions (H x W x D) 550 x 330 x 125 mm • Optional configurations: - 8 strips of 20 pairs (screw/solder type) - 12 strips 20 pairs (SID-CD) - 32 strips 10 pairs (SID-C) • Use of overvoltage protection possible • PU: 1 pc, Weight: 4,9 kg • For use with SID-C please order 4x wire guide hooks • SID-C per distribution box	**52-302-00200**
	
> **VKA 12 / DIN** • Dimensions (H x W x D) 550 x 665 x 125 mm • Optional configurations: - 16 strips of 20 pairs (screw/solder type) - 24 strips 20 pairs (SID-CD) - 64 strips 10 pairs (SID-C) • Use of overvoltage protection possible • PU: 1 pc, Weight: 9,2 kg • For use with SID-C please order 4x wire guide hooks • SID-C per distribution box	**52-302-00300**
> **Wire guide hooks SID-C**	**52096-533 00**
	
> **VKA 2 / SID-C** • 8 strips of 10 pairs (SID-C) • Use of overvoltage protection possible • PU: 1 pc, Weight: 1,7 kg	**52-300-00025**

4.4 Building Distribution





Description - Building distribution boxes 3M™ VKU

3M VKU flush mounted distribution boxes

VKU distribution boxes are a range of housings designed for flush mount applications.

Available in various materials and sizes to suit individual requirements.

VKU 2 to 8

Housing: Sheet steel, coated with stove-enamel.

Colour: RAL 7032, pebble-grey.

Cable insertion: Plastic inserts with knockout contours.

Lock: Catch type lock; safety lock as accessory.

Protection rating: IP 42 (EN 60529), depending on component specifications.

Max. allowable height of fitted component parts: 33...58 mm (depending on underplaster depth).

Standard equipment

- Flush-mounting box with plastic inserts
- ground terminals, fastening bars
- wire guide rings
- plaster compensation frame and door with designation cards and fasteners
- Screws for fastening connection strips.

Technical Specifications

Installation capacities Components with mounting measurement 170 mm	VKU 2	VKU 4	VKU 8
Form B connection strip	2	4	8
SID-CD 20 pairs	3	5	10

Ordering Information

	Ref. No.
> **VKU 2** 356 x 256 x 87 mm Wall opening (H x W x D): 310 x 210 ≥ 80 mm PU: 1 pc, Weight: 3 kg	**51-700-10200**

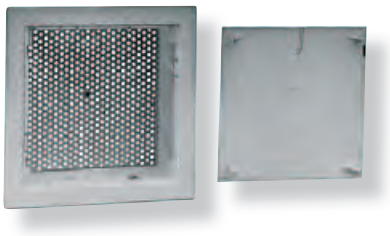
	Ref. No.
> **VKU 4** 356 x 356 x 87 mm Wall opening (H x W x D): 310 x 310 ≥ 80 mm PU: 1 pc, Weight: 4,6 kg	**51-700-10400**

	Ref. No.
> **VKU 8** 556 x 256 x 87 mm Wall opening (H x W xD): 510 x 310 ≥ 80 mm PU: 1 pc, Weight: 6,2 kg	**51-700-10800**

4.4 Building Distribution

Description - Building distribution boxes 3M™ VKU 1/20, VKU 1/40

3M VKU 1/20



Housing, frame and cover

Thermoplastic synthetic material (ABS), impact-resistant.
Colour: RAL 1013, pearl-white.
Perforated sheet base: Steel, chromed.
Cable insertion: Knockout markings on all sides of the flush-mounting box.
Protection rating: IP 31 (EN 60529).

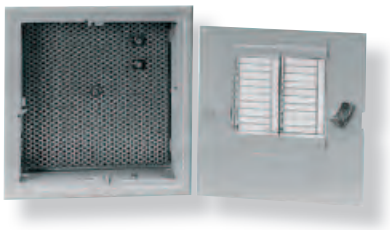
Standard equipment

- Flush-mounting box with perforated sheet base for installing component parts with self-tapping screws.
- Plaster compensation frame (adjustable to max. 10 mm) with cover insert.

Optional configuration

1 connection strip, mounting measurement 96 mm (2 fitting angles with screws to be ordered separately).

3M VKU 1/40



Housing, frame and cover

Sheet steel, stove-enamel finish.
Colour: RAL 7032, pebble-grey.
Cable insert: flush-mounting box with plastic elements inserted above and below and knockout markings left and right.
Protection rating: IP 31 (EN 60529).

Standard equipment

- Flush-mounting box with perforated sheet base for mounting component parts with self-tapping screws.
- 4 fitting angles with screws
- 2 clamps for ground lead
- Plaster compensation frame (adjustable to max. 12 mm)
- Cover with sash lock
- Slide-in inside inscription plate

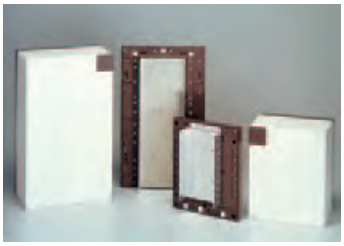
Optional configuration

Max. 2 connection strips, fitting measurement 96 mm.

Ordering Information

	Ref. No.
> **VKU 1/20** Flush-mounting PU: 1 pc, Weight: 0,17 kg	**53-000-00100**
> **VKU 1/40** Flush-mounting PU: 1 pc, Weight: 1 kg	**51-004-05100**
> **Q3 Lock**	**52323-508 25**

Description - Building distribution boxes 3M™ STB, 3M™ STF



3M STB - 3M STF indoor distribution boxes

The range of indoor distribution boxes is composed of complete boxes with connection modules (STB) and boxes to be equipped with STG connection modules (STF).

These boxes are suitable for all indoor applications and the cover can be removed from the base with 1/4 turn captive screws. Built in impact resistance polystyrene the protection class is IP 41, standard colour is RAL 9001 (cracked white). The box is designed to be mounted with 4 screws (not supplied).

On STF boxes and STB (30, 40, 50 pairs) each side of the box is made up of a sliding panel which can be removed. This allows for several boxes to be installed side by side with jumpers routed from one box to the other. A valuable feature when extending the number of lines in an installation.

STB fully equipped boxes

- STB 10 and 20 pairs:
  Compact boxes with lockable cover, based on STG IDC technology. The multipair cable is routed through the centre of the box with the distribution cables exiting through the side or the rear of the box. A specific high depth cover allows to install multipair protection magazines.
- STB 30, 40 and 50 pairs:
  STF boxes equipped with STS screw mount disconnection modules.

STF empty box for STG connection modules

- STF is available in two box sizes, 100 and 200 pairs. Provision in made to mount STG modules on an internal backmount frame with earth post
- The box is delivered complete with cable ties.

Specifications

- Possibility to install the boxes along each other
- Comprehensive range
- STG connection technology

Dimensions and capacities of the STF backmount frame

Description	Dimensions (mm) H	W	D	Fixing	Capacities STG base 10
Box STF B10 x 1 step	16	112	35	2 x Ø 4	1
Box STF B10 x 2 step	32	112	35	2 x Ø 4	2
Box STF B10 x 3 step	48	112	35	2 x Ø 4	3
Box STF B10 x 6 step	96	112	35	4 x Ø 4	6
Box STF B10 x 11 step	176	112	55	4 x Ø 4	11
Box STF B10 x 21 step	336	112	55	8 x Ø 4	21

Dimensions and capacities of the STF boxes

Description	Dimensions (mm) H	W	D	Capacities STG base 8	RCP	STG base 10
Box STF 80	210	175	121	10	10	
Box STF 160	350	210	121	20	20	
Box STF 160	210	175	121			10
Box STF 160	350	210	121			20

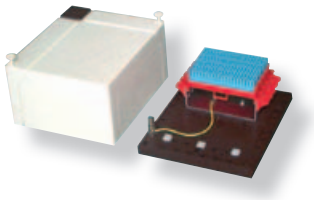
Dimensions of the STB boxes

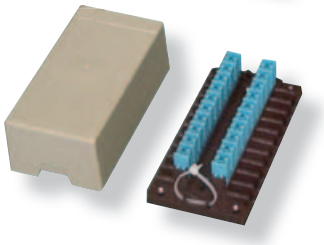
Description	Dimensions (mm) H	W	D
STB, 10 pairs	130	66	55
STB, 20 pairs	130	66	55
STB, 30 pairs	210	175	121
STB, 40 pairs	210	175	121
STB, 50 pairs	210	175	121

4.4 Building Distribution

Ordering Information

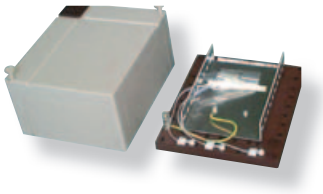
Box with connection modules





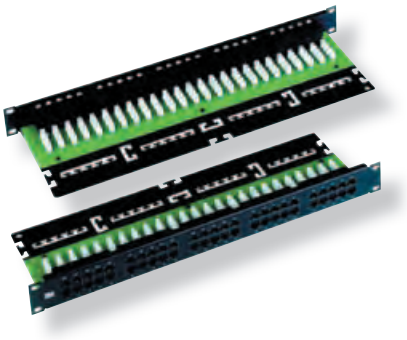
	Ref. No.
Compact box for 10 and 20 pairs	
> 10 pair disconnection box **STB C2 10**	**C227322A0000**
> 20 pair disconnection box **STB C2 20**	**C227323A0000**
Medium box 40 and 50 pairs	
equipped with STS connection modules	
> 40 pair disconnection box **STB C2 40**	**C227344B0000**
> 50 pair disconnection box **STB C2 50**	**C227346B0000**

3M STF empty boxes equipped with STG backmount frames



	Ref. No.
Medium and large size boxes	
STF for 8 pair STG modules	
> **80 pair medium STF box** 10 way STG 8 pair backmount frame	**C226020A0000**
> **160 pair large STF box** 20 way STG 8 pair backmount frame	**C226021A0000**
STF for 10 pair STG modules	
> **100 pair medium STF box** 10 way STG 10 pair backmount frame	**C226022A0000**
> **200 pair large STF box** 20 way STG 10 pair backmount frame	**C226023A0000**
Backmount frames for STF boxes Additional backmount frames can used to configure STF boxes with other capacities for STG 10 pairs (H 55)	
> **Set of 2 x 11 way backmount frame**	**C226004A0000**

4.4 Building Distribution



Description - Category 3 Punch Down Patch Panels

- The 3M category 3 punch down panels provide a point of integration of voice grade channels into structured cabling wiring.
- The ergonomic design allows easy installation into a 19" rack. High pair count telephony cables may be terminated into the 19" panel to provide a point of distribution using RJ45 connections.
- The panel is available in 25, 28, 50 or 56 ports.

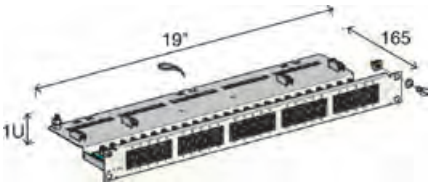
Features

- Uses SID punch down
- Allows use of RJ45 for telephony
- Supplied complete with all 19" mounting materials
- 25, 28. 50 or 56 ports in 1HU

Benefits

- Easy to install
- Allows integration of telephony into the structured wiring
- No need to purchase additional mounting material
- High density wiring minimising required rack space.

Ordering Information



		Ref. No.
Category 3 RJ45 Panel • For category 3 transmission • May be used with multipair cable (50 or 100 pair) • Cabling using pairs 3/6 and 4/5 • Wire diameter between 0.32 mm to 0.8 mm	**> 25 ports** **> 28 ports** **> 50 ports** **> 56 ports**	**VOLPP3B25P** **VOLPP3B28P** **VOLPP3B50P** **VOLPP3B56P**

> Punch down tool	**7939751200**

3M Telecommunications
Solutions for Networks

Solutions for Enterprise Networks

Numeric Content

3M

Enterprise Catalogue Numeric Content as Ref. No.

	Ref. No.	Type/Order Text	Chapter	Page
0	03-756-00500	Hinge to connect splicing cassette and lid	2	121
	05-00017	Lint Free Wipes	2	61 , 99
	05-661-02600	SID - Protection - 3-pole surge arrester with integrated fail-safe	4	183
	05-661-02600	QSA - Accessories - series 2 - 3-pole surge arrester with integrated fail-safe - 5A	4	191
	05-661-02800	SID - Protection - 3-pole surge arrester with integrated fail-safe	4	183
	05-661-02800	QSA - Accessories - series 2 - 3-pole surge arrester with integrated fail-safe - 10A	4	191
	05-760-08000	Splicing protection holder, crimp	2	121
	05-760-08100	Crimp splice protector	2	121
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VOL5EFLL3G	Copper Patchcord Category 5e F/UTP LSOH green - 3,00 m	1	42
VOL5EFLL3R	Copper Patchcord Category 5e F/UTP LSOH red - 3,00 m	1	42
VOL5EFLL3Y	Copper Patchcord Category 5e F/UTP LSOH yellow - 3,00 m	1	42
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VOL5EFP4305	Copper cable Category 5e F/UTP PVC - 4 pairs, 305m box	1	44
VOL5EUL41000	Copper cable Category 5e U/UTP LSOH - 4 pairs, 1000 m drum	1	44
VOL5EUL4305	Copper cable Category 5e U/UTP LSOH - 4 pairs, 305m box	1	44
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VOL5EULL1G	Copper Patchcord Category 5e U/UTP LSOH green - 1,00 m	1	43
VOL5EULL1R	Copper Patchcord Category 5e U/UTP LSOH red - 1,00 m	1	43
VOL5EULL1Y	Copper Patchcord Category 5e U/UTP LSOH yellow - 1,00 m	1	43
VOL5EULL2	Copper Patchcord Category 5e U/UTP LSOH grey - 2,00 m	1	43
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VOL5EULL2G	Copper Patchcord Category 5e U/UTP LSOH green - 2,00 m	1	43
VOL5EULL2R	Copper Patchcord Category 5e U/UTP LSOH red - 2,00 m	1	43
VOL5EULL2Y	Copper Patchcord Category 5e U/UTP LSOH yellow - 2,00 m	1	43
VOL5EULL3	Copper Patchcord Category 5e U/UTP LSOH grey - 3,00 m	1	43
VOL5EULL3B	Copper Patchcord Category 5e U/UTP LSOH blue - 3,00 m	1	43
VOL5EULL3G	Copper Patchcord Category 5e U/UTP LSOH green - 3,00 m	1	43
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VOL5EULL3Y	Copper Patchcord Category 5e U/UTP LSOH yellow - 3,00 m	1	43
VOL5EULL5	Copper Patchcord Category 5e U/UTP LSOH grey - 5,00 m	1	43
VOL5EULL5B	Copper Patchcord Category 5e U/UTP LSOH blue - 5,00 m	1	43
VOL5EULL5G	Copper Patchcord Category 5e U/UTP LSOH green - 5,00 m	1	43
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VOL5EUP81000	Copper cable Category 5e U/UTP PVC - 2 x 4 pairs, 1000 m drum	1	44
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VOL5EUPL2	Copper Patchcord Category 5e U/UTP PVC grey - 2,00 m	1	43
VOL5EUPL3	Copper Patchcord Category 5e U/UTP PVC grey - 3,00 m	1	43
VOL5EUPL5	Copper Patchcord Category 5e U/UTP PVC grey - 5,00 m	1	43
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VOL6AFFL8500	Copper cable Category 6A F/FTP - 2 x 4 pairs, 1000 m drum	1	19
VOL6AFL41000	Copper cable Category 6A F/UTP - 4 pairs, 1000 m drum	1	19
VOL6AFL4500	Copper cable Category 6A F/UTP - 4 pairs, 500 m drum	1	19
VOL6AFL8500	Copper cable Category 6A F/UTP - 2 x 4 pairs, 1000 m drum	1	19
VOL6AUFL41000	Copper cable Category 6A U/FTP - 4 pairs, 1000 m drum	1	19
VOL6AUFL4500	Copper cable Category 6A U/FTP - 4 pairs, 500 m drum	1	19
VOL6AUFL8500	Copper cable Category 6A U/FTP - 2 x 4 pairs, 1000 m drum	1	19
VOL6FL41000	Copper cable Category 6 F/UTP LSOH - 4 pairs, 1000 m drum	1	34
VOL6FL4500	Copper cable Category 6 F/UTP LSOH - 4 pairs, 500m drum	1	34
VOL6FL81000	Copper cable Category 6 F/UTP LSOH - 2 x 4 pairs, 1000 m drum	1	34
VOL6FL8500	Copper cable Category 6 F/UTP LSOH - 2 x 4 pairs, 500 m drum	1	34
VOL6FP41000	Copper cable Category 6 F/UTP PVC - 4 pairs, 1000 m drum	1	34
VOL6FP8500	Copper cable Category 6 F/UTP PVC - 2 x 4 pairs, 500 m drum	1	34
VOL6SSLL1	Copper Patchcord Category 6 S/FTP LS0H turquoise - 1,00 m	1	32
VOL6SSLL1B	Copper Patchcord Category 6 S/FTP LS0H blue - 1,00 m	1	32
VOL6SSLL1G	Copper Patchcord Category 6 S/FTP LS0H green - 1,00 m	1	32
VOL6SSLL1R	Copper Patchcord Category 6 S/FTP LS0H red - 1,00 m	1	32
VOL6SSLL1W	Copper Patchcord Category 6 S/FTP LS0H white - 1,00 m	1	32
VOL6SSLL1Y	Copper Patchcord Category 6 S/FTP LS0H yellow - 1,00 m	1	32
VOL6SSLL2	Copper Patchcord Category 6 S/FTP LS0H turquoise - 2,00 m	1	32
VOL6SSLL2B	Copper Patchcord Category 6 S/FTP LS0H blue - 2,00 m	1	32
VOL6SSLL2G	Copper Patchcord Category 6 S/FTP LS0H green - 2,00 m	1	32
VOL6SSLL2R	Copper Patchcord Category 6 S/FTP LS0H red - 2,00 m	1	32
VOL6SSLL2W	Copper Patchcord Category 6 S/FTP LS0H white - 2,00 m	1	32
VOL6SSLL2Y	Copper Patchcord Category 6 S/FTP LS0H yellow - 2,00 m	1	32
VOL6SSLL3	Copper Patchcord Category 6 S/FTP LS0H turquoise - 3,00 m	1	32
VOL6SSLL3B	Copper Patchcord Category 6 S/FTP LS0H blue - 3,00 m	1	32
VOL6SSLL3G	Copper Patchcord Category 6 S/FTP LS0H green - 3,00 m	1	32
VOL6SSLL3R	Copper Patchcord Category 6 S/FTP LS0H red - 3,00 m	1	32
VOL6SSLL3W	Copper Patchcord Category 6 S/FTP LS0H white - 3,00 m	1	32
VOL6SSLL3Y	Copper Patchcord Category 6 S/FTP LS0H yellow - 3,00 m	1	32
VOL6SSLL5	Copper Patchcord Category 6 S/FTP LS0H turquoise - 5,00 m	1	32
VOL6SSLL5B	Copper Patchcord Category 6 S/FTP LS0H blue - 5,00 m	1	32
VOL6SSLL5G	Copper Patchcord Category 6 S/FTP LS0H green - 5,00 m	1	32
VOL6SSLL5R	Copper Patchcord Category 6 S/FTP LS0H red - 5,00 m	1	32
VOL6SSLL5W	Copper Patchcord Category 6 S/FTP LS0H white - 5,00 m	1	32
VOL6SSLL5Y	Copper Patchcord Category 6 S/FTP LS0H yellow - 5,00 m	1	32
VOL6UL41000	Copper cable Category 6 U/UTP LSOH - 4 pairs, 1000 m drum	1	34
VOL6UL4305	Copper cable Category 6 U/UTP LSOH - 4 pairs, 305m box	1	34
VOL6UL81000	Copper cable Category 6 U/UTP LSOH - 2 x 4 pairs, 1000 m drum	1	34
VOL6UL8500	Copper cable Category 6 U/UTP LSOH - 2 x 4 pairs, 500 m drum	1	34
VOL6ULL1	Copper Patchcord Category 6 U/UTP LS0H turquoise - 1,00 m	1	33
VOL6ULL1B	Copper Patchcord Category 6 U/UTP LS0H blue - 1,00 m	1	33
VOL6ULL1G	Copper Patchcord Category 6 U/UTP LS0H green - 1,00 m	1	33
VOL6ULL1R	Copper Patchcord Category 6 U/UTP LS0H red - 1,00 m	1	33
VOL6ULL1W	Copper Patchcord Category 6 U/UTP LS0H white - 1,00 m	1	33
VOL6ULL1Y	Copper Patchcord Category 6 U/UTP LS0H yellow - 1,00 m	1	33
VOL6ULL2	Copper Patchcord Category 6 U/UTP LS0H turquoise - 2,00 m	1	33
VOL6ULL2B	Copper Patchcord Category 6 U/UTP LS0H blue - 2,00 m	1	33
VOL6ULL2G	Copper Patchcord Category 6 U/UTP LS0H green - 2,00 m	1	33
VOL6ULL2R	Copper Patchcord Category 6 U/UTP LS0H red - 2,00 m	1	33
VOL6ULL2W	Copper Patchcord Category 6 U/UTP LS0H white - 2,00 m	1	33
VOL6ULL2Y	Copper Patchcord Category 6 U/UTP LS0H yellow - 2,00 m	1	33
VOL6ULL3	Copper Patchcord Category 6 U/UTP LS0H turquoise - 3,00 m	1	33
VOL6ULL3B	Copper Patchcord Category 6 U/UTP LS0H blue - 3,00 m	1	33
VOL6ULL3G	Copper Patchcord Category 6 U/UTP LS0H green - 3,00 m	1	33
VOL6ULL3R	Copper Patchcord Category 6 U/UTP LS0H red - 3,00 m	1	33
VOL6ULL3W	Copper Patchcord Category 6 U/UTP LS0H white - 3,00 m	1	33
VOL6ULL3Y	Copper Patchcord Category 6 U/UTP LS0H yellow - 3,00 m	1	33

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VOL6ULL5B	Copper Patchcord Category 6 U/UTP LS0H blue - 5,00 m	1	33
VOL6ULL5G	Copper Patchcord Category 6 U/UTP LS0H green - 5,00 m	1	33
VOL6ULL5R	Copper Patchcord Category 6 U/UTP LS0H red - 5,00 m	1	33
VOL6ULL5W	Copper Patchcord Category 6 U/UTP LS0H white - 5,00 m	1	33
VOL6ULL5Y	Copper Patchcord Category 6 U/UTP LS0H yellow - 5,00 m	1	33
VOL6UP41000	Copper cable Category 6 U/UTP PVC - 4 pairs, 1000 m drum	1	34
VOL6UP4305	Copper cable Category 6 U/UTP PVC - 4 pairs, 305m box	1	34
VOL6UP81000	Copper cable Category 6 U/UTP PVC - 2 x 4 pairs, 1000 m drum	1	34
VOL6UPL1	Copper Patchcord Category 6 U/UTP PVC turquoise - 1,00 m	1	33
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VOL-C6L /R 15	VF-45 Patchcord - SC, 62,5/125, LSZH - 15m	2	66
VOL-C6L /R 2	VF-45 Patchcord - SC, 62,5/125, LSZH - 2m	2	66
VOL-C6L /R 3	VF-45 Patchcord - SC, 62,5/125, LSZH - 3m	2	66
VOL-C6L /R 30	VF-45 Patchcord - SC, 62,5/125, LSZH - 30m	2	66
VOL-C6L /R 5	VF-45 Patchcord - SC, 62,5/125, LSZH - 5m	2	66
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