

Ordering Guide of the Generic Mixed Shelf (FIST-GMS2)



This document provides assistance with the selection of shelves for use in FIST cable termination applications.

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1 Product description

The Generic Mixed Shelf, FIST-GMS2, is a multi-purpose mechanical shelf assembly for the FIST fiber management system in a rack environment.

The product is used to store splices of external cable to pigtails. These shelves combine splice storage and patching functions.

It can be installed in Tyco's FIST racks and other 19" or metric (ETSI) rack sizes.



GMS2A.JPG

FIST-GMS2 Generic Mixed Shelf

Accessories are available for termination of most common cable types.

Modular wraparound groove plates can be clicked in the UMS (Universal Mounting System) profile. They provide the foundation for mounting combinations of SOSA2 (Splicing Only Sub-Assembly) and/or SASA2 (Splitter Array Sub-Assembly) modules.

A 24 unit patch panel is provided which can accommodate:

- connector adapters for all common connector types
- kevlar termination units (KTU's) to provide the necessary strain relief when terminating common pigtail types.
- a mix of connector adapters and KTU's

The shelf is delivered with a metal cover.

Two identification cards and two card holders are provided at the back side of the front cover. (Cards will be visible when the cover is open).

2 Ordering information

2.1 Order quantity / lead time

Products and accessories are grouped in three classes.

- Class A standard products, small MOQ
- Class B standard products, standard MOQ
- Class C special products, higher MOQ, longer lead times, due to the lead time of the specific components in those products

The class of a component or accessory provides additional information on:

- MOQ Minimum Order Quantity
- SPQ Standard Packaging Quantity

MOQ and SPQ are used to calculate the correct order quantity of the desired component and/or accessory:

$$\text{Order quantity} = \text{MOQ} + n \times \text{SPQ} \quad (n \geq 0)$$

2.2 How to order this product?

A. Order the application kit

An application kit has been identified for an easy product selection and ordering. This kit contains all necessary accessories for a certain application and fiber count. The information can be found in paragraph 2.3.

Order the shelf and its accessories separately

For maximum flexibility, the shelf and the accessories can be ordered as separate items. The information can be found in paragraphs 2.4 and 2.5.

This is recommended when:

- other connector types are used
- Ribbon fiber is used
- Central Core cable is used
- the shelf is not completely filled up (e.g. when future extensions are planned)
- the required configuration is not covered by the application kits (e.g. ANT splice holders, using Single-Element trays, back-termination of cable,)
- a mix of tray types (e.g. single fiber trays and ribbon trays) has to be used on one shelf.
- connector adapters and KTU's are used in one shelf

2.3 Application kits

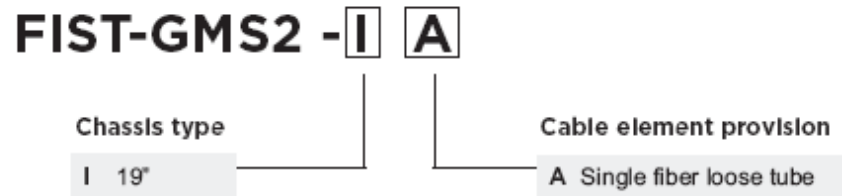
The following kits can be ordered as **FIST-GMS2-KIT01**

Kit content

- GMS2 (for standard kit contents, please refer to paragraph 2.4)
- Chassis type 19"
- SOSA2's for indicated fiber count. Groove plates are pre-installed.
- Pre-installed connector adapters and retainers and pre-installed secondary coated pigtailed from the patch panel routed onto the trays
- Heat-shrinkable splice protectors
- 24 F, SC/UPC connectors
- Application for single fiber loose tube cable

For the exact kit contents please refer to addendum 1.

2.4 Shelf name string



Standard kit content

- 19" Shelf assembly with UMS profile
- Application: single fiber loose tube
- Mounting brackets
- 24 unit patch panel
- Pre-installed short FAS (Fiber Arrangement System) block with 1 tube holder and cover for controlled fiber routing
- 16 tubes (3.1mm Ø) for single fiber loose tube
- One trumpet for guiding pigtails as they exit the shelf
- Identification labels and collets
- Velcro (pre-installed)
- Shelf cover (pre-installed)
- A double flex clip and tie-wraps are provided to fix the flex tube that guides the loose tubes from the cable attachment point in the rack towards the shelf. (The flex tube should be ordered separately).
- Tray lid + fiber guiding pin
- Mounting screws and nuts
- Installation Instructions
- Identification cards and card holders

2.5 Accessories

2.5.1 Cable termination kits

Name	Qty/Pk	Description
FIST-GR-CTB100	1 pc	Cable termination kit for max. 2 loose tube ribbon cables
FIST-GR-CTB100-CC	1 pc	Cable termination kit for max. 2 central core cables (single fiber or ribbon)
FIST-GSS2-CT-BS-2	1 pc	Kit to terminate loose tube single fiber cable at the back of the shelf. Cable jacket and strength member attachment are at the back of the shelf.
FIST-GSS2-CT-BR-2	1 pc	Kit for back cable entrance – no components for strength member attachment and cable jacket fixation included (this is done in the rack).

2.5.2 Connector adapters and KTU's

Name	Qty/Pk	Description
Connector adapters		See the 'Connectorized Cable Assemblies' ordering guide
FSA-ADK-H1-4	2 pc	Wraparound KTU with retainer for 2 single fiber pigtails (Ø range 1.6 to 3.1 mm) or 1 ribbon pigtail

2.5.3 Pigtails

See the ordering guide for single mode cable assemblies.

2.5.4 Other accessories

Name	Qty/Pk	Description
FIST-GS-FLEX-17-50-S5027	50 m	Flexible tubing (ID 17mm) for protection of the loose tubes between the outer sheath cut and the shelf. Average use (for fully populated shelf: 1 meter per cable).
FISTV-E7187-6316	25 m	Velcro roll
FISTV-E7186-0510-S5027	30 m	FOPT-CT transportation tubing
FIST-KTU2	50 pc	Wraparound KTU for 2 single fiber pigtails (∅ range: 1.6 to 3.1 mm) or 1 ribbon pigtail
FIST-MB2-M	1 pc	Adaptation bracket 19"-ETSI
FIST-MB2-M-AS	1 pc	Adaptation bracket 19"-ETSI (asymmetrical mounting)

2.6 Installation tools

Name	Qty/Pk	Description
FACC-ALLEN-KEY-5-350	1 pc	Allen key, diameter 5 mm, length 350 mm
FACC-CAGE-NUT-TOOL	1 pc	Cage nut installation tool
FACC-TUBE-CUTTER-01	1 pc	Tube cutter RS 722-192
FACC-TUBE-STRIPPER-02	1 pc	Tube stripper OPTI-STRIP

3 Product guide

3.1 Product description

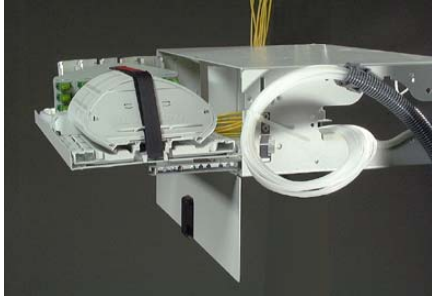
3.1.1 Standard shelf

Chassis and drawer

The FIST-GMS2 chassis are ready to be fitted inside an optical rack using mounting brackets, screws and cage nuts.

The shelf will be delivered in 19" version.

All chassis are painted. (color RAL 7035)



GSS20G13.JPG

Mounting brackets

The sub-rack has field-mountable brackets to accommodate for:

- Front mounting of the shelf
- Mounting with brackets 240mm from the back of the shelf.
- Mounting specifically for Tyco Electronics' FIST Racks
- Back mounting



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UMS profile and wraparound groove plates

On the UMS profiles, the wraparound groove plates can be clicked.

Groove plates are available for single fiber and in different sizes. See SOSA2 ordering guide for more details.

All shelves have a pre-installed UMS profile of 24 (19") units.



GSS20G14.JPG

Cover

When the drawer is in its resting position, a metal cover is held on the front of the chassis by a latch.

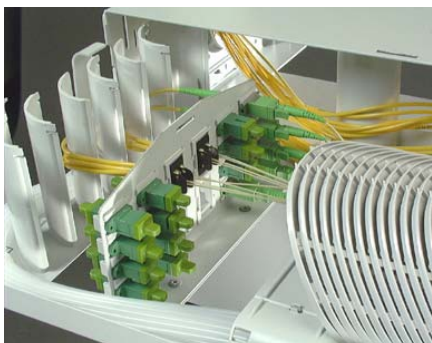
Inside, the organizer and contents are protected and since cable and/or pigtails exit through the side of the chassis, everything is safely located inside the rack, which therefore presents a clean and uncluttered appearance. The cover hinges and can easily be removed.



GSS20G15.JPG

Patch panel

The patch panel can house a maximum of 24 connector adapters or KTU's.



GSS20G16.JPG

Transportation tubes

Transportation tubes are pre-installed to ensure that:

- all cable elements are carried securely from the cable jacket termination to the entry of the FAS block.
- all bend radii are respected during drawer movement.

The tubes are secured on the short FAS block by tube holders.



GSS20G17.JPG

For single-fiber loose tube cables the following is installed:

- 16 tubes (Ø 3.1 mm). Provision has been made to enter the shelf with the tubes from the right. All tubes enter the FAS block at the same side.

3.1.2 Product alternatives

The standard shelf can be adapted to suit specific needs:

- - Cable layouts can be changed: cables can enter from the back, left or right
- - Different configurations and quantities of tubes

These specials need to be engineered and will get a specific ordering code.

Please contact your local sales engineer for more information.

3.2 Shelf dimensions

	Chassis standard 19"
Width (with/without mounting brackets)	481 / 444 mm
Height	125 mm
HU-Height Units	(requires 3 19" HUs)
Depth	280 mm

Note: An HU is a "height unit". Refer to rack documentation for more details.

3.3 Shelf capacity

3.3.1 General

	19"
UMS profile length (units) (a)	24
Patch panel capacity (b) (max. number of connector adapters or KTU's)	24
Pigtail (900μ) length inside the shelf	2 m
Patch cord length inside the shelf (from the trumpet till the patch panel) (c)	0.8-1.0 m

- (a) The number indicated is the space that can be occupied by trays. A single circuit tray occupies 1 unit; a single element tray occupies 2 units; a R12 tray needs 3 units. One UMS profile length unit equals 6 mm.
- (b) The capacity is expressed for standard connectors.
- (c) This patch cord length is measured for the open shelf, to allow access after installation.

3.3.2 Splicing cable to pigtails using connectors (patching facility)

Loose tube - Central core cable

	19"		
	Fibers	Trays	Free UMS
Single circuit splicing capacity			
2 secondary coated fibers - SC	24	12	12

Note: 'Free UMS' indicates the free space on the UMS profile which can eventually be used for 'cable to cable' splicing applications.

3.3.3 Splicing cable to pigtails using KTU's (no patching facility)

Loose tube - Central core cable

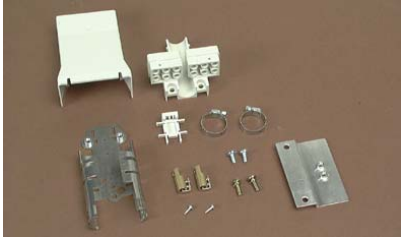
	19"		
	Fibers	Trays	Free UMS
Single circuit splicing capacity			
2 secondary coated fibers - SC tray	48	24	0
Single element splicing capacity			
4 secondary coated fibers - SE tray	48	12	0

Note: 'Free UMS' indicates the free space on the UMS profile which can eventually be used for 'cable to cable' splicing applications.

3.4 Accessories

The following accessories are ordered separately for field installation.

3.4.1 Cable termination kits



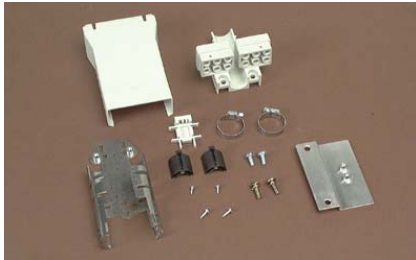
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Loose tube ribbon cable termination kit

FIST-GR-CTB100

Cable termination kit for max. 2 ribbon loose tube cable. Can be mounted next to the shelf. Up to 6 tubes of R12.

Strength member fixation compatible with most types of strength members (1.5-5 mm Ø).



GC020G15.JPG

Central core cable termination kit

FIST-GR-CTB100CC

Cable termination kit for max. 2 central core cables. Can be mounted next to the shelf.

Strength member fixation (till 2.5 mm Ø).



7N3K5398.JPG

Back cable termination kit – strength member fixation on shelf

FIST-GSS2-CT-BS-2

Cable termination kit for max. 2 single fiber loose tube cables, to be mounted at the back of the shelf. The kit includes components for strength member fixation and cable jacket fixation onto the shelf.



7N3K5398.JPG

Kit for back cable entrance - strength member fixation in rack

FIST-GSS2-CT-BR-2

Kit for back cable entrance into FIST-GMS2 for max. 2 single fiber loose tube cables, to be mounted at the back of the shelf.

This kit is applicable when the cable strength member and jacket are fixed in the rack and when the loose tubes are guided in a flextube from the cable attachment point in the rack towards the shelf back. The kit does not include components for strength member fixation and cable jacket fixation.

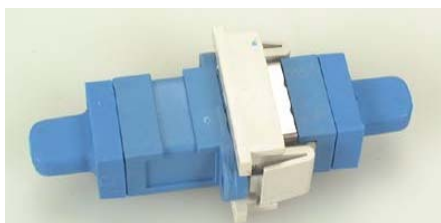
3.4.2 Connector adapters and KTU's

Connector adapters

OC-ADK-XX-XX-NNCS

For maximum flexibility, connector adapters can be installed in the patch panel. To define your type, please consult the ordering guide for single-mode cable assemblies.

Always select connector adapters with retainers.



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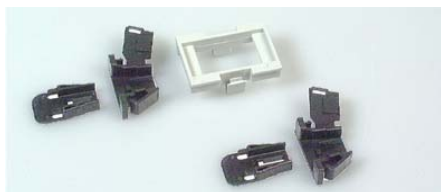
2 KTU's and retainer

FSA-ADK-H1-4

For maximum capacity, Kevlar Termination Units can be installed in the patch panel.

Each KTU can accommodate:

- 2 individual pigtails (single fiber) – max. dia. 3.1 mm or
- 1 Ribbon pigtail (Ribbon4, Ribbon8, Ribbon12)



GSS20G20.JPG

3.4.3 Pigtails



P&J012.JPG

For more information, please refer to the ordering guide of single-mode cable assemblies.

Select the following when connector adapters are used:

- a pigtail to be routed from the patch panel to the organizer trays. Select cable type ASEN (secondary coated fiber - semi-tight) and cable length 02M (2 meters)

Example : OCP-T-S0-02MASEN-XX (1 SC/PC pigtail)

- a jumper to make the connection between the electronics and the GMS subrack.

Select the following when KTU's are used:

- a pigtail to go directly from the electronics, via the KTU to the organizer trays. Add 2 meters for storage within the GMS shelf.

3.4.4 Other accessories

Flexible tubing

FIST-GS-FLEX-17-50-S5027

When guiding the loose tubes from the cable opening in the rack to the entrance of the shelf, flexible tubing is used to protect loose tubes and to control the bend radius.

It has an inner diameter of minimum 17 mm and a capacity of up to 8 loose tubes.



RA11.JPG

Velcro

FISTV-E7187-6316

Velcro to segment or secure pigtails. Supplied on a roll 25m long (width 25 mm) to be cut on length as required.



FRWR044.JPG

Fiber protection tube

FISTV-E7186-0510-S5027

FOPT-CT fiber protection tube for optional use as a transition tube between the loose buffer tube and the pre-installed CS tubing of the shelf.



I&C013.JPG

Kevlar termination unit

FIST-KTU2

Wraparound KTU. The KTU can accommodate:

- 2 single fiber pigtails with a maximum diameter of 3.1 mm or
- one Ribbon4 pigtail or
- one Ribbon8 pigtail or
- one Ribbon12 pigtail



GSS20G10.JPG



7N3K4322.JPG

ETSI-19" adaptation mounting brackets

FIST-MB2-M

Adaptation bracket 19"-ETSI. These brackets should be used when a 19" shelf is mounted in an ETSI rack.



7N3K4323.JPG

Asymmetrical ETSI-19" adaptation mounting brackets

FIST-MB2-M-AS

Adaptation bracket 19"-ETSI. These brackets should be used when a 19" shelf has to be mounted asymmetrically in an ETSI rack. A modified trumpet is provided in the kit in case a trumpet has to be mounted at the 'narrow' side.

3.5 Tools



T004.JPG

Allen key

FACC-ALLEN-KEY-5-350

Allen key, diameter 5 mm, length 350 mm for easy back mounting of shelf in rack.



T023.JPG

Cage nut tool

FACC-CAGE-NUT-TOOL

Cage nut tool to install or remove cage nuts in racks.



T007.JPG

Tube cutter

FACC-TUBE-CUTTER-01

Tube cutter to cut fiber optic protection tubes used with the FIST organizer management system.



T017.JPG

Tube stripper

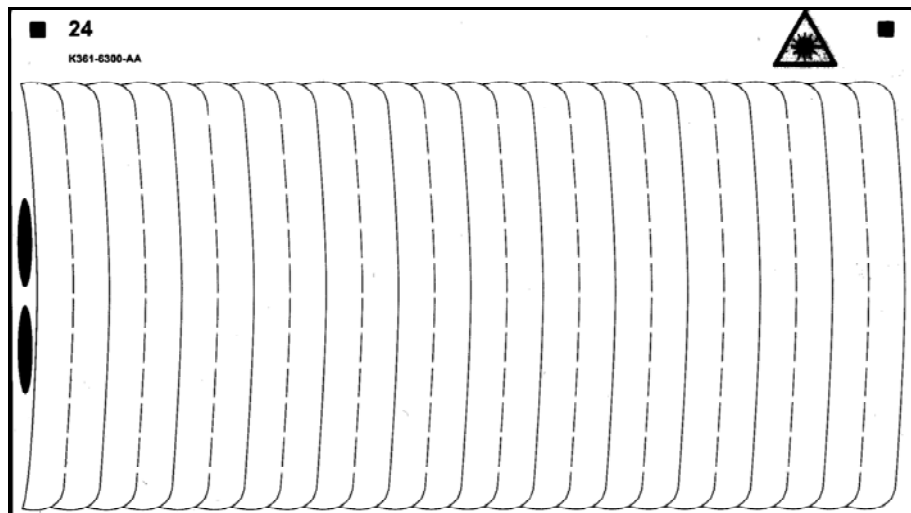
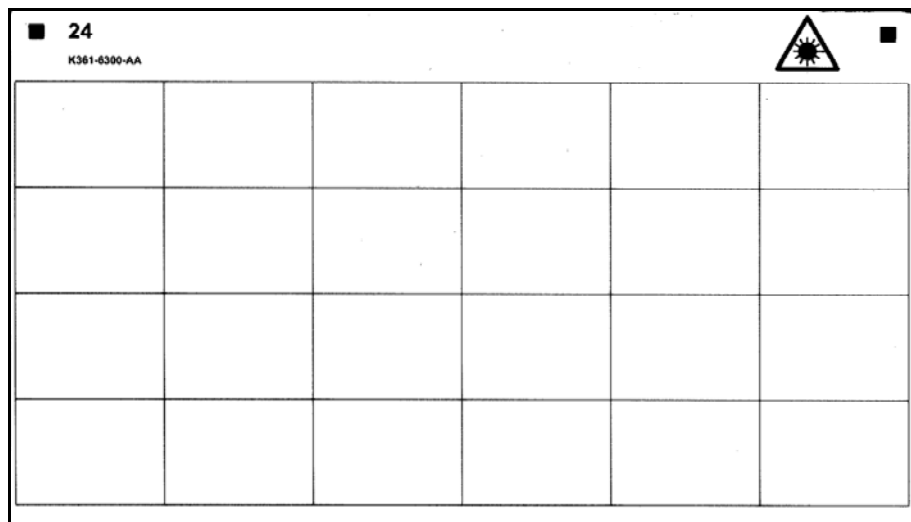
FACC-TUBE-STRIPPER-02

Tube stripper OPTI-STRIP to cut the loose buffer tubes of the fiber cable in confined spaces.

Addendum 1: Application kit contents for FIST-GMS2

Kit content	1
FIST-GMS2-IA	1
FIST-SOSA2-4SC-S	1
FIST-SOSA2-8SC-S	1
SMOUV-1120-02	24
OC-ADK-S1-S1-NNCS	24
OCP-T-S1-02MASEN-XX	24

Addendum 2: Identification card layout



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