

FO 19" 1U Splice-box / Break-Out-Box



Fiber Optic Solutions

The standard solution for price conscious users



Convincing cabling solutions

Your decision for the future.

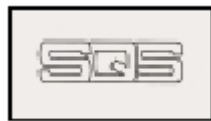
Choosing the right network is one of the most important and far-reaching decisions an IT manager or network specialist will ever have to make. The volume of data traffic rises inexorably, with transmission capacity growing tenfold every two or three years. Technology, as they say, marches on. So finance is not the only factor to be considered in a major network investment: the decision must take account of future requirements and developments.

Nowadays, a top-of-the-range cabling system has to be flexible and modular to keep pace with long-term requirements. If an upgrade becomes necessary in the future – to add bandwidth, for instance – it must be a job that can be carried out quickly and simply, without the need for major investment.

R&M's fiber optic products make high-quality LAN cabling systems that leave room for adaptation and sufficient bandwidth for future expansion. But why not discover the intelligence, versatility and quality of R&M's product range yourself.

Version 1.0

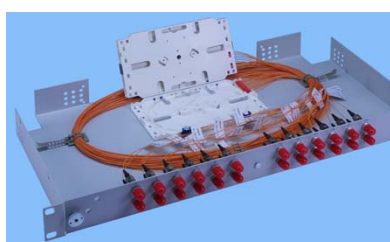
August 2002



ISO 9001 quality standard

This document has been drafted with utmost care and reflects the products engineering level at the time of publication. Amendments or corrections to this document will be included in each new edition. Subject to technical change without notice.

Ordering Information	Contents	Page
	Introduction	2
	Products Overview	2
	Customer Benefits	3
	FO 19" 1U Versions	4
	FO 19" 1U Splicebox (splice version)	4
	FO 19" 1U Break-Out-Box (break-out version)	5
	FO 19" Accessories	6
	FO 19" 1U Versions	6
	FO Specifications	8
	FO 19" 1U Versions	8
	FO Connectors, Material and Optical Specifications	9



Introduction

FO Products Overview

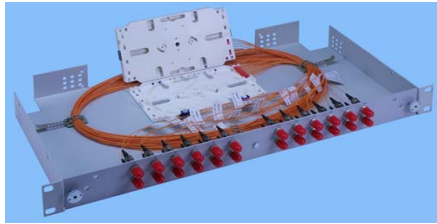
FO 19" 1U /2U Versions (patch panel)

R&M's 1U/2U versions find their typical applications in PON network structures (Passive Optical Networks) in public as well as private fiberoptic networks. The 1U and 2U Version may be used in WAN- as well as in LAN applications for point to point connections. Cables with a fiber count of up to 72 can be terminated onto the already prepared pigtailed respectively adaptors. It was conceived to realize a clear separation of the various distribution cables to the main cable.

R&M is now offering a **standard** and a **high quality** solution for 19" installation technique. With our know-how received through our internationality in research, development and production our technically well designed 19" products are proved successfully world wide.

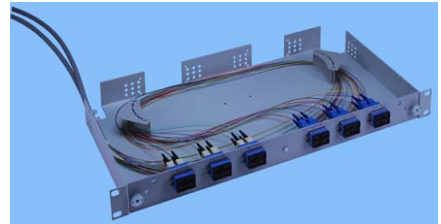
The standard solution for price conscious users, see page 4-5

The new Fiberoptic 1U Splicebox / Break-Out-Box is the best compromise between functionality and cost effectiveness. It is always used to build up an optical distribution frame on 19" technique. The box is used, when there is no need to have a drawer to slide out.



Splice version

FO 19" 1U Splicebox



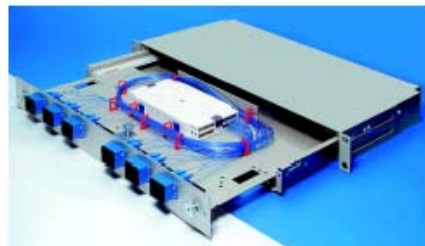
Break-out version

FO 19" 1U Break-Out-Box

The high quality solution for highest operational reliability see catalogue 305469, page 11-22

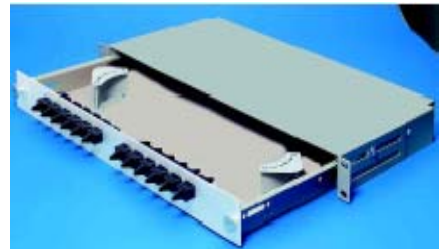
The main feature of R&M's UniRack, FibereasyRack, FOMRack or Rack R40 is the recessable 19" sliding unit on 1 height unit. The cable entry on the 19" Panel can be done either from the side or the rear. The splice version may accommodate up to 2 x 2.0 meter loose tubes in it's generous designed drawer.

The loose tubes can be guided from the drawer to the splice tray plate through two rectangular holes which are located on the left and right side. A pigtail reserve of about 3 meter can be stored on the splice tray plate as well as in the splice cassette also.



Splice version

FO 19" 1U UniRack




Break-Out-Version

FO 19" 1U Fibereasy Rack 24

Assortment	Standard		High Quality	
	FO 19" 1U Splicebox	FO 19" 1U/2U UniRack	FO 19" 1U/2U FOMRack ¹⁾	FO 19" 1U/2U Rack R40
Applications	LAN, Industry	Telecom, LAN, MAN, CATV, Railway, Industry	Telecom, MAN, CATV, Railway	Telecom, MAN, CATV, Railway
Features	Fixed installed	Recessable slide-in unit (smoothly adjustable)		
Dimensions (w x h x d)	82,6 x 44 x 230 (1U)	482,6 x 44 x 230 (1U) 82,6 x 88 x 230 (2U)	482,6 x 44 x 230 (1U) 82,6 x 88 x 230 (2U)	482,6 x 44 x 230 (1U) 82,6 x 88 x 230 (2U)
Material, Colour	Powder-coated, median grey, NCS 2502-B			
Amount of splice trays per cable termination unit	2 ¹⁾ , 4 ³⁾	1U = 2, 2U = 6	1U = 1, 2U = 2	1U = 1, 2U = 2
Terminations	24 ¹⁾ , 36 ³⁾	1U = 24, 2U = 72	1U = 24, 2U = 24	1U = 24, 2U = 24
Splice tray radius	>30 mm	>30 mm	>32mm	>40 mm
Connector types	SC, SC Duplex, ST ¹⁾ / E-2000 TM , E-2000 TM Compact, SC-RJ ³⁾	E-2000 TM , E-2000 TM Compact, SC, FC, ST, SC-RJ, MT-RJ	E-2000 TM , SC	E-2000 TM , SC
Sufficient fiber reserve for repeated follow-up splicing	Yes	Yes	Yes	Yes
Patch Cord exit's	left and right	left and right	left	left
Quick identification of fibers in the splice tray	moderate good	good	very good	very good
Applicability for high-speed networks	moderate	good	very good	very good

Assortment	Standard	High Quality
	FO 19" 1U Break-Out-Box	FO 19" 1U Fibereasy Rack 24
Applications	LAN, Industry	Telecom, LAN, MAN, CATV, Railway, Industry
Features	Fixed installed	Recessable slide-in unit (smoothly adjustable)
Dimensions (w x h x d)	482,6 x 44 x 230 (1U)	482,6 x 44 x 230 (1U)
Material, Colour	Powder-coated, median grey, NCS 2502-B	
Connector types	SC, SC Duplex, ST ¹⁾ /E-2000 TM , E-2000 TM Compact, SC-RJ ³⁾	E-2000 TM , E-2000 TM Compact, SC, FC, ST, SC-RJ, MT-RJ
Use of pre-assembled installation cables	possible	possible

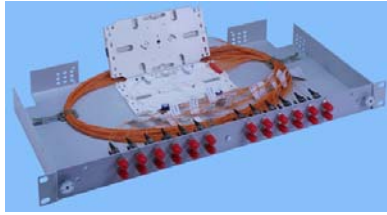
 ¹⁾ Only possible with „sandwich“ splice protectors

²⁾ Standard

³⁾ Available with extra charge

FO 19" 1U Versions

FO 19" 1U Splicebox (splice version)



Features

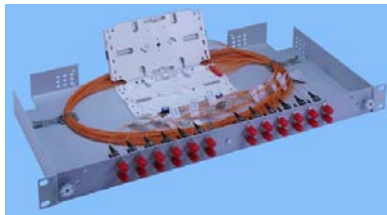
- Up to 24 connectors on one height unit (U)
- Labelled front panel incl. labelling strips
- Loose tube and pigtail reserve in splicebox
- Little mounting depth of 230 mm
- Wide range of accessories (see page 6)

Ordering Information

Description

Packing Unit

Part Number



FO 19" 1U Splicebox, equipped (9µm) (singlemode version)

Supplied:

- 19" 1U Splicebox with 2 splice tray, fastening material and instruction manual
- Front panel equipped **with** SM (PhBr) adaptors (IL 0.15 dB) and connector pigtails (see page 10 for colour coding):

24 x type SC, 9µm

1

R306889

12 x type SC Duplex, 9µm

1

R306892

24 x type ST, 9µm

1

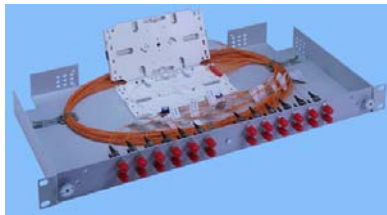
R306898

Ordering Information

Description

Packing Unit

Part Number



FO 19" 1U Splicebox, equipped (50/62.5µm) (multimode version)

Supplied:

- 19" 1U Splicebox with 2 splice tray, fastening material and instruction manual
- Front panel equipped **with** MM (PhBr) adaptors and connector pigtails (see page 10 for colour coding):

24 x type SC, 50µm

1

R306891

12 x type SC Duplex, 50µm

1

R306894

24 x type ST, 50µm

1

R306899

24 x type SC, 62.5µm

1

R306895

12 x type SC Duplex, 62.5µm

1

R306893

24 x type ST, 62.5µm

1

R306895

12 x Typ E-2000™ Compact, 50µm

1

R306897

12 x Typ E-2000™ Compact, 62,5µm

1

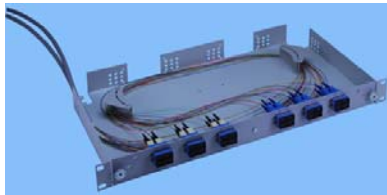
R306896



For material and optical specifications please refer to pages 8 to 10.


Connector pigtails 100% tested and supplied with test report.


FO 19" 1U Versions
FO 19" 1U Break-Out-Box
(break-out version)



Features

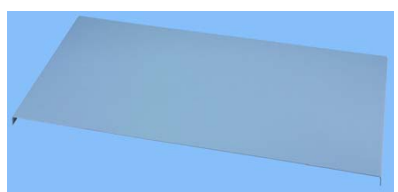



- Up to 24 connectors on one height unit (U)
- Labelled front panel incl. labelling strips
- Fixation for pre-assembled installation cables
- Little mounting depth of 230 mm
- Wide range of accessories (see page 6)

Ordering Information	Description	Packing Unit	Part Number
	FO 19" 1U Break-Out-Box, equipped Supplied: <ul style="list-style-type: none"> - 19" 1U Break-Out-Box with 2 fastening material and instruction manual - Front panel equipped with MM (PhBr) adaptors 		
	24 x type SC, beige	1	R306875
	12 x type SC Duplex, beige	1	R306876
	24 x type ST	1	R306874
	12 x Typ E-2000™ Compact, black/orange (50µm)	1	R306897
	12 x Typ E-2000™ Compact, black/black (62,5µm)	1	R306896

Ordering Information	Description	Packing Unit	Part Number
	FO 19" 1U Break-Out-Box, empty Supplied: <ul style="list-style-type: none"> - 19" 1U Break-Out-Box with 2 fastening material and instruction manual - Front panel empty: 		
	24 x for type E-2000™/SC	1	R306885
	24 x for type FC/ST	1	R306886
	12 x for type LSH-RJ / SC-RJ	1	R306887
	12 x for type SC Duplex	1	R306884

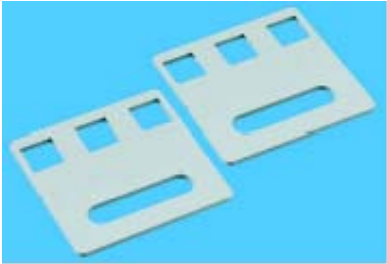


 **For material and optical specifications please refer to pages 8 to 10.**


FO Accessories
FO 19" 1U Versions

Ordering Information	Description	Packing Unit	Part Number
	<p>FO Cover for 19" 1U Splicebox Break-Out-Box</p> <p>For protection against any mechanical influence. No tools required to open and close.</p>	1	R306775
	<p>FO Splice set for 19" 1U Splicebox</p> <p>To splice and store up to 24 fiberoptic terminations</p> <p>Supplied:</p> <ul style="list-style-type: none"> - 2 splice trays - 1 cover for splice tray - 4 film hinges, small, for stacking - 2 film hinges for cover - 2 Pigtail strain relieves - 3 cable holder with one point fastening 	1	R306774
	<p>FO Cable Guide II 75 mm for 19" Rack</p> <p>For horizontal guiding of the patch cords. To be mounted directly at the FO patch panels.</p> <p>Supplied:</p> <ul style="list-style-type: none"> - Cable guide - Velcro strips 600 mm 	1	R30315
	<p>FO Patching Rings, left and right, for 19" Rack</p> <p>The patching ring protects the admissible bending radius of the fiberoptic cables. The cable is mounted at the front of the 19" profiles.</p> <p>Supplied:</p> <ul style="list-style-type: none"> - Patching rings left and right - Velcro fastening 200 mm with depth 35 mm - Velcro fastening 400 mm with depth 75 mm 		
	<p>Depth 35 mm</p>	1	R302004
	<p>Depth 75 mm</p>	1	R302005



For material and optical specifications please refer to page 8

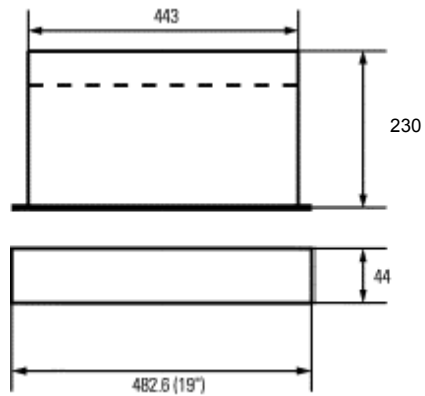
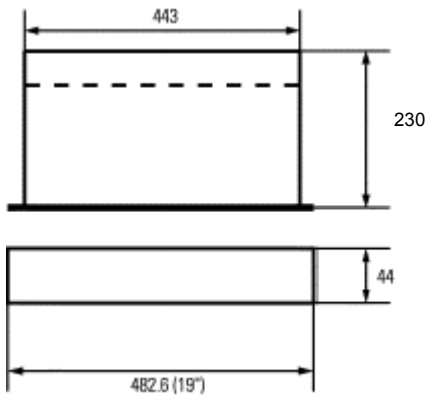
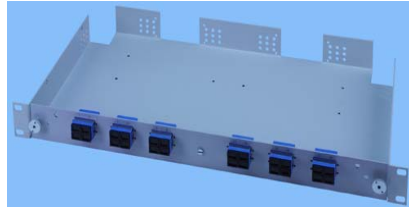
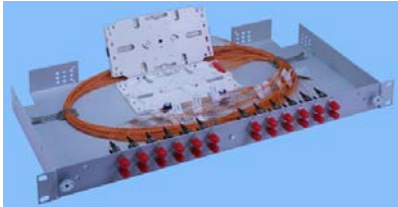
Ordering Information	Description	Packing Unit	Part Number
	<p>FO 21" 1U Adapter Set for 19" 1U Versions</p> <p>With this adapter the 19" units can be attached in metrical profile rails (535 mm).</p> <p>Supplied:</p> <ul style="list-style-type: none"> - 2 adapters for 21 inches - Fastening material <p>Material: 1.5 mm sheet steel</p> <p>Colour: powder-coated, median grey, NCS 2502-B</p>	1	R305148
	<p>FO Rear Cable Guide II to 19" 1U Rack</p> <p>The rear cable guide is an additional guide for the FO cable or the flex hose.</p> <p>Supplied:</p> <ul style="list-style-type: none"> - 1 cable guide - Fastening material <p>Material: 1.5 mm aluminium</p>	1	R302058
	<p>FO Rear Cable Entry with PG 16 Screwing</p> <p>The rear cable entry is an additional relief on the FO cable.</p> <p>Supplied:</p> <ul style="list-style-type: none"> - 1 cable entry - 1 PG 16 screwing - Fastening material <p>Material: 1.5 mm aluminium</p>	1	R302006
	<p>FO Radius limiter 2x 15mm for Break-Out-Box</p> <p>Additional patching guides for the drawer to extend the overlength deposit. Maximal one 2 x 15mm Radius limiter per Break-Out-Box</p> <p>Supplied:</p> <ul style="list-style-type: none"> - 2 x 15 mm radius guards - incl. mounting kit <p>Dimensions: 50 x 50 x 15 mm, radius 45°/90°</p> <p>Material: ABS, grey</p>	1	R302007

 For material and optical specifications see catalogue R305470 (pages 107, 75 by 118).

FO Specifications
FO 19" 1U Versions

Material Specifications FO 19" 1U Versions

FO 19" 1U Splicebox
FO 19" 1U Break-Out-Box



Product	Material	Colour
FO 19" 1U insert-box	sheet steel 1.5 mm	powder-coated, median grey, NCS 2502-B
FO insert-box cover	sheet steel 1.5 mm	powder-coated, median grey, NCS 2502-B
Tray plate	sheet steel 1.5 mm	powder-coated, median grey, NCS 2502-B
Cable guide 75/110 mm	sheet steel 1.5 mm	powder-coated, median grey, NCS 2502-B
Patching ring 35/75 mm	sheet steel 1.5 mm	powder-coated, median grey, NCS 2502-B

Specifications FO Connectors

Connector Type		SC	E-2000™ Compact	ST	Test Conditions	
Insertion loss (dB) (against reference)	MM	typical	0.2	0.2	0.2	TIA/EN 61300-3-4
		max.	0.3	0.3	0.3	TIA/EN 61300-3-4
	SM (PC)	typical	0.2		0.2	TIA/EN 61300-3-4
		max.	0.4		0.4	TIA/EN 61300-3-4
Return loss (dB)	SM (PC)	typical	50		50	TIA/EN 61300-3-6
		max.	45		40	TIA/EN 61300-3-6
Mechanical properties	Mating cycles	500	1000	500	TIA/EN 61300-2-2	
	Pulling force pigtail	pass	pass	pass	TIA/EN 61300-2-4	
Climatic classes	Change of temperature -25/+70 °C 12 cycles	pass	pass	pass	TIA/EN 61300-2-22	
Material	Housing	PBT	PBT/UL94VO	metal		
	Protective cap	PE	PBT/UL94VO	PE		
	Tension relief	TPE	PBT/UL94VO	TPE		

i The temperature range of the cable in use can restrict connector specifications see catalogue R305470 (pages 117 and 118).

FO Specifications

FO Connectors, Material and Optical Specifications

Specifications FO Adaptors

Connector Type		SC SM Simplex, Duplex	SC MM Simplex, Duplex	E-2000™ MM Compact	ST SM	SC MM
	Phosphor Bronze high quality sleeve	x			x	
	Standard Phosphor Bronze sleeve		x	x		x
	Housing	PBT	PBT	PBT/UL94VO	metal	metal
	Colour (RAL)	5015	1013	50µm: RAL 9005/2003 62.5µm: RAL 9005/9005		
	Protective cap	PBT	PBT			
Insertion loss (IL) [dB]		0.15	0.25	0.25	0.15	0.25
Mechanical properties	Mating cycles	500	500	500	500	500
	Pulling force	100	100	100	100	100
Climatic classes	Temperature change -25/+70 °C, 20 cycles	pass	pass	pass	pass	pass

Colour code used with R&M products Standard Code (acc. to DIN VDE 0888)



red green blue yellow white grey brown violet turquoise black orange pink

Further colour codes on request.

 E-2000™ (LSH)/E-2000™ Compact (LSHRJ). Manufactured under licence of Diamond SA, CH-6616 Losone



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