FiberLink*plus*

N+1 & N+2 redundant RF-over-Fiber System

The N+1 and N+2 redundant RF-over-Fiber system of our FiberLink*plus* Series comes in sizes of 1RU/19" or 3RU/19". It is designed for flexible, high quality and absolute secure optical transmission of up to 16 RF signals (L-Band, Extended L-Band) over a distance of up to 20 km. This redundant RF-over-Fiber allows several N+1 and N+2 redundant configurations and can be populated with 1 -16 active optical TX/RX modules and up to 4 hot-standby TX/RX modules.

The 1RU/19" chassis can be populated with 3 TX/RX modules for a 2+1 redundant operation. The 3RU/19" chassis can hold max. 20 TX/RX modules for various N+1 or N+2 redundant operations.

All available chassis are designed to allow mixed population with TX/RX modules within the same chassis, while the chassis are equipped with corresponding RF ports (50Ohm or 75Ohm), which are used either as input or output port as per the individual configuration.

The system features automatic N+1/N+2 redundancy switching as per preconfigured configurations. Once an error at a TX or RX module occurs, the system automatically activates a switchover to a back-up TX or RX module thus ensuring an almost interference-free signal transmission at any time.

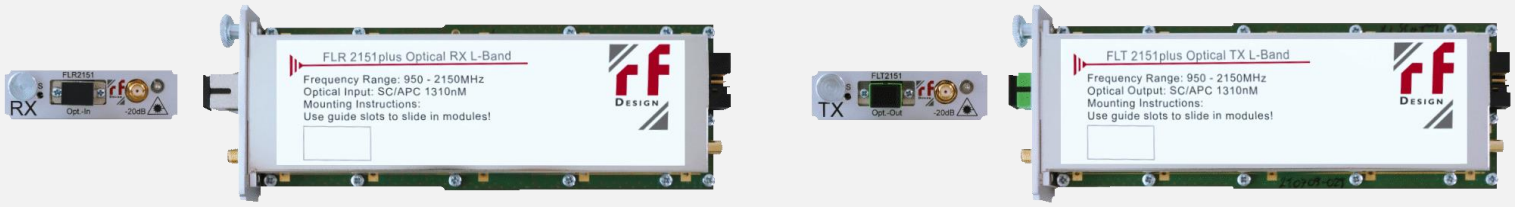
Additionally, the system comes with beneficial features such as Laser/Link monitoring, status LED´s at any TX/RX module, variable gain control, RF power monitoring, hot-swappable TX/RX modules and 1:1 redundant dual power supply.

Configuration and monitoring is possible via the front-panel LC-Display or 7" touchscreen while remote configuration is available via its Ethernet-Interface (WebGUI, SNMP).

This professional 1:1 redundant RF-over-Fiber system stands for perfect RF performance, secure signal distribution and is perfectly suited for Teleports, Satellite Earth Stations, Broadcasting and Cable/IPTV operations.

FEATURES & BENEFITS

- Versatile N+1 and N+1 redundant RF-over-Fiber
- Supporting L-Band 950 – 2150MHz and Extended L-Band 850 – 2450MHz
- 1RU/19" chassis 2+1 redundant operation
- 3RU/19" chassis for max. 4 x 4+1 or 2 x 8+2 redundant operation
- Manual and automatic redundancy switching
- Hot-swappable TX/RX modules
- Support of mixed TX/RX population
- Variable gain-control at each TX/RX module)
- RF power monitoring at each TX/RX module
- Status LED´s for each TX/RX module
- Easy local & remote configuration & monitoring
- Laser, link, PSU & access status monitoring
- Excellent quality and superior RF performance
- 1:1 redundant dual power supply



TECHNICAL SPECIFICATIONS

19” Chassis	
Dimensions:	1RU/19” (260mm deep) or 3RU/19” (300mm deep)
Power Supply:	85 – 265V, 50/60Hz, dual 1:1 redundancy (hot-swappable)
Power Consumption:	<20W (1RU719”), <100W (3RU/19”)
Frequency Range:	950 – 2150MHz (L-Band) / 850 – 2450MHz (Extended L-Band)
TX/RX Configurations:	See 4th page (order information)
TX/RX Module Capacity:	3 slots for 1 x 2+1 redundant operation @ 1RU/19” chassis 20 slots for max. 4 x 4+1 or 2 x 8+2 redundant operation @ 3RU/19” chassis
RF Connectors I/O Ports @ Chassis:	50Ohm SMA(f), 75Ohm F(f) 50Ohm BNC(f)*, 75Ohm BNC(f)*
Local Configuration:	LC-Display/keypads or 7” colored touchscreen display
Remote Configuration:	Ethernet (WebGUI, SNMPv2c)
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant

upon request only

TX Module (L-Band 950 – 2150MHz & Extended L-Band 850 – 2450MHz)	
Frequency Range:	950 – 2150MHz (L-Band) / 850 – 2450MHz (Extended L-Band)
RF Input Connector:	Via Chassis RF I/O ports (50Ohm SMA, BNC* or 75Ohm F, BNC*)
Optical Output Connector:	SC/APC
Fiber Type:	Single mode 9/125
RF Input Power Level:	+15dBm max. (damage level)
Frequency Response:	±0,5dB typ., ±1,0dB max.
Return Loss:	15dB typ. (≙ VSWR: 1:1.4)
Laser Type:	DFB with Isolator
Laser Class:	1M
Operating Wavelength:	1310nm ±5nm
Optical Output Power:	+3dBm min.
Variable Gain Control:	-12dB to +12dB (1dB steps)
RF Power Monitoring:	70dB dynamic range
Status LED´s:	OK, Fail, Stand-By
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant

upon request only

RX Module (L-Band 950 – 2150MHz & Extended L-Band 850 – 2450MHz)	
Frequency Range:	950 – 2150MHz (L-Band) / 850 – 2450MHz (Extended L-Band)
RF Output Connector:	Via Chassis RF I/O ports (50Ohm SMA, BNC* or 75Ohm F, BNC*)
Optical Input Connector:	SC/APC
Fiber Type:	Single mode 9/125
Optical Input Power Level:	-5dBm (min. optical sensitivity)
Frequency Response:	±0,5dB typ., ±1,0dB max.
Return Loss:	16dB typ. (≙ VSWR: 1:1.4)
Operating Wavelength:	1310nm – 1560nm
RF Output Power:	+10dBm max.
Variable Gain Control:	-12dB to +12dB (1dB steps)
RF Power Monitoring:	70dB dynamic range
Status LED´s:	OK, Fail, Stand-By
Operating Temperature:	0°C to 45°C
Storage Temperature:	-10°C to 70°C
Humidity:	90%, non-condensing
RoHS:	Compliant

upon request only

Link Specifications (L-Band 950 – 2150MHz & Extended L-Band 850 – 2450MHz)	
Modulation Type:	Direct
F/O Diff. EFF:	0,15 to 0.17 W/A
Dynamic Range:	-100dBm to 0dBm
Max. Link Gain:	24dB (±1,0dB)
Gain Stability:	< ±0,3dB
Group Delay Distortion:	<2ns
Nominal RF Input Level:	0dBm
Noise Figure:	<23dB
SFDR:	-107dB Hz typ.
RF Output Power:	+13dBm max.
IMA3 @ -10dBm:	< -70dBc
Input Power Dyn. Range:	-50 to +10dBm
Output IP3:	+30dBm
Output IP1:	+7dBm

ORDER INFORMATION

19” Chassis

Type	Type-No.:	Short Description	Chassis size	Capacity TX/RX slots	Max. links	RF coax I/O connectors
FLCR1121*plus*-50S FLCR1121*plus*-75F FLCR1121*plus*-50B* FLCR1121*plus*-75B*	9000737 on request on request on request	1RU/19" modular TX/RX chassis, 3 TX/RX slots, 1 x 2+1 TX/RX redundancy, 2 RF coax I/O´s, local config. via LC-Display/keypad, remote config. via Ethernet-Interface (WebGUI, SNMP), 1:1 redundant dual PSU	1RU/19”	3 2+1 redundancy	1	2 x 50Ohm SMA(f) 2 x 75Ohm F(f) 2 x 50Ohm BNC(f)* 2 x 75Ohm BNC(f)*
FLCR1141*plus*-50S FLCR1141*plus*-75F FLCR1141*plus*-50B* FLCR1141*plus*-75B*	9000736 on request on request on request	1RU/19" modular TX/RX chassis, 5 TX/RX slots, 1 x 4+1 TX/RX redundancy, 4 RF coax I/O´s, local config. via LC-Display/keypad, remote config. via Ethernet-Interface (WebGUI, SNMP), 1:1 redundant dual PSU	1RU/19”	5 4+1 redundancy	1	4 x 50Ohm SMA(f) 4 x 75Ohm F(f) 4 x 50Ohm BNC(f)* 4 x 75Ohm BNC(f)*
FLCR3441*plus*-50S FLCR3441*plus*-75F FLCR3441*plus*-50B* FLCR3441*plus*-75B*	on request 9000923 on request on request	3RU/19" modular TX/RX chassis, 20 TX/RX slots, min. 2+1, max. 4 x 4+1 TX/RX redundancy, 16 RF coax I/O´s, local config. via touchscreen, remote config. via Ethernet-Interface (WebGUI, SNMP), 1:1 redundant dual PSU	3RU/19”	20 Max. 4 x 4+1 redundancy	16	16 x 50Ohm SMA(f) 16 x 75Ohm F(f) 16 x 50Ohm BNC(f)* 16 x 75Ohm BNC(f)*
FLCR3282*plus*-50S FLCR3282*plus*-75F FLCR3282*plus*-50B* FLCR3282*plus*-75B*	9000922 on request on request on request	3RU/19" modular TX/RX chassis, 20 TX/RX slots, min. 2+1, max. 2 x 8+2 TX/RX redundancy, 16 RF coax I/O´s, local config. via touchscreen, remote config. via Ethernet-Interface (WebGUI, SNMP), 1:1 redundant dual PSU	3RU/19”	16 Max. 2 x 8+2 redundancy	16	16 x 50Ohm SMA(f) 16 x 75Ohm F(f) 16 x 50Ohm BNC(f)* 16 x 75Ohm BNC(f)*

upon request only

TX & RX Module L-Band 950 – 2150MHz

Type	Type-No.:	Short Description	Optical I/O Connector	Frequency Range
FLT2150*plus*	9000887	Optical Transmitter TX-Module, 950 – 2150MHz, RF coax Input via FLC(R) chassis RF coax I/O panel, Optical Output SC/APC, variable gain-control, RF power monitoring	SC/APC	950 – 2150MHz
FLR2150*plus*	9000888	Optical Receiver RX-Module, 950 – 2150MHz, Optical Input SC/APC, RF coax Output via FLC(R) chassis RF coax I/O panel, variable gain-control, RF power monitoring	SC/APC	950 – 2150MHz

TX & RX Module L-Band 950 – 2150MHz with frontside measurement port -20dB

Type	Type-No.:	Short Description	Optical I/O Connector	Frequency Range
FLT2151*plus*	9001077	Optical Transmitter TX-Module, 950 – 2150MHz, RF coax Input via FLC(R) chassis RF coax I/O panel, Optical Output SC/APC, variable gain control, switchable LNB-supply, RF power monitoring, frontside measurement port -20dB	SC/APC	950 – 2150MHz
FLR2151*plus*	9001078	Optical Receiver RX-Module, 950 – 2150MHz, Optical Input SC/APC, RF coax Output via FLC(R) chassis RF coax I/O panel, variable gain control, RF power monitoring, frontside measurement port -20dB	SC/APC	950 – 2150MHz

TX & RX Module Extended L-Band 850 – 2450MHz

Type	Type-No.:	Short Description	Optical I/O Connector	Frequency Range
FLT2450*plus*	9000886	Optical Transmitter TX-Module, 850 – 2450MHz, RF coax Input via FLC(R) chassis RF coax I/O panel, Optical Output SC/APC, variable gain control, switchable LNB-supply, RF power monitoring	SC/APC	850 – 2450MHz
FLR2450*plus*	9000885	Optical Receiver RX-Module, 850 – 2450MHz, Optical Input SC/APC, RF coax Output via FLC(R) chassis RF coax I/O panel, variable gain control, RF power monitoring	SC/APC	850 – 2450MHz

TX & RX Module Extended L-Band 850 – 2450MHz with frontside measurement port -20dB

Type	Type-No.:	Short Description	Optical I/O Connector	Frequency Range
FLT2451*plus*	9001080	Optical Transmitter TX-Module, 850 – 2450MHz, RF coax Input via FLC(R) chassis RF coax I/O panel, Optical Output SC/APC, variable gain control, switchable LNB-supply, RF power monitoring, frontside measurement port -20dB	SC/APC	850 – 2450MHz
FLR2451*plus*	9001085	Optical Receiver RX-Module, 850 – 2450MHz, Optical Input SC/APC, RF coax Output via FLC(R) chassis RF coax I/O panel, variable gain control, RF power monitoring, frontside measurement port -20dB	SC/APC	850 – 2450MHz

TX & RX Module Broadband 50MHz – 3200MHz

Type	Type-No.:	Short Description	Optical I/O Connector	Frequency Range
FLT3251*plus*	9001098	Optical Transmitter TX-Module, 50 – 3200MHz, RF coax Input via FLC(R) chassis RF coax I/O panel, Optical Output SC/APC, variable gain control, RF power monitoring, frontside measurement port -20dB	SC/APC	50 – 3200MHz
FLR3251*plus*	9001097	Optical Receiver RX-Module, 50 – 3200MHz, Optical Input SC/APC, RF coax Output via FLC(R) chassis RF coax I/O panel, variable gain control, RF power monitoring, frontside measurement port -20dB	SC/APC	50 – 3200MHz

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