

FiberLinkplus-ODA

Outdoor RF-over-Fiber Systems (Non-redundant & redundant)

The FiberLinkplus-ODA system represents a compact and weatherproof modular-type outdoor application RF-over-Fiber enclosure system (IP65 specified) for versatile non-redundant as well as 1:1 and N+1 redundant optical transmission. The outdoor enclosure is designed to be mounted close to the antenna and made for flexible, high quality and secure optical transmission of RF signals (L-Band or Extended L-Band) over a distance of up to 20km.

All available outdoor application chassis fitting into the outdoor enclosure are equipped with a RF connector panel for the RF coax I/O ports, 1:1 redundant dual power-supply, a controller-board (CPU/LPC) a fiber patch-panel/splice-tray and temperature controlled heating and cooling allowing operation in almost any environment.

The available chassis fitting into the outdoor enclosure can hold up to 8 TX and/or RX Modules for standard non-redundant operation, up to 16 TX/RX modules for max. 8 x 1:1 redundant operation or max. 10 TX/RX modules for 2 x 4+1 redundant operation. In case of a 1:1 or N+1 redundant operation once an error for an TX or RX module happens the system will automatically activate the switch-over to a back-up TX or RX module, assuring interruption 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, switchable LNB-supply (for non-redundant & 1:1 redundant versions), hot-swappable TX/RX modules and 1:1 redundant dual power-supply.



The chassis variants suited for the outdoor enclosure 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.

This outdoor RF-over-Fiber system assures superior RF performance and stability and can be configured and monitored remotely via its Ethernet-interface (WebGUI/SNMP).

The FiberLinkplus-ODA system is a versatile, space and cost efficient outdoor optical transmission solutions and perfectly suited for Teleports, Satellite Earth Stations, Broadcasting and Cable/IPTV operations.

FEATURES & BENEFITS

- Robust and weatherproof (IP65) enclosure/cabinet
- Allows population of max. 16 optical TX/RX modules (non-redundant, 1:1 and N+1 redundant operation)
- Variants with 1:1 redundant optical transmission
- Variants with N+1 redundant optical transmission
- Supporting L-Band 950 - 2150MHz or Extended L-Band 850 - 2450MHz
- Holds a pull-out fiber patch-panel with internal splice-tray
- Designed for direct antenna-mounting
- Applicable in nearly any environment
- Double walled mechanical concept for optimal air-flow
- Heating and cooling/ventilation with temperature monitoring
- 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
- Switchable LNB-supply (for some versions)
- Status LED's for each TX/RX module
- Remote configuration & monitoring (WebGUI, SNMP)
- Laser, link, PSU & access status monitoring
- Excellent quality and superior RF performance
- 1:1 redundant dual power-supply

FiberLink_{plus}-ODA

Outdoor RF-over-Fiber Systems (Non-redundant & redundant)

TECHNICAL SPECIFICATIONS

ODA outdoor enclosure & RF-over-Fiber Chassis

➤ Dimensions:	40 x 30 x 50cm high
➤ Protection rating:	IP65
➤ Mounting:	Antenna base-mount (via relevant mounting accessories)
➤ Locking:	Lockable front door
➤ Power supply:	85...230V, 50/60Hz, dual 1:1 redundancy (hot swappable)
➤ Power consumption:	<60W populated with 8 modules, <100W populated with 16 modules
➤ Frequency range:	950...2150MHz (L-Band) & 850...2450MHz (Extended L-Band)
➤ Available TX/RX modules:	See 4 th page (order information)
➤ TX/RX module capacity:	Max. 8 for non-redundant operation Max. 16 for 8 x 1:1 redundant operation Max. 10 for 2 x 4+1 redundant operation
➤ RF connectors I/O ports @ chassis:	50Ohm SMA(f), 75Ohm F(f) 50Ohm BNC(f)*, 75Ohm BNC(f)*
➤ Internal controller:	CPU/LPC board
➤ Remote configuration:	100MBit Ethernet interface (WebGUI, SNMPv2c)
➤ Operating temperature:	-20°C...60°C
➤ Storage temperature:	-40°C...80°C
➤ Humidity:	90%, non-condensing
➤ RoHs:	Compliant

*upon request

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/PC (SC/APC via supplied adapter)
➤ 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...+12dB (1dB steps)
➤ Switchable LNB-supply:	13/15/18VDC, 22kHz tone, 450mA max (current monitoring) *only for non-redundant & 1:1 redundant versions
➤ RF power monitoring:	70dB dynamic range
➤ Status LED's:	OK, Fail, Stand-By
➤ Operating temperature:	0°C...50°C
➤ Storage temperature:	-10°C...70°C
➤ Humidity:	90%, non-condensing
➤ RoHs:	Compliant

*upon request

FiberLink_{plus}-ODA

Outdoor RF-over-Fiber Systems (Non-redundant & redundant)

TECHNICAL SPECIFICATIONS

RX Module (L-Band 950...2150MHz & Extended L-Band 850...2450MHz)

- **Frequency range:** 950...2150MHz (L-Band) & 850...2450MHz (Extended L-Band)
- **Optical Input connector:** SC/APC
- **Fiber type:** Single mode 9/125
- **RF Output connector:** Via Chassis RF I/O ports (50Ohm SMA, BNC* or 75Ohm F, BNC*)
- **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...+12dB (1dB steps)
- **RF power monitoring:** 70dB dynamic range
- **Status LED's:** OK, Fail, Stand-By
- **Operating temperature:** 0°C...50°C
- **Storage temperature:** -10°C...70°C
- **Humidity:** 90%, non-condensing
- **RoHs:** Compliant

*upon request

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

FiberLinkplus-ODA

Outdoor RF-over-Fiber Systems (Non-redundant & redundant)

ORDER INFORMATION

ODA outdoor enclosure/RF-over-Fiber Chassis

Chassis Type	Short Description	Size	Capacity TX/RX slots	Max. Links	RF coax I/O connectors
FLC-ODA308plus-50S FLC-ODA308plus-75F FLC-ODA308plus-50B* FLC-ODA308plus-75B*	ODA modular TX/RX chassis, IP65, 8 TX/RX slots, 8 RF coax I/O connector panel, Fiber patch-panel/splice-tray, Heating/Cooling, remote configuration via Ethernet-Interface (WebGUI, SNMP), 1:1 redundant dual power supply	40 x 30 x 50cm	8	8	8 x 50Ohm SMA(f) 8 x 75Ohm F(f) 8 x 50Ohm BNC(f)* 8 x 75Ohm BNC(f)*
FLCR-ODA0241plus-50S FLCR-ODA0241plus-75F FLCR-ODA0241plus-50B* FLCR-ODA0241plus-75B*	ODA modular TX/RX chassis, IP65, 10 TX/RX slots, max. 2 x 4+1 TX/RX redundancy, 8 RF coax I/O connector panel, Fiber patch-panel/splice-tray, Heating/Cooling, remote configuration via Ethernet-Interface (WebGUI, SNMP), 1:1 redundant dual power supply	40 x 30 x 50cm	10 2 x 4+1 redundancy	8	8 x 50Ohm SMA(f) 8 x 75Ohm F(f) 8 x 50Ohm BNC(f)* 8 x 75Ohm BNC(f)*
FLCR-ODA0811plus-50S FLCR-ODA0811plus-75F FLCR-ODA0811plus-50B* FLCR-ODA0811plus-75B*	ODA TX/RX chassis, IP65, 16 TX/RX slots, max. 8 x 1:1 TX/RX redundancy, 8 RF coax I/O connector panel, Fiber patch-panel/splice-tray, Heating/Cooling, remote configuration via Ethernet-Interface (WebGUI, SNMP), 1:1 redundant dual power supply	40 x 30 x 50cm	16 8 x 1:1 redundancy	8	8 x 50Ohm SMA(f) 8 x 75Ohm F(f) 8 x 50Ohm BNC(f)* 8 x 75Ohm BNC(f)*

*upon request

TX & RX Module: L-Band 950...2150MHz

Module Type	Short Description	Optical I/O connector	Frequency range
FLT2150plus	Optical Transmitter TX-Module, 950 - 2150MHz, RF coax Input via FLC(R) chassis RF coax I/O panel, Optical Output SC/PC (SC/APC via supplied adapter), variable gain-control, switchable LNB-supply*, RF power monitoring	SC/PC (SC/APC via adapter)	950...2150MHz
FLR2150plus	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

*only for non-redundant & 1:1 redundant versions

TX & RX Module: Extended L-Band 850...2450MHz

Module Type	Short Description	Optical I/O connector	Frequency range
FLT2450plus	Optical Transmitter TX-Module, 850 - 2450MHz, RF coax Input via FLC(R) chassis RF coax I/O panel, Optical Output SC/PC (SC/APC via supplied adapter), variable gain-control, switchable LNB-supply*, RF power monitoring	SC/PC (SC/APC via adapter)	850 - 2450MHz
FLR2450plus	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

*only for non-redundant & 1:1 redundant versions