

## QLink

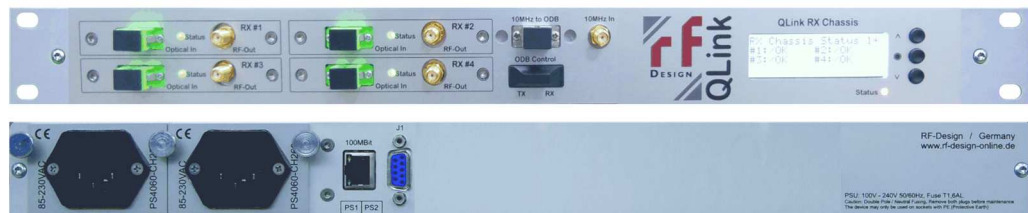
### Quad RF-over-Fiber System for extended L-Band

The **QLink** system represents a compact Quad outdoor and indoor RF-over-Fiber system. The outdoor enclosure and the 1RU/19" rack-mount chassis can each be populated with up to 4 optical TX (transmit) or RX (receive) modules, also supporting mixed TX/RX population allowing secure and high quality optical transmission of RF signals in L-Band and extended L-Band over a distance of up to 5km. The outdoor enclosure is designed to be mounted directly at the antenna mast while the 1RU/19" indoor unit is for rack-mount design. The **QLink** optical link system will be assembled in-house for your individual application.

The system furthermore comes with beneficial features such as variable gain-control, RF power monitoring, laser/link monitoring and switchable LNB-supply. Additionally to that a 10MHz reference signal can be injected at the indoor unit and is also transmitted via an optical link to the outdoor chassis. The 10MHz reference signal is then available at each TX module RF-input e.g. for feeding a LNB or a BUC.

An optical data-link connection between the outdoor and the indoor unit allows monitoring, management and configuration of the outdoor system. The 1RU/19" indoor rack-mount unit itself is equipped with an 100MBit Ethernet-interface supporting remote management of the overall **QLink** Quad RF-over-Fiber system (WebGUI, SNMP) while each of the 4 TX and/or RX modules can be monitored, managed and configured individually as well.

The **QLink** system is a versatile, space and cost efficient outdoor to indoor optical transmission solutions perfectly suited for applications in Teleports, Satellite Earth Stations, Broadcast- and Broadband facilities.



#### FEATURES & BENEFITS

##### QLink outdoor system

- Robust and weatherproof IP64 enclosure
- Direct mounting to antenna mast
- Supporting extended L-Band 850...2450MHz
- Max. 4 TX/RX modules and one 10MHz module
- Supporting mixed TX/RX population
- Variable gain control
- RF power monitoring (@ TX & RX modules)
- Switchable LNB-supply 13/15/18VDC, 22kHz tone, 450mA max (@ TX module)
- Datalink interface for remote configuration & monitoring via indoor system
- Laser, link, psu & access status monitoring
- Including 1:1 redundant dual power supply
- Connectors for current supply, RF-, fiber- and data-link connections

##### QLink Indoor system

- Space saving 1RU/19" rack-mount design
- Supporting extended L-Band 850...2450MHz
- Max. 4 TX/RX modules and one 10MHz module
- Supporting mixed TX/RX population
- 10MHz external reference signal port
- Variable gain control
- RF power monitoring (@ TX & RX modules)
- Datalink interface for remote configuration & monitoring of outdoor unit
- Status LED's for TX/RX modules
- Laser, link, psu & access status monitoring
- Local & remote configuration & monitoring (WebGUI, SNMP)
- Including 1:1 redundant dual power supply

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### Quad RF-over-Fiber System for extended L-Band

#### TECHNICAL SPECIFICATIONS

##### QLink Outdoor Chassis

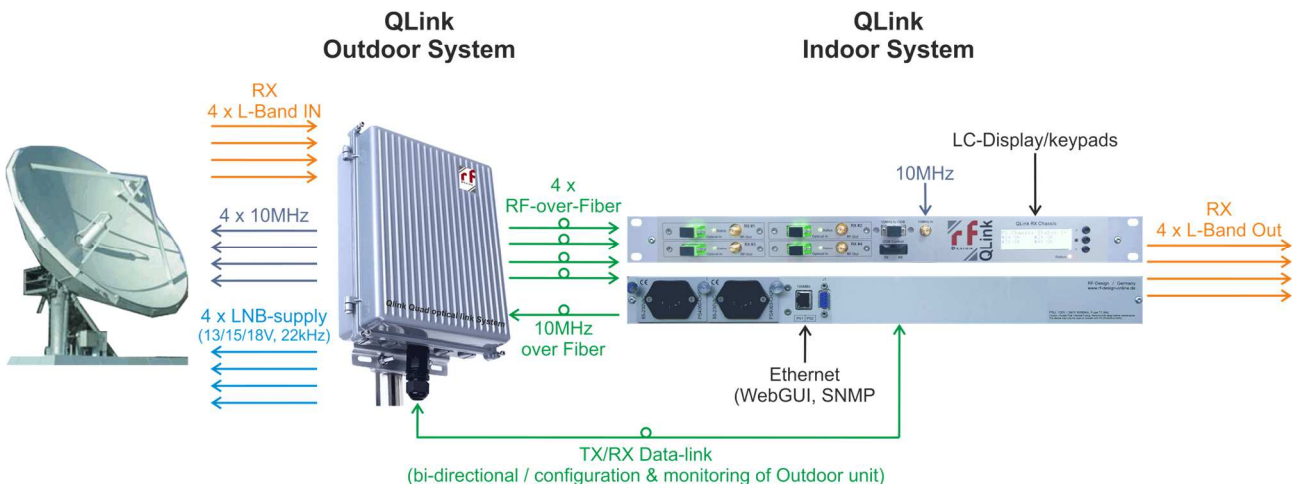
➤ <b>Dimensions:</b>	400 x 300 x 180mm
➤ <b>Protection rating:</b>	IP64 specified
➤ <b>Mounting:</b>	Antenna mast mount (includes mast-mount clamps)
➤ <b>Power supply:</b>	85...265V, 50/60Hz (1:1 redundant) via Neutrik Waterproof Connector
➤ <b>Power consumption</b>	<20W
➤ <b>Frequency range:</b>	850...2450MHz (extended L-Band)
➤ <b>10MHz reference:</b>	Via internal 10MHz RX module (10MHz supplied from indoor chassis)
➤ <b>RF connectors:</b>	4 x 50Ohm N(f)
➤ <b>TX/RX module capacity:</b>	Max. 4 extended L-Band TX/RX modules, 1 x 10MHz module
➤ <b>TX/RX monitoring:</b>	RF power monitoring, laser/link monitoring
➤ <b>Remote configuration:</b>	Via QLink indoor Chassis (data-link connection)
➤ <b>Status Monitoring:</b>	Green/Red Status LED
➤ <b>Operating temperature:</b>	-10°C...60°C
➤ <b>Storage temperature:</b>	-10°C...70°C
➤ <b>Humidity:</b>	90%, non-condensing
➤ <b>RoHs:</b>	Compliant

##### QLink Indoor Chassis

➤ <b>Dimensions:</b>	1RU/19" rack mount
➤ <b>Power supply:</b>	85...265V, 50/60Hz (1:1 redundant, hot-swappable)
➤ <b>Power consumption</b>	<20W
➤ <b>Frequency range:</b>	850...2450MHz (extended L-Band)
➤ <b>10MHz reference Input:</b>	10MHz external reference signal port
➤ <b>10MHz Output:</b>	1310nm DFB Laser +3dBm, SC/APC
➤ <b>RF Connectors L-Band:</b>	50Ohm SMA(f) / 50Ohm BNC(f)*, 75Ohm F(f)*, 75Ohm BNC(f)*
➤ <b>TX/RX module capacity:</b>	Max. 4 extended L-Band TX/RX modules, 1 x 10MHz module
➤ <b>TX/RX monitoring:</b>	RF power monitoring, laser/link monitoring
➤ <b>Local configuration:</b>	Front panel LC-Display/keypads
➤ <b>Remote configuration:</b>	100MBit Ethernet-Interface (WebGUI, SNMPv2c)
➤ <b>Operating temperature:</b>	0°C...50°C
➤ <b>Storage temperature:</b>	-10°C...70°C
➤ <b>Humidity:</b>	90%, non-condensing
➤ <b>RoHs:</b>	Compliant

\*upon request

#### Functional Diagram 4 x TX and 4 x RX



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## Quad RF-over-Fiber System for extended L-Band

### TECHNICAL SPECIFICATIONS

#### QLink TX Module (extended L-Band 850...2450MHz)

➤ Frequency range:	850...2450MHz (extended L-Band)
➤ 10MHz reference:	Supplied via internal 10MHz module
➤ Optical output connector:	SC/APC
➤ RF input power level:	+10dBm max. (damage level)
➤ Frequency response:	±0,5dB typ., ±1,0dB max.
➤ Return loss:	14dB typ.
➤ Laser type:	DFB with Isolator
➤ Laser class	1M
➤ Operating wavelength:	1310nm ±5nm
➤ Optical output power:	+3dBm min. (other settings upon request)
➤ SFDR:	-107dB/Hz typ.
➤ Variable gain control:	±10dB (1dB steps)
➤ Switchable LNB-supply:	13/15/18VDC, 22kHz tone, 450mA max (current monitoring)
➤ RF power monitoring:	60dB dynamic range
➤ Operating temperature:	0°C...50°C
➤ Storage temperature:	-10°C...70°C
➤ Humidity:	90%, non-condensing
➤ RoHs:	Compliant

\*upon request

#### QLink RX Module (extended L-Band 850...2450MHz)

➤ Frequency range:	850...2450MHz (extended L-Band)
➤ 10MHz reference:	Supplied via internal 10MHz module
➤ Optical input connector:	SC/APC
➤ Optical input power level:	-10dBm (min. optical sensitivity), +10dBm max. (damage level)
➤ Frequency response:	±0,5dB typ., ±1,0dB max.
➤ Return loss:	14dB typ.
➤ Operating wavelength:	1310nm – 1560nm
➤ RF output power:	+10dBm max.
➤ SFDR:	-107dB/Hz typ.
➤ Variable gain control:	0...+20dB (1dB steps)
➤ RF power monitoring:	60dB dynamic range
➤ Operating temperature:	0°C...50°C
➤ Storage temperature:	-10°C...70°C
➤ Humidity:	90%, non-condensing
➤ RoHs:	Compliant

\*upon request

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## Quad RF-over-Fiber System for extended L-Band

### CONFIGURATION ORDER INFORMATION

Type	Outdoor TX Enclosure IP65 QLink-ODE-50N	Indoor chassis 1RU/19" rack-mount QLink-IDC-50S	Part No.
QLink O4T-I4R	4 x TX extended L-Band	4 x RX extended L-Band	9000968
QLink O4R-I4T	4 x RX extended L-Band	4 x TX extended L-Band	9000975
QLink O2T2R-I2T2R	2 x TX , 2 x RX extended L-Band	2 x RX , 2 x TX extended L-Band	9000969
QLink O2T-I2R	2 x TX extended L-Band	2 x RX extended L-Band	9000973
QLink O2R-I2T	2 x RX extended L-Band	2 x TX extended L-Band	9000974
QLink O1T1R-I1R1T	1 x TX , 1 x RX extended L-Band	1 x RX , 1 x TX extended L-Band	9000972
QLink O1T-I1R	1 x TX extended L-Band	1 x RX extended L-Band	9000970
QLink O1R-I1T	1 x RX extended L-Band	1 x TX extended L-Band	9000971

\*upon request

### QLink Outdoor Enclosure Assembly-Specification Summary

Type	Short Description	Modules (fix)**	Max. Qty. links	RF coax I/O connectors
QLink-ODE-50N	Outdoor TX/RX Enclosure IP64 <ul style="list-style-type: none"> <li>n x TX extended L-Band</li> <li>n x RX extended L-Band</li> <li>1 x 10MHz module</li> <li>4 x RF coax I/O's</li> <li>Remote configuration via data link</li> <li>1:1 redundant dual power supply</li> </ul>	n x TX FLT3050 n x RX FLR3050  See configuration order-information	4	50Ohm N(f)

### QLink Indoor chassis Assembly-Specification Summary

Type	Short Description	Modules (fix)**	Max. Qty. links	RF coax I/O connectors
QLink-IDC-50S	Indoor TX/RX Enclosure IP64 <ul style="list-style-type: none"> <li>n x RX extended L-Band</li> <li>n x TX extended L-Band</li> <li>1 x 10MHz module</li> <li>4 x RF coax I/O's</li> <li>10MHz external ref. signal port</li> <li>LC-Display/keypads</li> <li>Ethernet-Interf (WebGUI, SNMP)</li> <li>1:1 redundant dual power supply</li> </ul>	n x RX FLR3050 n x TX FLT3050  See configuration order-information	4	50Ohm SMA(f) 50Ohm BNC(f)* 75Ohm F(f)* 75Ohm BNC(f)*

\*upon request