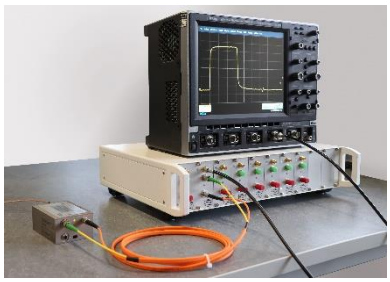
Optical transmission link



Montena MOL2000T optical link is designed for the transmission of analogue electric signals (CW and pulses) from 80 Hz to 3.5 GHz over long distance in harsh electromagnetic environment.

The input electric signal is conditioned and converted into an analogue optical signal in the transmitter module and sent to the receiver module through a fibre optic cable. The receiver module converts back the optical signal into an electric signal. The optical signal transmission is regulated with an automatic level control that maintains precise and constant performance independently of the optical losses. A second optical fibre is used as control and supervision channel between the optical transmitter and receiver.

The battery powered optical transmitter comprises remote-controlled attenuators and preamplifiers to adjust the received signal level for an optimal use of the dynamic of the optical transmission link. The optical transmitter module can remotely be put in a low power stand-by mode to save battery power when not used. A built-in rectangular pulse generator can be remotely activated to check the link integrity. A LED indicator shows the operating state.

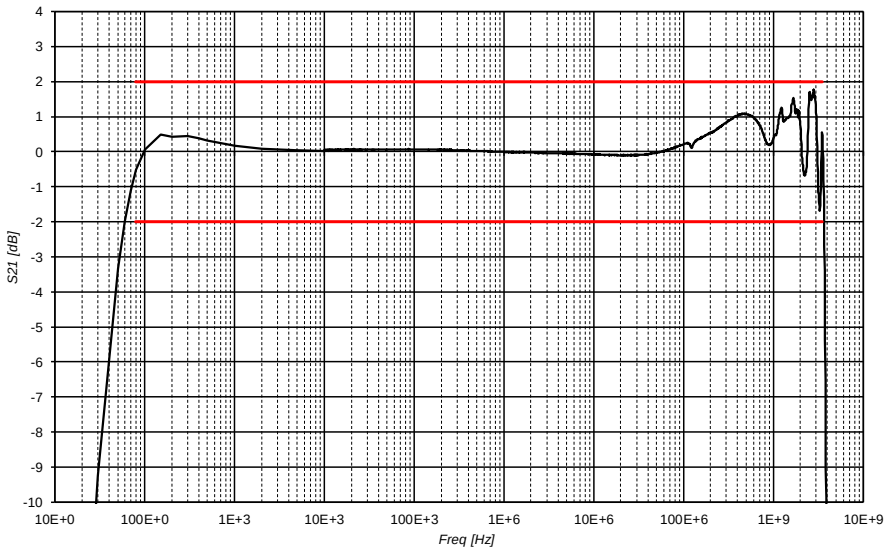
Configurable settings can be remote controlled by an Android app or a Windows-based software application.

SPECIFICATIONS

Type	**MOL2000T**	
Bandwidth	80 Hz to 3.5 GHz 80 Hz to 3.0 GHz	(-20 dB to 0 dB gains) (-50 dB to -20.5 dB, 0.5 dB to +24 dB gains)
System gain (remotely selectable)	-62.5 dB to +24 dB	
Gain tolerance	± 2 dB	(in specified bandwidth)
Gain steps	0.5 dB	
Maximum link distance	about 1 km	

Typical frequency response (at 0dB gain)

Bandwidth 80 Hz to 3.5 GHz



The compact optical transmitter is battery powered and especially shielded for a very high immunity to electromagnetic fields.

OPTICAL TRANSMITTER	SPECIFICATIONS
Type	**MOL2000T-TX**
Max. input power (CW)	2 W cont. / 10 W for a few seconds (for gain ≤ -31 dB) 100 mW (for gain > -31 dB)
Clamping voltage (pulse)	0 dB : 0.5 Vp -20 dB : 5 Vp -40 dB : 50 Vp -60 dB : 350 Vp
Linearity in frequency domain	Input power at 1dB compression (positive gains to +20 dB): ≤ 2 GHz : -20 dBm 3.5 GHz : -24 dBm
Immunity to external electric fields	> 500 kV/m (pulse according to MIL-Std 461 RS105)
Built-in test generator	5 kHz bipolar square signal / rise time 250 ps
Power supply	by internal LiPo batteries or by the power supply adapter
Battery autonomy	> 40 hours. Standby, about 10 days
RF input connector	SMA (F) / 50 Ω
Optical connectors	FC/APC and ST
Operating temperature	+5 °C to +55 °C
Dimensions	99 x 64 x 41 mm (L x W x H), excluding the connectors
Weight	380 gr

The compact optical receiver for point-to-point application is battery powered and especially shielded for a very high immunity to electromagnetic fields. It has one USB interface for system configuration and supervision.

OPTICAL RECEIVER	SPECIFICATIONS
Type	**MOL2000T-RX (stand-alone module)**
RF output connector	SMA (F) / 50 Ω
Optical connectors	FC/APC and ST
Control connector	Mini-USB
Optical losses compensation	Automatic (variable optical attenuator)
Output power at 1dB compression (gains <= 0 dB)	< 100 kHz : +6 dBm 100 kHz – 1 GHz : +8 dBm 2.0 GHz : +4 dBm 3.5 GHz : -4 dBm
Output noise floor	-136 dBm/Hz (typ.)
Maximum output dynamic	4 dBm (1 Vpp)
Power supply	by internal LiPo batteries or by the power supply adapter
Battery autonomy	36 hours. Standby, about 1 month
Operating temperature	+5 °C to +55 °C
Dimensions	99 x 64 x 41 mm (L x W x H), excluding the connectors
Weight	380 gr

The compact optical receiver for multilink application is a plugin module. To be inserted in the MOL-MF-10 chassis.

OPTICAL RECEIVER	SPECIFICATIONS
Type	**MOL2000T-M-RX (plug-in module)**
RF output connector	SMA (F) / 50 Ω
Optical connectors	FC/APC and ST
Control connector	USB on main frame chassis
Operating temperature	+5 °C to +55 °C

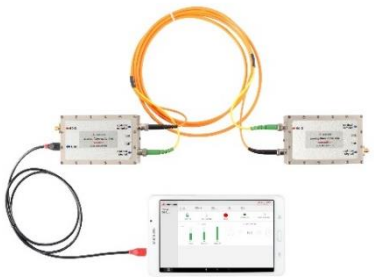
The multilink main frame is a 19", 2 HU chassis for up to ten MOL2000T-RX-M modules. The receiver modules are powered and controlled from the chassis back plane.

MAIN FRAME	SPECIFICATIONS
Type	**MOL-MF-10**
Number of slots	10 slots for MOL2000T-RX-M modules
Control connector	USB on main frame chassis
Operating temperature	+5 °C to +55 °C
Dimensions	448 x 356 x 110 mm (W x D x H),
Power rating	85 - 264 V, 47 - 65 Hz
Weight	About 5 kg

The system is delivered with Montena FibREmote software application, running on Windows PC.

The application allows simple configuration and monitoring of the MOL2000T optical links.

Configurations can be stored and recalled at any time in order to ease the configuration of large test setups.



A simpler version of the control software application running on Android tablet can be used for the standalone, point-to-point MOL2000T transmission link.

The MOL2000T family utilises dual fibre optic cables with FC/APC and ST connectors.

Ordering information

Multilink system

TYPE	DESCRIPTION
MOL-MF-10	Multilink mainframe for up to 10 optical links MOL2000T-M, 85 - 264 V, including a 10 slots chassis, one power supply cable, one USB cable, one Windows control software license FibREmote, one carrying case for up to 10 MOL-2000T transmitters with their battery chargers.
MOL2000T-M	Single channel optical link for multilink system MOL-MF-10, 80 Hz – 3.5 GHz, -62dB to +24dB remote controlled gain, including one optical transmitter MOL2000T-TX on battery, one optical plug-in receiver module MOL2000T-M-RX and one battery charger

Standalone point-to-point link

TYPE	DESCRIPTION
MOL2000T	Single channel point-to-point optical link, 80 Hz – 3.5 GHz, -62dB to +24dB remote controlled gain through USB, including one optical transmitter MOL2000T-TX on battery, one optical receiver MOL2000T-RX on battery, two battery chargers, one USB OTG cable, one 7" Android tablet and one carrying case

Fibre optic cables

TYPE	DESCRIPTION
FO2Cxxx	Dual fibre cable (signal and control), dimensions: 6 x 3 mm xxx = the cable length Available lengths are 10, 20, 50, 100, 200, 500, 1000 m
FO2Cxxx-RU	Ruggedized dual fibre cable (signal and control), diameter: 5 mm xxx = the cable length Available lengths are 10, 20, 50, 100, 200, 500, 1000 m

Related products / accessories

TYPE	DESCRIPTION
PULSELab	Pulse measurement and processing software application, Life time license for installation on one PC