

Shielded optical transmission link

2 x DC-25 MHz



Montena MOL25T optical link is designed for real-time measurement of electric signals from DC to 25 MHz over long distance or in harsh electromagnetic environment.

Application is for instance the transmission/monitoring of various signals of an equipment under test during EMC immunity tests, such as supply voltages, logic states, digital signals, relay status. It also makes an ideal oscilloscope front-end for the remote measurement of floating potentials in industrial applications and ensures a total galvanic insulation of the operator, for safe operation in high voltage areas.



Each transmission link has two signal channels. The two 1 MΩ BNC inputs enable connecting standard voltage probes, differential probes or any specific measurement means.

The two input electric signals are conditioned, digitalized and multiplexed into one optical signal in the transmitter module and sent to the receiver module through a single mode fibre. The receiver module converts back the optical signal in two electric signals.

The battery powered optical transmitter comprises a remote-controlled attenuator stage (1:1 / 10:1 / 100:1) to adjust the received signal level for an optimal use of the dynamic range. The transmitter can remotely be put in a low power standby mode to save battery power when not used. A LED indicator shows the operating state.

Configurable settings can be remote controlled using either FibREmote software for PC and Android devices, or a set of API commands.

SYSTEM	SPECIFICATIONS
Type	MOL25T
Bandwidth	DC to 25 MHz
Gain flatness	± 0.5 dB
DC gain accuracy	± 1.5 %
DC offset (@ 0 V)	± 1 mV
Measurement ranges	1 / 10 / 100 Vp
Input impedance	1 MΩ
Output impedance	50 Ω
Instantaneous dynamic range	65 dB
A/D converters	12-bit
Sampling rate	75 MS/s
TX input to RX output propagation delay	Typ. 4 μs + propagation delay of the fibre cable
Laser diodes wavelength (TX / RX)	1310 nm / 1550 nm
Optical power in the fibre	1 mW (laser Class 1)
Immunity to external electric fields	> 500 kV/m (pulse acc. to MIL-STD 461 RS105). More information available on demand.
Maximum link distance	≥ 1 km

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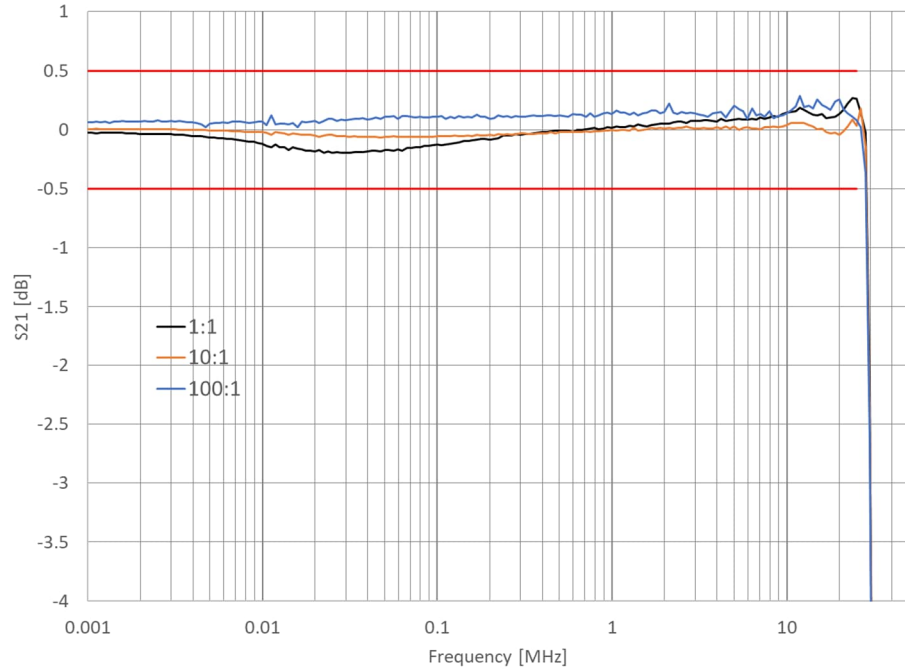


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Typical frequency response

Bandwidth DC to 25 MHz



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

OPTICAL TRANSMITTER	SPECIFICATIONS
Type	MOL25T-TX
Number of channels per module	2
Input attenuator ratios	1:1 / 10:1 / 100:1 , remotely selectable
Input impedance	1 MΩ //15 pF (max 20 pF)
Clamping voltage	± 1 Vp (1:1) ± 10 Vp (10:1) ± 100 Vp (100:1)
Maximum input voltage	250 Vp
Power supply	by internal LiPo batteries or by the power supply adapter
Battery autonomy	> 20 hours. Standby: > 1 week
RF input connectors	2 x BNC female (option: 2 x SMA female; see chapter 'Ordering information')
Optical connector	FC/APC
Operating temperature	-10 °C to +55 °C
Dimensions	113 x 64 x 41 mm (L x W x H)
Weight	380 gr

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The optical receiver is available in two versions:

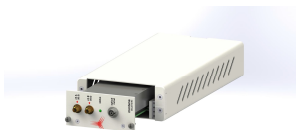
A compact stand-alone receiver for point-to-point application, battery powered and especially shielded for a very high immunity to electromagnetic fields. It has one USB interface for system configuration and supervision.

A plug-in module to be inserted in a single or multi-slot MOL-MF-xx chassis. Each module is powered and controlled from the chassis backplane.

OPTICAL RECEIVER	SPECIFICATIONS	
Type	MOL25T-RX (stand-alone receiver)	MOL25T-M-RX (plug-in receiver)
Number of channels per module	2	2
RF output connectors	BNC female / 50 Ω	SMA female / 50 Ω
Optical connector	FC/APC	FC/APC
Control connector	Mini-USB	USB Type A on MOL-MF-xx chassis
Output noise floor	Typ. 300 μVrms	Typ. 300 μVrms
Maximum output dynamic	± 1 Vp on 50 Ω load (± 2 Vp on Hi-Z)	± 1 Vp on 50 Ω load (± 2 Vp on Hi-Z)
Power supply	by internal LiPo batteries	by the MOL-MF-xx chassis
Battery autonomy	> 20 hours. Standby: > 1 week	n/a
Operating temperature	-10 °C to +55 °C	-10 °C to +55 °C
Dimensions (excluding connectors)	99 x 64 x 41 mm (L x W x H)	40 x 172 x 84 mm (2U)
Weight	380 gr	240 gr



The MOL-MF-10 is a 19" chassis 2U for up to ten plug-in receiver modules. The modules are powered and controlled from the chassis backplane.



The MOL-MF-1 chassis enables stand-alone operation of one plug-in receiver module.



The system is delivered with montena FibREmote software for PC and Android devices. The applications allow simple configuration and monitoring of the optical link(s).

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

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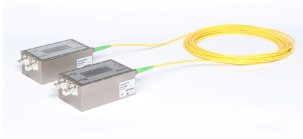


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Ordering information

Stand-alone point-to-point link



TYPE	DESCRIPTION
MOL25T-B	2-channel point-to-point optical link DC – 25 MHz, <u>BNC</u> inputs/outputs, including one optical transmitter on battery, one optical receiver on battery, two battery chargers 90-264 V, one FibREmote software for PC and Android devices, and one carrying case
MOL25T-S	2-channel point-to-point optical link DC – 25 MHz, <u>SMA(f)</u> inputs/outputs, including one optical transmitter on battery, one optical receiver on battery, two battery chargers 90-264 V, one FibREmote software for PC and Android devices, and one carrying case

Optical link with plug-in receiver module



TYPE	DESCRIPTION
MOL25T-MB	2-channel optical link for chassis MOL-MF-xx, DC – 25 MHz, <u>BNC</u> inputs / <u>SMA(f)</u> outputs, including one optical transmitter on battery, one optical plug-in receiver module and one battery charger 90-264 V
MOL25T-MS	2-channel optical link for chassis MOL-MF-xx, DC – 25 MHz, <u>SMA(f)</u> inputs/outputs, including one optical transmitter on battery, one optical plug-in receiver module and one battery charger 90-264 V

Chassis for plug-in receiver module(s)



TYPE	DESCRIPTION
MOL-MF-10	19" chassis 2U for up to 10 plug-in receiver modules, 85 - 264 V, including one power supply cable, one USB cable and one FibREmote software for PC and Android devices.
MOL-MF-1	Chassis for one plug-in receiver module, including one power supply adapter 100-230 Vac with 3 mains plugs for US/Japan, Europe and UK, one USB cable and one FibREmote software for PC and Android.

Fibre optic cables



TYPE	DESCRIPTION
FCLBxxx	Fibre optic cable, diameter: 3 mm xxx = the cable length Available lengths are 10, 20, 50, 100, 200, 500, 1000 m
FCLBxxx-RU	Rugged fibre optic cable, diameter: 7.5 mm xxx = the cable length Available lengths are 10, 20, 50, 100, 200, 500, 1000 m

Related products / accessories



TYPE	DESCRIPTION
MOL-CRG-DCDC	Optional DC/DC charger for one transmitter or receiver module, Vin: 10-30 Vdc <i>Enables long term operation using an external 12V or 24V battery</i>

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