

Product description

The optical transmitter MO001 is intended to distribute SAT IF, DTT, FM, DAB signals through a fibre optic. AGC (automatic gain control) provides constant RF level to the laser only for RF input. The product is intended for indoor usage only.

External view

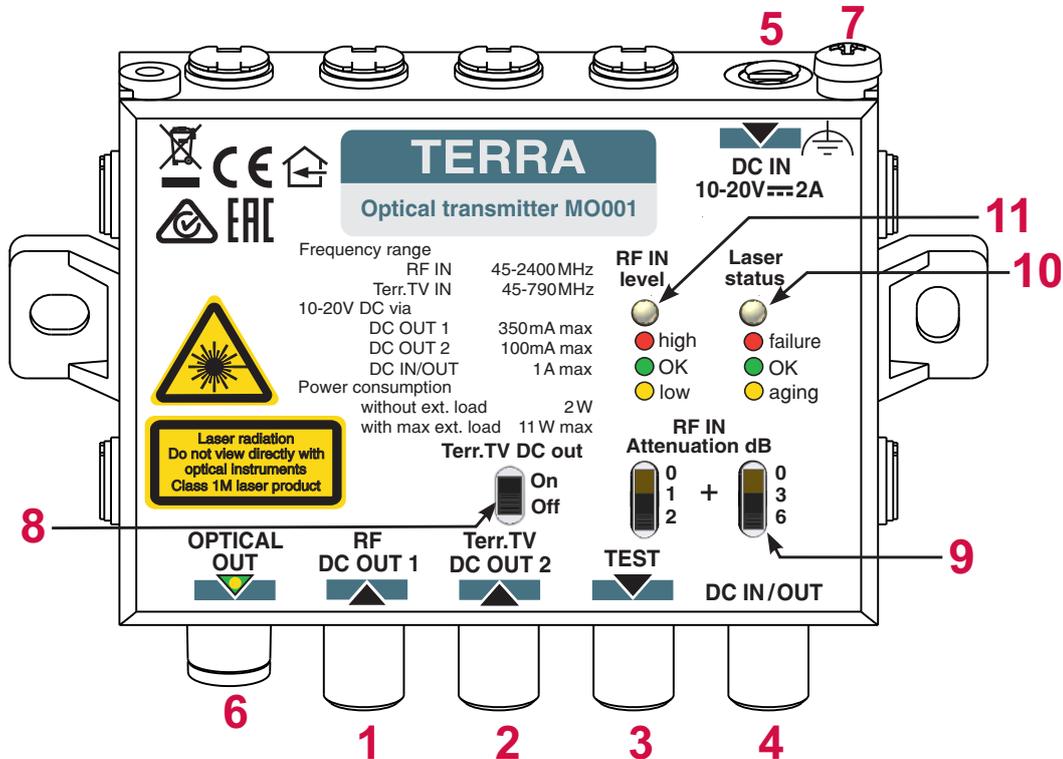


Figure 1. External view of the transmitter

- 1** - RF input of SAT IF and DTT signals, DC output +10..+20 V. Maximum 350 mA current per output. No short circuit/overload protection. Avoid to overload DC output. F socket.
- 2** - RF input of DTT signal, DC output for preamplifier +10..+20 V switchable. Short circuit/overload protected DC output. Maximum 100 mA output F socket.
- 3** - TEST output. F socket.
- 4** - DC IN/OUT +10..+20 V. No short circuit/overload protection. Avoid to overload DC output. F socket.
- 5** - +10...+20 V DC powering input. DC socket 3.5/1.3 mm.
- 6** - Optical output. FC/APC or SC/APC socket.
- 7** - Functional grounding clamp.
- 8** - Switch for Terr.TV preamplifier powering ON/OFF.
- 9** - Gain adjustment 0...8 dB by 1 dB step (only for RF input).
- 10** - LED indicator of laser status:
Red – laser is damaged
Green – works correctly
Yellow – laser ageing
- 11** - LED indicator of RF IN input level:
Red – too high
Green – correct (AGC range)
Yellow – too low



Safety instructions

The transmitter must be installed in accordance with IEC 60728-11 and national safety standards.

The transmitter is powered from a 10-20 V power supply unit (PSU). This voltage is not dangerous to life.

PSU must have a short circuit protection.

Any repairs must be done by a skilled personnel.

Do not plug the PSU into the mains socket until all cables have been connected correctly.

The mains socket of PSU must be easily accessible.

The transmitter must not be exposed to dripping or splashing water.

Avoid placing the transmitter near heat sources, e.g. central heating components and in areas of high humidity.

If the transmitter has been stored in cold conditions for a long time, bringing it into a warm environment may cause condensation. In such cases let it warm up for at least 2 hours before plugging it into the mains.



Safety of laser product

Optical Transmitter module contains laser diode sources. These devices are rated under IEC60825-1: "Safety of Laser Products", Part 1: Equipment classification and requirements as CLASS 1M laser product.

When operating the equipment note the following:

Most fiber optic laser wavelengths are totally invisible to the eye and will cause permanent eye damage.

Never look into the end of a fiber on a powered device through a magnifying device (microscope, eye loupe, magnifying glass, etc.). Before using such devices always double check that power is disconnected or, if possible, completely disconnect the unit from any power source.

To verify the light output always use an instrument, such as an optical power meter.

Operate only with the proper optical fiber installed in the device optical connector.

Whenever the optical connector is empty the laser transmitter should be turned off.

Before applying power always connect a fiber to the output of the device.

Never leave equipment with radiating bare fibers accessible - always cap the connectors.

INSTALLATION

Table 1.

Requirements for external power supply unit:

Output voltage range	+10 V min ...+20 V max
Output current	1 - 2 A. Short circuit current < 1 A _{RMS}
Output connector	3.5/1.3 mm DC plug, (+) in center

- Short circuit protected
- Double insulated (marked )
- Meet EN 55022 class B conducted emissions requirements, measuring with grounded load

Mounting

We recommend at least 5 cm of air space around the transmitter. Unit can get hot to the touch and require a flow of air to avoid overheating.

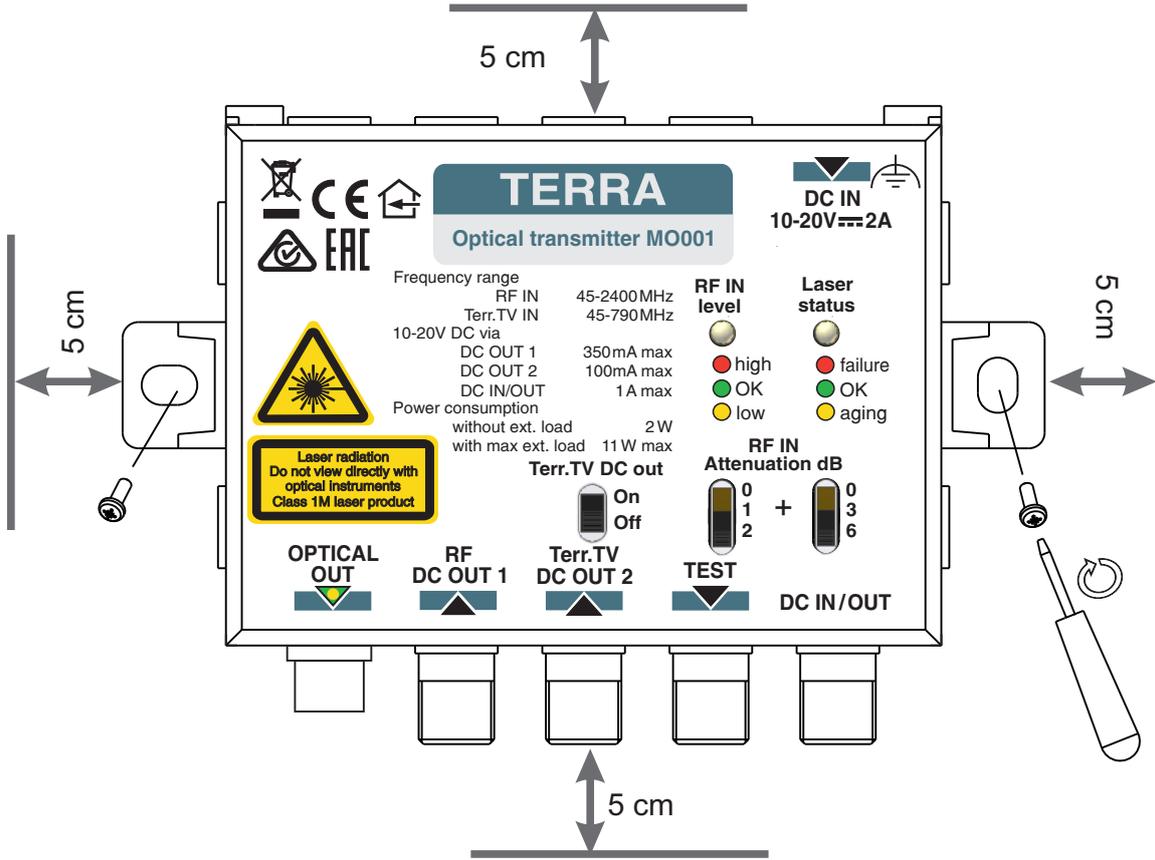


Figure 2. Mounting of the transmitter

Transmitter must be fixed with 2 steel screws \varnothing 4-4.5 mm. The screws are not included in a package.

Structure diagram

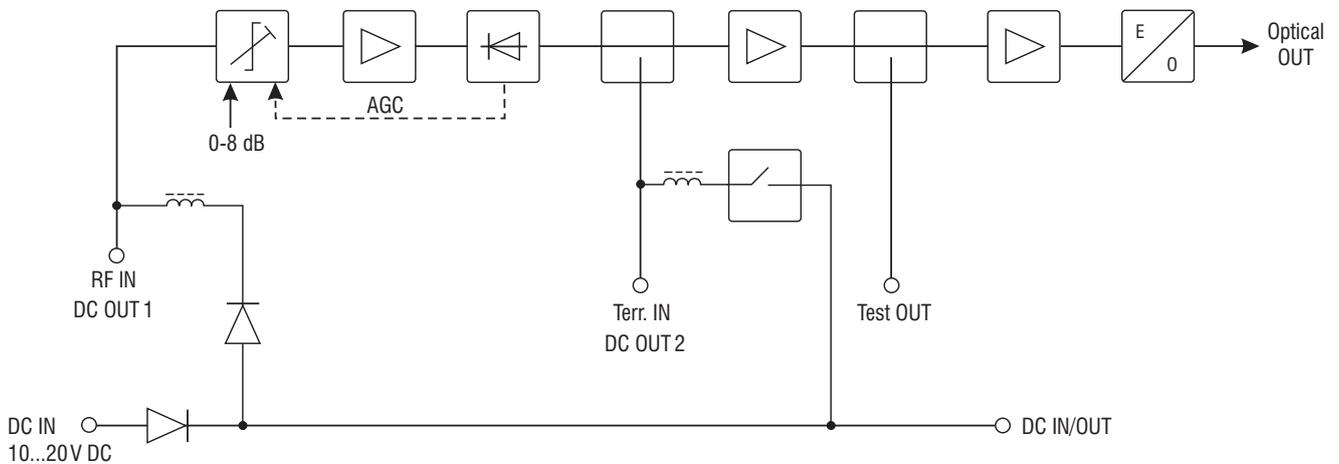


Figure 1. Structure diagram of the transmitter

DC path

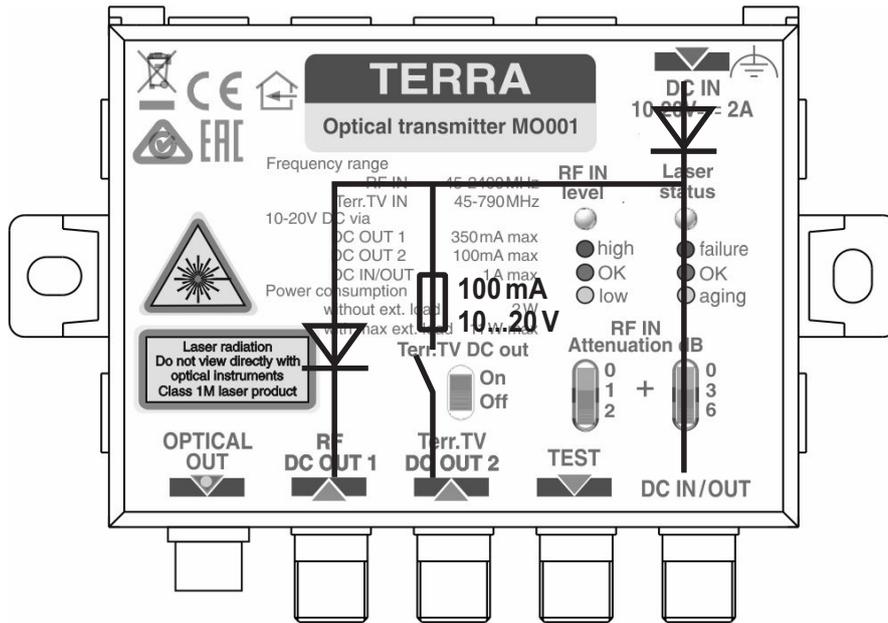


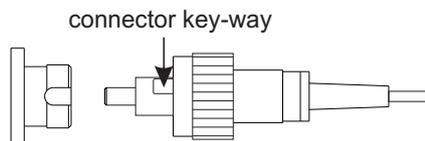
Figure 3. DC path of the transmitter

Optical connections

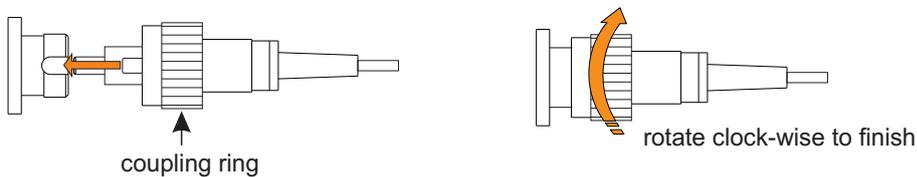
Note: All optical connectors and adaptors should be cleaned before connecting them. If optical reception power of the receiver decrease, fiber connection should be cleaned and maintained. Fiber connectors should never be left uncovered.

Optical connection for MO001 with FC/APC socket:

1. Align the FC/APC connector key-way (type R) with the receptable key-way.



2. Push firmly to locate the key-ways and then rotate the coupling ring.



Do not exceed the minimum bending radius of fibers: must be not less 30 mm when connecting optic cable to the system.

Type		M0001*	
Optical output	wavelength	1310 nm	1550 nm
	output power	6 dBm	
	laser type	FP	DFB
	optical return loss	> 45 dB	
Wide band RF input	frequency range	45-2400 MHz	
	return loss/impedance	> 12 dB / 75 Ω	
	flatness	± 1.5 dB	
	RF input level, AGC range	65-90 dBμV (per transponder); 80-105 dBμV (total level)	
	gain adjustment	0 - 8 dB by 1 dB step	
	OMI (SAT IF 30 transponders, AGC range)	4.9 %	
	external remote feeding DC OUT 1	10 V - 20 V 350 mA max. (no short circuit/overload protection)	
Terr.TV RF input	frequency range	45-790 MHz	
	return loss/impedance	> 12 dB / 75 Ω	
	flatness	± 1.5 dB	
	RF input level	88 dBμV ± 2.0 dBμV (per transponder)	
	external remote feeding DC OUT 2	10 V - 20 V 100 mA max.	
	OMI (Terr.TV input 8 channels)	7 %	
RF test output	RF IN (wideband)**, output level	62 dBμV ± 2 dB	
	Terr. TV IN, loss	-23 dB ± 2 dB	
	return loss/impedance	> 12 dB / 75 Ω	
	flatness	± 1.5 dB	
DC IN/OUT	input-output port	10 V - 20 V 1 A max. (no short circuit/overload protection)	
DC IN	input port	see Table 1	
Supply voltage		10 V - 20 V	
Power consumption without external load		2 W	
Power consumption with max. external load		11 W	
Operating temperature range		-20° ÷ + 50° C	
Dimensions/Weight (packed)		116x84x25.5 mm/0.28 kg	

* Type	Power	Laser	Wavelength	Connector IN
M0001 6F31 F	6 dBm	FP	1310 nm	FC/APC
M0001 6D55 F	6 dBm	DFB	1550 nm	FC/APC
M0001 6F31 H	6 dBm	FP	1310 nm	SC/APC
M0001 6D55 H	6 dBm	DFB	1550 nm	SC/APC

** RF input, 30 SAT IF transponders, AGC range



INVISIBLE LASER RADIATION DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.
Wave length 1270-1610 nm, IEC60825-1.



This product complies with the relevant clauses of the European Directive 2002/96/EC. The unit must be recycled or discarded according to applicable local and national regulations.



Equipment intended for indoor usage only.



Functional grounding. Connect to the main potential equalization.



This product is in accordance to following norms of EU: EMC norm EN50083-2, safety norm EN IEC62368-1 and RoHS norm EN50581.



This product is in accordance with Custom Union Technical Regulations: "Electromagnetic compatibility of technical equipment" CU TR 020/2011, "On safety of low-voltage equipment" CU TR 004/2011.



This product is in accordance with safety standard AS/NZS 60065 and EMC standards of Australia.