

## Product description

Wideband 40 mm low noise down converter units LWO101, LWO102 are dedicated for operation with ORF20x, ORQ20x optical receivers.

## Safety instructions

Installation of the products must be done according IEC60728-11 and national safety standards.

The products are powered from 10 -20 V DC. This voltage is not dangerous to life.

Any repairs must be done by a skilled personnel.

Power supply must have a short circuit protection.

### Safety of laser product

Optical converters contain 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.

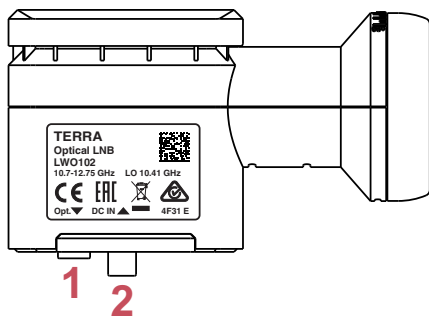
Whenever the optical connector is empty the laser transmitter should be turned off.

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.



## External view of LWO101, LWO102



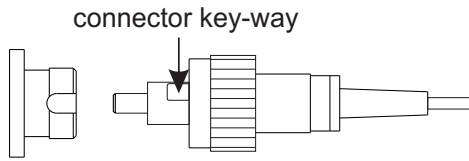
1. Opt. - optical SAT IF output
2. DC IN - DC input / RF test output

Figure 1. External view of the LNB

## 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.

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



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



The sealing O-ring is already installed on the LNB connector.

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

## Installation instructions

Read the safety instruction first.

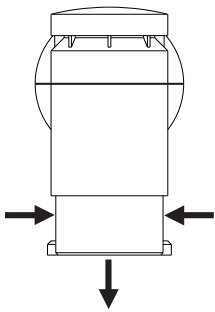
For outdoor installation.

For LNB and dish adjustment use RF test output at DC IN connector (pos.2 Figure 1).

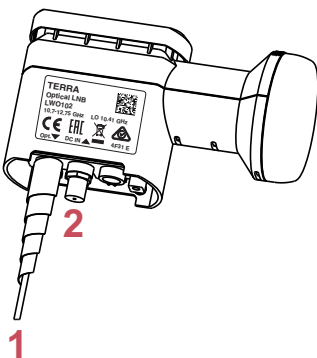
There is H polarization wideband SAT IF signal after AGC loop, so adjusting by signal amplitude is not possible. Maximum MER of signal should be achieved.

## Optical cable installation instruction

We recommend to use relatively bigger dishes for ensure better MER value of the transmitted signals.



1. Take off the connectors cover by pressing it at the sides.




2. Insert the optical cable [1] in to the appropriate hole of the connectors cover.
3. Install the optical cable connector on the LNB adapter.
4. Remove protective film from insulation tape.
5. Roll the insulation tape on the optical connector (the side of the tape is not important).
6. Push connectors cover back on the LNB.

## Technical characteristics

Type	LWO101*	LWO102*
Input frequency range V & H	10.7 - 12.75 GHz	
Noise figure, typical	0.7 dB	
LO frequency	10.4 GHz	10.41 GHz
LO initial accuracy	± 500 kHz	
LO temperature drift	± 150 kHz	
LO phase noise	< - 75 dBc/Hz @ 10 kHz	
Image rejection	40 dB min	
Cross-pol isolation, typical	22 dB	
Internal IF	300-2350 MHz	290-2340 MHz
Optical output*		
Main characteristics		
Supply voltage	10 - 20 V	
Power consumption	4 W max.	
Operating temperature range	-30° ÷ + 60° C	
Dimensions/Weight (packed)	141x89x63 mm / 0.35 kg	

* Type	Power	Laser	Wavelength	Connector IN
LWO101 4F31 E	4 dBm	FP	1310 nm	FC/UPC
LWO102 4F31 E	4 dBm	FP	1310 nm	FC/UPC

### REQUIREMENTS FOR EXTERNAL POWER SUPPLY UNIT (PSU)

- Output voltage 10 V ÷ 20 V DC
- Output current recommended to use PSU with 50% extra power reserve
- Ripple at single and/or double mains frequency < 10 mV p-p
- Ripple & noise < 200 mV p-p
- Short circuit protection
- Double insulated (marked )
- Meet EN 55022 class B conducted emissions requirements, measuring with grounded load



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.



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: 2012 and EMC standards of Australia.