

Product description

The optical receiver ORD301F is intended to convert optical signals into electrical RF signals.

The receiver is dedicated to operate with suitable TERRA wideband SAT IF transmitting system. See manuals of appropriate devices in www.terraelectronics.com.

The product is intended for indoor usage only.

Safety instructions

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

The receiver is powered from low DC voltage, which is not dangerous to life.

Any repairs must be done by a skilled personnel.

To ensure safe operation of the receiver follow these instructions:

Do not connect supply voltage until all cables have been connected correctly.


Receiver shall not be exposed to dripping or splashing water.

Avoid placing receiver next to central heating components and in areas of high humidity.

If the receiver has been kept in cold conditions for a long time, keep it in a warm room no less than 2 hours before powering.

The ventilation should not be impeded by covering receiver with items, such as newspapers, table-cloths, curtains.

Avoid looking directly into beam, laser light can cause eye injuries and result in permanent loss of vision.

 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.

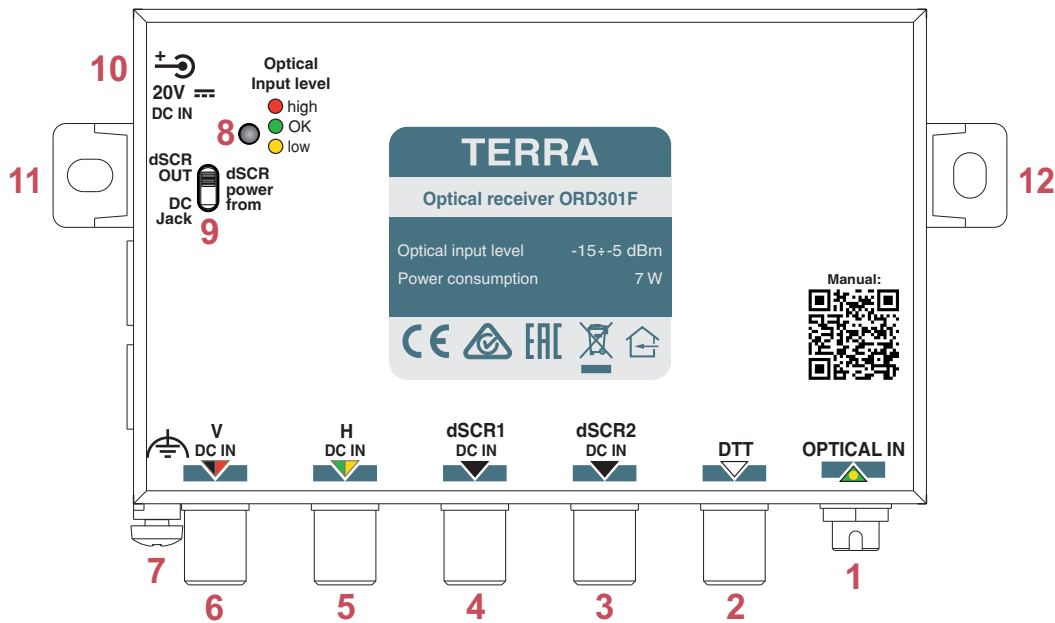
 This product is in accordance with Custom Union Technical Regulations: "Electromagnetic compatibility of technical equipment" CU TR 020/2011, "On safety of low-voltage equipment" CU TR 004/2011.

 This product is in accordance with safety standard AS/NZS 60065: 2012 and EMC standards of Australia.

Manual in .pdf



External view of the receiver



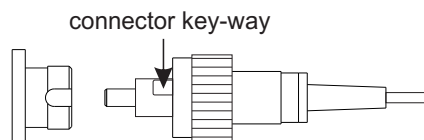
1. **OPTICAL IN** - optical input. FC/UPC connector.
2. **DTT** - DTT, DAB, FM output. F socket.
3. **dSCR2, DC IN** - dSCR2 output, DC input. F socket.
4. **dSCR1, DC IN** - dSCR1 output, DC input. F socket.
5. **H, DC IN** - SAT IF horizontal polarization output, DC input. F socket.
6. **V, DC IN** - SAT IF vertical polarization output, DC input. F socket.
7. Functional grounding clamp
8. LED indicator of optical input power:
 - red – to high
 - green – correct (OLC range)
 - yellow – to low
9. dSCR part powering mode switch (see Figure 2):
 - through dSCR outputs (pos. 3, 4)
 - through DC IN (pos. 10)
10. **DC IN** - +20 V DC powering input (3.5/1.3 mm DC jack)
- 11, 12 - mounting supports.

Figure 1. External view of the receiver

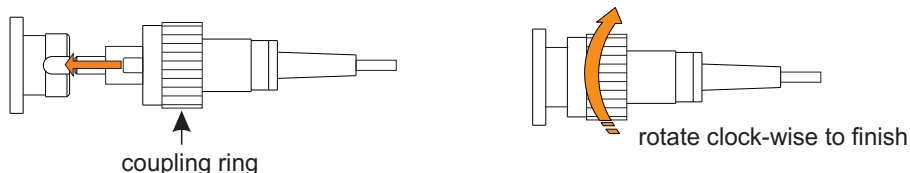
Optical connections

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/UPC connector key-way (type R) with the receptable key-way.



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



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.
 All unused F type connectors must be terminated with 75 Ω loads.
 Mount the receiver in vertical position with optical connector underneath.
 From top, left and right side leave 10 cm free space.
 The receiver must be fixed with steel screws Ø 4-5 mm. Screws are not included in a package.

Powering

The receiver can be powered in two ways: from AC/DC adapter through 3.5/1.3 DC connector (pos. 10, Figure 1) or through RF outputs (pos. 3, 4, 5, 6 Figure 1). Use switch (pos.9 Figure 1) to choose correct powering mode (see Figure 2).

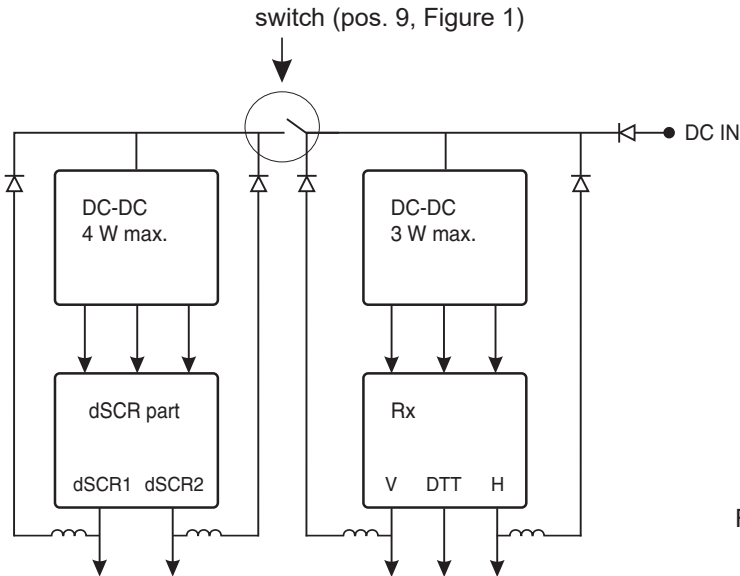


Figure 2. DC path diagram

Optical input and RF outputs

The operational optical input level of the receiver is -15...-5 dBm. In this region OLC is working and provides fixed RF output levels. Ensure optical input level in this range.

A direct optical connection cannot be made between the transmitter and the receiver. Use appropriate optical attenuator.


Configuration

The number and frequencies of SKY UK UBs available from dSCR outputs are like presented in table:

User Band (UB)	UB central frequency, MHz	Bandwidth, MHz
CH3	1680	46
CH9	1280	46
CH11	1380	46
CH14	1480	46
CH15	980	46
CH16	1030	46
CH17	1080	46
CH18	1130	46
CH19	1530	46
CH20	1580	46
CH21	1630	46
CH22	1730	46
CH23	1780	46
CH24	1830	46
CH25	1880	46
CH26	1930	46

The status and settings of the device can be check and set using dedicated programmer PC102W, see <http://www.terraelectronics.com>.

REQUIREMENTS FOR EXTERNAL POWER SUPPLY UNIT (PSU)

- Output voltage 20 V \pm 1 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
- Output connector type 3.5/1.3 (+) plug
- Short circuit protection
- Double insulated (marked )
- Meet EN 55022 class B conducted emissions requirements, measuring with grounded load
- Recommended PSU - [SYS1121-1220-W2E](#)

Technical specifications

Optical input		
Detection wavelength range		1100 - 1650 nm
Input level (OLC range)*		-15 \div -5 dBm
Wideband and DTT outputs		
SAT IF frequency range		2 x (290-2350 MHz)
DTT frequency range		87.5-240 / 470-790 MHz
Output level	SAT IF	75 dB μ V
	DTT	75 dB μ V
dSCR outputs		
SAT IF frequency range		950-2150 MHz
User bands		32 max. per pair outputs, configurable
User band bandwidth		20-60 MHz, configurable
Control commands		EN50494 / EN50607 (SCR/dSCR), Legacy (13V / 18V, 0/22 kHz)
Output level	dSCR mode	76 dB μ V
	legacy mode	70 dB μ V
DTT frequency range		87.5-240 / 470-790 MHz
DTT output level		75 dB μ V
General		
Return loss / impedance		> 10 dB / 75 Ω
Supply voltage	DC input	20 V
	dSCR outputs	13-18 V
	wideband outputs	10-20 V
Power consumption		7 W
Operating temperature range		-20 $^{\circ}$ C \div + 50 $^{\circ}$ C
Dimensions/Weight (packed)		147x89x26 mm/0.4 kg

* the system performance depends on optical level