

Optical dSCR receiver

Product description

The optical receiver 6114 is intended to convert optical signals into electrical RF signals. The receiver is dedicated to operate with optical transmitter 6111/6112 and DTT processing units 6118/6119. See manuals of mentioned devices.

The receiver is equipped with AGC system based on optical input level (OLC - optical level control). 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 13 - 20V DC. This voltage 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 plug the receiver into the mains supply 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 plugging into the mains.
- 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 2012/19/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 with following norms of EU: EMC norm EN50083-2, safety norm EN62368-1 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.

External view of the receiver

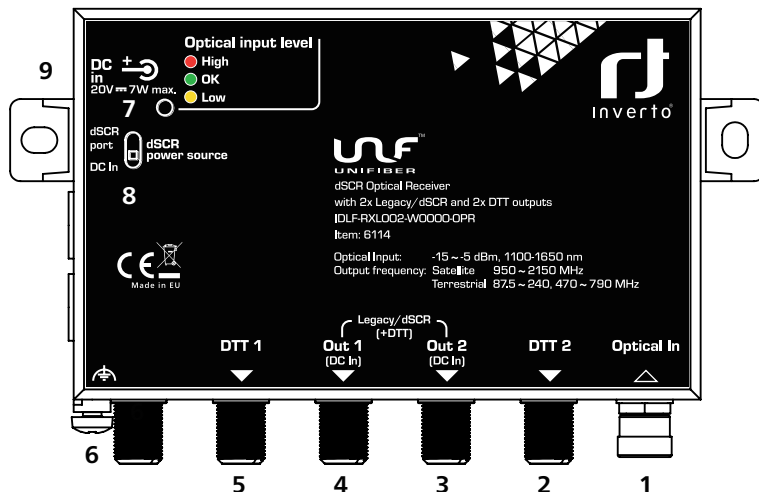


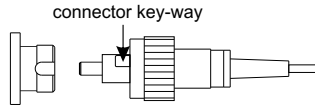
Figure 1. External view of the receiver

1. **OPTICAL IN** Optical input. FC/UPC connector.
2. **DTT 2** DTT, DAB, FM output. F socket.
3. **dSCR2, DC IN** dSCR2 output, DC input. F-type, female.
4. **dSCR1, DC IN** dSCR1 output, DC input. F-type, female.
5. **DTT 1** DTT, DAB, FM output. F socket.
6. **Functional grounding clamp**
7. **LED indicator of optical input power:**
 - Red – too high
 - Green – correct (OLC range)
 - Yellow – too low
8. **dSCR part powering mode switch** (see Figure 2):
 - Through dSCR outputs (pos. 3, 4)
 - Through DC IN (pos. 9)
9. **DC IN** +20 V DC powering input (3.5/1.3 mm DC jack)

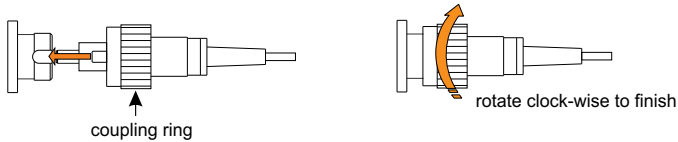
Optical connections

Note: All optical connectors and adapters should be cleaned before connecting them. If optical reception power of the receiver decrease, fiber connection should be cleaned and maintained. Reel cleaners or prepackaged lint free wipes or swabs with alcohol are the most convenient means of cleaning optical connectors. Fiber connectors should never be left uncovered.

1. Align the FC/UPC connector key-way (type R) with the acceptable 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 at least 30 mm when connecting optic cable to the system.

Installation instructions

- Please read the safety instruction first.
- All unused F type connectors must be terminated with 75 Ω loads.
- Mount receiver in vertical position with optical connector underneath.
- From top, left and right side leave 10 cm free space.
- Fasten with screws. 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. 9, Figure 1) or through RF outputs (pos. 3, 4 Figure 1). Use switch (pos.8 Figure 1) to select the correct powering mode (see Figure 2).

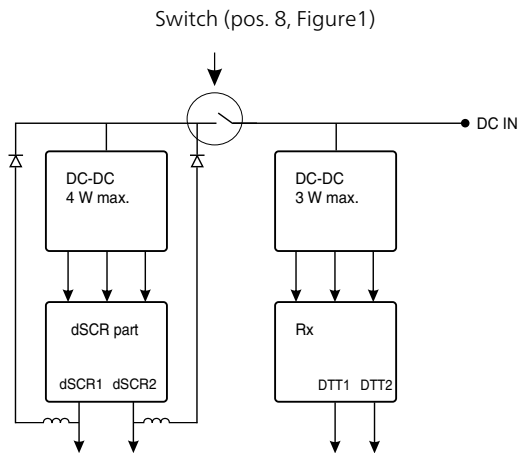


Figure 2. DC path diagram

Optical input level to the receiver

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 the UBs available from dSCR outputs are like presented in table (corresponding to the Sky UK and EN50494/EN50607 UBs):

Sky UK (dSCR) User Band


3 : 1680MHz	19 : 1530MHz
9 : 1280MHz	20 : 1580MHz
11 : 1380MHz	21 : 1630MHz
14 : 1480MHz	22 : 1730MHz
15 : 980MHz	23 : 1780MHz
16 : 1030MHz	24 : 1830MHz
17 : 1080MHz	25 : 1880MHz
18 : 1130MHz	26 : 1930MHz

EN50494/EN50607 User Bands

1 : 1210MHz	EN50494	9 : 1340MHz	EN50607
2 : 1420MHz		10 : 1485MHz	
3 : 1680MHz		11 : 1550MHz	
4 : 2040MHz		12 : 1615MHz	
5 : 985MHz	13 : 1745MHz		
6 : 1050MHz	14 : 1810MHz		
7 : 1115MHz	15 : 1875MHz		
8 : 1275MHz	16 : 1940MHz		

User Band bandwidth 46 MHz

Requirements for external power supply unit (PSU)

- Output voltage +20 V ± 1 V
- 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

TECHNICAL SPECIFICATIONS

Optical input		
Wavelength	1100 - 1650 nm	
Optical input level (OLC range)*	-15 ÷ -5 dBm	
DTT Outputs		
DTT frequency range	87.5-240 / 470-790 MHz	
Output level	75 dBµV	
dSCR outputs		
SAT 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 (13 V / 18 V, 0/22 kHz)	
Output level	dSCR mode	83 dBµV
	Legacy mode	78 dBµV
DTT frequency range	87.5-240 / 470-790 MHz	
DTT output level	75 dBµV	
Return loss / impedance	> 10 dB / 75 Ω	
Powering		
Supply voltage	DC input	20 V
	dSCR output	13-18 V
Power consumption	6.8 W	
Main characteristics		
Operating temperature range	-20 °C ÷ + 50 °C	
Dimensions/Weight (packed)	147x89x26 mm/0.4 kg	

* The system performance depends on optical level



For purpose of brevity, some product descriptions in this sheet remain at platform level and may not be referred to as detailed datasheets of the products. Inverto Digital Labs reserves the right to amend, omit or add products, product-lines, and / or features without notice. As product specifications may change without notice, always contact Inverto to obtain the latest product specification sheets.

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