inverto dSCR Optical Receiver with 2x Legacy/dSCR User Manual

Contents

inverto™

inverto dSCR Optical Receiver with 2x Legacy/dSCR

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 – 20 V 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 to 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

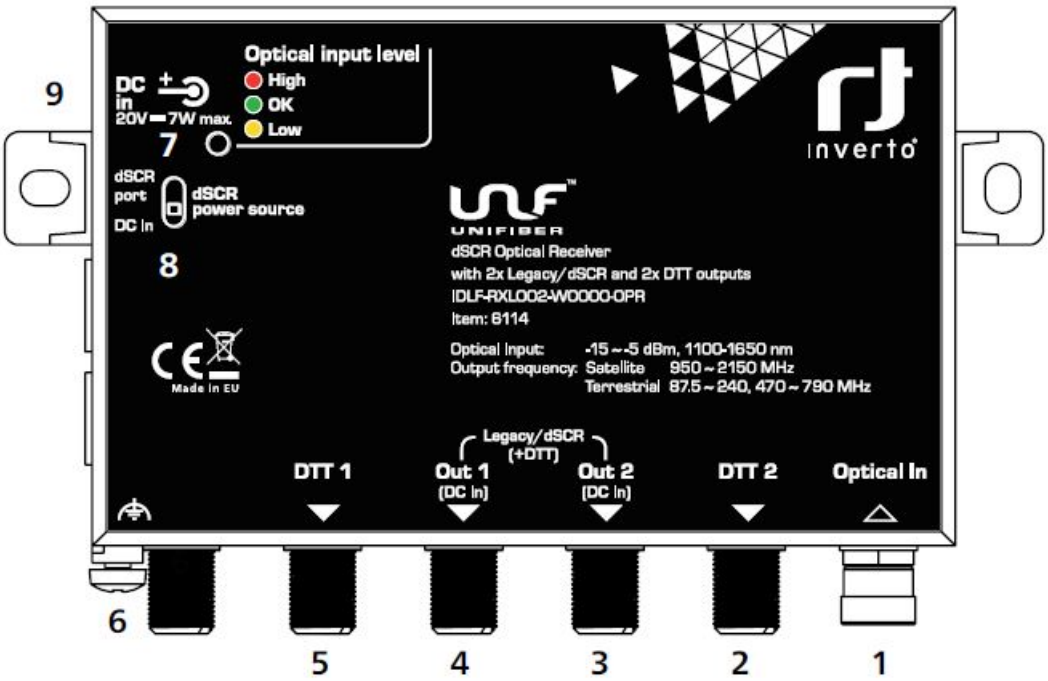


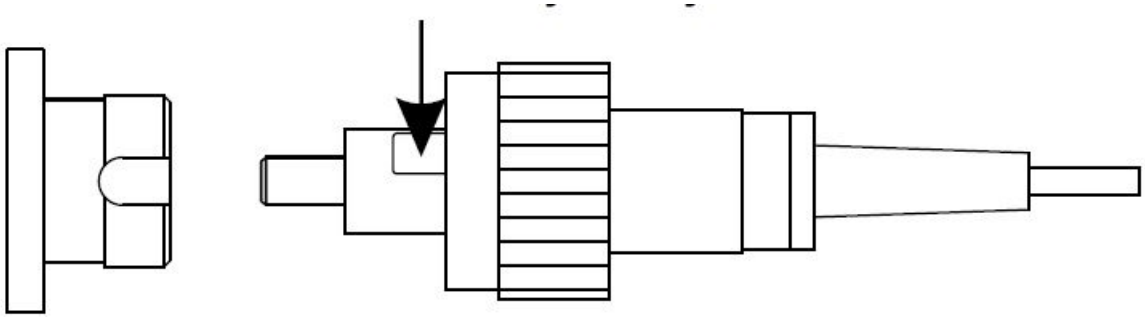
Figure 1. External view of the receiver

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)

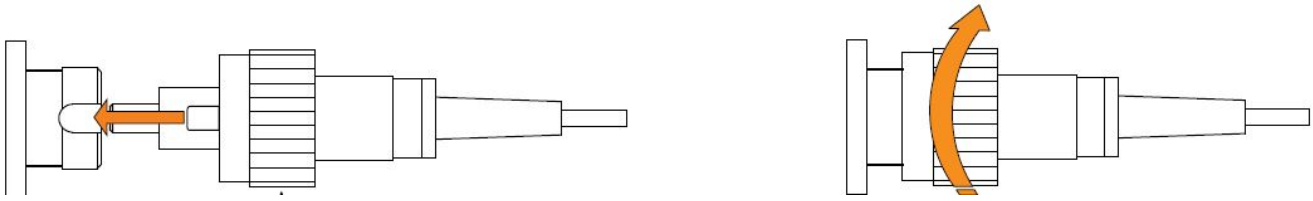
Optical connections

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.
    - Connector key-way



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



- Rotate clock-wise to finish
- 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).

Switch (pos. 8, Figure1)

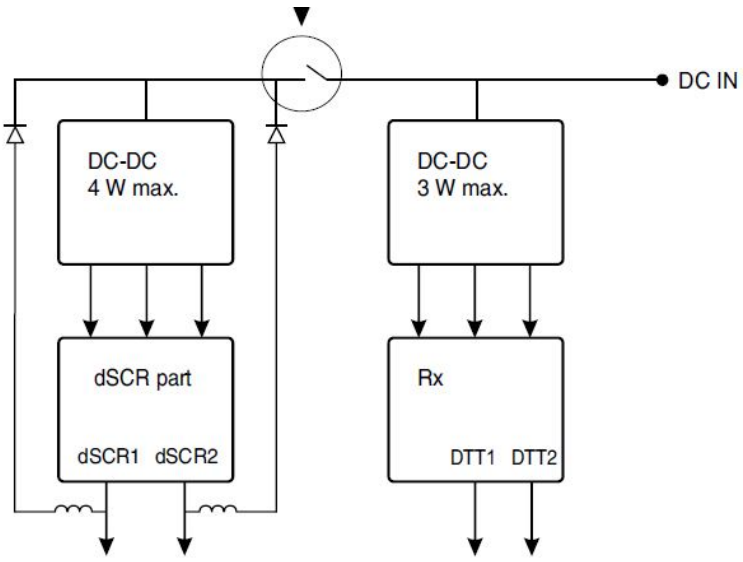


Figure 2. DC path diagram

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

EN50494/EN50607 User Bands

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

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 < 10 mV p-p

mains frequency

- 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 oC ÷ + 50 oC
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 de-tailed 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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Documents / Resources

	**inverto dSCR Optical Receiver with 2x Legacy/dSCR** [pdf] User Manual dSCR Optical Receiver, Receiver, Receiver with 2x Legacy, dSCR, Legacy