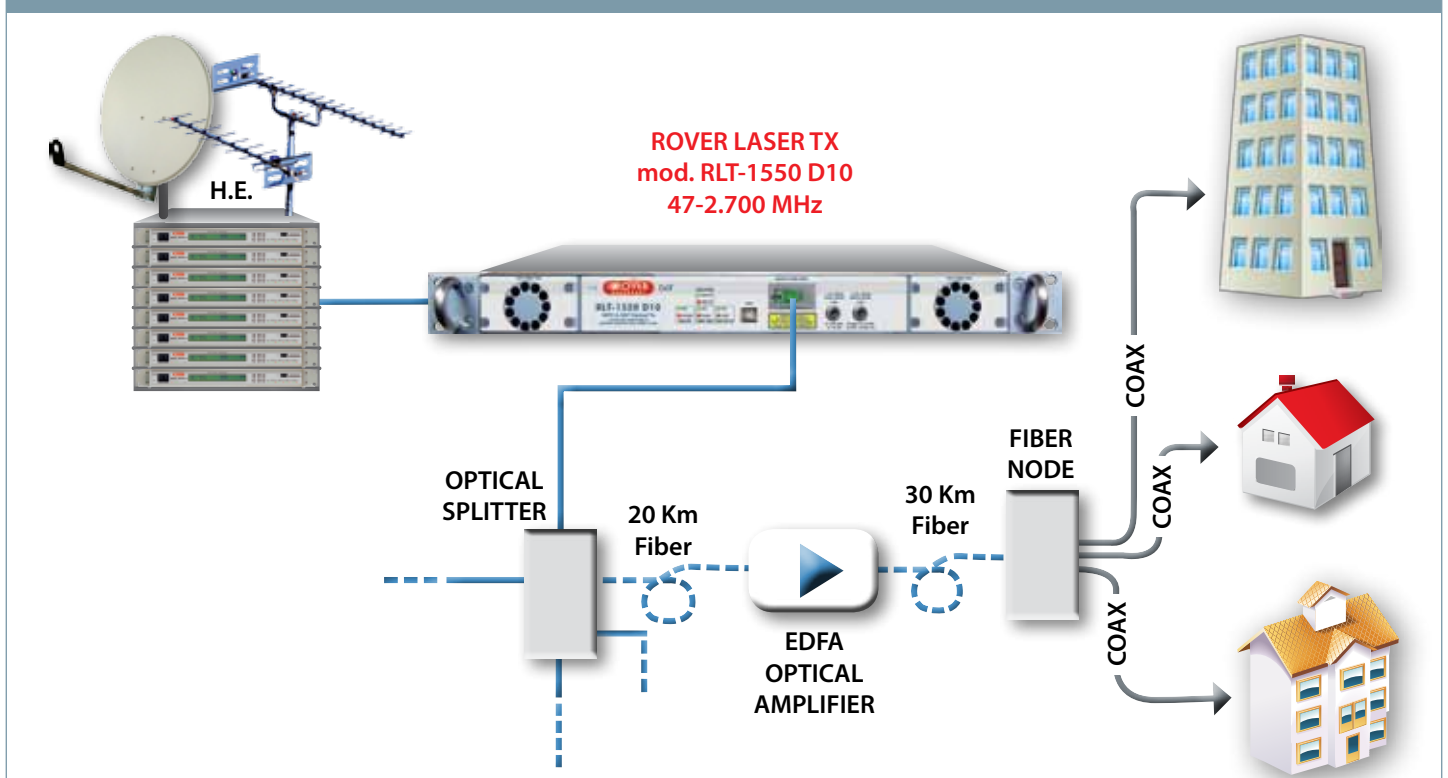


DWDM High Power, Ultra Wide Band CATV & SAT 47-2.700 MHz Laser Optical Transmitter, with pre-correction, LAN remote control and alarms



- The ultra wide band, 47-2.700 MHz, optical, laser transmitter, Rover "RLT" series, equips a high performance, isolated and thermally-stabilized, DFB laser with extreme superior linearity, designed for high channel loading, analog/digital CATV and SAT signals.
- The "RLT" series operates at a 1550 nm wavelength, according to ITU-GRID, the unit is designed for advanced, single mode, optical, fibre networks, with DWDM ITU-grid (Dense Wavelength Division Multiplex), or CWDM grid (Coarse Wavelength Division Multiplex).
- Fine tuning (± 100 GHz) available for DWDM version, to enable one channel reconfiguration.
- The unit employs superior CSO & SBS pre-correction, reducing laser and fiber dispersion effects.
- RLT Series Laser Transmitters incorporate a comprehensive alarm status monitoring system of all laser operating parameters such as: Dc laser bias current, laser output power, OMI, AGC status, etc. The USB and LAN ports provide access to the complete operating parameter configuration and to the alarm monitoring.

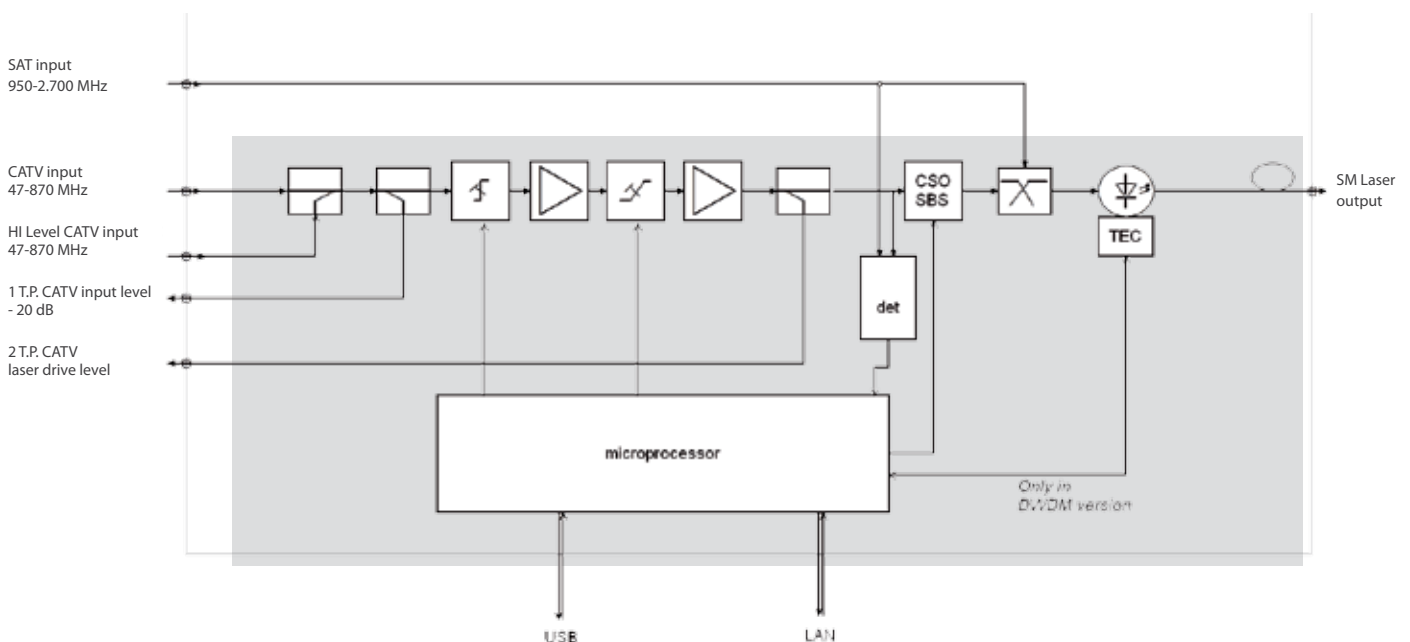
47-2.700 MHz OPTICAL DISTRIBUTION EXAMPLE



MAIN FEATURES

- Low noise high linearity DFB laser for excellent RIN
- High stability thermoelectric laser cooler (DWDM version)
- CATV input 47-870 MHz (or opt. 47-1.002) for analog TV and digital QAM signals
- Two separate CATV inputs, for standard level and high level signals
- SAT input 950-2.700 MHz for digital SAT transponders
- Input level signal test point on front panel
- Laser driver level test point (for OMI measurement), on front panel
- ITU-Grid wavelength fine tuning +/- 100 GHz, available for DWDM version, to enable one optical channel reconfiguration
- Laser output power available, from +4 to + 10 dBm
- Automatic channels load control for stable OMI
- All parameters and pre-corrections, adjustable via USB/LAN port: output laser power, wavelength fine tuning, slope, gain (AGC), OMI, SBS, CSO predistorsion, chirp.
- USB and LAN-port for local & remote control interface
- SC/APC laser output connector
- Laser output connector available on front, or rear panel
- Built-in 2 or 4 way optical splitter, opt.
- Redundancy PSU: 2 x 230 Vac opt. or 1 x 230 Vac +1 x 48 Vdc opt.
- Slim, 1 Unit, 19" Rack

BLOCK DIAGRAM



TECHNICAL SPECIFICATIONS

CATV & SAT

CATV frequency range	47-870 MHz (opt. 30-1.000 no SAT) or (opt. 5-1.000 MHz TV only for quantity orders, no SAT)
SAT frequency range	950-2.700 MHz
RF connectors	75 ohm type "F"
RF Return Loss	TV = > 16 dB SAT = > 12 dB
Typical level for CATV main input	80 dbuV / CH typ. (72 minimum)
Typical level for high level CATV input	100 dbuV / CH typ. (terminate with 75 Ω load if not used)
Nominal level for SAT input	92 dbuV / Trasp. (90 minimum), (terminate with 75 Ω load if not used)
Test point 1 main CATV input	input level - 20 dB
Test point 2 laser drive level	80 dbuV / 5% OMI (related to ch. load)
Gain mode	CATV : AGC (or Manual, not recommended) SAT: Manual
Gain adjustment range CATV	manual +11/-11 dB, AGC 30 dB Max
Slope adjustment range CATV	-3 / +15 dB

LASER

	DWDM version	CWDM version
Laser type	DFB Cooled butterfly	DFB uncooled coaxial
Optical wavelength	ITU grid 100 GHz, channels 20 to 60 available (1.530 to 1.560 nm approx)	1.550 +/- 4 nm
Power stability	+/-0.5 dB	+/-1 dB
Optical power adjustment	0 to -3 dB	
Wavelength fine tuning	-100 to +100 GHz, 50 GHz steps	
RIN	-155 dB/Hz worst case	-150 dB/Hz worst case
Optical insulation	30 dB min	30 dB min
Optical return loss	> 45 dB	> 40 dB

PERIFERALS

LAN/ETHERNET 10/100 port	HTML browser for remote settings and monitoring
USB port	For local settings, monitoring and SW up-grades

POWER SUPPLIES

Main power supply	230 Vac 50 Hz
Redundancy power supply optional	48 Vdc or 2 nd 230 Vac
Power consumption	< 20 W

MECHANICAL

Case	Slim, 19" rack, one unit,
Weight	5 kg

SAFETY, EMC, INSTALLATION ENVIRONMENT

Safety	EN 50 083-1 and EN 60 950 See yellow label on the equipment.
Laser Safety	Class 1M acc. IEC 60 825-1 (eye safe for normal viewing). During normal operations the laser beam is confined within optical fiber. Optical transmitter is intended to work ONLY connected to the proper optical network
Installation environment	Temperature range: -5° / + 45° According to ETS 300 019-1-3 Class 3,1 Controlled Temp. Loc.
Relative humidity	90 % (95 max)
EMC	EN 50 083-2

FULL LOAD CATV NETWORK PERFORMANCE

	Channel allocation plan, number of channels: Cenelec 42, all ch. FLAT	* Channel allocation plan, number of channels: 77 Analog NTSC + 75 Digital QAM at – 6 dB level, all ch. FLAT
OMI (1.550 nm) (DWDM Version)	4,1 % (1) --- % (2)	3,3 % (1) --- % (2)
(CWDM Version)	--- % (1)	--- % (1)
CNR (1550 nm) (DWDM Version)	53 dB (1) 51,5 dB (2)	52 dB (1) 51 dB (2)
(CWDM Version)	51 (1)	50,5 (1)
CSO (1550 nm) (DWDM Version)	> 60 dB (2)	> 60 dB (2)
(CWDM Version)	> 58 dB (2)	> 58 dB (2)
CTB (1550 nm) (DWDM Version)	> 62 dB (2)	> 62,5 dB (2)
(CWDM Version)	> 64 dB (2)	> 64 dB (2)
CXM (1550 nm) (DWDM Version)	> 58 dB (2)	> 57 dB (2)
(CWDM Version)	> 55 dB (2)	> 55 dB (2)

* All ch. FLAT, (analog channels below 550 MHz), (digital channels above 550 MHz) digital QAM channels – 6 dB level

LINK TYPE:

1) Link type 1=tx+0km fiber+ optical attenuator + RX

2) Link type 2= tx+20km fiber G652+ optical attenuator + RX

RX: received power= 0dBm, noise current = $7\text{pA}/\sqrt{\text{Hz}}$

SAFETY

THE EQUIPMENT MAY ONLY BE INSTALLED BY QUALIFIED PERSONNEL, WHO HAVE RECEIVED THE NECESSARY TRAINING IN HANDLING OPTICAL AND ELECTRICAL EQUIPMENT AND HAVE BEEN INSTRUCTED IN LASER SAFETY.

**INVISIBLE LASER RADIATION, DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS CLASS 1M LASER PRODUCT.
MAXIMUM OUTPUT POWER: 145.0 mW,
WAVELENGTH: 1550 nm IEC 60825-1:2007
(EN 60825-1:2007, DIN EN 60825:2008-05).**

NOTICE



Laser equipment installation, operation and maintenance must only be carried out by people who have received adequate training in laser safety.

Optical transmitters and amplifiers emit optical power in the invisible infra-red spectrum range. Under normal operating conditions, the optical power is transferred in the fibers and is not accessible.

Each optical transmitter and each optical amplifier is assigned to a laser class according to IEC 60825–2 and a hazard level according to IEC 60825–2.

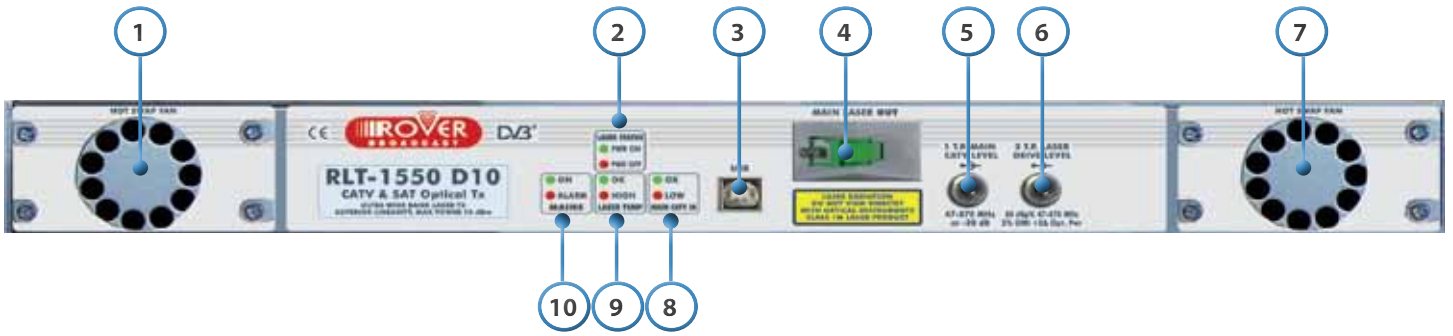
The hazard level is based on radiation that could become accessible under reasonable foreseeable circumstances, e.g. disconnected fiber connector, fiber cable break.

Both levels are documented in the according operating manual of the device and with a laser safety label on the device.

The device may be integrated in an optical fiber communication system (OFCS) complying with IEC 60825-2.

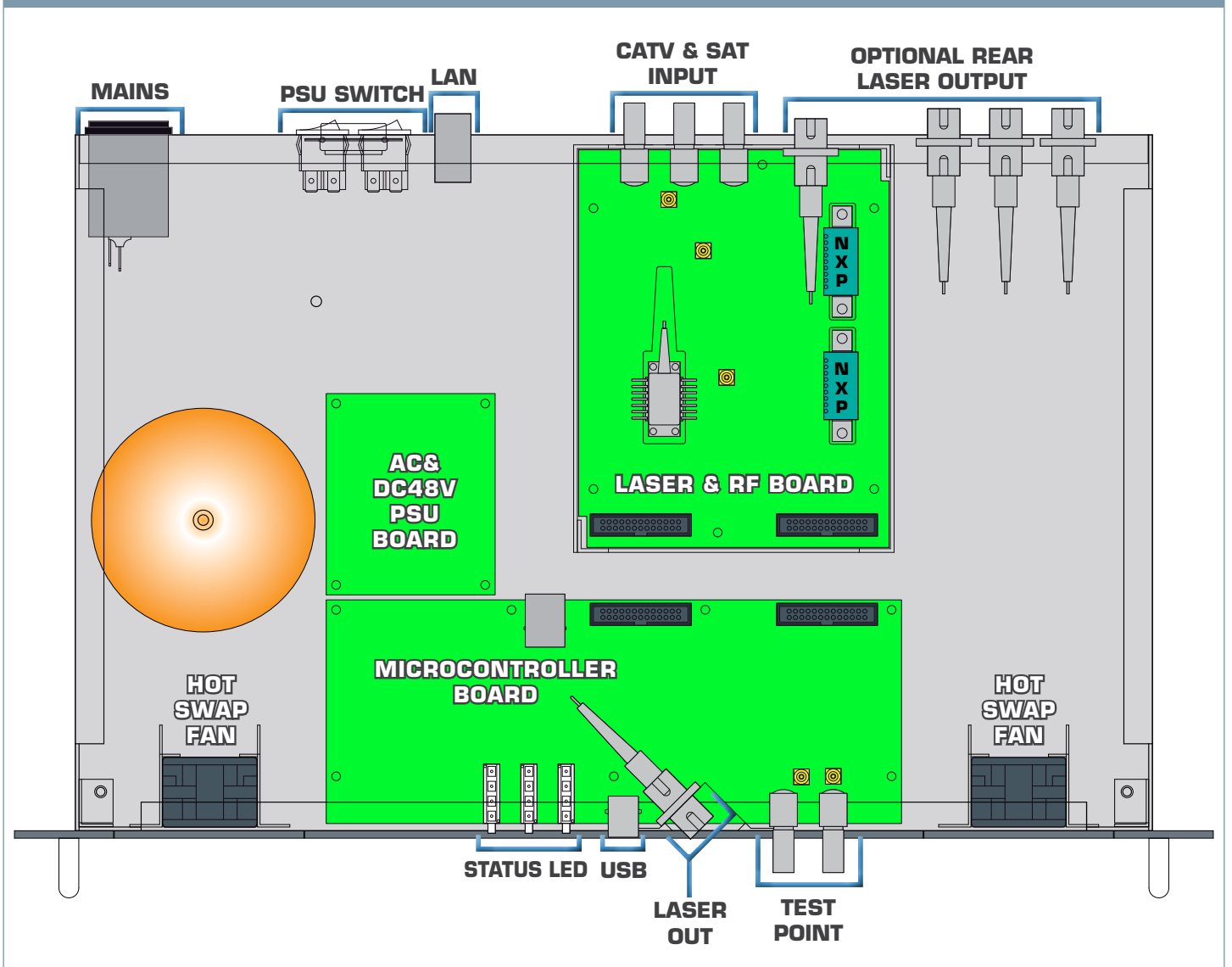
For subsequent accessible locations within the OFCS, the manufacturer of the OFCS is obliged to assign appropriate hazard levels and to install applicable laser safety measures according to IEC 60825-2.

FRONT VIEW

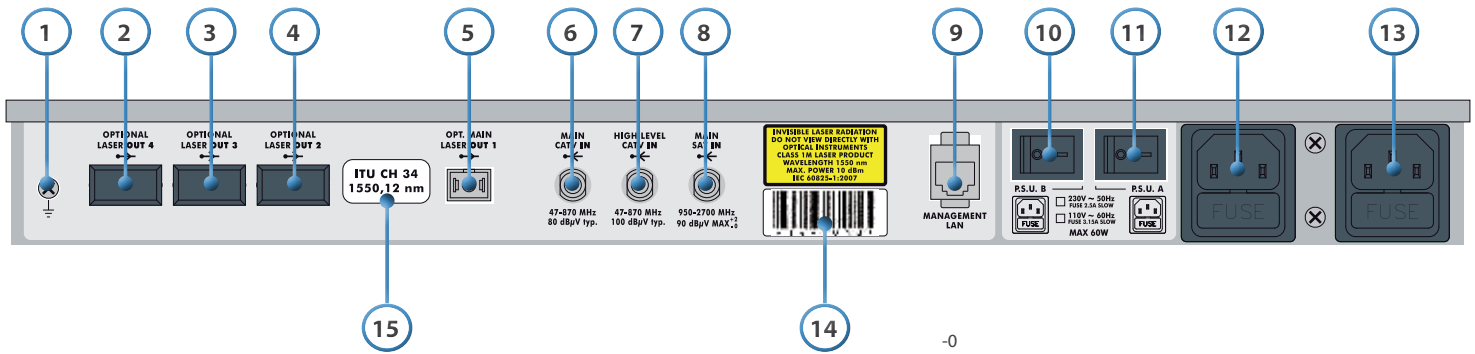


1. Hot swap fan
2. LED Laser PWR status and alarm
3. USB port
4. Main LASER OUT.
ATTENTION: Laser radiation, do not view directly with optical instruments, class 1M laser product
5. 1st Test Point main CATV level:
47-870 MHz at -20 dB
6. 2nd Test Point laser drive level:
80 dBμV, 47-870 MHz 5% OMI +2Δ Opt. Pwr
7. Hot swap fan
8. LED main CATV IN status and alarm
9. LED laser temp status and alarm
10. LED AC/DC mains status and alarm

INTERNAL VIEW

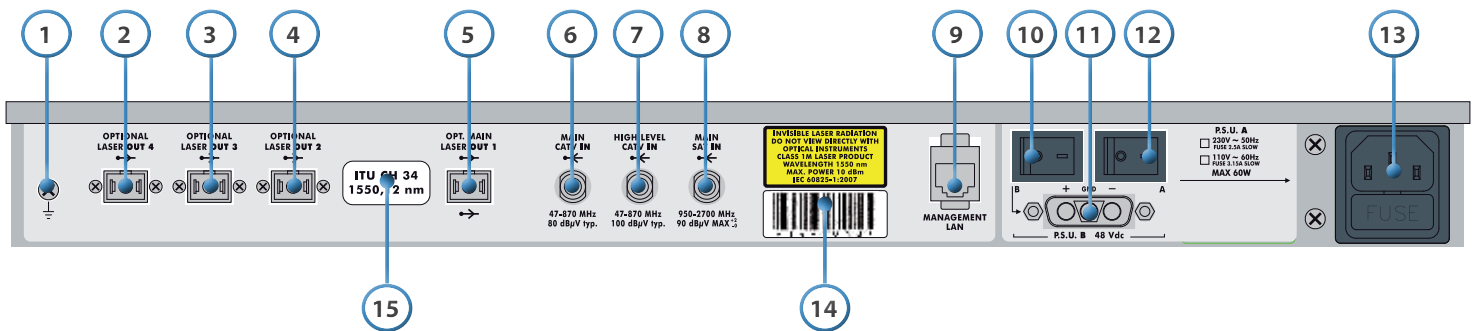


REAR VIEW WITH 2 x 230 Vac P.S.U.



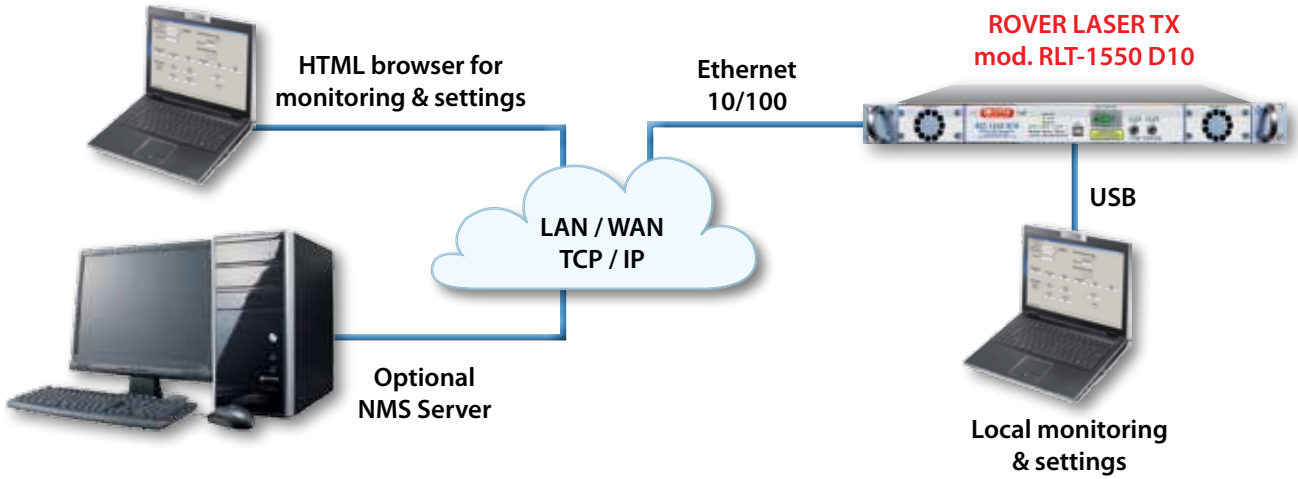
- | | | |
|---|--|---|
| <ol style="list-style-type: none"> 1. Grounding 2. Optional rear Laser OUT 4 3. Optional rear Laser OUT 3 4. Optional rear Laser OUT 2 5. Optional main rear Laser OUT 1 6. Main CATV IN:
47-870 MHz 80 dBµV typ. | <ol style="list-style-type: none"> 7. High level CATV IN:
47-870 MHz 100 dBµV typ. 8. Main SAT IN:
950-2.700 MHz 90 dBµV MAX⁺² 9. LAN management 10. P.S.U. B-Switch 11. P.S.U. A-Switch | <ol style="list-style-type: none"> 12. AC mains & Fuse - B 13. AC mains & Fuse - A opt.
Fuse value 230 V = 2.5 A
Fuse value 110 V = 3.15 A 14. Serial N. and configuration label 15. Optical CH. N. label |
|---|--|---|

REAR VIEW WITH 1 - 230 Vac and 1 - 48 Vdc P.S.U.

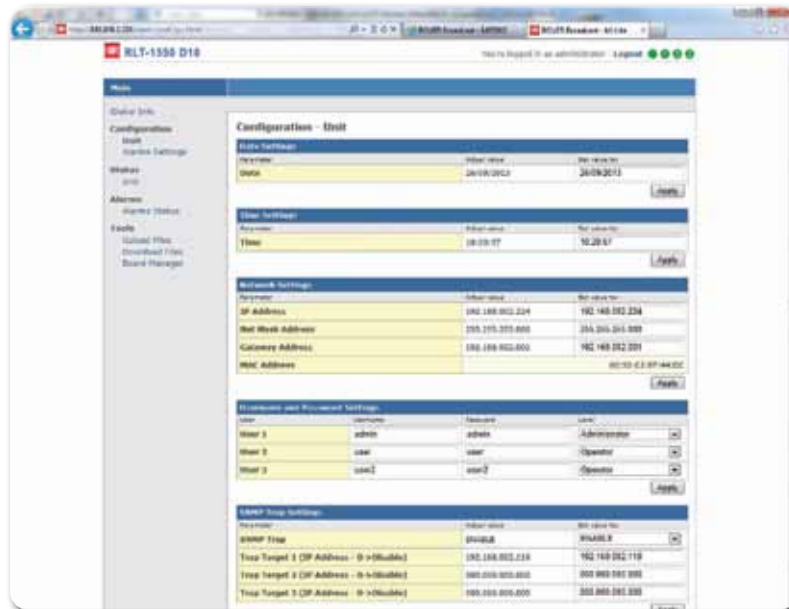


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|--|---|---|
| <ol style="list-style-type: none"> 1. Grounding 2. Optional optic OUT 4 3. Optional optic OUT 3 4. Optional optic OUT 2 5. Optional main optic OUT 1 6. Main CATV IN | <ol style="list-style-type: none"> 7. High level CATV IN 8. Main SAT IN 9. LAN management 10. P.S.U. B-Switch 11. P.S.U. DC 48 V INPUT opt. 12. P.S.U. A-Switch | <ol style="list-style-type: none"> 13. AC MAINS & FUSE-A
Fuse value 230 = 2.5 A
Fuse value 110 = 3.15 A 14. Serial N. and configuration label 15. Optical CH. N. label |
|--|---|---|

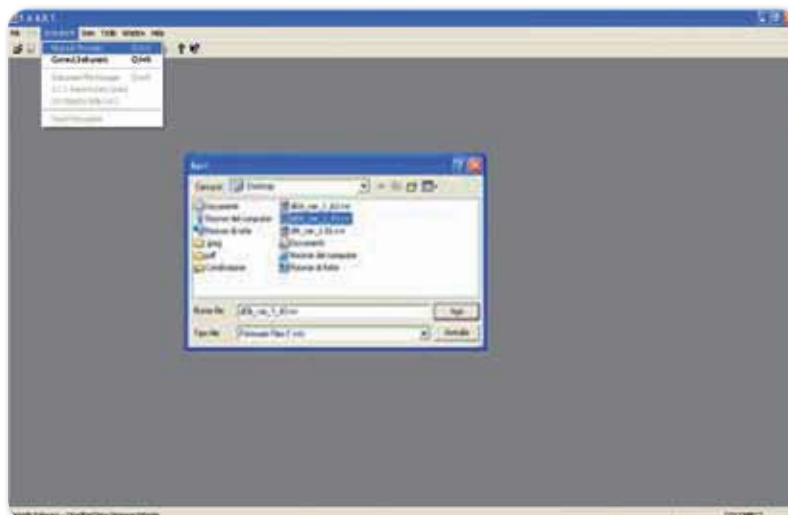
WEB CONNECTIVITY



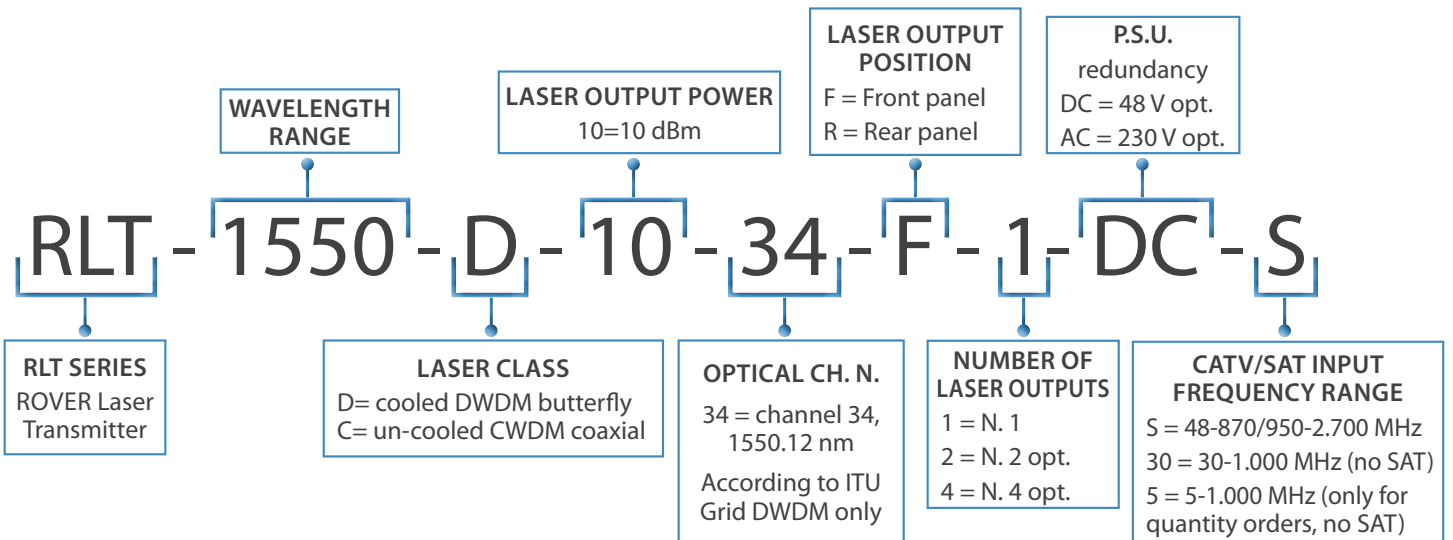
LAN REMOTE CONTROL



USB LOCAL MONITORING, SETTINGS & UP-GRADES



ORDERING CODE DEFINITION



ORDERING MODEL / CODE EXAMPLE

MODEL / CODE	DESCRIPTION	APPLICATION
RLT1550-D-10-34-F-1-DC-S	DWDM Laser transmitter with cooled ultra high linearity LASER, 10 dBm power, ITU 34 ch., front panel LASER out, 1 LASER out, opt. redundancy 48 Vdc PSU, CATV & SAT 47-870/950-2.700 MHz input frequency range	CATV & SAT UP TO 40 OPTICAL CHAN.
RLT1550-C-9-XX-F-1-XX-S	CWDM Laser transmitter with un-cooled LASER, 9 dBm power, front panel LASER out, 1 LASER out, CATV & SAT 47-870/950-2.700 MHz input frequency range	CATV & SAT UP TO 2 OPTICAL CHAN.

OPTIONS

ITEM	DESCRIPTION	CODE DEFINITION
P.S.U. REDUNDANCY	Second 230 Vac PSU (Max N. 2 AC)	AC
	Second 48 Vdc PSU (Max N. 1 DC)	DC
OPTICAL SPLITTER	2 way built-in optical splitter	2
	4 way built-in optical splitter	4
LASER CLASS	Cooled ultra high linearity butterfly LASER	D
	Uncooled coaxial LASER	C
LASER OUTPUT POWER	4 dBm	4
	6 dBm	6
	7 dBm	7
	8 dBm	8
	9 dBm	9
	10 dBm	10
CATV/SAT INPUT FREQUENCY RANGE	47-870 MHz CATV INPUT and 950-2.700 MHz SAT INPUT	S
	30-1.000 MHz (no SAT-IN)	30
	5-1.000 MHz (only for quantity orders, no SAT IN)	5

RLT-1550 D10

High power, Ultra Wide Band CATV & SAT 47-2.700 MHz

Laser Optical Transmitter

pre-correction, LAN remote control and alarms.

Operating Manual

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1 DOCUMENT VERSION

Revision	data	note
1.0	14.10.2014	Start version

2 SAFETY

2.1 SAFETY INSTRUCTIONS

Read all instruction completely before putting into operation the system for the first time and for any subsequent operation.

The device will be handled by personnel who have been trained to work with optical and electrical equipment and have received statements that comply with laser safety.



All work should be carried out according to the prescribed sequence Wrong operations can seriously affect the health of people or cause damage to the devices



2.2 CLASS 1M PRODUCT

The device class is classified according to the international standard IEC 60825-1:2007; European Version EN 60825-1:2007 and German Version DIN EN 60825:2008-05).

Class 1M

The laser radiation is emitted in the invisible infra-red spectrum range. It is potentially hazardous when viewed using an optical instrument



2.3 HAZARD LEVEL 1M

The device may be integrated in an Optical Fiber Communication System (OFCS) complying with IEC 60825-2.

The standard requires the assessment of risk levels for locations with restricted or control access in accordance with IEC 60825-1.

If installed in an OFCS the device optical output port(s) (fiber connector(s)) are assigned to the

Hazard Level 1M

The OFCS manufacturer is obliged to assign appropriate hazard levels and to install applicable laser safety measures according to IEC 60825-2.

The laser radiation is potentially hazardous when viewed using an optical instrument.



2.4 LASER SAFETY INSTRUCTIONS

Disconnect the device or put it into a state of low power before any maintenance and installation performing

- Do not look directly into the light beam and do not use magnifying glasses, microscopes and similar devices (to be used at a distance greater than 100 mm from the light source).
- Do not point fiber ends at other people.
- Check optical power in a fiber using a calibrated optical power meter.

- If the laser safety or hazard level requires the use of eye protection, only use equipment which has been tested and approved for the wavelengths and optical power involved.
- Any single or multiple fiber ends or ends found not to be terminated with power levels exceeding hazard level 1 (acc. IEC 60825-2) should be individually or collectively covered by material with sufficient attenuation of the optical power at the wavelength concerned.
- Do not make any unauthorized modifications to any optical fiber system or associated equipment.
- Replace damaged optical safety labels or attach new labels if labels are missing.

3 GENERAL DESCRIPTION

3.1 INTRODUCTION

The Ultra Wide Band 47-2.700 MHz optical Laser Transmitter, Rover “RLT” series, employs a high performance isolated and thermally stabilized DFB Laser with extreme Superior Linearity, designed for high channel Loading, Analog/Digital CATV & SAT signals.

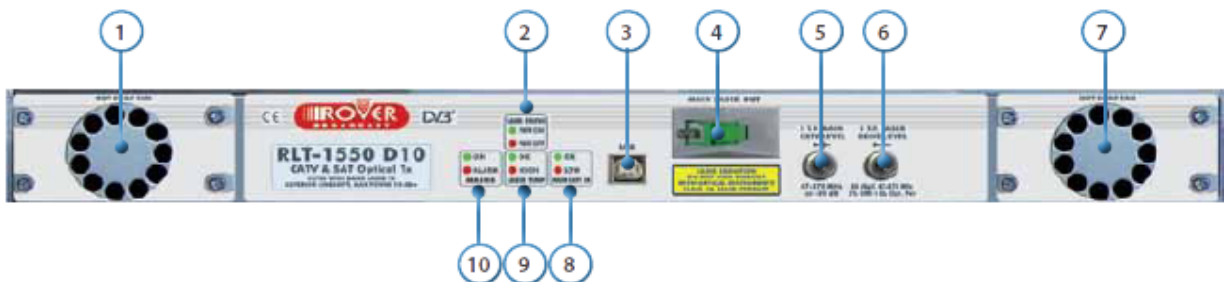


- The “RLT” series Operate at 1550 nm Wavelength according to ITU-GRID, the unit is designed for advanced single mode optical fiber networks, with DWDM ITU-grid (Dense Wavelength Division Multiplex), or CWDM grid (Coarse Wavelength Division Multiplex).

3.2 VIEWS of RLT-1550 D10

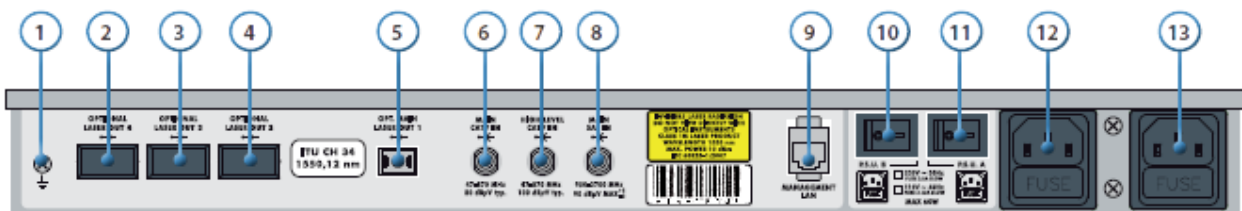
FRONT VIEW

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Hot swap fan 2. LED Laser PWR status 3. USB port 4. Main LASER OUT.
Laser radiation, do not view directly with optical instruments, class 1M laser product 5. One Test Point main CATV level: | <ol style="list-style-type: none"> 6. Two Test Point laser drive level:
80 dBμV, 47-870 MHz 5% OMI +2Δ Opt. Pwr 7. Hot swap fan 8. LED main CATV IN status 9. LED laser temp status 10. LED AC/DC mains status |
|--|---|

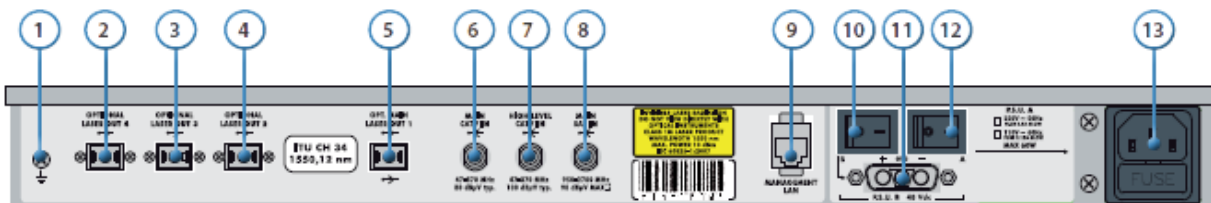


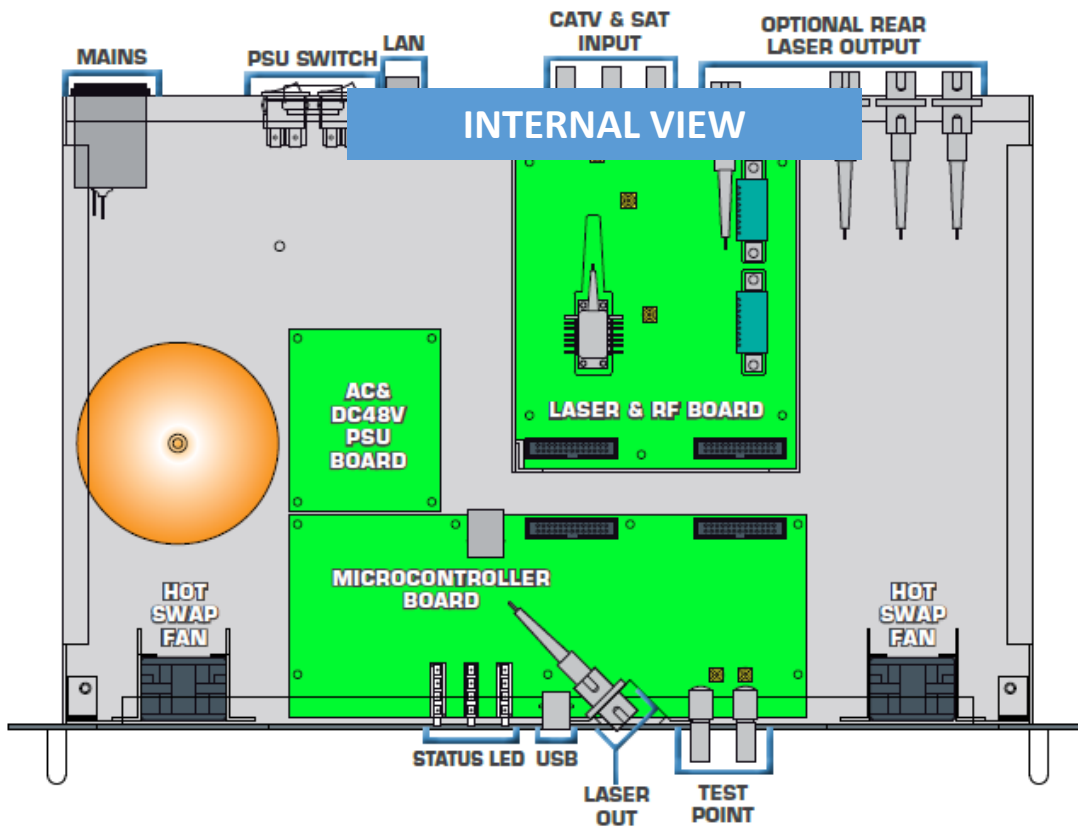
REAR VIEW

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Grounding 2. Optional rear Laser OUT 4 3. Optional rear Laser OUT 3 4. Optional rear Laser OUT 2 5. Optional main rear Laser OUT 1 6. Main CATV IN:
47-870 MHz 80 dBμV typ. 7. High level CATV IN:
47-870 MHz 100 dBμV typ. | <ol style="list-style-type: none"> 8. Main SAT IN:
950-2.700 MHz 90 dBμV MAX+2 9. Management LAN 10. P.S.U. B- Switch 11. P.S.U. A-Switch 12. AC mains & Fuse - B 13. AC mains & Fuse - A
Fuse value 230 = 2,5 A
Fuse value 110 = 3,15 A |
|--|--|

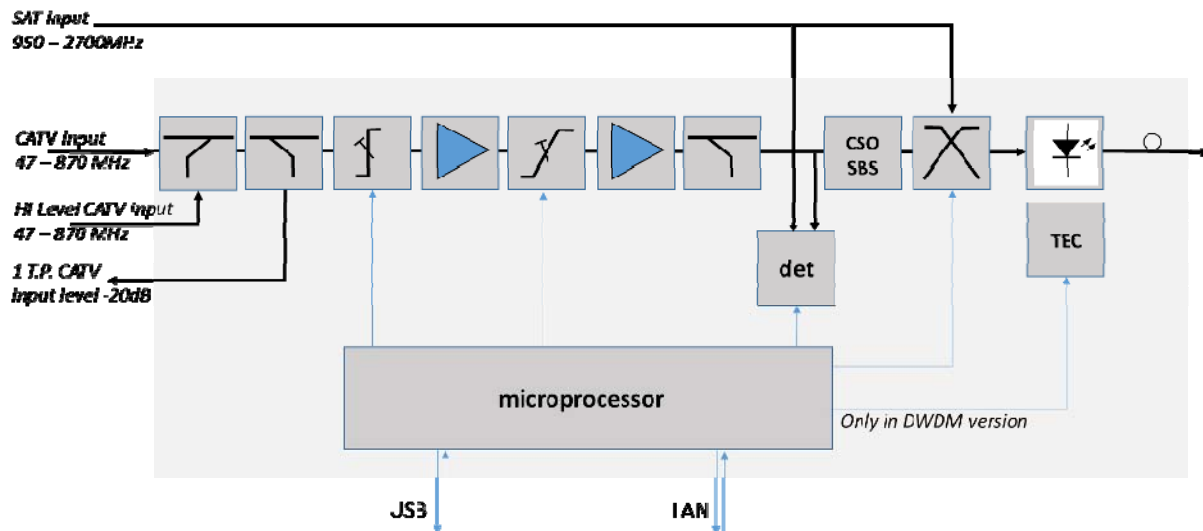


- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Grounding 2. Optional optic OUT 4 3. Optional optic OUT 3 4. Optional optic OUT 2 5. Optional main optic OUT 1 6. Main CATV IN 7. High level CATV IN 8. Main SAT IN | <ol style="list-style-type: none"> 9. Management LAN 10. P.S.U. B-Switch 11. P.S.U. B 48 Vdc 12. DC 48 V IN 13. AC MAINS & FUSE-A
Fuse value 230 = 2,5 A
Fuse value 110 = 3,15 A |
|---|---|





BLOCK DIAGRAM



3.3 INSTALLING AND STARTING RLT-1550 D10

Instruction for correctly handling device

1. The RLT-1550 D10 has be placed into operation under the specified environmental conditions. Avoid temperature shocks after module transportation and waiting sufficient time to accommodate with the environmental conditions at the operating site.
2. Check matching between used rack and mechanical RLT-1550 D10 (19", ETSI or JIS)
3. Connect power supply on the module's rear with delivered powering cable only.
4. Please observe laser safety requirements (refer to the safety instructions) and connect module RF and optical. Handle fiber carefully and remember that the smallest permissible bending radius for fiber is 30mm.
5. Turn on the module at rear power switch.
6. After start, the "Module" LED on the front is lightening green
7. Connect the transmitter by management LAN port that provides access to the complete operating parameters configurations and to alarms monitoring

4 TECHNICAL SPECIFICATION

4.1 MAIN FEATURES

The "RLT" series Operate at 1550 nm Wavelength according to ITU-GRID, the unit is designed for advanced single mode optical fiber networks, with DWDM ITU-grid

(Dense Wavelength Division Multiplex), or CWDM grid
(Coarse Wavelength Division Multiplex).

- Fine tuning (± 100 GHz)

Available for DWDM version, to enable one channel reconfiguration based on ITU grid channel number as in table

ITU Channel No.	DWDM Frequency	DWDM Wavelength
19	191.900 THz	1562.23 nm
20	192.000 THz	1561.42 nm
21	192.100 THz	1560.61 nm
22	192.200 THz	1559.79 nm
23	192.300 THz	1558.98 nm
24	192.400 THz	1558.17 nm
25	192.500 THz	1557.36 nm
26	192.600 THz	1556.55 nm
27	192.700 THz	1555.75 nm
28	192.800 THz	1554.94 nm
29	192.900 THz	1554.13 nm
30	193.000 THz	1553.33 nm
31	193.100 THz	1552.52 nm
32	193.200 THz	1551.72 nm
33	193.300 THz	1550.92 nm
34	193.400 THz	1550.12 nm
35	193.500 THz	1549.32 nm
36	193.600 THz	1548.51 nm
37	193.700 THz	1547.72 nm
38	193.800 THz	1546.92 nm
39	193.900 THz	1546.12 nm
40	194.000 THz	1545.32 nm
41	194.100 THz	1544.53 nm
42	194.200 THz	1543.73 nm
43	194.300 THz	1542.94 nm
44	194.400 THz	1542.14 nm
45	194.500 THz	1541.35 nm
46	194.600 THz	1540.56 nm
47	194.700 THz	1539.77 nm
48	194.800 THz	1538.98 nm
49	194.900 THz	1538.19 nm
50	195.000 THz	1537.40 nm
51	195.100 THz	1536.61 nm
52	195.200 THz	1535.82 nm
53	195.300 THz	1535.04 nm
54	195.400 THz	1534.25 nm
55	195.500 THz	1533.47 nm
56	195.600 THz	1532.68 nm
57	195.700 THz	1531.90 nm
58	195.800 THz	1531.12 nm
59	195.900 THz	1530.33 nm

- Low noise High Linearity DFB Laser for excellent RIN (Relatively Intensity Noise)

The spectral density of RIN standard, as approximated by thermal Gaussian light, could be obtained from combination of measurement and theory-based calculation.

It is very important because the noise figure of an optical amplifier can depend on the signal input RIN

- High stability thermoelectric Laser cooler (DWDM Version)
DWDM (Dense Wavelength Division Multiplex) modulation utilizes multiple lasers to obtain large multichannel data streams. The narrow channel spacing relies on laser wavelength is controlled within 0,1nm but temperature variation influences operation. So a typical temperature control of 0,1 °C is required to maintain laser operation within 0,1nm.
- CATV Input:
CATV input from 47 to 870 MHz (or opt. 47-1.002) for Analog TV and Digital QAM Signals
The nominal level for CATV main input varies from 72 db μ V to 80 db μ V. The nominal level for high level CATV input is 100 db μ V, but must use a separate CATV input
- SAT Input 950-2.700 MHz for Digital SAT Transponder
Nominal level for SAT input level 92 dbuV / trasp. typ, 90 minimum
- Input level Signal Test Point on Front panel
- Laser Output Power available, from +3 to + 10 dBm
- Laser output connector available on Front, or Rear Panel
- SC/APC Laser Output Connector
- Automatic channels load Control for stable OMI
The optical transmitter adjusts the optimum modulation index OMI by AGC (Automatic Gain Control) that automatically adjusts the RF gain. Typically about 5% is the optimum OMI for analog video in broadcasting application
- Laser Driver Level Test Point (for OMI measurement), on front panel
- All parameters and pre-corrections, adjustable via USB/LAN port: Output Laser Power, Slope, wavelength fine tuning, Gain (AGC), OMI, SBS, CSO pre-distortion, chirp.
The CNR is the difference, in decibels, between the amplitude of an RF signal and the amplitude of thermal noise present in the transmission path of the RF signal
CSO (Carrier to Second Order) and CTO(Carrier to Triple Beat) are distortion component caused by non-linear mixing of carrier in the transmission system as a result of laser “clipping” that occurs when the optical modulation index

(OMI) of laser is too high. This is when the peak modulating current exceeds the d.c. bias current level above threshold.

- USB and LAN-Port for local & Remote Control Interface
- Built-in 2 or 4 Way Optical splitter, opt.
- Redundancy PSU: 2 x 230 V-AC opt. or 1 x 230 V-AC+1 x 48 V-DC opt.
- Slim 1 Unit, 19" Rack

4.2 INPUT CATV & SAT

CATV Frequency range	47-870 MHz (option 47-1.000 TV only)
SAT Frequency range	950-2700 MHz
RF connectors	75 ohm type "F"
RF Return Loss	TV = > 16 dB SAT = > 12 dB
Nominal level for CATV main input	80 dbuV / typ. 72 minimum
Nominal level for high level CATV input	100 dbuV / CH
Nominal level for SAT input level	92 dbuV / trasp. typ, 90 minimum
Testpoint 1 main CATV input	input level - 20 dB
Testpoint 2 laser drive level	80 dbuV / 5% OMI
Gain mode	CATV : AGC or Manual SAT: Manual
Gain adjustment CATV	manual +11/-11 dB, AGC 30 dB Max
Slope adjustment CATV	-3 / +15 dB

4.3 LASER SPECIFICATION

	DWDM version	CWDM version
Laser type	DFB Cooled butterfly	DFB uncooled coaxial
Optical wavelegh	ITU grid 100 GHz, channels 20 to 60 availables (1.530 to 1.560 nm approx)	1.550 +/- 4 nm
Laser Output power	From +3 to +10dBm	
Power stability	+/-0.5 dB	+/-1 dB
Optical Power Adjustement	0 to -3 dB	
Wavelength fine tuning	-100 to +100 GHz, 50 GHz steps	
RIN	-155 db/Hz worst case	-150 db/Hz worst case
Optical insulation	30 db min	30 db min
Optical Return Lossv	> 45 dB	> 40 dB

4.4 POWER SUPPLY

Main power supply	230 V-AC 50 hz
Redundancy Power Supply	48 V-DC
Power consumption	< 20 W

4.5 SAFETY & ENVIRONMENT

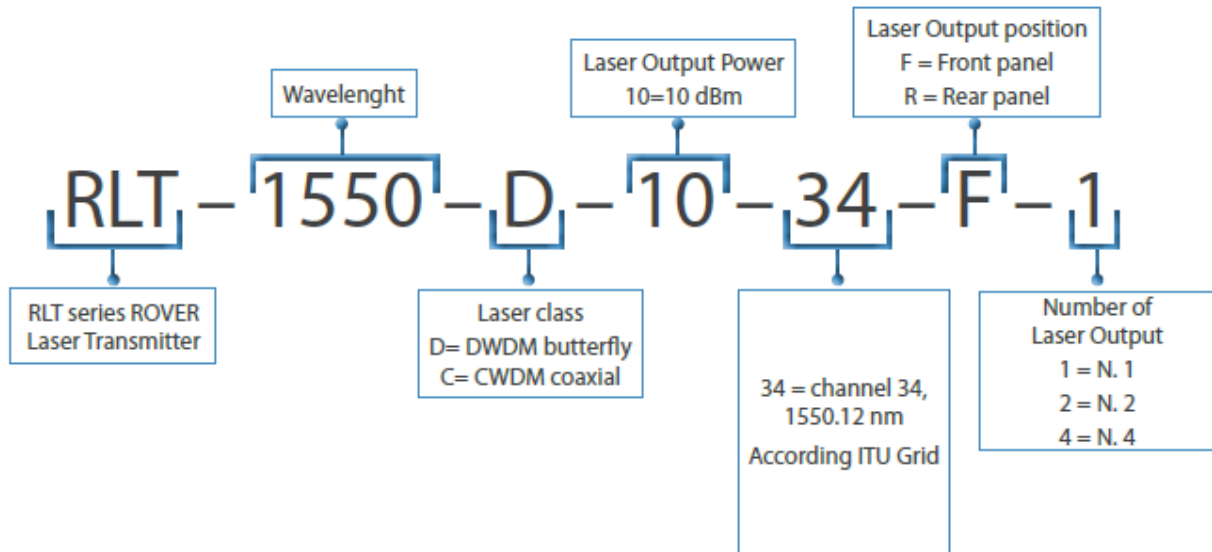
Safety	EN 50 083-1 and EN 60 950 See yellow label on the equipment.
Laser Safety	Class 1M acc. IEC 60 825-1 (eye safe for normal viewing). During normal operations laser beam is confined within optical fiber. Optical transmitter is intended to work ONLY connected to the proper optical network
Installation environment	Temperature range: -5° / + 45° According to ETS 300 019-1-3 Class 3,1 Controlled Temp. Loc.
Relative humidity	90 %
EMC	EN 50 083-2

4.6 CATV NETWORK PERFORMANCE

		Channel allocation plan (number of channel) = Cenelec 42	Channel allocation plan (number of channel 77 Analog NTSC + 75 Digital QAM *
CNR (1550 nm)	(DWDM Version)	53 dB (1) 51,5 dB (2)	52 dB (1) 51 dB (2)
	(CWDM Version)	51 (1)	50,5 (1)
CSO (1550 nm)	(DWDM Version)	> 60 dB (2)	> 60 dB (2)
	(CWDM Version)	> 58 dB (2)	> 58 dB (2)
CTB (1550 nm)	(DWDM Version)	> 62 dB (2)	> 62,5 dB (2)
	(CWDM Version)	> 64 dB (2)	> 64 dB (2)
CXM (1550 nm)	(DWDM Version)	> 58 dB (2)	> 57 dB (2)
	(CWDM Version)	> 55 dB (2)	> 55 dB (2)
* flat output, digital channels – 6db level (Analog channels below 550 MHz) (Digital channels above 550 MHz)			
LINK TYPE:			
1) Link type 1=tx+0km fiber+ optical attenuator + RX			
2) Link type 2= tx+20km fiber G652+ optical attenuator + RX			
RX: received power= 0dBm, noise current = typRX: received power= 0dBm, noise current = 7pA/√Hz			

5 ORDERING CODE

5.1 HOW READ ROVER'S CODE

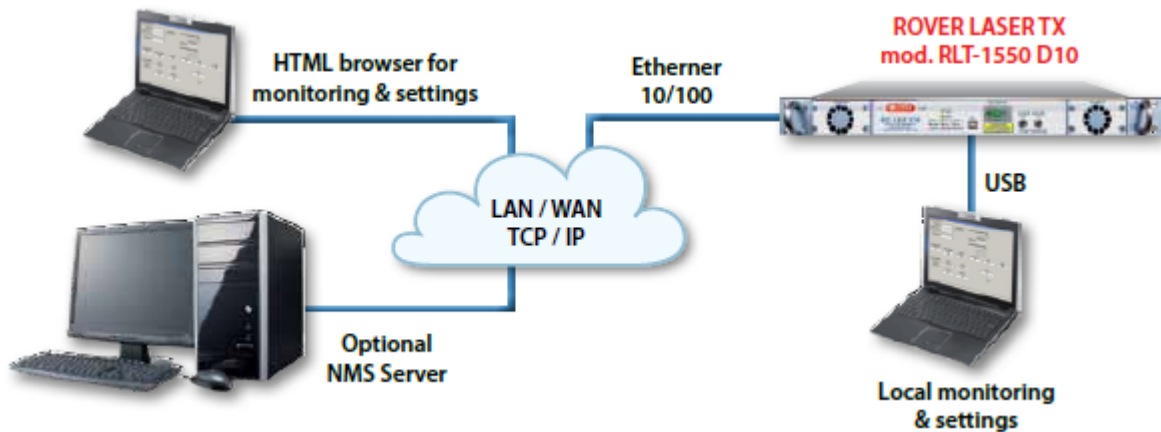


6 USB LOCAL MONITORING & SETTING

Segue descrizione dei passaggi tramite immagini delle pagine del software di configurazione

7 LAN REMOTE CONTROL

7.1 BLOCK DIAGRAM WEB CONNECTIVITY



Segue descrizione dei passaggi tramite immagini delle pagine del software di configurazione da remoto



RLT

admin

SN:0000008E7A0F

Home

Alarm

Setup

Logout

CATV SLOPE

-0.5 dB

FIBER LENGTH

0 Km

(Optical Modulation Index) OMI

18 %

Chan Plan Pre-Correct

CENELEC 42



RLT

admin

SN:0000008E7A0F

Home

Alarm

Setup

Logout

CATV SLOPE

-0.5 dB

FIBER LENGTH

0 Km

(Optical Modulation Index) OMI

- 0.5
- 0
- 1
- 2
- 4
- 6
- 8
- 10
- 12
- 14
- 16

Chan Plan Pre-Correct

CENELEC 42



RLT

admin

SN:0000008E7A0F

Home

Alarm

Setup

Logout

CATV SLOPE

-0.5 dB

FIBER LENGTH

0 Km

(Optical Modulation Index) OMI

18 %

Chan Plan Pre-Correct

CENELEC 42

- 10
- 12
- 15
- 18
- 20



RLT

admin

SN:0000008E7A0F

Home

Alarm

Setup

Logout

CATV SLOPE

-0.5 dB

FIBER LENGTH

0 Km

(Optical Modulation Index) OMI

18 %

Chan Plan Pre-Correct

- 0
- 5
- 10
- 15
- 20
- 25
- 30
- 35
- 40
- 45
- 50

LEC 42



RLT

admin

SN:0000008E7A0F

Home

Alarm

Setup

Logout

CATV SLOPE

-0.5 dB

FIBER LENGTH

0 Km

(Optical Modulation Index) OMI

18 %

Chan Plan Pre-Correct

CENELEC 42
CENELEC 42
77AN + 750QAM