



# COMPACT OPTICAL LASER TRANSMITTER for CATV - SMATV - SAT

mod. **RLT-C7**



**MODULARE OPTICAL TX for SMATV, CATV & SAT DISTRIBUTIONS**

**SPECIALLY DESIGNED for ANALOG & DIGITAL TV CHs**

**CWDM DFB SINGLE MODE LASER**

**TV, CATV & SAT RF TEST POINT ON FRONT PANEL**

**DIN RAIL MODULAR ASSEMBLY OR 1U 19" RACK**

**T.P. for LASER POWER MEASUREMENT**

**ADVANCED  
TECHNOLOGY**

FOR PROFESSIONAL  
CABLE & BROADBAND  
NETWORKS

**DVB<sup>®</sup>**  
MEMBER N.50490

**WTA**  
MEMBER

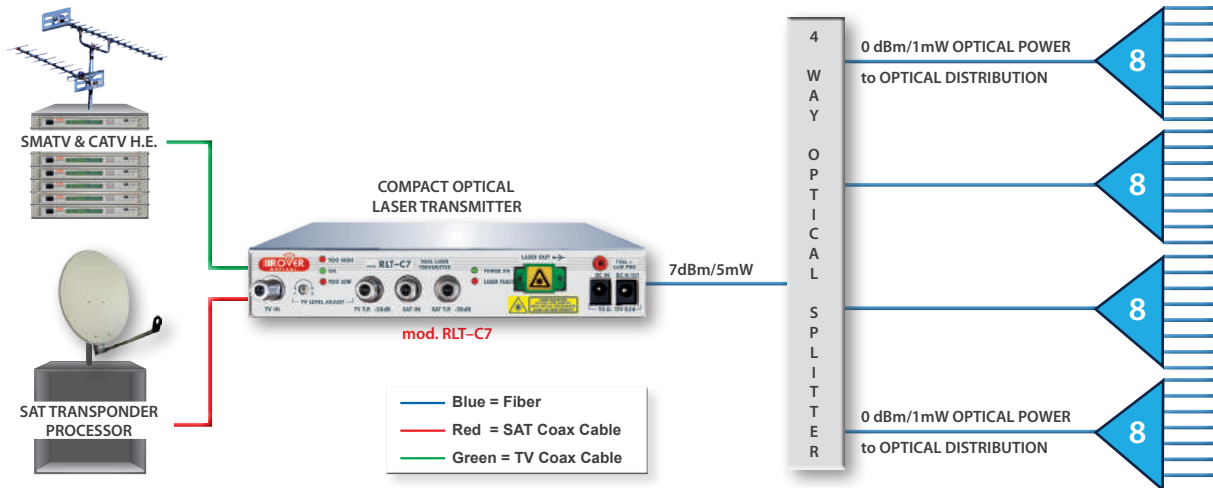


## CWDM, Ultra Wide Band SMATV, CATV & SAT 47-2.400 MHz Laser Optical Transmitter

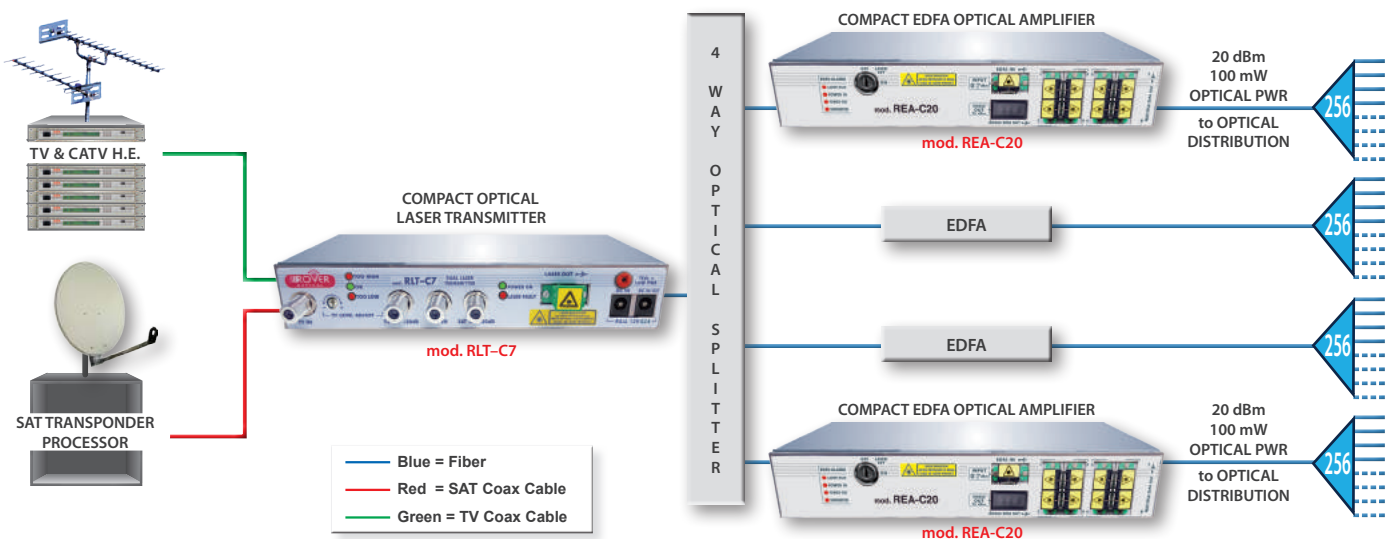


The ultra wide band, 47-2.400 MHz, optical, laser transmitter Rover "RLT" series, equipped with a high linearity DFB single mode laser, is designed for high channel loading, up to 77 analog TV chs, 75 QAM chs and 30 SAT Transponders.

### SMALL OPTICAL DISTRIBUTION EXAMPLE



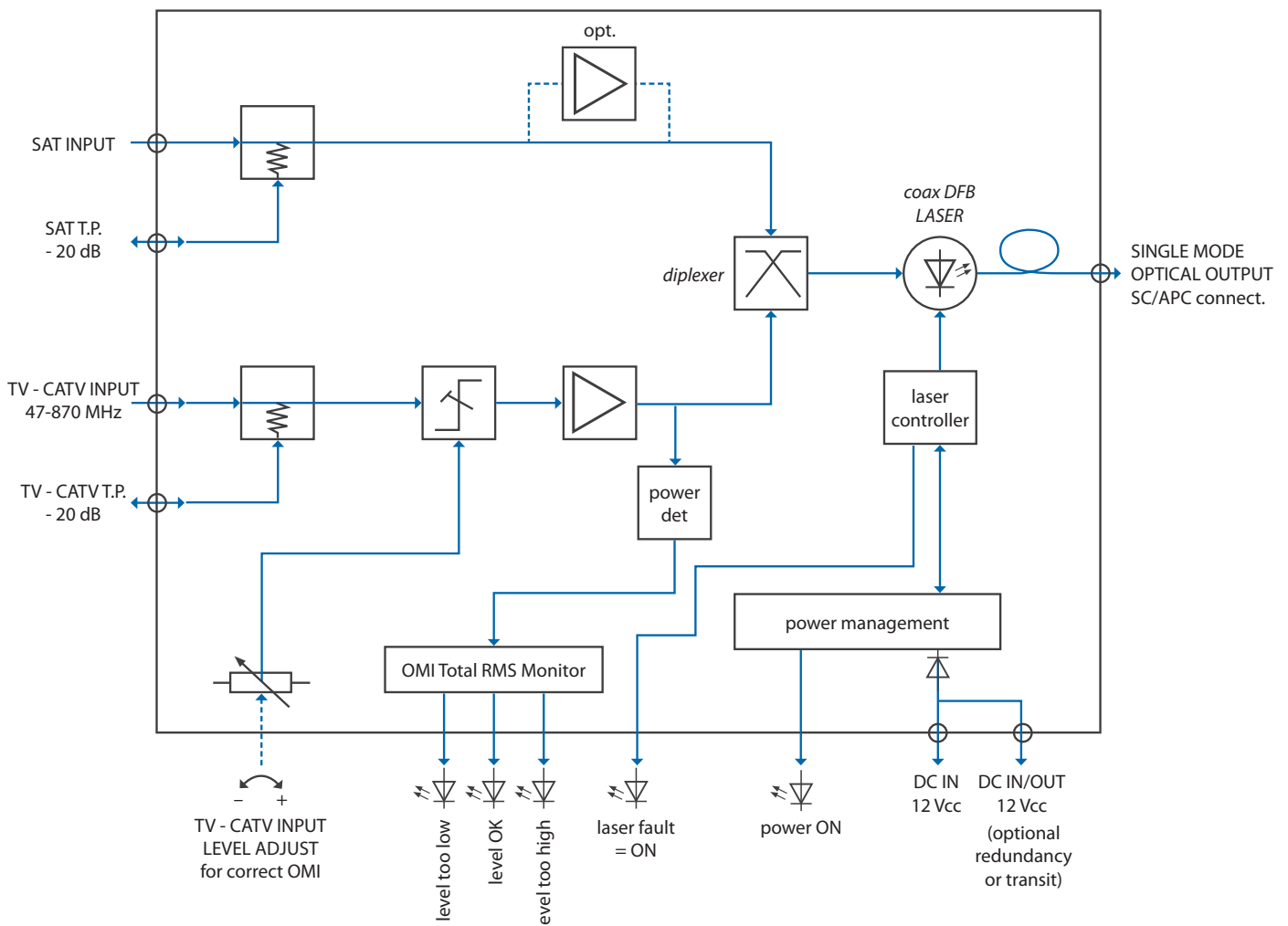
### MEDIUM OPTICAL DISTRIBUTION EXAMPLE



## MAIN FEATURES

- Low noise high linearity DFB laser for excellent RIN
- CATV input 47-870 MHz (or opt. 5-1.202) for analog TV and digital QAM signals
- TV & CATV RF level test point connector
- SAT input 950-2.400 MHz for digital SAT transponders
- SAT RF level test point connector
- Test point for Optical Laser Power measurement
- TV & CATV push-pull driver amplifier
- Laser output power +7 dBm/5 mW
- OMI total RMS adj. on front panel
- SC/APC laser output connector with shutter
- Laser output connector on front panel
- Redundancy PSU adapter (opt.)
- 2 slot 19" Rack Assembly panel (opt.)

## BLOCK DIAGRAM



## TECHNICAL SPECIFICATIONS

### SMATV, CATV & SAT

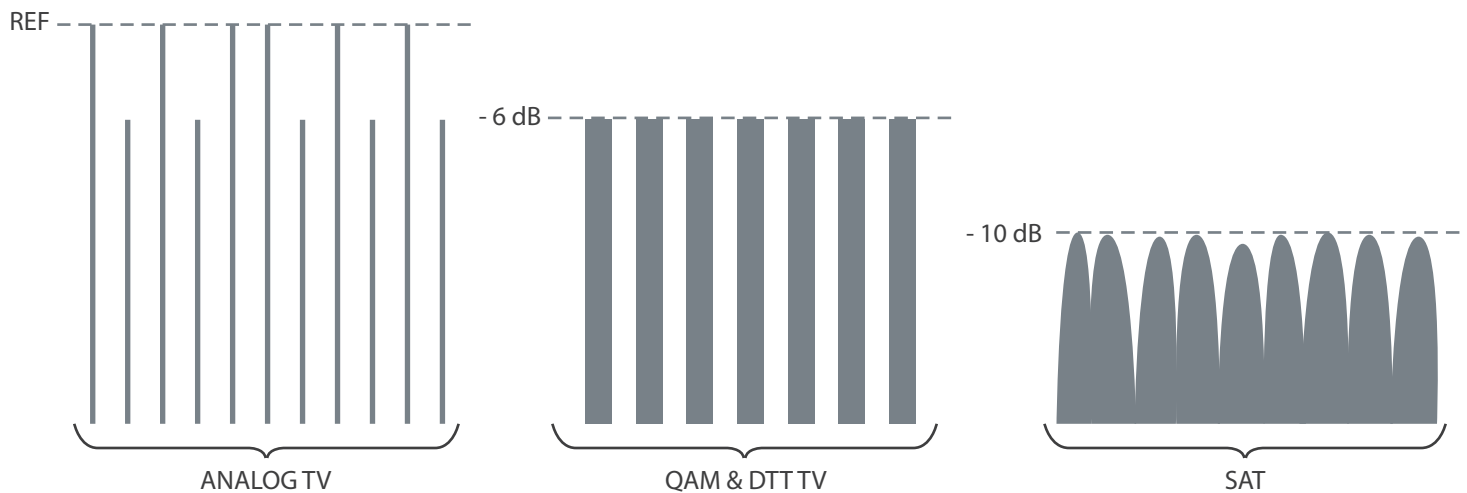
SMATV/CATV frequency range	47-870 MHz (opt. 5-1.200 MHz, CATV only no SAT)
SAT frequency range	950-2.400 MHz
RF connectors	75 ohm type "F"
RF Return Loss	TV = > 16 dB SAT = > 12 dB
Typical level for TV/CATV input	80 dbuV +/- 10 dB
Test point TV/CATV input	input level - 20 dB
Nominal level for SAT input	92 dbuV / Trasp. (90 minimum), (terminate with 75 Ω load if not used)
Test point for SAT input	input level - 20 dB
TV-CATV Gain mode adjust	Manual, adjustable +/- 10 dB, with led level indicator monitor: - too low - ok - too high, for the best OMI total RMS
SAT Gain mode	Fixed must be 10 dB below TV/CATV chs (normally adjusted in the SAT Transponder Processor)
<b>LASER</b>	
Laser type	DFB coaxial single mode
Laser optical power	+ 7 dBm/5mW
Optical power stability	+/- 0,5 dB, typ. +/- 1dB
Optical wavelength	1.550 +/- 4 nm (opt. 1.310)
RIN	-140 dB/Hz worst case
Optical insulation	30 dB min
Optical return loss	> 40 dB
Optical connector:	SC/APC with shutter
<b>POWER SUPPLIES</b>	
Power supply adapter	IN 100/230 Vac, OUT 12 Vdc
Redundancy power supply (optional)	In 100/230 Vac, OUT 12 Vdc
Power consumption	< 10 W
<b>MECHANICAL</b>	
Module	1/2 Unit 19" rack (up 2 module in 1 U 19" Rack opt.)
Weight	0,8 kg
Single Module Dimension	H 33 x P 97 x W 190
Assembling type	19" Rack (with optional front panel, DIN Rail or direct in the wall)
<b>SAFETY, EMC, INSTALLATION ENVIRONMENT</b>	
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

	Number of channels: up to 77 Analog PAL/NTSC + up to 75 Digital QAM at - 6 dB level, all ch. FLAT
OMI (1.550 nm)	3,3 %
CNR (1550 nm)	49 dB
CSO (1550 nm)	> 53 dB
CTB (1550 nm)	> 60 dB
CXM (1550 nm)	> 55 dB

- All ch. FLAT: analog channels below 550 MHz, digital QAM channels above 550 MHz at - 6 dB level, SAT transp -10 dB level
- RX: received power = -3 dBm, noise current = 7pA/√Hz

## ANALOG & DIGITAL LEVELS CONFIGURATION EXAMPLE



## 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 RADIATION**  
**DO NOT VIEW DIRECTLY**  
**WITH OPTICAL INSTRUMENTS**  
**CLASS 1M LASER PRODUCT**



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.

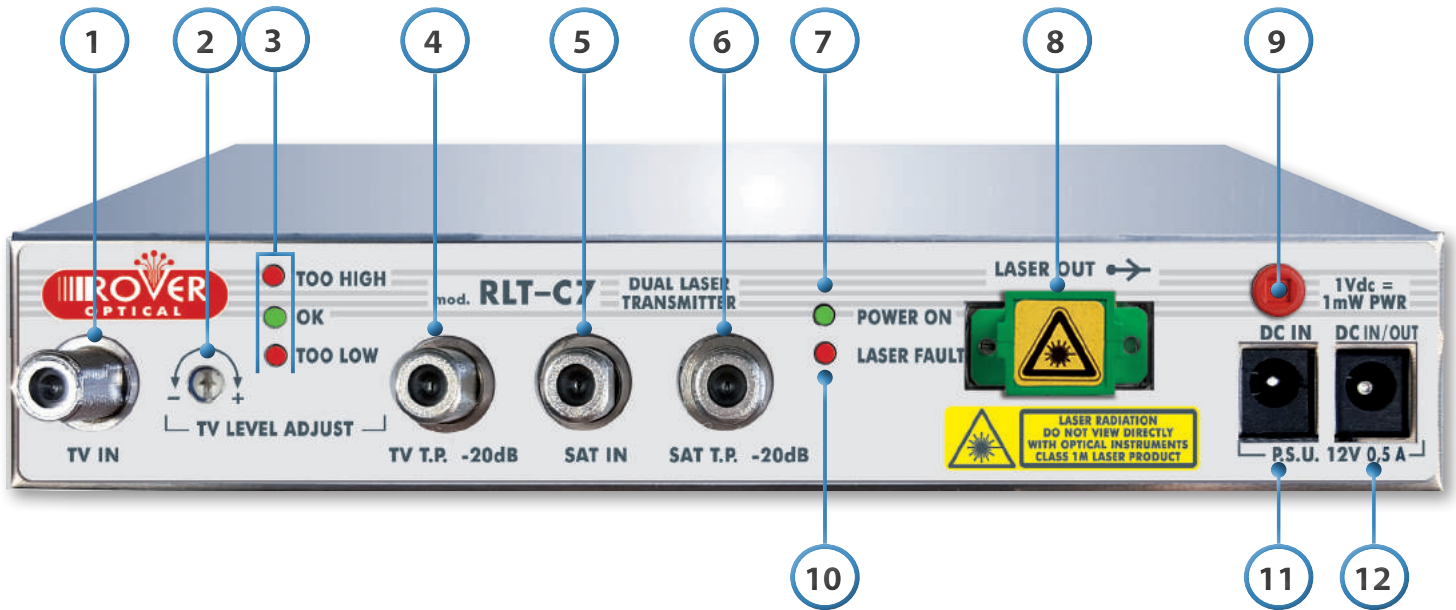
The hazard level is based on radiation that could become accessible under reasonable foreseeable circumstances, e.g. disconnected fiber connector, fiber cable break.

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.

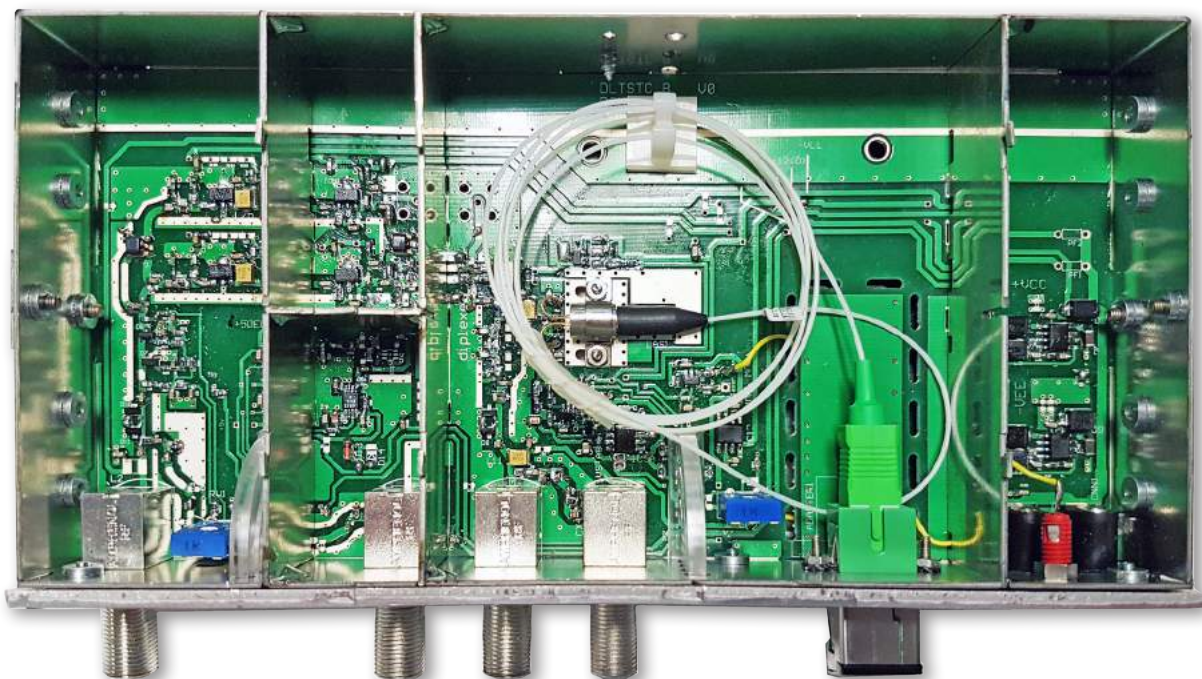
For subsequent accessible locations within the OFCS, the manufacturer of the OFCS is obliged to assign appropriate hazard levels and to install applicable laser safety measures according to IEC 60825-2.

## RLT-C7 FRONT VIEW



- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. TV/CATV input 47-870 MHz</li> <li>2. TV level adjust trimmer</li> <li>3. TV e CATV input level monitor Led</li> <li>4. TV &amp; CATV Test point - 20 dB</li> <li>5. SAT input 950-2.400 MHz</li> <li>6. SAT Test point -20 dB</li> </ol> | <ol style="list-style-type: none"> <li>7. POWER "ON",</li> <li>8. LASER output connector with shutter</li> <li>9. Optical pwr measurement 1Vdc = 1mW PWR</li> <li>10. Laser fault = LED ON</li> <li>11. PSU Input 12 V d.c. 0,5 A</li> <li>12. PSU REDUNDANCY or TRANSIT 12 Vdc</li> </ol> |
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## RLT-C7 INTERNAL VIEW



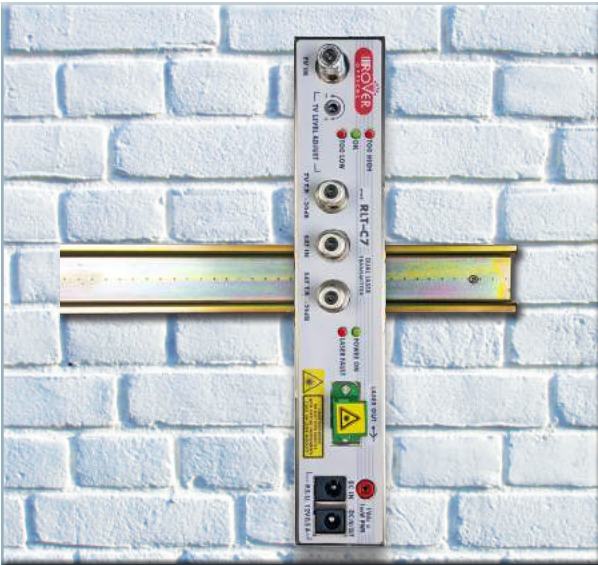
## ASSEMBLING EXAMPLES



FLAT WALL ASSEMBLING



VERTICAL WALL ASSEMBLING



DIN RAIL ASSEMBLING



MULTIPLE DIN RAIL ASSEMBLING

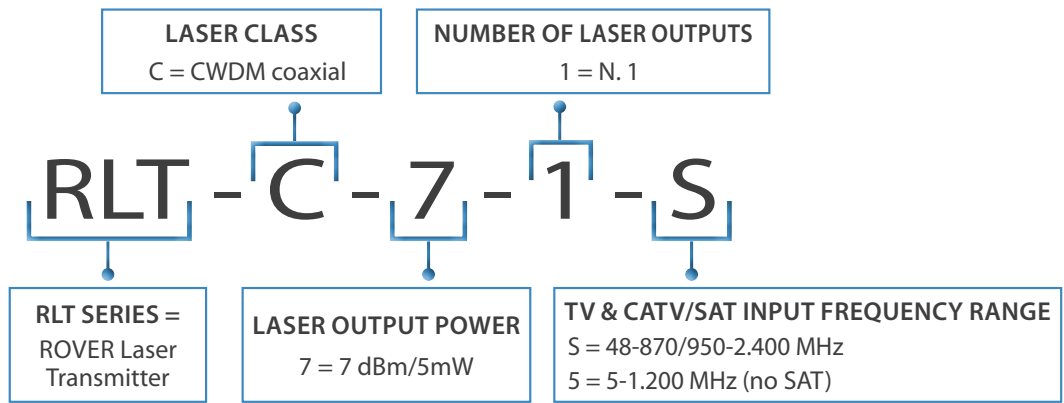


N° 2 OPTICAL TX mod. "RLT-C7" IN 1 U 19" RACK



N° 1 OPTICAL TX mod. "RLT-C7" + N° 1 EDFA OPTICAL AMPLIFIER IN 1 U 19" RACK

## ORDERING CODE DEFINITION



## ORDERING MODEL / CODE EXAMPLE

MODEL / CODE	DESCRIPTION	APPLICATION
RLT-C-7-1-S	CWDM Laser transmitter with DFB LASER, 7 dBm power, 1 front panel LASER out, CATV & SAT 47-870/950-2.400 MHz input frequency range	SMATV, CATV & SAT DISTRIBUTIONS

## ACCESSORIES

MODEL / CODE	DESCRIPTION	APPLICATION
P.S.U.	IN 100/230 Vac OUT 12 Vdc 1A	

## OPTIONS

ITEM	DESCRIPTION	CODE DEFINITION
CATV/SAT INPUT FREQUENCY RANGE	47-870 MHz CATV INPUT and 950-2.400 MHz SAT INPUT	S
	5-1.200 MHz (no SAT IN, only for quantity orders)	5
TRASF-12V-1A0-G-EU	PSU adapter IN 100/230 Vac OUT 12 Vdc 1A	/
19" RACK ASSEMBLY	19" RACK ASSEMBLY PANEL can carry up 2 modules	RAP-2

**TX** **RLT C9**

CWDM HIGH POWER, ULTRA WIDE BAND CATV & SAT  
47-2.700 MHz OPTICAL LASER TRANSMITTER

**SWITCH** **ROS-2**

REDUNDANCY OPTICAL SWITCH

**TX** **RLT D10**

DWDM HIGH POWER, ULTRA WIDE BAND CATV & SAT  
47-2.700 MHz OPTICAL LASER TRANSMITTER

**AOT-STC**

APARTMENT OPTICAL  
TERMINATION **WITH AGC**

**RX**

**COR-STC**

CONDOMINIUM OPTICAL  
RECEIVER **WITH AGC**

**RX**

**EDFA** **REA-20**

EDFA OPTICAL AMPLIFIER FROM 1 TO 8 OUTPUT



CERTIFICATES N°  
1263 ISO 9001  
1264 ISO 14001  
1265 BS OHSAS 18001



Specifications and features are subject to change without notice.

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