Specifications

Optical parameters	
Wavelength	1290nm - 1600nm
Optical return loss	> 40 dB
Fiber	single mode 9 / 125 µm
Optical connector	E2000 / APC

CATV parameters	
Output impedance	75 Ω
Output return loss	≥ 18 dB (-1,5 dB / oct.)
Frequency range	45 - 862 MHz
Controlled output level ALC (OMI=5%)	85 dBµV @ 862MHz 4 dB slope
CNR for 42 Ch. CENELEC, opt. link=6dB	≥ 48 dB
Distorsion products for CENELEC 42 Ch @ 85 dBµV 4 dB slope	
CTB	≥ 68 dB
CSO	≥ 65 dB
Optical input level for controlled electrical output level	-5dBm...+3 dBm
Amplitude response (O-E)	≤ ± 1 dB
Sensitivity	≤ 15 pA /√ Hz
RF connector	F

SAT IF parameters	
Output impedance	75 Ω
Output return loss	≥ 12 dB
Frequency range	950 - 2200 MHz
Controlled output level ALC (OMI=5%)	85 dBµV @ 2200 MHz 4 dB slope
Optical input level for controlled electrical output level	-5dBm...+3 dBm
Amplitude response (O-E)	≤ ± 1,5 dB
Sensitivity	≤ 20 pA /√ Hz
CNR for 40 Ch. CENELEC, opt. link=6dB	≥ 26 dB* ≥ 36 dB**
RF connector	F

NMS functions		
Monitoring	Optical input level Attenuator settings	
Configuration	ALC mode CATV ALC mode SAT IF Attenuation CATV (manual mode) Attenuation SAT IF (manual mode)	auto/manual auto/manual 0 - 20 dB 0 - 20 dB
Alarms	Optical input power too high / low	All alarm thresholds are variable

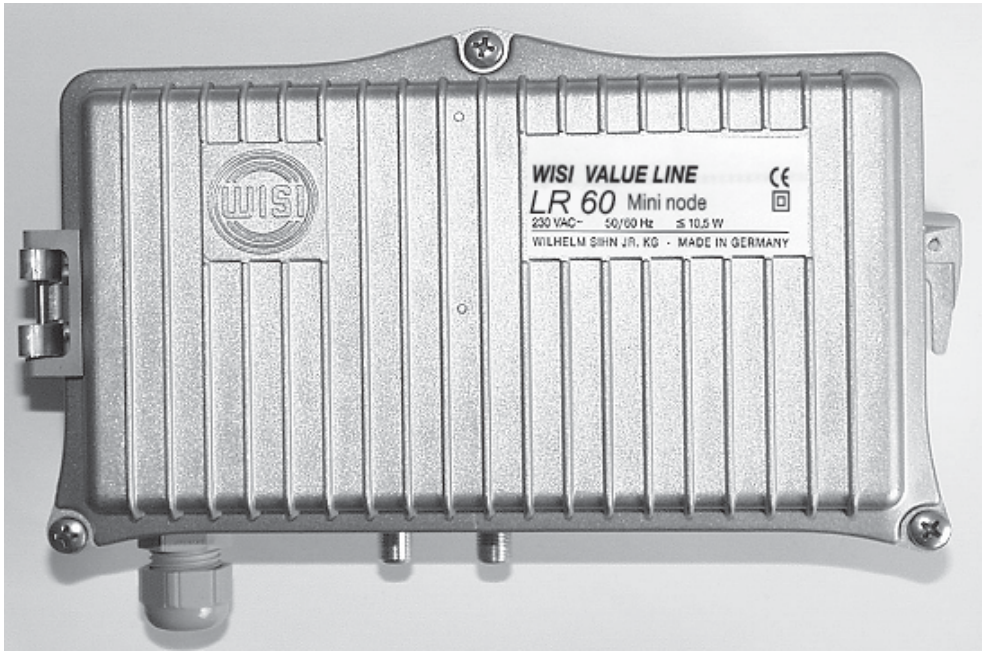
General data	
Supply voltage	180-265 VAC
Power consumption	6 W
Power consumption with LT..+ Transponder.	< 10 W
Protection class	II / IP 54
Dimensions B x W x D	244 x 134 x 84 mm
Max. humidity not condensing	95 %
Ambient temperature	-10°C ...+50°C
Storage temperature	-25°C...+75°C

***** measured with LT 61 in dual band operation
****** measured with LT 61 in single band operation

07/03

Operating instructions

LR 60 Optical Transceiver "Mininode"



- Compact optical receiver for CATV and SAT IF over one fiber
- All settings / pollings by WISI Handset OK 41
- Integrated splice box
- Two separate outputs for SAT IF and CATV
- Automatic level control (ALC) for constant output level

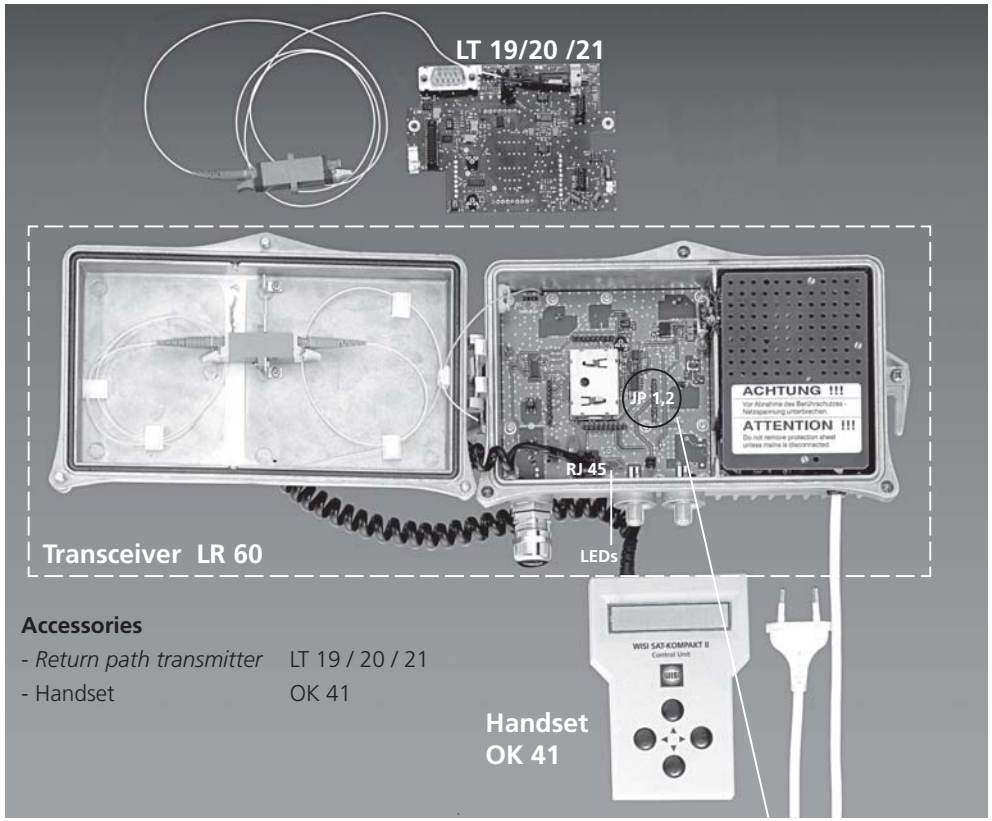
EN 50 083-1ff

Services and repairs should only be carried out by experts.
Pay attention to live parts or wires! ***Switch off power supply.***

LASER CLASS 1

Do not kink the optical fibre. Minimum bending radius 1.5 cm.

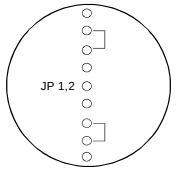
Transceiver LR 60 + Accessories

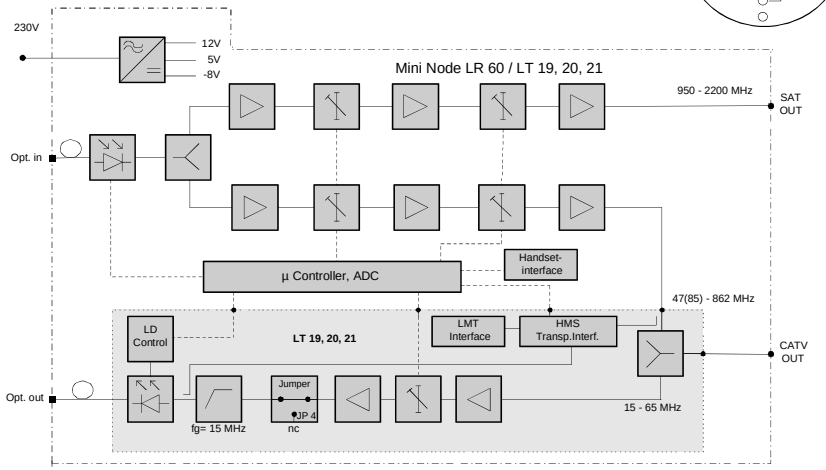


Factory settings: **JP1, 2**

LT 19 FP-Laser
LT 20/21 DFB-Laser

Remove jumper JP1,2
before plug-in LT 19/20/21





Mounting of fiber

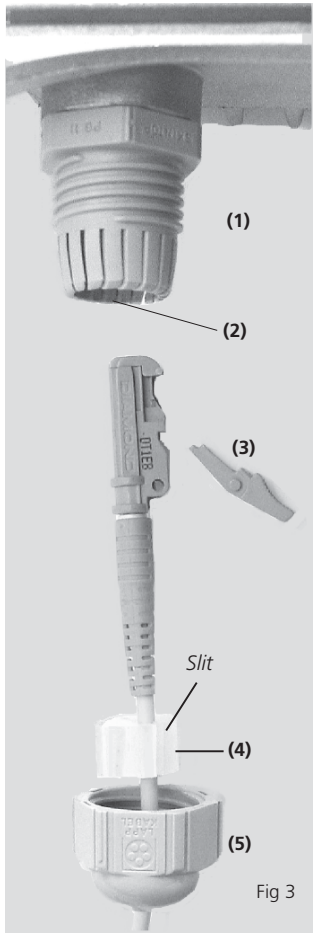


Fig 3

a. Pigtail with E2000 APC connector (see Fig. 3)

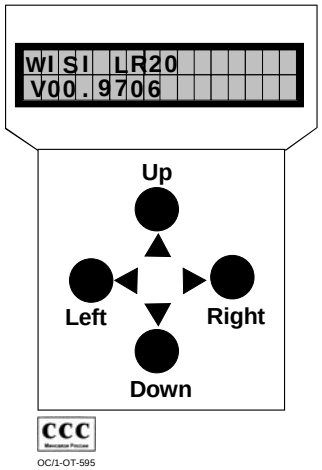
1. Remove the locking lever **(3)** of the connector by pushing it out upwards.
2. Unscrew and remove the cap **(5)** and slide it over the connector.
3. Pull the rubber gasket **(2)** out of the fiber feedthrough **(1)**. This gasket is not needed during assembly and can be discarded.
4. Thread the E2000 APC connector through the fiber feedthrough **(1)** into the LR 60.
5. Press the locking lever **(3)** into the E2000 APC connector and slide the connector into the E2000 APC coupling.
6. Lay the fiber, taking care not to kink it. The minimum permissible bending radius is 1.5 cm.
7. Slit the enclosed gasket **(4)** and press the fiber into it. Screw the cap **(5)** with its gasket onto the fiber feedthrough **(1)**.

b. Pigtails with mono mode (single mode) fiber

1. Unscrew and remove the cap **(5)** and slide it over the end of the fiber.
2. Cut about 50-60 cm of the outer sheath from the fiber.
3. Before threading the fiber through the fiber feedthrough **(1)**, ensure that no components can be damaged (see fig. 4).
4. Splice the pigtail. Do not bend the fiber sharply.
5. Screw on the cap **(5)**.

Parameter settings with handset

Handset OK... (accessory)



Remove jumper JP 2,3 before plug-in LT 20.... / LT 21...

Connection
Unscrew the cover.
Plug the handset into socket "RJ-45".
Connect the supply voltage.

Parameter menu

▲▼ keys — Select parameter.
▶ key — Open parameter sub-menu.
◀ key — Back.

Parameter sub-menu

◀▶ keys — Select display or value to be changed.
Cursor blinks under the value, e.g. 89
▲▼ keys — Change the value.

Saving: after completion of all settings, press the ◀ key several times until "Saving data to EEPROM" is displayed. All settings are now saved.

Basic settings

1. Opt.Rec.Power	-10dBm / 0 mW	- no optical power
	+ 3dBm / 2mW	- max. optical power
2. Output Level	Low - 80dBµV flat	
	High - 95dBµV 4 dB slope (5% OMI)	
3. Attenuator Mode	Automatic[1]	
	Manual[2]	
4. Attenuation	[1]Display of measured value	
	[2]Adjustment of attenuation 0...+20dB	

Functions with installed return-path transmitter LT 20...

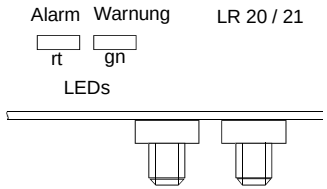
4a.	Laser LT 20.../21...-LED flashes	Activated - module active Deactivated - module inactive
4b.	Opt. Transm. Power	Display: should be +3dBm / 2mW
4c.	Modulation index	Adjustable in range 3%...8% at an input level of 75dBµV
4d.	ICS	Low 0 dB Pad 8 dB High >45 dB
4e.	Temperature	Display of internal temperature

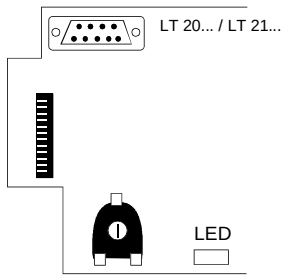
ORP = Optical Receiving Power

			Threshold value
5.	Alarms	ORP Upper Warn	0 mW...+25 mW
		ORP Lower Warn	0 mW...+25 mW
		ORP Upper Alarm	0 mW...+25 mW
		ORP Lower Alarm	0 mW...+25 mW

OTP = Optical Transmission Power

LT 20... installed			Threshold value
5.	Alarms	OTP Upper Warn	0 mW...+25 mW
		OTP Lower Warn	0 mW...+25 mW
		OTP Upper Alarm	0 mW...+25 mW
		OTP Lower Alarm	0 mW...+25 mW
	LT 20.../21...-LED lights	opt. Transmission Power o.k.	





LR 20 / 21
Adjusting the alarm and warning thresholds for the optical input level ORP
The upper and lower switching thresholds for activation of the two LEDs can be set as desired. Enter a lower level and an upper level of the optical input signal at which an alarm or warning is to be activated.

Red LED
Led lights: Alarm - optical input level is too low.
Led blinks: Alarm - optical input level is too high.

Green LED
Led lights: Optical input level is correct.
Led blinks: Warning - the upper or lower threshold value has been reached.

Deadband: Adjustment of the hysteresis of the thresholds.

LT 20... / LT 21...
Adjusting the warning thresholds for the optical output level OTP
The upper and lower switching thresholds for activation of the LED can be set as desired. Enter a lower level and an upper level of the optical output signal at which a warning is to be activated.