# Catalog
# **Optical components 2018**

Perfect technology
for highest demands

# Table of Contents

## Optical transmission platform Optopus


**Base units**
LX 50 0230 ..... 10
LX 50 0048 ..... 11
LX 52 ..... 12

**Optical transmitter**
LX 11 S 0800 ..... 13
LX 11 S 1000 ..... 14
LX 13 S 0312 ..... 15
LX 13 S 0334 ..... 16
LX 15 S 1001 ..... 17
LX 15 S 12xx ..... 18
LX 15 S 20x0 ..... 19
LX 15 S 30x0 ..... 20
LX 15 S 4000 ..... 21
LX 16 S 10xx ..... 22

**Optical receivers**
LX 21 S 0100 ..... 23
LX 22 S 0400 ..... 24
LX 22 H 0400 ..... 25
LX 23 L 0431 ..... 26
LX 23 L 0461 ..... 27

**Optical amplifiers**
LX 30 S 1401 ..... 28
LX 30 S 1402 ..... 29
LX 30 S 1701 ..... 30
LX 30 S 1702 ..... 31
LX 30 S 1704 ..... 32
LX 30 S 2101 ..... 33
LX 30 S 2102 ..... 34

**Passive optics**
LD 74 S 5561 ..... 35
LD 74 S 3945 ..... 36
LD 74 S 4753 ..... 37
LD 75 S 3033 ..... 38
LD 75 S 3437 ..... 39
LD 71 S 2755 ..... 40
LD 91 S 010x .....

**Redundanzy solutions and RF modules**
LX 70 ..... 41
LX 71 ..... 41
LX 60 S ..... 42

**Optical transmitter 19“**
LX 10 K 7001 ..... 43
LX 10 K 7005 ..... 44
LX 10 K 7F21 ..... 45
LX 10 L 8001 ..... 46
LX 10 L 8005 ..... 47
LX 10 S 7001 ..... 48
LX 10 S 7005 ..... 49
LX 10 S 7V05 ..... 50
LX 10 S 8J01 ..... 51
LX 10 S BF21 ..... 52
LX 10 S BJ01 ..... 53
LX 10 S BJ03 ..... 54
LX 10 S BN03 ..... 55
LX 10 S BQ05 ..... 56

**Optical receivers 19“**
LX 24 x xCxx ..... 57
LX 24 x xS0x ..... 58
LX 24 x xFxx ..... 59
LX 24 x xExx ..... 60
LX 24 x xSxx ..... 61
LX 25 x xDxx ..... 62
LX 25 x xCxx ..... 63
LX 25 x xExx ..... 64
LX 25 x xFxx ..... 65
LX 25 x xSxx ..... 66
LX 25 x xS0x ..... 67

**Optical amplifiers 19“**
LX 35 S 1432 ..... 68
LX 35 S 1701 ..... 69
LX 35 S 1702 ..... 70
LX 35 S 1704 ..... 71
LX 35 S 1708 ..... 72
LX 35 S 1716 ..... 73
LX 35 S 1732 ..... 74
LX 35 S 2032 ..... 75
LX 35 S 2101 ..... 76
LX 35 S 2102 ..... 77
LX 35 S 2108 ..... 78
LX 35 S 2116 ..... 79
LX 37 W 1724 ..... 80
LX 37 W 1732 ..... 81
LX 37 W 2116 ..... 82
LX 37 S 1764 ..... 83

**Optical splitters 19“**
LP 90 0108 ..... 84
LP 90 0116 ..... 84
LP 90 0132 ..... 84
LP 90 0164 ..... 84
LP 90 W 0132 ..... 85

**Accessories**
LXPS A065 ..... 86
LXPS A230 ..... 86
LXPS B230 ..... 86
LX 55 0048 ..... 87
LX 55 0230 ..... 87
LX 10 P 1000 ..... 88
LX 10 P 2000 ..... 88

# Optical SAT distribution

# Optical Network Terminations


**Optical feed systems**
OL 11 0000 ..... 92
OL 12 0000 ..... 92
OL 13 0000 ..... 93
OL 15 0000 ..... 94

**Optical splitter**
OL 91 0002 ..... 95
OL 91 0003 ..... 95
OL 91 0004 ..... 95
OL 91 0008 ..... 96
OL 91 0016 ..... 96
OL 91 0032 ..... 96

**Optical taps**
OL 92 0010 ..... 97
OL 92 0020 ..... 97
OL 92 0030 ..... 97
OL 92 0040 ..... 98

**Optical converter**
OL 21 0002 ..... 99
OL 21 0003 ..... 99
OL 22 0002 ..... 100
OL 22 0003 ..... 100

**Optical cables**
OL 95 1001 ..... 101
OL 95 1003 ..... 101
OL 95 1005 ..... 101
OL 95 1010 ..... 102
OL 95 1015 ..... 102
OL 95 1020 ..... 102
OL 95 1030 ..... 103
OL 95 1040 ..... 103
OL 95 1050 ..... 103
OL 95 1075 ..... 104
OL 95 1100 ..... 104
OL 95 1150 ..... 104
OL 95 1200 ..... 105
OL 95 2030 ..... 106
OL 95 2040 ..... 106
OL 95 2050 ..... 107
OL 95 2075 ..... 107
OL 95 2100 ..... 107
OL 95 2150 ..... 108
OL 95 2200 ..... 108
OL 95 4300 ..... 108

**Optical multiswitch**
OL 41 0008 ..... 109
OL 41 0016 ..... 110
OL 42 0008 ..... 111
OL 42 0016 ..... 112

**Optical mounting accessoires**
OL 93 0001 ..... 113
OL 93 0002 ..... 113
OL 94 0005 ..... 114
OL 94 0010 ..... 114
OL 94 0015 ..... 114
OLPS 0230 ..... 114
OL 51 0000 ..... 115
OL 57 0003 ..... 116
OL 55 0000 ..... 115
OL 57 0002 ..... 116
OL 57 0001 ..... 116
OL 82 0002 ..... 117
OL 82 0003 ..... 117
OL 82 0005 ..... 117
OL 82 0010 ..... 117
OL 14 0000 ..... 118

**Mini Line**
LR 91 ..... 122
LR 92 ..... 123
LR 92 A 1311 ..... 124
LR 92 A 1451 ..... 125
LR 92 A 1471 ..... 126
LR 92 A 1491 ..... 127
LR 92 A 1511 ..... 128
LR 92 A 1531 ..... 129
LR 92 A 1571 ..... 130
LR 92 A 1591 ..... 131
LR 92 A 1611 ..... 132
LR 91 W ..... 133
LR 91 W 1550 ..... 134
LR 93 x 2xx1 .....

**Value Line**
LR 22 2001 ..... 135
LR 22 6001 ..... 136
LR 27 2xx2 ..... 137
LR 27 6xx2 ..... 138

**Compact Line**
LR 47 x x1x0 ..... 139
LR 47 x x8x0 ..... 140

# Table of Contents

## Accessories optical components


**Accessories for optical nodes, Value Line**

LT 22 3311 ..... 144
LT 22 3511 ..... 144
LT 22 3531 ..... 144
LT 22 3551 ..... 145
LT 22 3571 ..... 145
LT 22 3611 ..... 145

**Accessories for optical nodes, Compact Line**

LT 40 S ..... 146
LT 41 S ..... 146
LT 45 S 1470 ..... 147
LT 45 S 1490 ..... 147
LT 45 S 1510 ..... 147
LT 45 S 1530 ..... 147
LT 45 S 1550 ..... 148
LT 45 S 1570 ..... 148
LT 45 S 1590 ..... 148
LT 45 S 1610 ..... 148
XC 40 ..... 149
XE 50 FA ..... 149
XE 50 F 0850 ..... 149
XS 40 ..... 149

# Content in alphabetical order

## L


LX 50 0230 ..... 10
LX 50 0048 ..... 11
LX 52 ..... 12
LX 11 S 0800 ..... 13
LX 11 S 1000 ..... 14
LX 13 S 0312 ..... 15
LX 13 S 0334 ..... 16
LX 15 S 1001 ..... 17
LX 15 S 12xx ..... 18
LX 15 S 20x0 ..... 19
LX 15 S 30x0 ..... 20
LX 15 S 4000 ..... 21
LX 16 S 10xx ..... 22
LX 21 S 0100 ..... 23
LX 22 S 0400 ..... 24
LX 22 H 0400 ..... 25
LX 23 L 0431 ..... 26
LX 23 L 0461 ..... 27
LX 30 S 1401 ..... 28
LX 30 S 1402 ..... 29
LX 30 S 1701 ..... 30
LX 30 S 1702 ..... 31
LX 30 S 1704 ..... 32
LX 30 S 2101 ..... 33
LX 30 S 2102 ..... 34
LD 74 S 5561 ..... 35
LD 74 S 3945 ..... 36
LD 74 S 4753 ..... 37
LD 75 S 3033 ..... 38
LD 75 S 3437 ..... 39
LD 71 S 2755 ..... 40
LX 70 ..... 41
LX 71 ..... 41
LX 60 S ..... 42
LX 10 K 7001 ..... 43
LX 10 K 7005 ..... 44
LX 10 K 7F21 ..... 45
LX 10 L 8001 ..... 46
LX 10 L 8005 ..... 47
LX 10 S 7001 ..... 48
LX 10 S 7005 ..... 49
LX 10 S 7V05 ..... 50
LX 10 S 8J01 ..... 51
LX 10 S BF21 ..... 52
LX 10 S BJ01 ..... 53
LX 10 S BJ03 ..... 54
LX 10 S BN03 ..... 55
LX 10 S BQ05 ..... 56
LX 24 x xCxx ..... 57
LX 24 x xS0x ..... 58
LX 24 x xFxx ..... 59
LX 24 x xExx ..... 60
LX 24 x xSxx ..... 61
LX 25 x xDxx ..... 62
LX 25 x xCxx ..... 63
LX 25 x xExx ..... 64
LX 25 x xFxx ..... 65
LX 25 x xSxx ..... 66
LX 25 x xS0x ..... 67
LX 35 S 1432 ..... 68
LX 35 S 1701 ..... 69
LX 35 S 1702 ..... 70
LX 35 S 1704 ..... 71
LX 35 S 1708 ..... 72
LX 35 S 1716 ..... 73
LX 35 S 1732 ..... 74
LX 35 S 2032 ..... 75
LX 35 S 2101 ..... 76
LX 35 S 2102 ..... 77
LX 35 S 2108 ..... 78
LX 35 S 2116 ..... 79
LX 37 W 1724 ..... 80
LX 37 W 1732 ..... 81
LX 37 W 2116 ..... 82
LX 37 S 1764 ..... 83
LP 90 0108 ..... 84
LP 90 0116 ..... 84
LP 90 0132 ..... 84
LP 90 0164 ..... 84
LP 90 W 0132 ..... 85
LXPS A065 ..... 86
LXPS A230 ..... 86
LXPS B230 ..... 86
LX 55 0048 ..... 87
LX 55 0230 ..... 87
LX 10 P 1000 ..... 88
LX 10 P 2000 ..... 88
LR 91 ..... 122
LR 92 ..... 123
LR 92 A 1311 ..... 124
LR 92 A 1451 ..... 125
LR 92 A 1471 ..... 126
LR 92 A 1491 ..... 127
LR 92 A 1511 ..... 128
LR 92 A 1531 ..... 129
LR 92 A 1571 ..... 130
LR 92 A 1591 ..... 131
LR 92 A 1611 ..... 132
LR 91 W ..... 133
LR 91 W 1550 ..... 134
LR 22 2001 ..... 135
LR 22 6001 ..... 136
LR 27 2xx2 ..... 137
LR 27 6xx2 ..... 138
LR 47 x x1x0 ..... 139
LR 47 x x8x0 ..... 140
LT 22 3311 ..... 144
LT 22 3511 ..... 144
LT 22 3531 ..... 144
LT 22 3551 ..... 145
LT 22 3571 ..... 145
LT 22 3611 ..... 145
LT 40 S ..... 146
LT 41 S ..... 146
LT 45 S 1470 ..... 147
LT 45 S 1490 ..... 147
LT 45 S 1510 ..... 147
LT 45 S 1530 ..... 147
LT 45 S 1550 ..... 148
LT 45 S 1570 ..... 148
LT 45 S 1590 ..... 148
LT 45 S 1610 ..... 148


## O

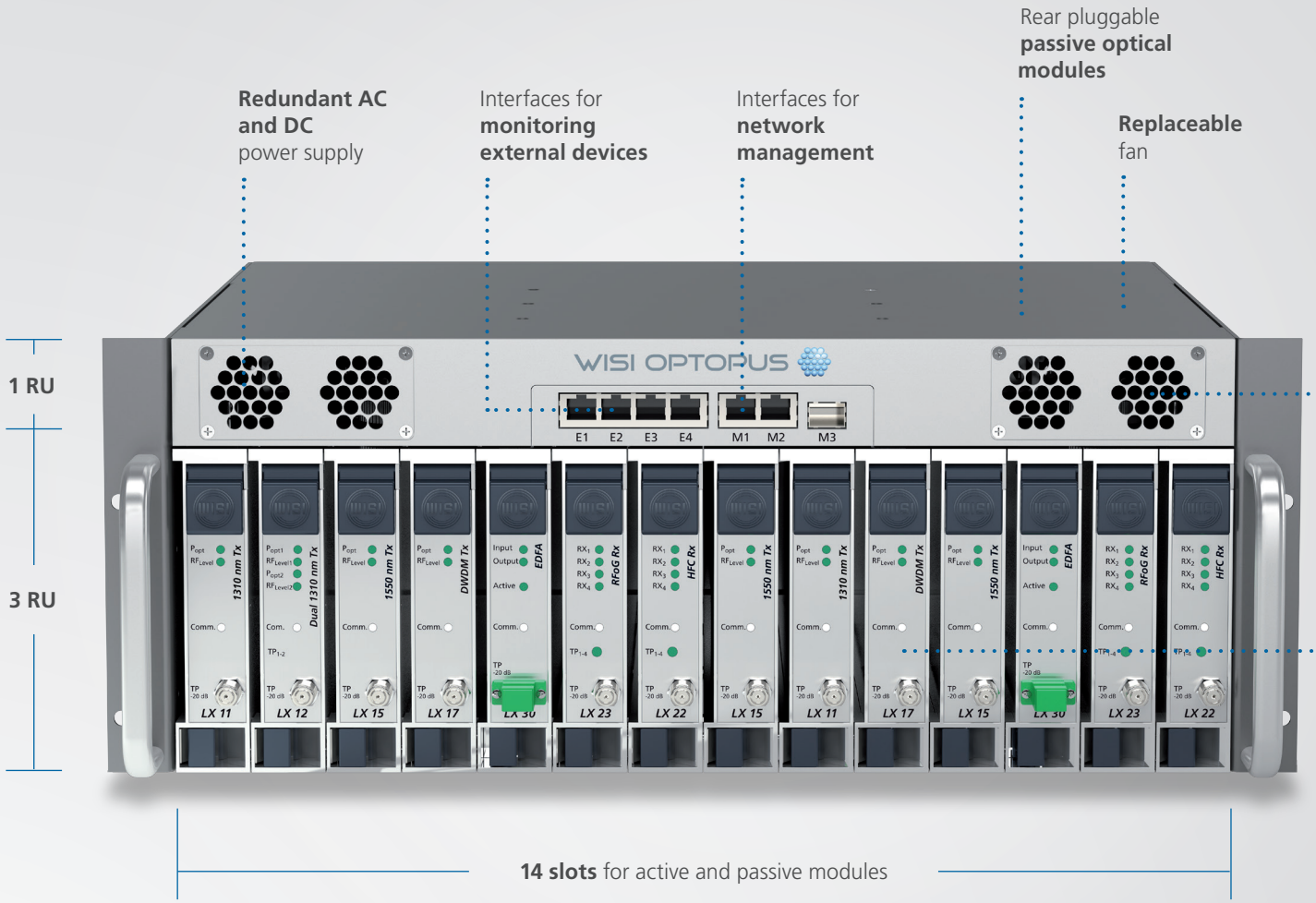

OL 11 0000 ..... 92
OL 12 0000 ..... 92
OL 13 0000 ..... 93
OL 15 0000 ..... 94
OL 91 0002 ..... 95
OL 91 0003 ..... 95
OL 91 0004 ..... 95
OL 91 0008 ..... 96
OL 91 0016 ..... 96
OL 91 0032 ..... 96
OL 92 0010 ..... 97
OL 92 0020 ..... 97
OL 92 0030 ..... 97
OL 92 0040 ..... 98
OL 21 0002 ..... 99
OL 21 0003 ..... 99
OL 22 0002 ..... 100
OL 22 0003 ..... 100
OL 95 1001 ..... 101
OL 95 1003 ..... 101
OL 95 1005 ..... 101
OL 95 1010 ..... 102
OL 95 1015 ..... 102
OL 95 1020 ..... 102
OL 95 1030 ..... 103
OL 95 1040 ..... 103
OL 95 1050 ..... 103
OL 95 1075 ..... 104
OL 95 1100 ..... 104
OL 95 1150 ..... 104
OL 95 1200 ..... 105
OL 95 2030 ..... 106
OL 95 2040 ..... 106
OL 95 2050 ..... 107
OL 95 2075 ..... 107
OL 95 2100 ..... 107
OL 95 2150 ..... 108
OL 95 2200 ..... 108
OL 95 4300 ..... 108
OL 41 0008 ..... 109
OL 41 0016 ..... 110
OL 42 0008 ..... 111
OL 42 0016 ..... 112
OL 93 0001 ..... 113
OL 93 0002 ..... 113
OL 94 0005 ..... 114
OL 94 0010 ..... 114
OL 94 0015 ..... 114
OLPS 0230 ..... 114
OL 51 0000 ..... 115
OL 57 0003 ..... 116
OL 55 0000 ..... 115
OL 57 0002 ..... 116
OL 57 0001 ..... 116
OL 82 0002 ..... 117
OL 82 0003 ..... 117
OL 82 0005 ..... 117
OL 82 0010 ..... 117
OL 14 0000 ..... 118


## X


XC 40 ..... 149
XE 50 FA ..... 149
XE 50 F 0850 ..... 149
XS 40 ..... 149

OPTOPUS
HIGH DENSITY OPTICAL PLATFORM

# Optical platform for HFC and FTTx



# Optical transmisson platform

**Redundant AC and DC** power supply

**Hot-swap:**
Easy replacement of modules for a minimum of downtime

**The transmission system Optopus from WISI is a flexible platform with a very high port density for all applications of optical transmission in broadband networks. The system can be used in all network types such as HFC, RF over Glass (RFoG), RF Overlay and FTTx.**

**Optopus** was developed to meet the high demands of today's transmission networks. Features such as redundant power supplies, replaceable during operation ventilation units and an advanced network management meet all requirements of a professional network provider.

**The Octopus platform** offers maximum flexibility for the realization of the desired application. Plug-in modules for a variety of functions can be combined.

With the 14 slots in the 3 + 1 height units (HU) large chassis, for example, up to 28 optical channels, 56 return path receivers or even a mix of both are possible. In the upper part of the chassis the redundant power supplies, the ventilation unit and the interfaces for network management are located.

Optopus is through its cost efficiency and signal availability, the desired system of each network operator.

## WISI Optopus at a glance:

- Fully modular concept allows any mix of application
- Reduced maintenance due to module replacement during operation
- „Backplates" reduce downtime due to maintenance
- Extended module lifetimes by dust-free fanless cooling module
- Easy installation and operation by user-friendly software
- Integrated WDM filter in modules save space, money and time
- Redundant power supplies ensure high overall system availability

# Base units

## LX 50 0230

Optopus Basic Unit for 14 Modules, 230 V AC

LX 50 0230 is a basic unit for the optical transmission platform Optopus, providing 14 module slots in 4 height units, with a supply voltage of 230 AC.

| Technical data | |
|---|---|
| **Network Interfaces** | |
| Management Ports RJ45 | 2 pcs. (Ethernet 10/100 Base-T) |
| Management Ports SFP | 2 pcs. (Ethernet 1000 Base-X) |
| Local Management Ports RJ45 | 1 pcs. (Ethernet 10/100 Base-T) |
| Management Protocols | IPv4, SNMP v1/v2c/v3, DHCP, HTTP, SFTP, SNTP, SSH |
| Extension Ports RJ45 | 2 pcs. (Ethernet 10/100 Base-T) |
| **Power supply** | |
| Cold-device plug, IEC 60320-C14 | 2 pcs. (rear) |
| Power supply slots | 2 pcs. (for LX 55 0230, front) |
| Nominal Input Voltage AC | 230 V AC (with LX 55 0230) |
| Power consumption max. | 240 W (Base Unit alone: max. 25 W) |
| **General data** | |
| Module slots | 14 pcs. (active Modules on front, passive on rear panel) |
| Dimensions (width x height x depth) | 483 x 178 x 330 mm (19“, 4 RU) |
| Operating temperature range | -5 ... +45 °C (ETSI EN 300 019-1-3 Class 3.1) |
| Storage temperature | -20 ... +75 °C |
| Enclosure Classification | IP20 |
| Electro Magnetic Compatibility (EMC) | EN 50082-1, EN 50082-2, EN 50083-2, EN 55022 Class B |

**characteristics**

- Tool less hot-swap modules, power supply units and fans
- Mechanical backplate for optical and electrical connectors enables module exchange without recabeling.
- Local and remote management
- Fully redundant power supply concept

**Scope of delivery**

- Base unit
- 1 x Power Supply Unit LX 55 0230

# Base units

## LX 50 0048

Optopus Basic Unit for 14 Modules, 48 V DC

LX 50 0048 is a basic unit of the optical transmission platform Optopus, providing 14 module slots in a 4 RU chassis, powered from a 48 V DC mains supply.

| Technical data | |
|---|---|
| **Network Interfaces** | |
| Management Ports RJ45 | 2 pcs. (Ethernet 10/100 Base-T) |
| Management Ports SFP | 2 pcs. (Ethernet 1000 Base-X) |
| Local Management Ports RJ45 | 1 pcs. (Ethernet 10/100 Base-T) |
| Management Protocols | IPv4, SNMP v1/v2c/v3, DHCP, HTTP, SFTP, SNTP, SSH |
| Extension Ports RJ45 | 2 pcs. (Ethernet 10/100 Base-T) |
| **Power supply** | |
| Two-Pin Connector | 2 pcs. (rear) |
| Power supply slots | 2 pcs. (for LX 55 0048, front) |
| Nominal Input Voltage DC | 48 V DC (with LX 55 0048) |
| Power consumption max. | 240 W (Base Unit alone: max. 25 W) |
| **General data** | |
| Module slots | 14 pcs. |
| Dimensions (width x height x depth) | 483 x 178 x 330 mm (19“, 4 RU) |
| Operating temperature range | -5 ... +45 °C |
| Storage temperature | -20 ... +75 °C |
| Enclosure Classification | IP20 |
| Electro Magnetic Compatibility (EMC) | EN 50082-1, EN 50082-2, EN 50083-2, EN 55022 Class B |

**characteristics**

- Tool less hot-swap modules, power supply units and fans
- Mechanical backplate for optical and electrical connectors enables module exchange without recabeling.
- Local and remote management
- Fully redundant power supply concept

**Scope of delivery**

- Base unit
- 1 x Power Supply Unit LX 55 0048

# Base units

## LX 52

Optopus Basic Unit for 2 Modules

LX 52 is a base unit of the optical platform Optopus with 2 slots in a single rack unit chassis.

| Technical data | |
|---|---|
| **Network Interfaces** | |
| Management Ports RJ45 | 4 pcs. (Ethernet 10/100 Base-T) |
| Management Protocols | IPv4, SNMP v1/v2c/v3, DHCP, HTTP, SFTP, SNTP, SSH |
| **Power supply** | |
| Power supply slots | 2 pcs. (for LXPS 0230 / 0048) |
| Nominal Input Voltage AC | 230 V AC (with LXPS 0230) |
| Nominal Input Voltage DC | 48 V DC (with LXPS 0048) |
| Power consumption | < 75 W (Base Unit alone: max. 6 W) |
| **General data** | |
| Module slots | 2 pcs. (active Modules on front, passive on rear panel) |
| Dimensions (width x height x depth) | 485 x 43 x 330 mm (19“, 1HE) |
| Operating temperature range | -5 ... +45 °C (ETSI EN 300 019-1-3 Class 3.1) |
| Storage temperature | -20 ... +75 °C |
| Enclosure Classification | IP20 |
| Electro Magnetic Compatibility (EMC) | EN 50082-1, EN 50082-2, EN 50083-2, EN 55022 Class B |

**characteristics**

- Tool less hot-swap modules, power supply units and fans
- Fully redundant power supply concept
- Local and remote management

**Scope of delivery**

- Base unit
- in addition, the power supply LXPS 0048 or LXPS 0230 is necessary

# Optical transmitter

## LX 11 S 0800

1310 nm transmitter


The LX 11 is part of the Optopus product portfolio. LX 11 is a direct modulated 1310nm fullband transmitter for HFC networks. The Optopus is a highly flexible and dense platform for all kinds of analog optical networks. The system is designed for any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| **Downstream** | |
| Laser type | Temperature stabilized DFB laser |
| Wavelength transmitter 1 | 1310 nm (±10 nm) |
| Optical output power | 8 dBm (6 mW) |
| Frequency range | 10...1006 MHz |
| Optical return loss | >40 dB |
| Input level broadcast | 78 dBµV (PAL-Level) |
| Input level Narrowcast | 84 dBµV (QAM-Level, 4 dB back off) |
| Level control narrowcast | ±2 dB (adjustable) |
| Inputs AGC | ±5 dB |
| Decoupling NC/BC input | ≥50 dB |
| Electrical return loss | ≥20 dB (-1 dB /oct., min. 17 dB) |
| Ripple | ≤ ±0,5 dB |
| Relative Intensity Noise 1 | < -155 dB√Hz |
| CSO | ≥63 dBc (42 channels CENELEC) |
| CTB | ≥65 dBc (42 channels CENELEC) |
| Input measurement socket | -20 dB (BC-Input level) |
| **Connectors** | |
| F-socket | 1 pcs. |
| **General data** | |
| Power consumption | ≤7 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical HFC transmitter for use in WISI Chassis LX 50
- Adjustable OMI
- Automatic level control (ALC)
- Electronic predistortion
- Fullband transmitter 10...1006 MHz
- SBS suppression

# Optical transmitter

## LX 11 S 1000

1310 nm transmitter


The LX 11 is part of the Optopus product portfolio. LX 11 is a direct modulated 1310nm fullband transmitter for HFC networks. The Optopus is a highly flexible and dense platform for all kinds of analog optical networks. The system is designed for any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| **Downstream** | |
| Laser type | Temperature stabilized DFB laser |
| Wavelength transmitter 1 | 1310 nm (±10 nm) |
| Optical output power | 10 dBm (10 mW) |
| Frequency range | 10...1006 MHz |
| Optical return loss | >40 dB |
| Input level broadcast | 78 dBµV (PAL-Level) |
| Input level Narrowcast | 84 dBµV (QAM-Level, 4 dB back off) |
| Level control narrowcast | ±2 dB (adjustable) |
| Inputs AGC | ±5 dB |
| Decoupling NC/BC input | ≥50 dB |
| Electrical return loss | ≥20 dB (-1 dB /oct., min. 17 dB) |
| Ripple | ≤ ±0,5 dB |
| Relative Intensity Noise 1 | < -155 dB√Hz |
| CSO | ≥63 dBc (42 channels CENELEC) |
| CTB | ≥65 dBc (42 channels CENELEC) |
| Input measurement socket | -20 dB (BC-Input level) |
| **Connectors** | |
| F-socket | 1 pcs. |
| **General data** | |
| Power consumption | ≤7 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical HFC transmitter for use in WISI Chassis LX 50
- Adjustable OMI
- Automatic level control (ALC)
- Electronic predistortion
- Fullband transmitter 10...1006 MHz
- SBS suppression

# Optical transmitter

## LX 13 S 0312

CWDM Up Stream Transmitter


The LX 13 is part of the Optopus product portfolio. LX 13 is a dual CWDM upstream transmitter with two adjacent CWDM wavelengths for use in return path applications in HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| **Downstream** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength transmitter 1 | 1471/1491 nm |
| Optical output power | 2x 3 dBm (2 mW) |
| Frequency range | 5...500 MHz |
| Optical return loss | >40 dB |
| Input level broadcast | 78 dBµV (Low-Level-Input) |
| Input level Narrowcast | 88 dBµV (High-Level-Input) |
| Level control narrowcast | ±2 dB (adjustable) |
| Inputs AGC | ±5 dB |
| Decoupling NC/BC input | ≥50 dB |
| Electrical return loss | ≥20 dB |
| Ripple | ≤ ±0,75 dB |
| Relative Intensity Noise 1 | < -145 dB√Hz |
| Input measurement socket | 0.666667 dB (Low-Level-/High-Level-Input) |
| OMI setting range | 3...10 % |
| Dynamic range by 40 dB NPR | ≥10 dB |
| **Connectors** | |
| F-socket | 1 pcs. |
| **General data** | |
| Power consumption | ≤10,5 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- High Density Dual CWDM-Transmitter
- Two CWDM transmitter in one module
- Highest performance with dual-stage isolator
- Adjustable OMI

# Optical transmitter

## LX 13 S 0334

CWDM Up Stream Transmitter


The LX 13 is part of the Optopus product portfolio. LX 13 is a dual CWDM upstream transmitter with two adjacent CWDM wavelengths for use in return path applications in HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| **Downstream** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength transmitter 1 | 1511/1531 nm |
| Optical output power | 2x 3 dBm (2 mW) |
| Frequency range | 5...500 MHz |
| Optical return loss | >40 dB |
| Input level broadcast | 78 dBµV (Low-Level-Input) |
| Input level Narrowcast | 88 dBµV (High-Level-Input) |
| Level control narrowcast | ±2 dB (adjustable) |
| Inputs AGC | ±5 dB |
| Decoupling NC/BC input | ≥50 dB |
| Electrical return loss | ≥20 dB |
| Ripple | ≤ ±0,75 dB |
| Relative Intensity Noise 1 | < -145 dB√Hz |
| Input measurement socket | 0.666667 dB (Low-Level-/High-Level-Input) |
| OMI setting range | 3...10 % |
| Dynamic range by 40 dB NPR | ≥10 dB |
| **Connectors** | |
| F-socket | 1 pcs. |
| **General data** | |
| Power consumption | ≤10,5 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**Characteristics**

- CWDM Up Stream Transmitter
- High Density Dual CWDM-Transmitter
- Two CWDM transmitter in one module
- Highest performance with dual-stage isolator
- Adjustable OMI

# Optical transmitter

## LX 15 S 1001

1550 nm BC-transmitter


The LX 15 is part of the Optopus product portfolio. LX 15 is a direct modulated fullband transmitter with 1550 nm for use in RF Overlay and RFoG networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| **Downstream** | |
| Laser type | Temperature stabilized DFB laser |
| Wavelength transmitter 1 | 1555 nm (±10 nm) |
| Optical output power | 10 dBm (10 mW) |
| Frequency range | 10...1006 MHz |
| Optical return loss | >40 dB |
| Input level broadcast | 78 dBµV (PAL-Level) |
| Input level Narrowcast | 84 dBµV (QAM-Level, 4 dB back off) |
| Level control narrowcast | ±2 dB (adjustable) |
| Inputs AGC | ±5 dB |
| Decoupling NC/BC input | ≥50 dB |
| Electrical return loss | ≥20 dB (-1 dB /oct., min. 17 dB) |
| Ripple | ≤ ±0,5 dB |
| Relative Intensity Noise 1 | < -155 dB√Hz |
| SBS suppression | 21 dBm |
| CSO | ≥60 dBc (42 channels CENELEC) |
| CTB | ≥65 dBc (42 channels CENELEC) |
| Transmission length | 15 km |
| Input measurement socket | -20 dB (BC-Input level) |
| **Connectors** | |
| F-socket | 1 pcs. |
| **General data** | |
| Power consumption | ≤7 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical transmitter for use in WISI Chassis LX50
- Adjustable OMI
- Automatic level control (ALC)
- Electronic predistortion
- SBS suppression
- Dispersion compensation

# Optical transmitter

## LX 15 S 12xx

1550 nm BC-transmitter


The LX 15 is part of the Optopus product portfolio. LX 15 is a direct modulated fullband transmitter with 1550 nm for use in RF Overlay and RFoG networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| **Downstream** | |
| Laser type | Temperature stabilized DFB laser |
| Wavelength | 1555 nm (± 0,5 nm or DWDM Channel (100 GHz-Grid) |
| Optical output power | 10 dBm (10 mW) |
| Relative intensity noise (RIN) | < -155 dB√Hz |
| Optical return loss | >40 dB |
| Frequency range | 15...1218 MHz |
| Input level broadcast | 78 dBµV |
| Input level Narrowcast | 88 dBµV |
| Gain control range | ± 5 dB |
| Slope Control Range | ± 2 dB |
| Narrowcast-Offset | ± 2 dB |
| Decoupling NC/BC input | ≥50 dB |
| Test point | -20/-30 dB (BC-/NC-Input & 75 dBµV @ 5% OMI) |
| Electrical return loss | ≥20 dB |
| Ripple | ≤ ±0,5 dB |
| **Max Fiber Length** | |
| LX 15 S 1200 | 0...25 km |
| LX 15 S 1201 | 0...15 km |
| LX 15 S 1202 | 0...45 km |
| LX 15 S 1203 | 0...20 km |
| **SBS suppression** | |
| LX 15 S 1200 | 16 dBm |
| LX 15 S 1201 | 21 dBm |
| LX 15 S 1202 | 16 dBm |
| LX 15 S 1203 | 17 dBm |
| **Signal Performance LX 15 S 1200/1201** | |
| CSO | ≥ 60 dBc |
| CTB | ≥ 65 dBc |
| CNR | ≥ 51 dB |
| MER | ≥ 40 dB |
| **Signal Performance LX 15 S 1202** | |

| Technical data | |
|---|---|
| MER | ≥ 40 dB |
| BER | <10-9 |
| **Signal Performance LX 15 S 1203** | |
| MER | ≥42 dB |
| BER | <10-9 |
| **Connectors** | |
| Optical connector | SC/APC connectors |
| F-socket | 1 pcs. (75 Ohm) |
| **General data** | |
| Supply voltage | 12 V DC |
| Power consumption | ≤9 W |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |
| Housing | WISI LX-Chassis |
| **Management functionality** | |
| Laser | On/Off |
| ALC | On/Off |
| Attenuator | 0...10 dB |
| Slope | -2...+2 dB |
| Narrowcast-Offset | -2...+2 dB |
| Dispersion Compensation (fiber length) | 0...50 km |
| SBS-Suppression | On/Off |
| **Measurement** | |
| Optical output power | dBm |
| Laser Current | mA |
| Laser Temperature | °C |
| TEC Current | mA |
| RF-Level | dB |

**characteristics**

- Hot pluggable
- Adjustable OMI
- SBS suppression
- Electronic predistortion

# Optical transmitter

## LX 15 S 20x0

Full Spectrum Transmitter external modulated

The WISI OPTOPUS LX 15 S 20x0 Transmitter series is part of WISI's CCAP migration solution. It is ideal for cost-effective transmission of full-spectrum 1.2 GHz channel loads over fiber.

| Technical data | |
|---|---|
| **RF signal path** | |
| Frequency range | 47...1218 MHz |
| Nominal level BC-input | 78 dBµV (per PAL ch.) |
| Nominal level NC-input | 82 dBµV (per QAM ch., 6 dB backoff to PAL) |
| Level control NC | -2...+2 dB |
| Level control composite RF | -5...+5 dB (ALC switchable) |
| Slope control | -2...+2 dB |
| Frequency response | -0,5...+0,5 dB |
| **Optoelectronic properties** | |
| Laser type | Temperature stabilized DFB laser |
| Wavelength | 1538...1563 nm (100 GHz DWDM, ITU ch. 18 ... 49, tunability option) |
| Optical output power | > +5 dBm |
| Transmission length | 0...65 km |
| SBS suppression | |
| Relative intensity noise (RIN) | < -155 dB√Hz |
| **Signal quality, mixed load (30 ch. PAL + 60 ch. QAM256)** | |
| Carrier-to-noise-ratio (CNR) | >51 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Composite second order (CSO) | >64 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Composite triple beat (CTB) | >64 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Modulation error rate (MER) | >43 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Bit error rate (BER) | <1e-9 (Transmission over 40 km fiber, Rx input power 0 dBm) |
| **Signal quality, all-QAM loading (120 ch. QAM256 258...1218 MHz)** | |
| Modulation error rate (MER) | >41 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Bit error rate (BER) | <1e-9 (Transmission over 40 km fiber, Rx input power 0 dBm) |

| Technical data | |
|---|---|
| **Signal interfaces** | |
| RF return loss | >20 dB |
| Decoupling NC/BC input | >50 dB |
| Input test port | -20 dB (relative to BC input) |
| Output test port | 75 dBµV (at 5% OMI) |
| Optical return loss | >40 dB |
| **Connectors** | |
| F-socket rear | 2 pcs. (BC input, NC input) |
| F-socket front | 1 pcs. (Test port: composite input / driver output switchable) |
| SC-APC connectors | 1 pcs. (opt. output) |
| **General data** | |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm (Optopus module) |
| Power consumption max. | <9 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019-1-3 class 3.2) |
| Enclosure Classification | IP30 |
| Laser safety | EN 60825-2 hazard level 1M |
| EMC | EN 50082-1, EN 50082-2, EN 50083-2, EN 55022 class B |

**characteristics**

- Broad frequency range for DOCSIS 3.1
- Wide transmission reach for capacity utilization of centralized head-end sites
- Cost-efficient solution for broadcast and full-spectrum transmission of downstream signals
- Tunable wavelength (optional) enables flexible assignment in DWDM systems

# Optical transmitter

## LX 15 S 30x0

External modulated Full Spectrum Transmitter with optical amplification


The WISI OPTOPUS LX 15 S 3xx0 Transmitter series is part of WISI's CCAP migration solution. With its high-power output, it is ideal for cost-effective transmission of full-spectrum 1.2 GHz channel loads over fiber.

| Technical data | |
|---|---|
| **RF signal path** | |
| Frequency range | 47...1218 MHz |
| Nominal level BC-input | 78 dBµV (per PAL channel) |
| Nominal level NC-input | 82 dBµV (per QAM channel with 6 dB back-off) |
| Level control narrowcast | -2...+2 dB |
| Level control composite | -5...+5 dB (ALC switchable) |
| Slope control | -2...+2 dB |
| Transmission frequency response | -0,5...+0,5 dB |
| **Optoelectronic properties** | |
| Laser type | Temperature stabilized DFB laser |
| Wavelength | 1538...1563 nm (100 GHz DWDM, ITU channels 18 ... 49 tunable) |
| Optical output power | +10...+14 dBm (adjustable) |
| Transmission length | 0...65 km |
| SBS suppression | 14 dBm |
| Relative intensity noise (RIN) | < -155 dB√Hz |
| **Signal quality, mixed load (30 ch. PAL + 60 ch. QAM256)** | |
| Carrier-to-noise-ratio (CNR) | >51 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Composite second order (CSO) | >64 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Composite triple beat (CTB) | >64 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Modulation error rate (MER) | >43 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Bit error rate (BER) | <1e-9 (Transmission over 40 km fiber, Rx input power 0 dBm) |
| **Signal quality, all-QAM loading (120 ch. QAM256 258...1218 MHz)** | |
| Modulation error rate (MER) | >40 dB (Transmission over 65 km fiber, Rx input power 0 dBm) |
| Bit error rate (BER) | <1e-9 (Transmission over 65 km fiber, Rx input power 0 dBm) |

| Technical data | |
|---|---|
| **Signal interfaces** | |
| Electrical return loss | >20 dB |
| Decoupling NC/BC input | >50 dB |
| Input measurement socket | -20 dB (relative to BC input) |
| Output test point | 75 dBµV (at 5% OMI) |
| Optical return loss | >40 dB |
| **Connectors** | |
| F-socket rear | 2 pcs. (BC input, NC input) |
| F-socket front | 1 pcs. (Test port: composite input / driver output switchable) |
| SC/APC connectors | 1 pcs. opt. output |
| **General data** | |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm (Optopus module) |
| Power consumption max. | <13 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019-1-3 class 3.2) |
| Enclosure Classification | IP30 |
| Laser safety | EN 60825-2 hazard level 1M |
| Electro Magnetic Compatibility (EMC) | EN 50082-1, EN 50082-2, EN 50083-2, EN 55022 Class B |

**characteristics**

- Broad frequency range for DOCSIS 3.1
- Wide transmission reach for capacity utilization of centralized hea-dend sites
- Adjustable high-power output from integrated optical amplification
- Tunable wavelength (optional) enables flexible assignment in DWDM systems

# Optical transmitter

## LX 15 S 4000

Full Spectrum Dual Transmitter external modulated


The WISI OPTOPUS LX 15 S 40x0 Transmitter series is part of WISI's CCAP migration solution. Optimized for rack-space savings, it is ideal for transmission of full-spectrum 1.2 GHz channel loads over fiber. Its applications include DOCSIS 3.1 HFC and RFoG.

| Technical data | |
|---|---|
| **RF signal path** | |
| Transmitters per Optopus module | 2 pcs. |
| Frequency range | 47...1218 MHz |
| Nominal level BC-input | 78 dBµV (per PAL channel) |
| Nominal level NC-input | 82 dBµV (per QAM channel with 6 dB back-off) |
| Level control narrowcast | -2...+2 dB |
| Level control composite | -5...+5 dB (ALC switchable) |
| Slope control | -2...+2 dB |
| Transmission frequency response | -0,5...+0,5 dB |
| **Optoelectronic properties** | |
| Laser type | Temperature stabilized DFB laser |
| Wavelength | 1538...1563 nm (100 GHz DWDM, ITU channels 18 ... 49 tunable) |
| Optical output power | +5 dBm |
| Transmission length | 0...65 km |
| SBS suppression | |
| Relative intensity noise (RIN) | < -155 dB√Hz |
| **Signal quality, mixed load (30 ch. PAL + 60 ch. QAM256)** | |
| Carrier-to-noise-ratio (CNR) | >51 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Composite second order (CSO) | >64 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Composite triple beat (CTB) | >64 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Modulation error rate (MER) | >43 dB (Transmission over 40 km fiber, Rx input power 0 dBm) |
| Bit error rate (BER) | <1e-9 (Transmission over 40 km fiber, Rx input power 0 dBm) |
| **Signal quality, all-QAM loading (120 ch. QAM256 258...1218 MHz)** | |
| Modulation error rate (MER) | >40 dB (Transmission over 65 km fiber, Rx input power 0 dBm) |
| Bit error rate (BER) | <1e-9 (Transmission over 65 km fiber, Rx input power 0 dBm) |

| Technical data | |
|---|---|
| **Signal interfaces** | |
| Electrical return loss | >20 dB |
| Decoupling NC/BC input | >50 dB |
| Input measurement socket | -20 dB (relative to BC input) |
| Output test point | 75 dBµV (at 5% OMI) |
| Optical return loss | >40 dB |
| **Connectors** | |
| F-socket rear | 4 pcs. (BC1, NC1, BC2, NC2) |
| F-socket front | 1 pcs. (Test port: composite input / driver output switchable) |
| SC/APC connectors | 2 pcs. (Output 1/2) |
| **General data** | |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm (Optopus module) |
| Power consumption max. | <18 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019-1-3 class 3.2) |
| Enclosure Classification | IP30 |
| Laser safety | EN 60825-2 hazard level 1M |
| Electro Magnetic Compatibility (EMC) | EN 50082-1, EN 50082-2, EN 50083-2, EN 55022 Class B |

**characteristics**

- Broad frequency range for DOCSIS 3.1
- Wide transmission reach for capacity utilization of centralized head-end sites
- Tunable wavelength (optional) enables flexible assignment in DWDM systems

# Optical transmitter

## LX 16 S 10xx

DWDM Upstream-Transmitter


The LX 16 is part of the Optopus product portfolio. LX 16 is a cooled direct modulated DWDM upstream transmitter. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Laser type | Temperature stabilized DFB laser |
| Wavelength | 100 GHz DWDM Grid |
| Optical output power | 10 dBm (10 mW) |
| Relative intensity noise (RIN) | < -155 dB√Hz |
| Optical return loss | >40 dB |
| Frequency range | 5...500 MHz |
| Frequency Response (E-O) | ≤ ±0,75 dB |
| input level (Low-Level-Input) | 78 dBµV |
| input level (High-Level-Input) | 88 dBµV |
| OMI setting range | 3...10 % |
| Decoupling (High-Level > Low-Level) | ≥50 dB |
| Input measurement socket | -20/-30 dB (Low-Level-/High-Level-Input) |
| Return loss | ≥20 dB |
| Dynamic range by 40 dB NPR | ≥10 dB |
| MER | ≥44 dB (6 QAM-Channels (BW 6,4 MHz), 5% OMI, -10 dBm @ Receiver (2pA√Hz)) |
| **Connectors** | |
| Optical connector | SC/APC |
| RF connector | F (75 Ohm) |
| **General data** | |
| Supply voltage | 12 V DC |
| Power consumption | ≤7 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm (WISI Chassis LX 50) |
| Environmental parameters | -5...+45 °C (EN300 019-1-3 Class 3.2) |

**characteristics**

- Temperature stabilized DFB laser
- SBS suppression
- Adjustable OMI
- Hot Plug In/Out
- Optical DWDM transmitter for use in WISI Chassis LX 50
- Upstream transmitter 5...500 MHz

# Optical transmitter

## LX 21 S 0100

Single DS Receiver


The LX 21 is part of the Optopus product portfolio. LX 21 is an optical receiver for downstream applications with a wide input range. The Optopus is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1280...1630 nm |
| Optical return loss | >40 dB |
| Impedance | 75 Ω |
| Return loss output | ≥18 dB (-1,5 dB/Okt.)min. 14 dB |
| Frequency range | 47...1006 MHz |
| Opt. input level for controlled electrical output level | -7...+3 dBm |
| Max. controlled output level | 90 dBµV (ALC on, 4% OMI) |
| Attenuator range | 0...15 dB (0,5 dB steps) |
| Equalizer range | 0...10 dB (0,5 dB steps) |
| Amplitude response (O-E) | ≤ ±0,5 dB |
| Equivalent noise input | ≤4,5 pA/√Hz |
| Output level | 90 dBµV (CENELEC 42 Ch. (CSO/ CTB ≥ 70 dB), flat) |
| Test point | -20 dB |
| **Connectors** | |
| Fiber type | Single Mode 9/125 µm |
| Optical connector | SC/APC connectors |
| RF connectors | F |
| **General data** | |
| Supply voltage | 12 V DC |
| Power consumption | 6.5 W |
| EMC | EN50083-2 |
| Operating temperature range | -5...+45 °C (EN300 019-1-3 Class 3.2) |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |

**characteristics**

- Optical receiver for use in WISI Chassis LX50
- Automatic level control (ALC)
- Hot Plug In/Out
- Automatic Level Control (optical ALC) for constant RF-output level

# Optical receivers

## LX 22 S 0400

Quattro US HFC Receiver


The LX 22 is part of the Optopus product portfolio. LX 22 is a quattro upstream receiver for use in HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Optical Receiver LX | 4 pcs. |
| Optical input level | -17...+0 dBm |
| Optical input attenuator | 0...40 dB (1 dB-steps, only adjustable when ALC is off) |
| Receiving wavelength | 1280...1630 nm |
| Thermal receiver noise | ≤2 pA/√Hz |
| Optical return loss | >45 dB |
| Electrical return loss | ≥20 dB (-1 dB/oct.) |
| Frequency range | 5...204 MHz |
| Ripple | ≤ ±0,75 dB |
| Electrical output power | 90 dBµV (max. controlled level, 5% OMI, ALC on) |
| Output attenuator | 0...15 dB (1 dB-steps) |
| Output test point | -20 dB |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| F-socket | 1 pcs. |
| **General data** | |
| Power consumption | ≤12 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical quattro upstream receiver for use in WISI Chassis LX50
- 4 independent upstream channels per unit or ne combined output
- 4 RF output ports at rear
- Optical automatic level control (ALC) for constant RF-Level
- Redundancy switching option with LX71

# Optical receivers

## LX 22 H 0400

Quattro Upstream HFC/RFoG Ultra Low Noise Receiver


The LX 22 is part of the Optopus product portfolio. LX 22 is a quattro upstream receiver for use in HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Optical Receiver LX | 4 pcs. |
| Optical input level | -28...-10 dBm |
| Optical input attenuator | 0...40 dB (1 dB-steps, only adjustable when ALC is off) |
| Receiving wavelength | 1280...1630 nm |
| Thermal receiver noise | ≤1 pA/√Hz |
| Optical return loss | >45 dB |
| Electrical return loss | ≥20 dB (-1 dB/oct.) |
| Frequency range | 5...204 MHz |
| Ripple | ≤ ±0,75 dB |
| Electrical output power | 75 dBµV (max. controlled level, 5% OMI, ALC on) |
| Output attenuator | 0...15 dB (1 dB-steps) |
| Output test point | -20 dB |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| F-socket | 1 pcs. |
| **General data** | |
| Power consumption | ≤12 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical quattro ultra low noise upstream receiver for use in WISI Chassis LX50
- 4 independent upstream channels per unit or ne combined output
- 4 RF output ports at rear
- Optical automatic level control (ALC) for constant RF-Level
- Redundancy switching option with LX71

# Optical receivers

## LX 23 L 0431

Quattro Upstream RFoG Receiver


The LX 23 is part of the Optopus product portfolio. LX 23 is a quattro upstream receiver for use in RFoG networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Optical receiver 19“ | 4 pcs. |
| Optical input level | -28...-10 dBm |
| Receiving wavelength | 1310 nm |
| Wavelength network interface | 1270...1565 nm |
| Wavelength RFoG receiver | 1270...1350 nm |
| Wavelength broadcast interface | 1530...1565 nm |
| Thermal receiver noise | ≤1 pA/√Hz |
| Optical return loss | ≥45 dB |
| Decoupling network-connection RFoG receiver | ≥40 dB |
| Decoupling network-connection broadcast connection | ≥15 dB |
| Directional attenuation | ≥60 dB |
| Insertion loss broadcast network connection | ≤0,8 dB |
| Insertion loss network connection RFoG receiver | ≤1,0 dB |
| Electrical return loss | ≥20 dB (-1 dB/oct.) |
| Frequency range | 5...100 MHz |
| Ripple | ≤ ±0,75 dB |
| Electrical output power | 90 dBµV (15% OMI @ -28 dBm) |
| Output attenuator | 0...40 dB (1 dB-steps) |
| Output test point | -20 dB |
| **Connectors** | |
| LC/APC connector | 1 pcs. |
| F-socket | 5 pcs. |
| **General data** | |
| Power consumption | ≤12 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical quattro upstream receiver for use in WISI Chassis LX 50
- 4 independent upstream channels per unit or one combined output
- 4 RF output ports at rear
- Integrated RFoG-Filter (1310 nm)
- IDS noise suppression (Squelch)

# Optical receivers

## LX 23 L 0461

Quattro Upstream RFoG Receiver


The LX 23 is part of the Optopus product portfolio. LX 23 is a quattro upstream receiver for use in RFoG networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Optical receiver 19“ | 4 pcs. |
| Optical input level | -28...-10 dBm |
| Receiving wavelength | 1610 nm |
| Wavelength network interface | 1260...1620 nm |
| Wavelength RFoG receiver | 1600...1620 nm |
| Wavelength broadcast interface | 1260...1590 nm |
| Thermal receiver noise | ≤1,0 pA/√Hz |
| Optical return loss | ≥45 dB |
| Decoupling network-connection RFoG receiver | ≥40 dB |
| Decoupling network-connection broadcast connection | ≥15 dB |
| Directional attenuation | ≥60 dB |
| Insertion loss broadcast network connection | ≤0,8 dB |
| Insertion loss network connection RFoG receiver | ≤1,0 dB |
| Electrical return loss | ≥20 dB (-1 dB/oct.) |
| Frequency range | 5...100 MHz |
| Ripple | ≤ ±0,75 dB |
| Electrical output power | 90 dBµV (15% OMI @ -28 dBm) |
| Output attenuator | 0...40 dB (1 dB-steps) |
| Output test point | -20 dB |
| **Connectors** | |
| LC/APC connector | 1 pcs. |
| F-socket | 5 pcs. |
| **General data** | |
| Power consumption | ≤12 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical quattro upstream receiver for use in WISI Chassis LX 50
- 4 independent upstream channels per unit or one combined output
- 4 RF output ports at rear
- Integrated RFoG-Filter (1610 nm)
- IDS noise suppression (Squelch)

# Optical amplifiers

## LX 30 S 1401

Optical Amplifier


The LX 30 is part of the Optopus product portfolio. LX 30 is an optical amplifier based on EDFA technology for use in FTTx and HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Amplifier inputs | 1 pcs. |
| Optical input power | -2...+10 dBm |
| Amplifier outputs | 1 pcs. |
| Optical output power | 1x 14,0 dBm |
| Output level tolerance | ±0,5 dB (Variation of output power over polarization, wave-length range and temperature range) |
| Output level variation | ±0,5 dB |
| Wavelength | 1530...1565 nm |
| Setting range amplifier | 5 dB (0,1 dB-steps) |
| Noise figure | ≤5,5 dB (at 0 dBm input power, nominal output power and signal wave length 1550 nm) |
| Return loss | ≥45 dB (input - output) |
| Isolation | ≥40 dB (output - input) |
| Optical test point output | -2.5 dB (in relation to EDFA-output power) |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| **General data** | |
| Power consumption | typ. 5 W (max. 10 W) |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical amplifier for use in WISI Chassis LX 50
- Amplification of optical signals in the C-band
- Up to four output ports with adjustable output power
- Optical test port for the output signal
- Wide input power range enables application as booster- or inline-amplifier
- Low electrical power consumption

# Optical amplifiers

## LX 30 S 1402

Optical Amplifier


The LX 30 is part of the Optopus product portfolio. LX 30 is an optical amplifier based on EDFA technology for use in FTTx and HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Amplifier inputs | 1 pcs. |
| Optical input power | -2...+10 dBm |
| Amplifier outputs | 2 pcs. |
| Optical output power | 2x 14,0 dBm |
| Output level tolerance | ±0,5 dB (Variation of output power over polarization, wave-length range and temperature range) |
| Output level variation | ±0,5 dB |
| Wavelength | 1530...1565 nm |
| Setting range amplifier | 5 dB (0,1 dB-steps) |
| Noise figure | ≤5,5 dB (at 0 dBm input power, nominal output power and signal wave length 1550 nm) |
| Return loss | ≥45 dB (input - output) |
| Isolation | ≥40 dB (output - input) |
| Optical test point output | -2.5 dB (in relation to EDFA-output power) |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| **General data** | |
| Power consumption | typ. 6 W (max. 12 W) |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical amplifier for use in WISI Chassis LX 50
- Amplification of optical signals in the C-band
- Up to four output ports with adjustable output power
- Optical test port for the output signal
- Wide input power range enables application as booster- or inline-amplifier
- Low electrical power consumption

# Optical amplifiers

## LX 30 S 1701

Optical Amplifier


The LX 30 is part of the Optopus product portfolio. LX 30 is an optical amplifier based on EDFA technology for use in FTTx and HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Amplifier inputs | 1 pcs. |
| Optical input power | -2...+10 dBm |
| Amplifier outputs | 1 pcs. |
| Optical output power | 1x 17,5 dBm |
| Output level tolerance | ±0,5 dB (Variation of output power over polarization, wave-length range and temperature range) |
| Output level variation | ±0,5 dB |
| Wavelength | 1530...1565 nm |
| Setting range amplifier | 5 dB (0,1 dB-steps) |
| Noise figure | ≤5,5 dB (at 0 dBm input power, nominal output power and signal wave length 1550 nm) |
| Return loss | ≥45 dB (input - output) |
| Isolation | ≥40 dB (output - input) |
| Optical test point output | -2.5 dB (in relation to EDFA-output power) |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| **General data** | |
| Power consumption | typ. 6 W (max. 12 W) |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical amplifier for use in WISI Chassis LX 50
- Amplification of optical signals in the C-band
- Up to four output ports with adjustable output power
- Optical test port for the output signal
- Wide input power range enables application as booster- or inline-amplifier
- Low electrical power consumption

# Optical amplifiers

## LX 30 S 1702

Optical Amplifier


The LX 30 is part of the Optopus product portfolio. LX 30 is an optical amplifier based on EDFA technology for use in FTTx and HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Amplifier inputs | 1 pcs. |
| Optical input power | -2...+10 dBm |
| Amplifier outputs | 2 pcs. |
| Optical output power | 2x 17,5 dBm |
| Output level tolerance | ±0,5 dB (Variation of output power over polarization, wave-length range and temperature range) |
| Output level variation | ±0,5 dB |
| Wavelength | 1530...1565 nm |
| Setting range amplifier | 5 dB (0,1 dB-steps) |
| Noise figure | ≤5,5 dB (at 0 dBm input power, nominal output power and signal wave length 1550 nm) |
| Return loss | ≥45 dB (input - output) |
| Isolation | ≥40 dB (output - input) |
| Optical test point output | -2.5 dB (in relation to EDFA-output power) |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| **General data** | |
| Power consumption | max. 16 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical amplifier for use in WISI Chassis LX 50
- Amplification of optical signals in the C-band
- Up to four output ports with adjustable output power
- Optical test port for the output signal
- Wide input power range enables application as booster- or inline-amplifier
- Low electrical power consumption

# Optical amplifiers

## LX 30 S 1704

Optical Amplifier


The LX 30 is part of the Optopus product portfolio. LX 30 is an optical amplifier based on EDFA technology for use in FTTx and HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Amplifier inputs | 1 pcs. |
| Optical input power | -2...+10 dBm |
| Amplifier outputs | 4 pcs. |
| Optical output power | 4x 17,5 dBm |
| Output level tolerance | ±0,5 dB (Variation of output power over polarization, wave-length range and temperature range) |
| Output level variation | ±0,5 dB |
| Wavelength | 1530...1565 nm |
| Setting range amplifier | 5 dB (0,1 dB-steps) |
| Noise figure | ≤5,5 dB (at 0 dBm input power, nominal output power and signal wave length 1550 nm) |
| Return loss | ≥45 dB (input - output) |
| Isolation | ≥40 dB (output - input) |
| Optical test point output | -2.5 dB (in relation to EDFA-output power) |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| **General data** | |
| Power consumption | typ. 11 W (max. 22 W) |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical amplifier for use in WISI Chassis LX 50
- Amplification of optical signals in the C-band
- Up to four output ports with adjustable output power
- Optical test port for the output signal
- Wide input power range enables application as booster- or inline-amplifier
- Low electrical power consumption

# Optical amplifiers

## LX 30 S 2101

Optical Amplifier


The LX 30 is part of the Optopus product portfolio. LX 30 is an optical amplifier based on EDFA technology for use in FTTx and HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Amplifier inputs | 1 pcs. |
| Optical input power | -2...+10 dBm |
| Amplifier outputs | 1 pcs. |
| Optical output power | 1x 21,0 dBm |
| Output level tolerance | ±0,5 dB (Variation of output power over polarization, wave-length range and temperature range) |
| Output level variation | ±0,5 dB |
| Wavelength | 1530...1565 nm |
| Setting range amplifier | 5 dB (0,1 dB-steps) |
| Noise figure | ≤5,5 dB (at 0 dBm input power, nominal output power and signal wave length 1550 nm) |
| Return loss | ≥45 dB (input - output) |
| Isolation | ≥40 dB (output - input) |
| Optical test point output | -2.5 dB (in relation to EDFA-output power) |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| **General data** | |
| Power consumption | max. 22 W |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical amplifier for use in WISI Chassis LX 50
- Amplification of optical signals in the C-band
- Up to four output ports with adjustable output power
- Optical test port for the output signal
- Wide input power range enables application as booster- or inline-amplifier
- Low electrical power consumption

# Passive optics
# Optical amplifiers

## LX 30 S 2102

Optical Amplifier


The LX 30 is part of the Optopus product portfolio. LX 30 is an optical amplifier based on EDFA technology for use in FTTx and HFC networks. The Optopus platform is a highly flexible and high density platform for all kinds of analog optical networks. The system is used in any network such as HFC, RF over Glass or RF Overlay in FTTX applications.

| Technical data | |
|---|---|
| Amplifier inputs | 1 pcs. |
| Optical input power | -2...+10 dBm |
| Amplifier outputs | 2 pcs. |
| Optical output power | 2x 21,0 dBm |
| Output level tolerance | ±0,5 dB (Variation of output power over polarization, wave-length range and temperature range) |
| Output level variation | ±0,5 dB |
| Wavelength | 1530...1565 nm |
| Setting range amplifier | 5 dB (0,1 dB-steps) |
| Noise figure | ≤5,5 dB (at 0 dBm input power, nominal output power and signal wave length 1550 nm) |
| Return loss | ≥45 dB (input - output) |
| Isolation | ≥40 dB (output - input) |
| Optical test point output | -2.5 dB (in relation to EDFA-output power) |
| **Connectors** | |
| SC/APC connectors | 1 pcs. |
| **General data** | |
| Power consumption | typ. 11 W (max. 22 W) |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |
| Environmental parameters | -5...+45 °C (ETSI EN 300 019-1-3 Class 3.1) |

**characteristics**

- Optical amplifier for use in WISI Chassis LX 50
- Amplification of optical signals in the C-band
- Up to four output ports with adjustable output power
- Optical test port for the output signal
- Wide input power range enables application as booster- or inline-amplifier
- Low electrical power consumption

# LD 74 S 5561

Multiplexer / Demultiplexer (1551...1611 nm) with expressport (1260...1620 nm)


Optical 4 channel CWDM Multiplexer / Demultiplexer (1551...1611 nm) with expressport (1260...1620 nm) to use in WISI Chassis LX 50 and LP 40.

| Technical data | |
|---|---|
| Wavelength range | Express Port 1260...1620 nm, CWDM 1551nm, 1571 nm, 1591 nm, 1611 nm (±6.5 nm) |
| Return loss | ≥45 dB |
| Insertion loss | Express Port ≤1,0 dB; CWDM ≤ 1.0 dB |
| Isolation | ≥50 dB |
| Isolation COM -> EXP @ λCWDM | ≥15 dB |
| Isolation Adjacent CWDM channel | ≥30 dB |
| Isolation non Adjacent CWDM channel | ≥45 dB |
| Passband ripple | ≤0,5 dB |
| Polarisation dependent attenuation | ≤0,2 dB |
| Optical power handling | ≤300 mW |
| **General data** | |
| Technology | TFF / Free space |
| Dimensions (width x height x depth) | 28 x 110 x 200,5 mm (WISI LD – Modul) |
| Plug connection | SC/APC connectors |
| Ambient temperature | -5...+55 °C |

# Passive optics

## LD 74 S 3945

Multiplexer / Demultiplexer (1391...1451 nm) with expressport (1260...1620 nm)


Optical 4 channel CWDM Multiplexer / Demultiplexer (1391...1451 nm) with expressport (1260...1620 nm) to use in WISI Chassis LX 50 and LP 40.

| Technical data | |
|---|---|
| Wavelength range | Express Port 1260...1620 nm, CWDM 1391nm, 1411 nm, 1431 nm, 1451 nm (±6.5 nm) |
| Return loss | ≥45 dB |
| Insertion loss | Express Port ≤1,0 dB; CWDM ≤ 1.0 dB |
| Isolation | ≥55 dB |
| Isolation COM -> EXP @ λCWDM | ≥15 dB |
| Isolation COM -> CWDM @ λ adjacent CWDM channel | ≥30 dB |
| Isolation COM -> CWDM @ λnon – adjacent CWDM channel | ≥45 dB |
| Passband ripple | ≤0,5 dB |
| Polarisation dependent attenu-ation | ≤0,2 dB |
| Optical power handling | ≤300 mW |
| **General data** | |
| Technology | TFF / Free space |
| Dimensions (width x height x depth) | 28 x 110 x 200,5 mm (WISI LD – Modul) |
| Plug connection | SC/APC connectors |
| Ambient temperature | -5...+55 °C |

# Passive optics

## LD 74 S 4753

Multiplexer / Demultiplexer (1471...1531 nm) with expressport (1260...1620 nm)


Optical 4 channel CWDM Multiplexer / Demultiplexer (1471...1531 nm) with expressport (1260...1620 nm) to use in WISI Chassis LX 50 and LP 40.

| Technical data | |
|---|---|
| Wavelength range | Express Port 1260...1620 nm, CWDM 1471 nm, 1491 nm, 1511 nm, 1531 nm (±6.5 nm) |
| Return loss | ≥45 dB |
| Insertion loss | Express Port ≤1,0 dB; CWDM ≤ 1.0 dB |
| Isolation | ≥50 dB |
| Isolation COM -> EXP @ λCWDM | ≥15 dB |
| Isolation COM -> CWDM @ λ adjacent CWDM channel | ≥30 dB |
| Isolation COM -> CWDM @ λnon – adjacent CWDM channel | ≥45 dB |
| Passband ripple | ≤0,5 dB |
| Polarisation dependent attenu-ation | ≤0,2 dB |
| Optical power handling | ≤300 mW |
| **General data** | |
| Technology | TFF / Free space |
| Dimensions (width x height x depth) | 28 x 110 x 200,5 mm (WISI LD – Modul) |
| Plug connection | SC/APC connectors |
| Ambient temperature | -5...+55 °C |

# Passive optics

## LD 75 S 3033

Multiplexer / Demultiplexer (CH.30...CH.33) with expressport (1460...1620 nm)


Optical 4 channel DWDM Multiplexer / Demultiplexer (Ch.30... Ch.33) with expressport (1460...1620 nm) to use in WISI Chassis LX 50 and LP 40.

| Technical data | |
|---|---|
| Wavelength range | Expressport 1460...1620 nm, DWDM Ch.30: 1553.33 nm, Ch. 31: 1552.52 nm, CH. 32: 1551.72 nm, Ch. 33: 1550.92 nm ( ±0.11 nm) |
| Return loss | ≥45 dB |
| Insertion loss | Express Port ≤1,2 dB; DWDM ≤1,6 dB |
| Isolation | ≥50 dB |
| Isolation COM -> EXP @ λCWDM | ≥15 dB |
| Isolation COM -> DWDM @ λ adjacent DWDM channel | ≥25 dB |
| Isolation COM -> DWDM @ λnon adjacent DWDM channel | ≥45 dB |
| Passband ripple | ≤0.5 dB |
| Polarisation dependent attenu-ation | ≤0.2 dB |
| Optical power handling | ≤300 mW |
| **General data** | |
| Technology | TFF |
| Dimensions (width x height x depth) | 28 x 110 x 200,5 mm (WISI LD – Modul) |
| Plug connection | SC/APC |
| Ambient temperature | -25...+55 °C (ETSI EN 300 019-3-1 Class 3.3) |

# Passive optics

## LD 75 S 3437

Multiplexer / Demultiplexer (CH.34...CH.37) with expressport (1460...1620 nm)


Optical 4 channel DWDM Multiplexer / Demultiplexer (Ch.34... Ch.37) with expressport (1460...1620 nm) to use in WISI Chassis LX 50 and LP 40.

| Technical data | |
|---|---|
| Wavelength range | Expressport 1460...1620 nm, DWDM Ch.34: 1550,12 nm, Ch. 35: 1549,32 nm, CH. 36: 1548,51 nm, Ch. 37: 1547,72 nm ( ±0,11 nm) |
| Return loss | ≥45 dB |
| Insertion loss | Express Port ≤1,2 dB; DWDM ≤1,6 dB |
| Isolation | ≥50 dB |
| Isolation COM -> EXP @ λCWDM | ≥15 dB |
| Isolation COM -> DWDM @ λ adjacent DWDM channel | ≥25 dB |
| Isolation COM -> DWDM @ λnon adjacent DWDM channel | ≥45 dB |
| Passband ripple | ≤0.5 dB |
| Polarisation dependent attenu-ation | ≤0.2 dB |
| Optical power handling | ≤300 mW |
| **General data** | |
| Technology | TFF |
| Dimensions (width x height x depth) | 28 x 110 x 200,5 mm (WISI LD – Modul) |
| Plug connection | SC/APC |
| Ambient temperature | -25...+55 °C (ETSI EN 300 019-3-1 Class 3.3) |

# Passive optics

## LD 71 S 2755

Optical DWDM (Ch.27) and CWDM (1551 nm) Add/Drop Multiplexer with expressport (1260...1620 nm)


Optical DWDM (Ch.27) and CWDM (1551 nm) Add/Drop Multiplexer with expressport (1260...1620 nm) to use in WISI Chassis LX 50 and LP 40.

| Technical data | |
|---|---|
| Wavelength range | Express Port: 1260...1620 nm, DWDM Ch.27: 1555,75nm (±0,25 nm),CWDM: 1551 nm (±6.5 nm) |
| Return loss | ≥45 dB |
| Insertion loss | Express Port ≤1,2 dB, DWDM ≤1,2 dB, CWDM ≤1,4 dB |
| Isolation | ≥55 dB |
| Isolation COM -> DWDM @ λ Adjacent DWDM Channel | ≥25 dB |
| Isolation COM -> DWDM @ λnon Adjacent DWDM Channel | ≥45 dB |
| Isolation COM -> CWDM @ λ DWDM Ch.27 | ≥30 dB |
| Isolation COM -> CWDM @ λ adjacent CWDM channel | ≥30 dB |
| Isolation COM -> CWDM @ λnon – adjacent CWDM channel | ≥45 dB |
| Isolation COM -> EXP @ λCWDM 1551 nm | ≥30 dB |
| Isolation COM -> EXP @ λDWDM Ch.27 | ≥30 dB |
| Passband ripple | ≤0,5 dB |
| Polarisation dependent attenuation | ≤0,2 dB |
| Optical power handling | ≤300 mW |
| **General data** | |
| Technology | TFF / Free space |
| Dimensions (width x height x depth) | 28 x 110 x 200,5 mm (WISI LD – Modul) |
| Plug connection | SC/APC connectors |
| Ambient temperature | -25...+55 °C |

# Redundanzy solutions and RF modules

## LX 70

Wideband amplifier 5 ...1006 MHz

| Technical data | |
|---|---|
| Frequency range | 5...1006 MHz |
| Impedance | 75 Ω |
| Return loss | 10...85 MHz > 18 dB, 85...1006 MHz > 18 dB (-1 dB/oct.,min 14 dB) |
| gain BC in | 5...25 dB (± 0,5 dB), (0,5 dB step) |
| Back off NC in to BC in | -6...-21 dB (1 dB-steps) |
| Noise figure | ≤ 6 dB (5...600 MHz) ; ≤ 9 dB (600...1006 MHz) |
| equalizer | 0...6 dB (0,5 dB steps) |
| distortion products for CENELEC 42 Ch. @ 105 dBµV flat | CSO ≥ 70 dB, CTB ≥ 70 dB |
| distortion products for CENELEC 42 Ch. @ 108 dBµV 6dB slope | CSO ≥ 70 dB, CTB ≥ 70 dB |
| RF test point output (Coupler) | -20 dB (±0,5 dB) |
| **Management functionality** | |
| Gain | 5...25 dB |
| equalizer | 0...6 dB |
| NC input attenuator | 0...15 dB |
| Alarms: | RF output level |
| **General data** | |
| RF connectors | F |
| Supply voltage | 12 V |
| Power consumption | ≤ 10 W |
| EMC | EN50083-2 |
| Operating temperature range | -5...+45 °C (EN300 01 9-1-3 Class 3.2) |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm |

Hedend Amplifier

## LX 71

RF-redundancy switch

| Technical data | |
|---|---|
| Frequency range | 5...1006 MHz |
| Electrical return loss | 5 - 85 MHz ≥ 18 dB, 85 - 1006 MHz ≥ 18 dB (-1 dB/ oct) |
| Insertion loss | < 2 dB |
| **General data** | |
| RF connectors | F |
| Impedance | 75 Ω |
| Supply voltage | 12 V over RF port (8V…14V) |
| Power consumption | ≤ 0,2 W |
| EMC | EN50083-2 |
| operating temperature | -5...+45 °C (EN300 01 9-1-3 Class 3.2) |

Redundancy Switch

# Redundanzy solutions and RF modules

## LX 60 S

Optical redundancy switch

| Technical data | |
|---|---|
| Wavelength | 1260...1620 nm |
| Optical power range | -35...+21 dB |
| Optical insertion loss | typ. 1 dB (max. 1,5 dB) |
| Optical crosstalk isolation | min. 60 dB |
| Optical return loss | min. 45 dB |
| Polarisation depend loss | max. 0,15 dB |
| Optical switch time | 10 ms max. |
| Optical switch repeatability | ± 0,05 dB |
| **General data** | |
| Optical input ports | 2 |
| Optical output port | 1 |
| Dimensions (width x height x depth) | 30 x 133 x 320 mm (single-slot module for LX 50) |
| Optical connectors | SC/APC connectors |
| Supply voltage | 12 V DC |
| Power consumption max. | 1.3 W max. 1,6 |
| Ambient temperature | -5...+45 °C (EN300 019-1-3 Class 3.2) |

The LX 60 S is an optical redundancy switch for Octopus LX 50. The LX 60 S has a large usable optical power range and low electrical power consumption.

# Optical transmitter 19“

## LX 10 K 7001

Optical Transmitter

The K-type series transmitters are intended for use in FTTx and RFoG architecture designs requiring high quality transmission over varying transmission lengths and EDFA output powers. These transmitters successfully support very high optical launch powers while controlling the detrimental effects of Stimulated Brillouin Scattering (SBS), group velocity dispersion (GVD), and self phase modulation (SPM). The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | 1555 nm (± 1 nm) |
| Specified link length | 40 km (in combination with additional EDFA) |
| Optical output power | 2x +7 dBm |
| SBS suppression | ≥ 21,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 48,6 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, AC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 21 dBm, Link: 40 km, Received Power: -5,6 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 K 7005

Optical Transmitter

The K-type series transmitters are intended for use in FTTx and RFoG architecture designs requiring high quality transmission over varying transmission lengths and EDFA output powers. These transmitters successfully support very high optical launch powers while controlling the detrimental effects of Stimulated Brillouin Scattering (SBS), group velocity dispersion (GVD), and self phase modulation (SPM). The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | 1555 nm (± 1 nm) |
| Specified link length | 40 km (in combination with additional EDFA) |
| Optical output power | 2x +7 dBm |
| SBS suppression | ≥ 21,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 48,6 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, no secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 21 dBm, Link: 40 km, Received Power: -5,6 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 K 7F21

Optical Transmitter

The K-type series transmitters are intended for use in FTTx and RFoG architecture designs requiring high quality transmission over varying transmission lengths and EDFA output powers. These transmitters successfully support very high optical launch powers while controlling the detrimental effects of Stimulated Brillouin Scattering (SBS), group velocity dispersion (GVD), and self phase modulation (SPM). The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 23 |
| Specified link length | 40 km (in combination with additional EDFA) |
| Optical output power | 2x +7 dBm |
| SBS suppression | ≥ 21,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 48,6 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: E2000/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, AC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 21 dBm, Link: 40 km, Received Power: -5,6 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 L 8001

Optical Transmitter, CATV + SAT

The L-type series are designed as a high performance solution for applications where the simultaneous transport of CATV and SAT-IF FM signals is required. The SAT-IF signals can be applied anywhere in the 950 to 2800 MHz band. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | 1555 nm (± 1 nm) |
| Specified link length | 25 km (in combination with additional EDFA) |
| Optical output power | 2x +8 dBm |
| SBS suppression | ≥ 14,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 51,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| SAT-IF frequency range | 950...2800 MHz |
| SAT-IF flatness | ± 2 dB |
| SAT-IF electrical return loss | ≥ 10 dB (950...2800 MHz) |
| SAT-IF test point | 7 ± 62.5 dBµV/Ch @ 1 % OMI/Ch |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, AC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 15 dBm, Link: 25 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 L 8005

Optical Transmitter, CATV + SAT

The L-type series are designed as a high performance solution for applications where the simultaneous transport of CATV and SAT-IF FM signals is required. The SAT-IF signals can be applied anywhere in the 950 to 2800 MHz band. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | 1555 nm (± 1 nm) |
| Specified link length | 25 km (in combination with additional EDFA) |
| Optical output power | 2x +8 dBm |
| SBS suppression | ≥ 14,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 51,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| SAT-IF frequency range | 950...2800 MHz |
| SAT-IF flatness | ± 2 dB |
| SAT-IF electrical return loss | ≥ 10 dB (950...2800 MHz) |
| SAT-IF test point | 7 ± 62.5 dBµV/Ch @ 1 % OMI/Ch |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, no secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 15 dBm, Link: 25 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S 7001

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | 1555 nm (± 1 nm) |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +7 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, AC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S 7005

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | 1555 nm (± 1 nm) |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +7 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, no secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S 7V05

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 39 |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +7 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, no secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S 8J01

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 27 |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +8 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, AC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S BF21

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 23 |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +10 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: E2000/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, AC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S BJ01

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 27 |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +10 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, AC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S BJ03

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 27 |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +10 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 48 V DC, DC primary, DC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S BN03

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA's. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 31 |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +10 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 48 V DC, DC primary, DC secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical transmitter 19“

## LX 10 S BQ05

High Performance Optical Transmitter

The S-type series transmitters are designed to be the most versatile model within the WISI LX10 series family. They can easily be configured to meet most of HFC network solutions requiring link lengths in the range of 50 to 70 kilometers with one EDFA as well as links utilizing multiple EDFA‘s. The WISI LX10 series product line is a family of state-of-the-art high performance 1550 nm externally modulated CATV fiber optic transmitters optimized for varying network applications. Packaged in a convenient 1RU housing, this line of optical transmitters couples high optical output powers, up to 11.0 dBm, with low optical linewidth resulting in unmatched performance. The optical modulator, combined with proprietary predistortion circuitry, provides superior CTB and CSO performance with SBS suppression levels of greater than 20 dBm. Advanced features such as built in field adjustable SBS control and electronic dispersion compensation allows these transmitters to be quickly optimized in the field for any link or application without the need to procure specifically tuned transmitters. This affords the system designer a level of flexibility previously unknown in the CATV market place.

| Technical data | |
|---|---|
| Wavelength | ITU ch. 34 |
| Specified link length | max. 100 km (in combination with additional EDFA) |
| Optical output power | 2x +10 dBm |
| SBS suppression | ≥ 16,0 dBm |
| Carrier-to-noise-ratio (CNR) | ≥ 53,0 dB |
| Signal performance (37 analog, 50 digital) CSO/CTB | ≥ 70,0 dBc |
| Input level | 78 / 87 dBµV (PAL-Level/SAT-IF) |
| Front panel RF gain/OMI adjustment range | +2/-4 dB (from nominal setting) |
| CATV frequency range | 47...1006 MHz |
| CATV flatness | ± 0.50 dB (47... 550 MHz), ± 0.75 dB (47... 1006 MHz) |
| CATV electrical return loss | ≥ 16 dB (47...1006 MHz) |
| CATV RF test point | -20 dB (±1 dB) |
| **General data** | |
| Optical connectors | Rear: SC/APC |
| EMC | EN50083-2 |
| Safety standards | IEC 60950-1; IEC 60728-11; Laser IEC 60825-2 |
| Operating temperature range | 0...50 °C (ETSI EN 300 019-1-3 Class 3.2) |
| Supply voltage | 230 V AC, AC primary, no secondary |
| Power consumption max. | ≤ 65 W |
| Dimensions (width x height x depth) | 483 x 45 x 381 mm |
| CNR test configuration | EDFA: 16 dBm, Link: 65 km, Received Power: 0 dBm |

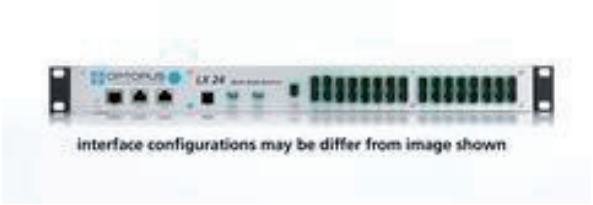
**characteristics**

- Dual optical outputs
- Field adjustable SBS suppression
- External modulated transmitter
- Redundant & hot swappable power supplies
- Management via web interface and SNMP

# Optical receivers 19“

## LX 24 x xCxx

Multidiode Receiver for RFoG Networks, Single fiber version




Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +5...-3 dBm |
| Receiving wavelength | 1270...1610 nm |
| Frequency range | 5(15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Return loss | >20 dB ((-1 dB/Okt) min. 16 dB) |
| Equivalent input noise | max. 7 pA/√Hz |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **General optical parameters** | |
| Optical return loss | > 45 dB |
| Insertion loss DS (COM-> Out FN) | typ. 18 dB |
| Insertion loss US (Out FN-> PD_US) | <8 dB |
| Decoupling COM -> PD_US | >60 dB |
| Opt. output level @ output port | typ. -1 dBm |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |
| Supply voltage | 65 V AC/48 V DC, 230 V AC |
| Power consumption max. | <11 W |
| Ambient temperature | -20...+55 °C |
| EMC | EN50083-2 |

| Technical data | |
|---|---|
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring** | |
| Attenuator range | 0...40 (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

**characteristics**

- Single fiber version
- Multidiode receiver for RFoG networks
- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP und WEB
- Integrated CWDM Upstream transmitter
- Electrical upstream test port
- Local or remote powered version available

# Optical receivers 19“

## LX 24 x xS0x

Multidiode Receiver for RFoG Networks, electrical upstream


Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +5...-3 dBm |
| Receiving wavelength | 1260...1630 nm |
| Frequency range | 5(15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Return loss | >20 dB ((-1 dB/Okt) min. 16 dB) |
| Equivalent input noise | max. 7 pA/√Hz |
| **General optical parameters** | |
| Optical return loss | >45 dB |
| Insertion loss DS (COM-> Out FN) | typ. 18 dB |
| Insertion loss US (Out FN-> PD_US) | < 8 dB |
| Decoupling COM -> PD_US | >60 dB |
| Opt. output level @ output port | typ. -1 dBm |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x F |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |
| Supply voltage | 65 V AC/48 V DC, 230 V AC |
| Power consumption max. | <11 W |
| Ambient temperature | -20...+55 °C |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring** | |
| Attenuator range | 0...40 (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

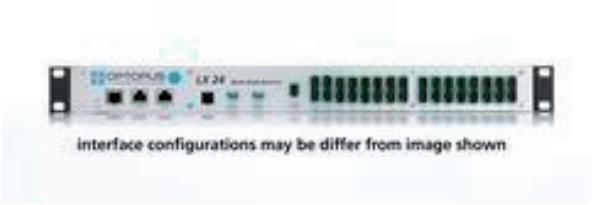
**characteristics**

- Multidiode receiver for RFoG networks
- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP und WEB
- Integrated CWDM Upstream transmitter
- Electrical upstream test port
- Local or remote powered version available

# Optical receivers 19“

## LX 24 x xFxx

Multidiode Receiver for RFoG Networks, single fiber version with EDFA




Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +5...-3 dBm |
| Receiving wavelength | 1260...1630 nm |
| Frequency range | 5(15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Return loss | > 20 dB ((-1 dB/Okt) min. 16 dB) |
| Equivalent input noise | max. 7 pA/√Hz |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **Integrated EDFA** | |
| Optical input level | -2...+10 dBm |
| Optical output level | 17 dBm |
| Noise figure | < 6 dB |
| **General optical parameters** | |
| Optical return loss | > 45 dB |
| Insertion loss DS (COM-> Out FN) | typ. 18 dB |
| Insertion loss US (Out FN-> PD_US) | < 8 dB |
| Decoupling COM -> PD_US | > 60 dB |
| Opt. output level @ output port | typ. -1 dBm |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |
| Supply voltage | 65 V AC/48 V DC, 230 V AC |

| Technical data | |
|---|---|
| Power consumption max. | < 11 W |
| Ambient temperature | -20...+55 °C |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring** | |
| Attenuator range | 0...40 (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

**characteristics**

- Single fiber version
- Multidiode receiver for RFoG networks
- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP und WEB
- Integrated CWDM Upstream transmitter
- Integrated EDFA (with optional XPON bypass) to compensate splitter loss
- Electrical upstream test port
- Local or remote powered version available

# Optical receivers 19“

## LX 24 x xExx

Multidiode Receiver for RFoG Networks, dual fiber version with EDFA


Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +5...-3 dBm |
| Receiving wavelength | 1260...1630 nm |
| Frequency range | 5(15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Return loss | > 20 dB ((-1 dB/Okt) min. 16 dB) |
| Equivalent input noise | max. 7 pA/√Hz |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **Integrated EDFA** | |
| Optical input level | -2...+10 dBm |
| Optical output level | 17 dBm |
| Noise figure | < 6 dB |
| **General optical parameters** | |
| Optical return loss | > 45 dB |
| Insertion loss DS (COM-> Out FN) | typ. 18 dB |
| Insertion loss US (Out FN-> PD_US) | < 8 dB |
| Decoupling COM -> PD_US | > 60 dB |
| Opt. output level @ output port | typ. -1 dBm |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |
| Supply voltage | 65 V AC/48 V DC, 230 V AC |

| Technical data | |
|---|---|
| Power consumption max. | < 11 W |
| Ambient temperature | -20...+55 °C |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring** | |
| Attenuator range | 0...40 (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

**characteristics**

- Dual Fiber Version
- Multidiode receiver for RFoG networks
- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP und WEB
- Integrated CWDM Upstream transmitter
- Integrated EDFA (with optional XPON bypass) to compensate splitter loss
- Electrical upstream test port
- Local or remote powered version available

# Optical receivers 19“

## LX 24 x xSxx

Multidiode Receiver for RFoG Networks, optical upstream


Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +5...-3 dBm |
| Receiving wavelength | 1260...1630 nm |
| Frequency range | 5(15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Return loss | > 20 dB ((-1 dB/Okt) min. 16 dB) |
| Equivalent input noise | max. 7 pA/√Hz |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **General optical parameters** | |
| Optical return loss | > 45 dB |
| Insertion loss DS (COM-> Out FN) | 32 Ports typ. <17 dB, 16 Ports typ. <14 dB, 8 Ports typ. <11 dB |
| Insertion loss US (Out FN-> PD_US) | <1 dB |
| Decoupling COM -> PD_US | > 60 dB |
| Opt. output level @ output port | typ. -1 dBm |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |
| Supply voltage | 65 V AC/48 V DC, 230 V AC |
| Power consumption max. | < 11 W |
| Ambient temperature | -20...+55 °C |
| EMC | EN50083-2 |

| Technical data | |
|---|---|
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring** | |
| Attenuator range | 0...40 (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

**characteristics**

- Single fiber version
- Multidiode receiver for RFoG networks
- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP und WEB
- Integrated CWDM Upstream transmitter
- Integrated EDFA (with optional XPON bypass) to compensate splitter loss
- Optical upstream port (CWDM grid)
- Local or remote powered version available

# Optical receivers 19“

## LX 25 x xDxx

RFoG Upstream Receiver


Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +3...-10 dBm |
| Receiving wavelength | 1260...1630 nm (except 1550 +/- 10nm) |
| Impedance | 75 Ω |
| Frequency range | 5 (15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Return loss | >20 dB (-1 dB/Oct.) min. 16 dB |
| Equivalent input noise | max. 7 pA/√Hz |
| **Integrated upstream transmitter** | (optional) |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **General optical parameters** | |
| Optical return loss | >45 dB |
| Insertion loss DS (COM-> Out FN) | typ. <14 dB |
| Insertion loss US (Out FN-> PD_US) | <1 dB |
| Entkopplung (COM->PD_US) | >60 dB |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |
| Supply voltage | 230 V AC / 27...65 V AC / 48V DC |
| Power consumption | <8 W |
| Operating temperature | -20...+55 °C |

| Technical data | |
|---|---|
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring / Management** | |
| Attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

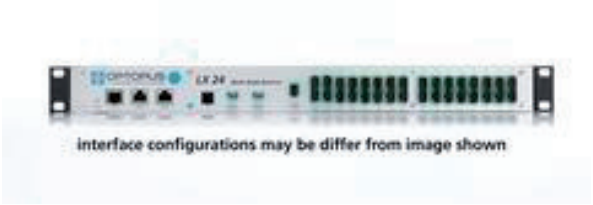
**characteristics**

- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP and WEB
- Two BC input ports
- Electrical upstream test port
- Local or remote powered version available
- All connectors on the front

# Optical receivers 19“

## LX 25 x xCxx

RFoG Upstream Receiver




Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +3...-10 dBm |
| Receiving wavelength | 1260...1630 nm (except 1550 +/- 10nm) |
| Impedance | 75 Ω |
| Frequency range | 5 (15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Return loss | >20 dB (-1 dB/Oct.) min. 16 dB |
| Equivalent input noise | max. 7 pA/√Hz |
| **General optical parameters** | |
| Optical return loss | >45 dB |
| Insertion loss DS (COM-> Out FN) | typ. <14 dB |
| Insertion loss US (Out FN-> PD_US) | <1 dB |
| Entkopplung (COM->PD_US) | >60 dB |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **General data** | |
| Supply voltage | 230 V AC / 27...65 V AC / 48V DC |
| Power consumption | <8 W |
| Operating temperature | -20...+55 °C |

| Technical data | |
|---|---|
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring / Management** | |
| Attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

**characteristics**

- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP and WEB
- Two BC input ports
- Electrical upstream test port
- Local or remote powered version available
- All connectors on the front

# Optical receivers 19“

## LX 25 x xExx

Multidiode Receiver for RFoG Networks, dual fiber version with EDFA


Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +3...-10 dBm |
| Receiving wavelength | 1260...1630 nm (except 1550 +/- 10nm) |
| Impedance | 75 Ω |
| Frequency range | 5(15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Return loss | > 20 dB ((-1 dB/Okt) min. 16 dB) |
| Equivalent input noise | max. 7 pA/√Hz |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **Integrated EDFA** | |
| Optical input level | -2...+10 dBm |
| Optical output level | 17 dBm |
| Noise figure | < 6 dB |
| **General optical parameters** | |
| Optical return loss | > 45 dB |
| Insertion loss DS (COM-> Out FN) | typ. <14 dB |
| Insertion loss US (Out FN-> PD_US) | <1 dB |
| Decoupling COM -> PD_US | >60 dB |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |

| Technical data | |
|---|---|
| Supply voltage | 230 V AC / 27...65 V AC / 48V DC |
| Power consumption max. | <8 W |
| Ambient temperature | -20...+55 °C |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring** | |
| Attenuator range | 0...40 (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

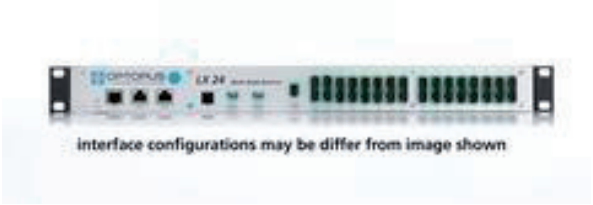
**characteristics**

- Dual Fiber Version
- Multidiode receiver for RFoG networks
- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP und WEB
- Integrated CWDM Upstream transmitter
- Integrated EDFA (with optional XPON bypass) to compensate splitter loss
- Electrical upstream test port
- Local or remote powered version available

# Optical receivers 19“

## LX 25 x xFxx

RFoG Upstream Receiver




Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +3...-10 dBm |
| Receiving wavelength | 1260...1630 nm (except 1550 +/- 10nm) |
| Impedance | 75 Ω |
| Frequency range | 5 (15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Return loss | >20 dB (-1 dB/Oct.) min. 16 dB |
| Equivalent input noise | max. 7 pA/√Hz |
| **General optical parameters** | |
| Optical return loss | >45 dB |
| Insertion loss DS (COM-> Out FN) | typ. <14 dB |
| Insertion loss US (Out FN-> PD_US) | <1 dB |
| Entkopplung (COM->PD_US) | >60 dB |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **Integrated EDFA** | |
| Optical input level | -2...+10 dBm |
| Optical output level | 17 dBm |
| Noise figure | <6 dB |
| **General data** | |

| Technical data | |
|---|---|
| Supply voltage | 230 V AC / 27...65 V AC / 48V DC |
| Power consumption | <8 W |
| Operating temperature | -20...+55 °C |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring / Management** | |
| Attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

**characteristics**

- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP and WEB
- Two BC input ports
- Electrical upstream test port
- Local or remote powered version available
- All connectors on the front

# Optical receivers 19“

## LX 25 x xSxx

RFoG Upstream Receiver


Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +3...-10 dBm |
| Receiving wavelength | 1260...1630 nm (except 1550 +/- 10nm) |
| Impedance | 75 Ω |
| Frequency range | 5 (15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Return loss | >20 dB (-1 dB/Oct.) min. 16 dB |
| Equivalent input noise | max. 7 pA/√Hz |
| **General optical parameters** | |
| Optical return loss | >45 dB |
| Insertion loss DS (COM-> Out FN) | typ. <14 dB |
| Insertion loss US (Out FN-> PD_US) | <1 dB |
| Entkopplung (COM->PD_US) | >60 dB |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **Integrated upstream transmitter** | |
| Laser type | Uncooled isolated DFB laser |
| Wavelength | 1270...1610 nm (CWDM) |
| Output power | 3 dBm |
| RIN | < -145 dBHz-1 |
| OMI setting range | 3...8 % (75 dBµV measured @ TP), (step 1 %) |
| **General data** | |
| Supply voltage | 230 V AC / 27...65 V AC / 48V DC |
| Power consumption | <8 W |
| Operating temperature | -20...+55 °C |

| Technical data | |
|---|---|
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring / Management** | |
| Attenuator | 0...40 dB (0,5 dB steps) |
| Slope | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |
| Port 1-32 Upstream opt. receiving power | dBm |

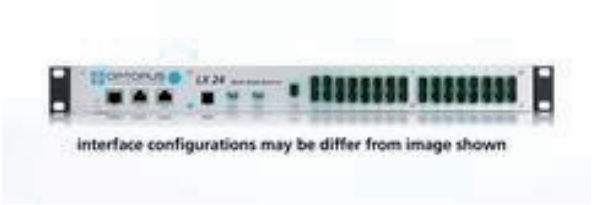
**characteristics**

- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP and WEB
- Two BC input ports
- Electrical upstream test port
- Local or remote powered version available
- All connectors on the front

# Optical receivers 19“

## LX 25 x xS0x

Multidiode Receiver for RFoG Networks, electrical upstream




Upgrading your network infrastructures to OBI-free (Optical Beat Interference) RFoG networks with this active upstream receiver. Use up to 32 output ports (or cascade them to reach higher port numbers) and eliminate issues instantly with the dedicated upstream receivers. Each of these ports provides an input power measurement in real time and can be shut off if necessary (testing purposes or subscriber service shutdown). That’s why the LX 24/ LX 25 enables network providers to heal existing OBI-infected RFoG networks without any need to swap existing end user equipment. The solution will work with any upstream wavelength and laser mode. OPTOPUS and its OBI-free RFoG technology offer network providers a complete future-proof concept, while opening the doors for new FTTx deployments.

| Technical data | |
|---|---|
| **Upstream Receiver** | |
| Optical input power | +3...-10 dBm |
| Receiving wavelength | 1260...1630 nm (except 1550 +/- 10nm) |
| Impedance | 75 Ω |
| Frequency range | 5(15)...204 MHz |
| Output level | 70...85 dBµV (OMI=15%/ch) |
| Frequency response | ≤ ±0,5 dB |
| Output attenuator | 0...40 dB (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Return loss | >20 dB ((-1 dB/Okt) min. 16 dB) |
| Equivalent input noise | max. 7 pA/√Hz |
| **General optical parameters** | |
| Optical return loss | >45 dB |
| Insertion loss DS (COM-> Out FN) | typ. 14 dB |
| Insertion loss US (Out FN-> PD_US) | <1 dB |
| Decoupling COM -> PD_US | >60 dB |
| **Connectors** | |
| Downstream | 1x LC/APC or 1x SC/APC |
| Upstream | 1x LC/APC or 1x SC/APC |
| Test point | 1x F |
| Node | 8x,16x or 32x ports |
| **General data** | |
| Supply voltage | 230 V AC / 27...65 V AC / 48V DC |
| Power consumption max. | <8 W |
| Ambient temperature | -20...+55 °C |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 425 x 43 x 250 mm |
| **Monitoring** | |
| Attenuator range | 0...40 (0,5 dB steps) |
| Slope control | 0...8 dB (0,5 dB steps) |
| Port 1-32 Upstream | On/Off |

| Technical data | |
|---|---|
| Port 1-32 Upstream opt. receiving power | dBm |

**characteristics**

- Multidiode receiver for RFoG networks
- Converts existing RFoG networks to OBI free solutions without exchange of fiber nodes
- Remote optical input power reading and switch off functionality per port via SNMP und WEB
- Integrated CWDM Upstream transmitter
- Electrical upstream test port
- Local or remote powered version available

# Optical amplifiers 19“

## LX 35 S 1432

An optical amplifier, output power 14.0 dBm, 32 outputs

LX 35 xxxx is an optical high power amplifier on YEDFA base for the application in CATV and FTTx networks. The device is available with different output power and number of output ports.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 32x 14 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥40 dB |
| Isolation output -> input | ≥40 dB |
| max. Port uniformity | <1,3 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | <75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 1701

An optical amplifier, output power 17 dBm, 1 output

LX 35 xxxx is an optical amplifier based on YEDFA technology for use in HFC and FTTx networks. The system is available with different output power and various numbers of outputs.

| Technical data | |
|---|---|
| Wavelength | 1530...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 1 x 17 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | <0,8 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 30 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 1702

optical amplifier, output power 17.0 dBm, 2 outputs

LX 35 xxxx is an optical amplifier based on YEDFA technology for use in HFC and FTTx networks. The system is available with different output power and various numbers of outputs.

| Technical data | |
|---|---|
| Wavelength | 1530...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 2 x 17 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 0,8 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 30 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 1704

An optical amplifier, output power 17 dBm, 14 outputs

LX 35 xxxx is an optical amplifier based on YEDFA technology for use in HFC and FTTx networks. The system is available with different output power and various numbers of outputs.

| Technical data | |
|---|---|
| Wavelength | 1530...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 4 x 17 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 0,8 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 30 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 1708

An optical amplifier, output power 17 dBm, 8 outputs

LX 35 is an optical amplifier based on the application of YEDFA in CATV and FTTx networks. The device is available with different amounts of output power and numbers of output parts.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 8 x 17 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 0,8 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 1716

optical amplifier, output power 17.0 dBm, outputs: 16

LX 35 is an optical amplifier based on the application of YEDFA in CATV and FTTx networks. The device is available with different amounts of output power and numbers of output parts.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 16 x 17 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 1732

optical amplifier, output power 17.0 dBm, outputs: 32

LX 35 xxxx is an optical high power amplifier on YEDFA base for the application in CATV and FTTx networks. The device is available with different output power and number of output ports.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 32 x 17 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1,3 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 2032

optical amplifier, output power 20.0 dBm, outputs: 32

LX 35 xxxx is an optical high power amplifier on YEDFA base for the application in CATV and FTTx networks. The device is available with different output power and number of output ports.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 32 x 20 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1,3 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 2101

optical amplifier, output power 21.0 dBm, 1 output

LX 35 is an optical amplifier based on the application of YEDFA in CATV and FTTx networks. The device is available with different amounts of output power and numbers of output parts.

| Technical data | |
|---|---|
| Wavelength | 1530...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 1 x 21 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 0,8 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 30 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 2102

optical amplifier output power 21.0 dBm, 2 outputs

LX 35 is an optical amplifier based on the application of YEDFA in CATV and FTTx networks. The device is available with different amounts of output power and numbers of output parts.

| Technical data | |
|---|---|
| Wavelength | 1530...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 2 x 21 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 0,8 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 30 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 2108

optical amplifier, output power 21.0 dBm, outputs: 8

LX 35 xxxx is an optical high power amplifier on YEDFA base for the application in CATV and FTTx networks. The device is available with different output power and number of output ports.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 8 x 21 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 0,8 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 35 S 2116

optical amplifier, output power 21.0 dBm, outputs: 16

LX 35 xxxx is an optical high power amplifier on YEDFA base for the application in CATV and FTTx networks. The device is available with different output power and number of output ports.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+12 dBm |
| Output power | 16 x 21 dBm ± 0.5 dB (average of all output ports, excluding connectors) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 44 x 455 mm (19“, 1RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Maximum variation of optical power per every plug process | SC ± 0,25 dB |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption max. | < 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 37 W 1724

High Power YEDFA, output power 17.0 dBm, 24 outputs

LX 37 is an optical amplifier based on YEDFA technology for use in HFC and FTTx networks. The sytsem is available with different output power and various numbers of outputs. The W-Type with integrated WDM filters for PON networks is specifically developed for RF Overlay networks.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 24 x 17 dB dBm (±0,5 dB) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1,3 dB |
| Optical test port | -20 dB ± 1 dB |
| **PON-WDM** | |
| PON wavelengths | 1260...1360 nm & 1480...1500 nm |
| Insertion loss | < 1 dB |
| Isolation CATV->PON | 50 dB @ 1545...1565 nm |
| Isolation COM -> PON | 15 dB @ 1545...1565 nm |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 89 x 455 mm (19“, 2RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1 M |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption | ≤ 75 W W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 37 W 1732

High Power YEDFA, output power 17.0 dBm, 32 outputs

LX 37 is an optical amplifier based on YEDFA technology for use in HFC and FTTx networks. The sytsem is available with different output power and various numbers of outputs. The W-Type with integrated WDM filters for PON networks is specifically developed for RF Overlay networks.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 32 x 17 dBm (±0,5 dB) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1,3 dB |
| Optical test port | -20 dB ± 1 dB |
| **PON-WDM** | |
| PON wavelengths | 1260...1360 nm & 1480...1500 nm |
| Insertion loss | < 1 dB |
| Isolation CATV->PON | 50 dB @ 1545...1565 nm |
| Isolation COM -> PON | 15 dB @ 1545...1565 nm |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 89 x 455 mm (19“, 2RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1 M |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption | ≤ 75 W W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 37 W 2116

High Power YEDFA, output power 21 dBm, 16 outputs

LX 37 is an optical amplifier based on YEDFA technology for use in HFC and FTTx networks. The sytsem is available with different output power and various numbers of outputs. The W-Type with integrated WDM filters for PON networks is specifically developed for RF Overlay networks.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 16 x 21 dBm (±0,5 dB) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1 dB |
| Optical test port | -20 dB ± 1 dB |
| **PON-WDM** | |
| PON wavelengths | 1260...1360 nm & 1480...1500 nm |
| Insertion loss | < 1 dB |
| Isolation CATV->PON | 50 dB @ 1545...1565 nm |
| Isolation COM -> PON | 15 dB @ 1545...1565 nm |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 89 x 455 mm (19“, 2RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1 M |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption | ≤ 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical amplifiers 19“

## LX 37 S 1764

High Power YEDFA, output power 17.0 dBm, 64 outputs

LX 37 is an optical amplifier based on YEDFA technology for use in HFC and FTTx networks. The sytsem is available with different output power and various numbers of outputs. The W-Type with integrated WDM filters for PON networks is specifically developed for RF Overlay networks.

| Technical data | |
|---|---|
| Wavelength | 1545...1565 nm |
| Input power | 0...+10 dBm |
| Output power | 64 x 17 dBm (±0,5 dB) |
| Gain control range | 3 dB (with constant noise figure) |
| noise figure | ≤ 5,5 dB (Noise figure @ 0 dBm input, nominal output power and signal wavelength 1550 nm) |
| Return loss input / output | ≥ 40 dB |
| Isolation output -> input | ≥ 40 dB |
| max. Port uniformity | < 1,5 dB |
| Optical test port | -20 dB ± 1 dB |
| **General data** | |
| Dimensions (width x height x depth) | 483 x 89 x 455 mm (19“, 2RU) |
| Optical connectors | SC/APC connectors |
| Laser Class | 1M |
| Supply voltage | 110/230 V AC or 48 V DC |
| Power consumption | ≤ 75 W |
| Operating temperature range | -5...+45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| **Accessories** | |
| Power supply | LXPS 0230, LXPS 0048 (not included in the delivery) |

**characteristics**

- Very high optical power with 38 dBm internally
- Stand-alone operation or integrated with WISI Optopus
- Management via SNMP, HTTP or custom options
- Carrier grade functions with hot pluggable and redundant power and fans

# Optical splitters 19“

## LP 90 0108
Optical PLC splitter, 8-way

## LP 90 0116
Optical PLC splitter, 16-way

## LP 90 0132
Optical PLC splitter, 32-way

## LP 90 0164
Optical PLC splitter, 64-way

| Technical data | | | | |
|---|---|---|---|---|
| **Outputs** | 8 pcs. | 16 pcs. | 32 pcs. | 64 pcs. |
| Wavelength | 1260...1650 nm | 1260 ... 1650 nm | 1260 ... 1650 nm | 1260 ... 1650 nm |
| Insertion loss | ≤ 10,5 dB | ≤ 13,8 dB | ≤ 17 dB | ≤ 21 dB |
| Output level variation | ≤ 1,2 dB | ≤ 1,2 dB | ≤ 1,2 dB | ≤ 1,2 dB |
| Isolation | ≥ 55 dB | ≥ 55 dB | ≥ 55 dB | ≥ 55 dB |
| Return loss | ≥ 55 dB | ≥ 55 dB | ≥ 55 dB | ≥ 55 dB |
| Polarisation dependent attenuation | ≤ 0,3 dB | ≤ 0,3 dB | ≤ 0,3 dB | ≤ 0,3 dB |
| Allowed optical input level | ≤ 25 dBm (max.) | ≤ 25 dBm (max.) | ≤ 25 dBm (max.) | ≤ 25 dBm (max.) |
| **Connectors** | | | | |
| SC/APC connectors | 9 pcs. (1x input, 8x output) | 17 pcs. (1x input, 16x output) | 33 pcs. (1x input, 32x output) | 65 pcs. (1x input, 64x output) |
| **General data** | | | | |
| Dimensions (width x height x depth) | 483 x 201 x 42,5 mm (19“, 1HE) | 483 x 201 x 42,5 mm (19“, 1HE) | 483 x 201 x 42,5 mm (19“, 1HE) | 483 x 201 x 42,5 mm (19“, 1HE) |
| Operating temperature range | -40 ... +85 °C | -40 ... +85 °C | -40 ... +85 °C | -40 ... +85 °C |

# Optical splitters 19“

## LP 90 W 0132

Optical PLC splitter, 32-way

The LP 90 W 0132 is an optical PLC splitter with included WDM filter. It is equipped with one CATV input, 32 IP inputs and 32 COM output ports. Its wavelength is in the range 1540…1620 nm for the CATV downstream signal and 1260...1500 nm for the IP signal.

| Technical data | |
|---|---|
| Wavelength CATV <-> CATV + IP(n) | 1540...1620 nm |
| Wavelength IP(n) <-> CATV + IP(n) | 1260...1500 nm |
| Insertion Loss CATV <-> CATV + IP(n) | ≤ 21 dB |
| Insertion Loss IP(n) <->CATV + IP(n) | ≤ 4 dB |
| Isolation CATV + IP(n) -> CATV @ λP(n) | ≤ 4,5 dB |
| Directivity IP(n) <-> CATV | ≥ 40 dB |
| Return Loss SC/APC Ports | ≥ 50 dB |
| Return Loss SC/PC Ports | ≥ 40 dB |
| Polarization Dependent Loss | ≤ 0,30 dB |
| Optical power handling | ≤ 300 mW |
| Housing | 1U 19“ Rack |
| Opt. Connector Type CATV / CATV + IP(n) | SC/APC |
| Opt. Connector Type IP(n) | SC/UPC |
| Operating Temperature | -25...+75 °C |

**characteristics**

- Easy installation
- Low insertion loss
- High reliability
- 1 RU high
- Easy Front Access
- Ready for Immediate Installation

# Accessories

## LXPS A065

Power supply unit for LX 24, LX 52, LX 35/37 and LX 65, 48 V DC and 65 V AC

| Technical data | |
|---|---|
| Primary voltage V DC | 48 V DC /65 V AC |
| Secondary voltage | 12 V DC |
| Primary voltage V AC | 65 V AC |
| Power consumption | < 75 W |
| Efficiency | ≥ 90 % |
| Dimensions (width x height x depth) | 65 x 42 x 200 mm |
| Environmental parameters | -20...+55 °C |

**characteristics**

- Protection against overload, overheating and short circuit.
- Monitoring of all operational parameters via the basic unit LX 52
- Long lifetime thanks to high-performance capacitors
- Distinguished electromagnetic compatibility (EMC)

## LXPS A230

Power supply unit for LX 52, LX 35/37 and LX 65, 230 / 110 V AC

| Technical data | |
|---|---|
| Primary voltage | 90 ... 264 V AC (47 ... 63 Hz) |
| Secondary voltage | 12 V DC |
| Power consumption | < 75 W |
| Efficiency | ≥ 90 % |
| Dimensions (width x height x depth) | 65 x 42 x 200 mm |
| Environmental parameters | -20 ... +55 °C |

**characteristics**

- Protection against overload, overheating and short circuit.
- Monitoring of all operational parameters via the basic unit LX 52
- Long lifetime thanks to high-performance capacitors
- Distinguished electromagnetic compatibility (EMC)

## LXPS B230

Power supply unit for LX 24, LX 52, LX 35/37 and LX 65, 230 / 110 V AC (angled connector)

| Technical data | |
|---|---|
| Primary voltage | 90 ... 264 V AC (47 ... 63 Hz) |
| Secondary voltage | 12 V DC |
| Power consumption | < 75 W |
| Efficiency | ≥ 90 % |
| Dimensions (width x height x depth) | 65 x 42 x 200 mm |
| Environmental parameters | -20 ... +55 °C |

**characteristics**

- Protection against overload, overheating and short circuit.
- Monitoring of all operational parameters via the basic unit LX 52
- Long lifetime thanks to high-performance capacitors
- Distinguished electromagnetic compatibility (EMC)

# Accessories

## LX 55 0048

Power supply unit for LX 50 0048, 48 V DC

## LX 55 0230

Power supply unit for LX 50 0230, 230 V AC

| Technical data | | |
|---|---|---|
| **Connectors** | | |
| Cold-device plug, IEC 60320-C14 | 1 pcs. | 1 pcs. |
| **General data** | | |
| Primary voltage | -45...-75 V DC | 180...265 V AC (47 ... 63 Hz) |
| Secondary voltage | 12 V DC | 12 V DC |
| Power consumption | 245 W | < 245 W |
| Efficiency | ≥90 % | ≥90 % |
| Dimensions (width x height x depth) | 100 x 42 x 217 mm | 100 x 42 x 217 mm |
| Environmental parameters | -20...+55 °C | -20...+55 °C |
| Protection class | IP30 | IP30 |

# Accessories

## LX 10 P 1000

Power supply unit for LX 10, 230 V AC

## LX 10 P 2000

Power supply unit for LX 10, 48 V DC

| Technical data | | |
|---|---|---|
| Primary voltage | 230 V AC | 48 V DC |
| Power consumption | < 65 W | < 65 W |
| Environmental parameters | -5 ... +45 °C (ETSI EN 300 019 -1-3 Class 3.2) | -5 ... +45 °C (ETSI EN 300 019 -1-3 Class 3.2) |
| Enclosure Classification | IP 10 | IP 10 |

WISI Optical SAT distribution:

# Unlimited distribution through optical fiber

# Optical SAT distribution

**Our new OL series is nothing short of a revolution in both SAT reception and conventional distribution technology.**

**The optical transmission of satellite, terrestrial, and radio signals is especially compelling...**

- in projects where the digital signals are centrally received for the distribution to an almost unlimited number of subscribers.
- in extensive structures where signal strength and quality must not be compromised.
- due to efficient and cost-oriented fitting. Optical cables can be installed faster and more space-saving as well as being more cost-efficient than a similar installation with coaxial cables.

## WISI Optical SAT ditribution at a glance:

- Galvanic isolation of wings / buildings
- Low interference liability
- Future-proof
- Virtually interference-free distribution without loss
- Efficient and clean installation
- Constantly high signal integrity
- Utmost flexibility
- Low-Smoke-Zero-Halogen-compliant (LSZH)
- Reception of all transponders from one satellite
- A single reception system for hundreds of subscribers
- Aesthetic appearance of buildings with only one central receiving aerial
- A single optical cable replaces several coaxial cables
- Considerable cost reduction compared to alternative solutions (channel processing)

# Optical feed systems

## OL 11 0000

Optical LNB, for up to 32 optical endpoints

| Technical data | |
|---|---|
| Input frequency | 10,7...12,75 GHz |
| Frequency range | vertical: 0,95...3,0 GHz (stacked), horizontal: 3,4...5,45 GHz (stacked) |
| **Optical output** | |
| Wavelength | 1310 nm |
| Output power | +7 dBm |
| Noise figure | typ. 0,5 dB |
| Gain | max. 72 dB, min. 62 dB |
| Image rejection | min. 40 dB |
| Local oscillator stability | max. ±2 MHz (Temp. drift -40°C to +60°C) |
| **General data** | |
| Optical connector | FC/PC |
| DC connector | Female F-Type |
| Supply voltage | 12 V DC |
| Current consumption | <450 mA |
| Ambient temperature | -30...+60 °C |

LNB with direct optical output. +7 dBm output power for supply of up to 32 optical endpoints. Power supply included.

## OL 12 0000

Optical LNB, for up to 64 optical endpoints

| Technical data | |
|---|---|
| Input frequency | 10,7...12,75 GHz |
| Frequency range | vertical: 0,95...3,0 GHz (stacked), horizontal: 3,4...5,45 GHz (stacked) |
| **Optical output** | |
| Wavelength | 1310 nm |
| Output power | +10 dBm |
| Noise figure | typ. 0,5 dB |
| Gain | max. 72 dB, min. 62 dB |
| Image rejection | min. 40 dB |
| Local oscillator stability | max. ±2 MHz (Temp. drift -40°C to +60°C) |
| **General data** | |
| Optical connector | FC/PC |
| DC connector | Female F-Type |
| Supply voltage | 12 V DC |
| Current consumption | <450 mA |
| Ambient temperature | -30...+60 °C |

LNB with direct optical output. +10 dBm output power for supply of up to 64 optical endpoints. Power supply included.

# Optical feed systems

## OL 13 0000

Optical Distribution Kit

Kit for the distribution of one satellite, DVB-T/T2,DAB and FM into an optical output signal. Kit contains: full band LNB with N-connector, electrical/optical converter, N-patch cable(2m), power supply and installation kit for assembling at antenna pipe.

**characteristics**

- Kit contains the wholeband LNB, interconnection cable and electrical/optical converter.
- For combining with terrestrial signals
- The SAT-signal of the feed system OL 15 0000 will be converted to an optical signal by the electrical/optical converter OL 14 0000
- Parallel distribution of DVB-T/T2, DAB and FM
- Electrical/optical converter OL 14 000 has 2 outputs, each with +7dBm power

# Optical feed systems

## OL 15 0000

Wholeband LNB

| Technical data | |
|---|---|
| Input frequency | 10,7...12,75 GHz |
| Output frequency | 950...5450 MHz |
| Noise figure | typ. 0,7 dB |
| Return loss | ≥ 9 dB |
| Impedance | 50 Ω |
| Supply voltage | 5,2 V DC |
| Operating temperature range | -30...+60 °C |

Wholeband LNB with N-connector for installation with OL 14 0000.

# Optical splitter

## OL 91 0002

Optical 2-way splitter

| Technical data | |
|---|---|
| Number of outputs | 02 |
| Wavelength | 1310/1550 nm |
| Insertion loss | 3,6 dB |
| Connector | FC/PC |
| Operating temperature range | -40...+75 °C |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- FBT - Technology (Fused Biconical Tapered)
- Dual Window splitter 1310 / 1550 nm
- Max. input power: 25 dBm

## OL 91 0003

Optical 3-way splitter

| Technical data | |
|---|---|
| Number of outputs | 03 |
| Wavelength | 1310/1550 nm |
| Insertion loss | 5,6 dB |
| Connector | FC/PC |
| Operating temperature range | -40...+75 °C |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- FBT - Technology (Fused Biconical Tapered)
- Dual Window splitter 1310 / 1550 nm
- Max. input power: 25 dBm

## OL 91 0004

Optical 4-way splitter

| Technical data | |
|---|---|
| Number of outputs | 04 |
| Wavelength | 1260...1650 nm |
| Insertion loss | 7 dB |
| Connector | FC/PC |
| Operating temperature range | -40...+75 °C |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- PLC - Technology (Planar Lightwave Circuit)
- Wide range splitter 1260...1650 nm
- Max. input power: 23 dBm

# Optical splitter

## OL 91 0008

Optical 8-way splitter

| Technical data | |
|---|---|
| Number of outputs | 08 |
| Wavelength | 1260...1650 nm |
| Insertion loss | 10,2 dB |
| Connector | FC/PC |
| Operating temperature range | -40...+75 °C |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- PLC - Technology (Planar Lightwave Circuit)
- Wide range splitter 1260...1650 nm
- Max. input power: 23 dBm

## OL 91 0016

Optical 16-way splitter

| Technical data | |
|---|---|
| Number of outputs | 16 |
| Wavelength | 1260...1650 nm |
| Insertion loss | 13,6 dB |
| Connector | FC/PC |
| Operating temperature range | -40...+75 °C |
| Dimensions (width x height x depth) | 175 x 163 x 50 mm |

**characteristics**

- FC/PC connectors
- PLC - Technology (Planar Lightwave Circuit)
- Wide range splitter 1260...1650 nm
- Max. input power: 23 dBm

## OL 91 0032

Optical 32-way splitter

| Technical data | |
|---|---|
| Number of outputs | 32 |
| Wavelength | 1260...1650 nm |
| Insertion loss | 16,8 dB |
| Connector | FC/PC |
| Operating temperature range | -40...+75 °C |
| Dimensions (width x height x depth) | 175 x 163 x 50 mm |

**characteristics**

- FC/PC connectors
- PLC - Technology (Planar Lightwave Circuit)
- Wide range splitter 1260...1650 nm
- Max. input power: 23 dBm

# Optical taps

## OL 92 0010

Optical 90/10 splitter

| Technical data | |
|---|---|
| Wavelength | 1260...1650 nm |
| Coupling ratio | 90/10 |
| Insertion loss output 1 | 0,9 dB |
| Insertion loss output 2 | 10,6 dB |
| Operating temperature range | -40...+75 °C |
| Connector | FC/PC |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- FBT - Technology (Fused Biconical Tapered)
- Wide range splitter 1260...1650 nm
- Max. input power: 25 dBm

## OL 92 0020

Optical 80/20 splitter

| Technical data | |
|---|---|
| Wavelength | 1260...1650 nm |
| Coupling ratio | 80/20 |
| Insertion loss output 1 | 1,5 dB |
| Insertion loss output 2 | 7,6 dB |
| Operating temperature range | -40...+75 °C |
| Connector | FC/PC |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- FBT - Technology (Fused Biconical Tapered)
- Wide range splitter 1260...1650 nm
- Max. input power: 25 dBm

## OL 92 0030

Optical 70/30 splitter

| Technical data | |
|---|---|
| Wavelength | 1260...1650 nm |
| Coupling ratio | 70/30 |
| Insertion loss output 1 | 2,1 dB |
| Insertion loss output 2 | 5,8 dB |
| Operating temperature range | -40...+75 °C |
| Connector | FC/PC |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- FBT - Technology (Fused Biconical Tapered)
- Wide range splitter 1260...1650 nm
- Max. input power: 25 dBm

# Optical taps

## OL 92 0040

Optical 60/40 splitter

| Technical data | |
|---|---|
| Wavelength | 1260...1650 nm |
| Coupling ratio | 60/40 |
| Insertion loss output 1 | 2,6 dB |
| Insertion loss output 2 | 4,4 dB |
| Operating temperature range | -40...+75 °C |
| Connector | FC/PC |
| Dimensions (width x height x depth) | 114 x 157 x 20 mm |

**characteristics**

- FC/PC connectors
- FBT - Technology (Fused Biconical Tapered)
- Wide range splitter 1260...1650 nm
- Max. input power: 25 dBm

# Optical converter

## OL 21 0002

Optical quad converter II

| Technical data | |
|---|---|
| Input frequency SAT | 0,95...5,45 GHz (stacked) |
| Return loss | 10 dB |
| Wavelength | 1100...1650 nm |
| Input power | -15...0 dBm |
| Output frequency | 4 x SAT + TERR. |
| Output level | 70 dBµV |
| Control signal | 11...14,5 V (vertical) |
| Control signal | 15,5...19 V (horizontal) |
| Control signal | 0/22 kHz (Low / High Band) |
| Input frequency TERR | 88...108/ 174...240/ 470...862 MHz |
| **General data** | |
| Connector input | FC/PC |
| Output | 4 participants outputs |
| Supply voltage | Receiver, ext. power supply 10...20 V DC (optional) |
| Current consumption | 220 mA @ 10V |
| Output impedance | 75 Ω |
| Ambient temperature | 0...40 °C |

Quad converter for the conversion of the optical input signal into 4 independent subscriber outputs. Converted will be all inserted signals ((DVB-S/S2, DVB-T/T2, DAB and FM). Power supply by the connected stb.or TV sets with integrated satellite receiver or the optional power supply OLPS 0230.

## OL 21 0003

Optical quad converter III

| Technical data | |
|---|---|
| Input frequency SAT | 0,95...5,45 GHz (stacked) |
| Return loss | 10 dB |
| Wavelength | 1100...1650 nm |
| Input power | -15...0 dBm |
| Output frequency | 4 x SAT + TERR. |
| Output level | 70 dBµV |
| Control signal | 11...14,5 V (vertical) |
| Control signal | 15,5...19 V (horizontal) |
| Control signal | 0/22 kHz (Low / High Band) |
| Input frequency TERR | 88...108/ 174...240/ 470...790 MHz |
| **General data** | |
| Connector input | FC/PC |
| Output | 4 participants outputs |
| Supply voltage | Receiver, ext. power supply 10...20 V DC (optional) |
| Current consumption | 225 mA @ 10V Output 1/2, 225 mA @ 10V Output 3/4 |
| Output impedance | 75 Ω |
| Ambient temperature | -15...+55 °C |

Quad converter for the conversion of the optical input signal into 4 independent subscriber outputs. Converted will be all inserted signals (DVB-S/S2, DVB-T/T2, DAB and FM). Re-design in compact form factor and simplified installation. Power supply by the connected stb or TV sets with integrated satellite receiver or the optional power supply OLPS 0230.

# Optical converter

## OL 22 0002

Optical quatro converter II

| Technical data | |
|---|---|
| Input frequency SAT | 0,95...5,45 GHz (stacked) |
| Return loss | 10 dB |
| Wavelength | 1100...1650 nm |
| Input power | -15...0 dBm |
| Output frequency | 1xHH, 1xVH, 1xHL, 1xVL, 1xTERR |
| Output level | 75 dBµV |
| Input frequency TERR | 88...108/ 174...240/ 470...862 MHz |
| **General data** | |
| Connector input | FC/PC |
| Output | Multiswitch |
| Supply voltage | Multiswitch, ext. power supply 10...20 V DC |
| Current consumption | 210 mA @ 10V |
| Output impedance | 75 Ω |
| Ambient temperature | 0...40 °C |

Quatro converter for the conversion of the optical input signal into the separate IF-polarizations: SAT(HH, VH, HL, VL) and terrestrial. Suitable for multiswitch installations or the use in front of headends. Power supply by the subsequently connected devices or optional 20 V DC power supply (OLPS 0230)

## OL 22 0003

Optical quatro converter III


| Technical data | |
|---|---|
| Input frequency SAT | 0,95...5,45 GHz (stacked) |
| Return loss | 10 dB |
| Wavelength | 1100...1650 nm |
| Input power | -15...0 dBm |
| Output frequency | 1xHH, 1xVH, 1xHL, 1xVL, 1xTERR |
| Output level | 80 dBµV |
| Control signal | 11...14,5 V (vertical) |
| Control signal | 15,5...19 V (horizontal) |
| Control signal | 0/22 kHz (Low / High Band) |
| Input frequency TERR | 88...108/ 174...240/ 470...790 MHz |
| **General data** | |
| Connector input | FC/PC |
| Output | Multiswitch |
| Supply voltage | Multiswitch, ext. power supply 10...20 V DC |
| Current consumption | 400 mA @ 10V |
| Output impedance | 75 Ω |
| Ambient temperature | -15...+55 °C |

Quatro-way back converter for the change of the optical input signal in several HF-areas: SAT (HH,VH,HL,VL) and terrestrial. Application for multiswitch systems or headends. Power supply via multiswitch or via the optional AC adapter OLPS 0230. Redesign in a compact construction for easy mounting.

# Optical cables

## OL 95 1001
Optical cable term. 1 m

## OL 95 1003
Optical cable term. 3 m

## OL 95 1005
Optical cable term. 5 m

| Technical data | | | |
|---|---|---|---|
| **Buffered fiber** | | | |
| Fiber type | G657A | G657A | G657A |
| Outer diameter | 0,9 mm | 0,9 mm | 0,9 mm |
| Material | PVC | PVC | PVC |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | | | |
| Material | SUS304 | SUS304 | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | | | |
| Type | 1000dtex | 1000dtex | 1000dtex |
| **Sheath** | | | |
| Material | LSZH-Compound | LSZH-Compound | LSZH-Compound |
| Outer diameter | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm |
| **General data** | | | |
| Installation | Indoor | Indoor | Indoor |
| Length | 1 m | 3 m | 5 m |
| Bending radius | ≥ 30 mm | ≥ 30 mm | ≥ 30 mm |
| **Connectors** | | | |
| FC/PC | 2 pcs. | 2 pcs. | 2 pcs. |

# Optical cables

## OL 95 1010

Optical cable term. 10 m

## OL 95 1015

Optical cable term. 15 m

## OL 95 1020

Optical cable term. 20 m

| Technical data | | | |
|---|---|---|---|
| **Buffered fiber** | | | |
| Fiber type | G657A | G657A | G657A |
| Outer diameter | 0,9 mm | 0,9 mm | 0,9 mm |
| Material | PVC | PVC | PVC |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | | | |
| Material | SUS304 | SUS304 | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | | | |
| Type | 1000dtex | 1000dtex | 1000dtex |
| **Sheath** | | | |
| Material | LSZH-Compound | LSZH-Compound | LSZH-Compound |
| Outer diameter | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm |
| **General data** | | | |
| Installation | Indoor | Indoor | Indoor |
| Length | 10 m | 15 m | 20 m |
| Bending radius | ≥ 30 mm | ≥ 30 mm | ≥ 30 mm |
| **Connectors** | | | |
| FC/PC | 2 pcs. | 2 pcs. | 2 pcs. |

# Optical cables

## OL 95 1030

Optical cable term. 30 m

## OL 95 1040

Optical cable term. 40 m

## OL 95 1050

Optical cable term. 50 m

| Technical data | | | |
|---|---|---|---|
| **Buffered fiber** | | | |
| Fiber type | G657A | G657A | G657A |
| Outer diameter | 0,9 mm | 0,9 mm | 0,9 mm |
| Material | PVC | PVC | PVC |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | | | |
| Material | SUS304 | SUS304 | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | | | |
| Type | 1000dtex | 1000dtex | 1000dtex |
| **Sheath** | | | |
| Material | LSZH-Compound | LSZH-Compound | LSZH-Compound |
| Outer diameter | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm |
| **General data** | | | |
| Installation | Indoor | Indoor | Indoor |
| Length | 30 m | 40 m | 50 m |
| Bending radius | ≥ 30 mm | ≥ 30 mm | ≥ 30 mm |
| **Connectors** | | | |
| FC/PC | 2 pcs. | 2 pcs. | 2 pcs. |

# Optical cables

## OL 95 1075

Optical cable term. 75 m

## OL 95 1100

Optical cable term. 100 m

## OL 95 1150

Optical cable term. 150 m

| Technical data | | | |
|---|---|---|---|
| **Buffered fiber** | | | |
| Fiber type | G657A | G657A | G657A |
| Outer diameter | 0,9 mm | 0,9 mm | 0,9 mm |
| Material | PVC | PVC | PVC |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | | | |
| Material | SUS304 | SUS304 | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | | | |
| Type | 1000dtex | 1000dtex | 1000dtex |
| **Sheath** | | | |
| Material | LSZH-Compound | LSZH-Compound | LSZH-Compound |
| Outer diameter | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm | 2.9 mm ± 0,05 mm |
| **General data** | | | |
| Installation | Indoor | Indoor | Indoor |
| Length | 75 m | 100 m | 150 m |
| Bending radius | ≥ 30 mm | ≥ 30 mm | ≥ 30 mm |
| **Connectors** | | | |
| FC/PC | 2 pcs. | 2 pcs. | 2 pcs. |

# Optical cables

## OL 95 1200

Optical cable term. 200 m

| Technical data | |
|---|---|
| **Buffered fiber** | |
| Fiber type | G657A |
| Outer diameter | 0,9 mm |
| Material | PVC |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | |
| Material | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | |
| Type | 1000dtex |
| **Sheath** | |
| Material | LSZH-Compound |
| Outer diameter | 2.9 mm ± 0,05 mm |
| **General data** | |
| Installation | Indoor |
| Length | 200 m |
| Bending radius | ≥ 30 mm |
| **Connectors** | |
| FC/PC | 2 pcs. |

Pre-terminated single-mode fiber optic cables for indoor installations, 1 fiber, FC/PC connector at both sides, length 200 m.

# Optical cables

## OL 95 2030

Optical twin cable term. 30 m

## OL 95 2040

Optical twin cable term. 40 m

| Technical data | | |
|---|---|---|
| **Buffered fiber** | | |
| Fiber type | G657A | G657A |
| Outer diameter | 0,9 mm | 0,9 mm |
| Material | LSZH-Compound | LSZH-Compound |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | | |
| Material | SUS304 | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | | |
| Type | 1000dtex | 1000dtex |

# Optical cables

## OL 95 2050

optical twin cable term. 50 m

## OL 95 2075

Optical twin cable term. 75 m

## OL 95 2100

Optical twin cable term. 100 m

| Technical data | | | |
|---|---|---|---|
| **Buffered fiber** | | | |
| Fiber type | G657A | G657A | G657A |
| Outer diameter | 0,9 mm | 0,9 mm | 0,9 mm |
| Material | LSZH-Compound | LSZH-Compound | LSZH-Compound |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | | | |
| Material | SUS304 | SUS304 | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | | | |
| Type | 1000dtex | 1000dtex | 1000dtex |
| **General data** | | | |
| Installation | Outdoor | Outdoor | Outdoor |
| Length | 50 m | 75 m | 100 m |
| Bending radius | ≥ 30 mm | ≥ 30 mm | ≥ 30 mm |
| Cable weight | 45 kg/km | 45 kg/km | 45 kg/km |
| **Connectors** | | | |
| FC/PC | 4 pcs. | 4 pcs. | 4 pcs. |

# Optical cables

## OL 95 2150

Optical twin cable term. 150 m

## OL 95 2200

Optical twin cable term. 200 m

## OL 95 4300

Optical quad cable term. 300 m

| Technical data | | | |
|---|---|---|---|
| **Buffered fiber** | | | |
| Fiber type | G657A | G657A | G657A |
| Outer diameter | 0,9 mm | 0,9 mm | 0,9 mm |
| Material | LSZH-Compound | LSZH-Compound | LSZH-Compound |
| Typical attenuation | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm | <0,25 dB/km @ 1550 nm; <0,4 dB/km @ 1310 nm |
| **SS tube** | | | |
| Material | SUS304 | SUS304 | SUS304 |
| Outer diameter | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm | 1,65 mm ± 0,05 mm |
| Width | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm | 0,85 mm ± 0,05 mm |
| Thickness | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| Clearance | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm | 0,25 mm ± 0,02 mm |
| **Aramid yarn** | | | |
| Type | 1000dtex | 1000dtex | 1000dtex |
| **General data** | | | |
| Installation | Outdoor | Outdoor | Outdoor |
| Length | 150 m | 200 m | 300 m |
| Bending radius | ≥ 30 mm | ≥ 30 mm | ≥ 30 mm |
| Cable weight | 45 kg/km | 45 kg/km | 45 kg/km |
| **Connectors** | | | |
| FC/PC | 4 pcs. | 4 pcs. | 4 pcs. |

# Optical multiswitch

## OL 41 0008

Fiber Switch + PSU, 8 outputs

Basic-multiswitch with an optical input, for 8 subscriber. Conversion of one satellite. Power supply in delivery included.

| Technical data | |
|---|---|
| **Technical specifications** | |
| Frequency range | 950...2150 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level | 80 dBµV Depending on the signal level of the satellites |
| Signal to noise ratio @ max. amplification | 5 dB |
| SAT decoupling | 35 dB |
| **DVB-T, DAB & FM (electric)** | |
| Frequency range DVB-T | 470...790 MHz |
| Frequency range DAB | 174...240 MHz |
| Frequency range FM | 88...108 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level for DVB-T | 70 dBµV For 6 multiplexes |
| Signal to noise ratio @ max. amplification | 5 dB |
| Terrestrial decoupling | 30 dB |
| **DVB-T, DAB, FM & SAT (Optic)** | |
| Wavelength | 1100...1650 nm |
| Input level | -14...-3 dBm |
| **DC specifications** | |
| Input voltage | 11...20 V DC |
| DiSEqC | 1.0 |
| **Connectors** | |
| Input | FC/PC connector |
| Outputs | F-socket |
| Power supply | 2,1 mm connector |
| Operating temperature range | -20...+50 °C |

**characteristics**

- Multi switch with optical input
- Upgradeable to 2, 3 or 4 satellite + TV / Radio
- All units operate with only one power supply
- Space-saving design
- 8 participants outputs

# Optical multiswitch

## OL 41 0016

Fiber Switch + PSU, 16 outputs

Basic-multiswitch with an optical input, for 16 subscriber. Conversion of one satellite. Power supply in delivery included.

| Technical data | |
|---|---|
| **Technical specifications** | |
| Frequency range | 950...2150 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level | 80 dBµV Depending on the signal level of the satellites |
| Signal to noise ratio @ max. amplification | 5 dB |
| SAT decoupling | 35 dB |
| **DVB-T, DAB & FM (electric)** | |
| Frequency range DVB-T | 470...790 MHz |
| Frequency range DAB | 174...240 MHz |
| Frequency range FM | 88...108 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level for DVB-T | 70 dBµV For 6 multiplexes |
| Signal to noise ratio @ max. amplification | 5 dB |
| Terrestrial decoupling | 30 dB |
| **DVB-T, DAB, FM & SAT (Optic)** | |
| Wavelength | 1100...1650 nm |
| Input level | -14...-3 dBm |
| **DC specifications** | |
| Input voltage | 11...20 V DC |
| DiSEqC | 1.0 |
| **Connectors** | |
| Input | FC/PC connector |
| Outputs | F-socket |
| Power supply | 2,1 mm connector |
| Operating temperature range | -20...+50 °C |

**characteristics**

- Multi switch with optical input
- Upgradeable to 2, 3 or 4 satellite + TV / Radio
- All units operate with only one power supply
- Space-saving design
- 16 participants outputs

# Optical multiswitch

## OL 42 0008

Fiber Switch + 1 SAT, 8 outputs

Extension-multiswitch with an optical input, for 8 subscriber. Conversion of one satellite. Power supply by the connected basic switch OL 41 0008.

| Technical data | |
|---|---|
| **Technical specifications** | |
| Frequency range | 950...2150 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level | 80 dBµV Depending on the signal level of the satellites |
| Signal to noise ratio @ max. amplification | 5 dB |
| SAT decoupling | 35 dB |
| **DVB-T, DAB & FM (electric)** | |
| Frequency range DVB-T | 470...790 MHz |
| Frequency range DAB | 174...240 MHz |
| Frequency range FM | 88...108 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level for DVB-T | 70 dBµV For 6 multiplexes |
| Signal to noise ratio @ max. amplification | 5 dB |
| Terrestrial decoupling | 30 dB |
| **DVB-T, DAB, FM & SAT (Optic)** | |
| Wavelength | 1100...1650 nm |
| Input level | -14...-3 dBm |
| **DC specifications** | |
| Input voltage | 11...20 V DC |
| DiSEqC | 1.0 |
| **Connectors** | |
| Input | FC/PC connector |
| Outputs | F-socket |
| Power supply | 2,1 mm connector |
| Operating temperature range | -20...+50 °C |

**characteristics**

- Multi switch with optical input
- Upgradeable to 2, 3 or 4 satellite + TV / Radio
- All units operate with only one power supply
- Space-saving design

# Optical multiswitch

## OL 42 0016

Fiber Switch + 1 SAT, 16 outputs

Extension-multiswitch with an optical input, for 16 subscriber. Conversion of one satellite. Power supply by the connected basic switch OL 41 0016.

| Technical data | |
|---|---|
| **Technical specifications** | |
| Frequency range | 950...2150 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level | 80 dBµV Depending on the signal level of the satellites |
| Signal to noise ratio @ max. amplification | 5 dB |
| SAT decoupling | 35 dB |
| **DVB-T, DAB & FM (electric)** | |
| Frequency range DVB-T | 470...790 MHz |
| Frequency range DAB | 174...240 MHz |
| Frequency range FM | 88...108 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Output level for DVB-T | 70 dBµV For 6 multiplexes |
| Signal to noise ratio @ max. amplification | 5 dB |
| Terrestrial decoupling | 30 dB |
| **DVB-T, DAB, FM & SAT (Optic)** | |
| Wavelength | 1100...1650 nm |
| Input level | -14...-3 dBm |
| **DC specifications** | |
| Input voltage | 11...20 V DC |
| DiSEqC | 1.0 |
| **Connectors** | |
| Input | FC/PC connector |
| Outputs | F-socket |
| Power supply | 2,1 mm connector |
| Operating temperature range | -20...+50 °C |

**characteristics**

- Multi switch with optical input
- Upgradeable to 2, 3 or 4 satellite + TV / Radio
- All units operate with only one power supply
- Space-saving design

# Optical mounting accessoires

## OL 93 0001

FC/PC coupling

| Technical data | |
|---|---|
| Connector | FC/PC |

FC/PC adapter for the combining of two pre-terminated optical cables.

## OL 93 0002

FC to SC adapter

| Technical data | |
|---|---|
| Connector | FC/PC to SC/PC |

FC to SC adapter, to connect fiber optic cables with FC connector and SC connector.

# Optical mounting accessoires

## OL 94 0005

Optical attenuator 5 dB

| Technical data | |
|---|---|
| Loss | 5 dB |
| Connector | FC/PC |

Optical 5 dB pad, FC/PC plug for direct mounting on optical rear converter or distributors of the OL-series

## OL 94 0010

Optical attenuator 10 dB

| Technical data | |
|---|---|
| Loss | 10 dB |
| Connector | FC/PC |

Optical 10 dB pad, FC/PC plug for direct mounting on optical rear converter or distributor of the OL-series.

## OL 94 0015

Optical attenuator 15 dB

| Technical data | |
|---|---|
| Loss | 15 dB |
| Connector | FC/PC |

Optical 15 dB pad, FC/PC plug for direct mounting on optical rear converter or distributor of the OL-series.

## OLPS 0230

Power supply 20V/1.2A

| Technical data | |
|---|---|
| Operating voltage | 230 V AC (50/60 Hz) |
| Output voltage | 20 V DC |
| Output current | 1,2 A (Short circuit proof) |

Optional power supply for optical converter OL 21 xxxx and OL 22 xxxx.

# Optical mounting accessoires

## OL 51 0000

Optical test transmitter

| Technical data | |
|---|---|
| **Output** | |
| Wavelength | 1310/1550 nm |
| Output power | typ. -7 dBm |
| Modulation | CW / 270 Hz, 1 KHz, 2 KHz |
| Fibre Type | singlemode, multimode |
| Connector | FC/PC, SC/PC |
| Supply voltage | 3x 1,5 V AA, 9 V power supply |
| Battery life time | 45 h |
| Operating temperature range | -10...+60 °C |
| Dimensions (width x height x depth) | 190 x 100 x 50 mm |
| Weight | 0,37 kg |

Test transmitter for measurements in the optical distribution network. Perfect for testing the passive components before the installation.

## OL 55 0000

Optical measurement device

| Technical data | |
|---|---|
| **Input** | |
| Wavelength | 800...1700 nm |
| Measurement range | -50...+30 dBm |
| Fibre Type | singlemode, multimode |
| Connector | FC/PC, SC/PC |
| Supply voltage | 3x 1,5 V AA, 9 V power supply |
| Battery life time | 140 h |
| Operating temperature range | -10...+60 °C |
| Dimensions (width x height x depth) | 190 x 100 x 50 mm |
| Weight | 0,37 kg |

Optical measurement device for testing the optical power. Perfect for system documentation or troubleshooting. As signal source will be used the optical test transmitter OL 51 0000 or the optical LNB (OL 11 000 / OL 12 0000).

# Optical mounting accessoires

## OL 57 0003

Replacement tape for OL 57 0002

**characteristics**

- Cleaning reel - refill pack for OL 57 002
- 500 cleaning cycles

## OL 57 0002

Cleaning cassette

**characteristics**

- Cleaning connector surface of optical cables
- Cleaning section relockable
- 500 cleaning cycles
- Cleaning tape exchangeable

## OL 57 0001

Cleaning pen for FC and PC connectors

**characteristics**

- Cleaning connector surface of optical cables and sockets
- 2,5 mm diameter, suitable for FC and SC connectors
- 800 cleaning cycles

# Optical mounting accessoires

## OL 82 0002
N-interconnection cable 2 m

## OL 82 0003
N-interconnection cable 3 m

## OL 82 0005
N-interconnection cable 5 m

## OL 82 0010
N-interconnection cable 10 m

| Technical data | | | | |
|---|---|---|---|---|
| Connector | N | N | N | N |
| Length | 2 m | 3 m | 5 m | 10 m |
| Impedance | 50 Ω | 50 Ω | 50 Ω | 50 Ω |
| Diameter | 10 mm | 10 mm | 10 mm | 10 mm |

# Optical mounting accessoires

## OL 14 0000

Electical/optical converter

| Technical data | |
|---|---|
| **Input** | |
| Frequency range SAT | 950...5450 MHz |
| Impedance | 50 Ω |
| Return loss | 9 dB |
| Frequency range DVB-T | 470...862 MHz |
| Frequency range DAB | 174...240 MHz |
| Frequency range FM | 88...108 MHz |
| Impedance | 75 Ω |
| Return loss | 10 dB |
| Level range | 67...97 dBµV |
| Connector SAT | N |
| Connector DVB-T, DAB, FM | F |
| **Output** | |
| Wavelength | 1310 nm |
| Optical power | 2x +7 dBm |
| Connector | FC/PC |
| **General data** | |
| Supply voltage | 20 V DC |
| Current consumption | <500 mA, incl. LNB |
| Operating temperature range | -10...+50 °C |

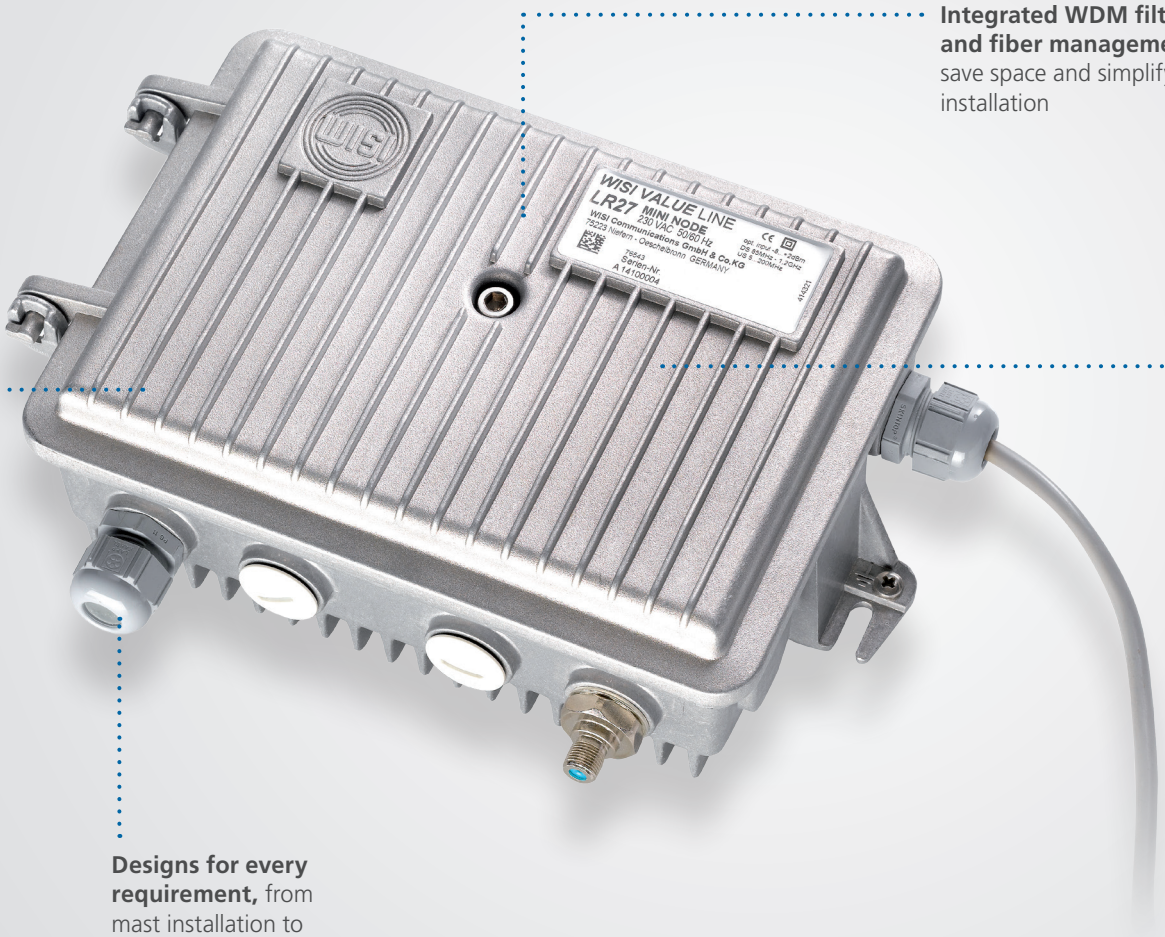
Electric/optical converter for distribution of one satellite, DVB-T/T2, DAB and FM into an optical output signal. Power supply and antenna pipe installation kit  included.

WISI Optical network terminations for HFC, RFoG and FTTx:

# Always suitable

**Fiber Nodes**
for all applications

**Integrated WDM filter and fiber management** save space and simplify installation




**Designs for every requirement,** from mast installation to the living room

# Optical network terminations

## Optical network terminations for all transmission networks

For the termination of the optical transmission networks WISI provides a variety of products. Whether cable network, Fiber-to-the-Building orFiber-to-the-home, for every application we offer the right device.

**Fiber Nodes for all HFC network sizes and network topologies**
For the development and expansion of cable networks, we have a number of different products, based on the latest technology. Our Fiber Nodes are characterized by their high performance, low power consumption and a flexible structure that allows use in various applications.

**Network terminations with switched return path for RF over Glass**
RF over Glass is the ideal FTTx technology for cable operators by the use of a common transmission formats from the HFC environment as PAL, DVB and DOCSIS. The WISI Fiber Nodes for RF over Glass are specially optimized for fast switching pulses of the return path laser and an extremely high performance of the upstream transmission.

**Optical receiver for FTTx**
We offer different nodes for fiber-to-the-home and fiber-to-the-Building applications that are used to feed analog and digital TV programs into an existing coaxial infra-structure in a building. Depending on the building size and transmission technology there are different optical receivers available for the network operators.

**Control and adjustment**
on site and remotely

### WISI Optical network terminations at a glance:

- Fiber Nodes for each stage of fiber network development - whether up to the curb, until the last amplifier, to the basement or into the flat.
- Solutions for Hybrid Fiber-Coax, RF over Glass and RF overlay
- Low power consumption for economic operation - whether local or remote powered
- Future-proof migration solutions for DOCSIS 3.1

# Mini Line

## LR 91

An optical receiver for FttB / FttH

The LR 91 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for direct house distribution. The measurement point can be displayed through the LED and the DC, in the range of -8 to +1 dBm. Its compact design requires a minimum amount of space, and the built-in measuring socket allows control of the signals.

| Technical data | |
|---|---|
| Wavelength | 1260 ... 1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 47 ... 1006 MHz |
| RF output level, sloped | 100 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB (infinitely variable) |
| Frequency response | -1 ... +1 dB |
| Noise current density | 4 pA/√Hz (max.) |
| Output test point | -20 dB |
| **Connectors** | |
| SC/APC connectors | 1 pcs. (fiber: single mode 9/125 µm) |
| F-socket | 2 pcs. (RF-Output, test point) |
| Impedance | 75 Ω |
| Return loss | > 16 dB |
| **General data** | |
| Operating voltage AC | 230 V (50/60 Hz) |
| Power consumption | ≤ 6 W |
| Operating temperature range | -20 ... +50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- compact receiver for CATV-distribution networks and RF-Overlay
- high output level to 100 dBµV
- Frequency range to 1 GHz
- 0...20 dB input attenuator
- LED and DC test point for monitoring of optical input power
- RF test port for the output signal
- Low-noise transimpedance amplifier

# Mini Line

## LR 92

HFC MicroNode, upstream 1310 nm

The LR 92 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for direct house distribution. The measurement point can be displayed through the LED and the DC, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1310 nm Fabry-Perot laser. Its compact design requires a minimum amount of space, and the built-in measuring socket allows control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Fabry-Perot |
| Wavelength upstream | 1310 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- Cost efficient Fabry-Perot laser at 1310 nm for upstream transmission
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1311

HFC MicroNode, upstream DFB 1310 nm

The LR 92 A 1311 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for direct house distribution. The measurement point can be displayed through the LED and the DC, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1310 nm Fabry-Perot laser. The output level is stable due to automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1310 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1451

HFC MicroNode, upstream DFB 1450 nm

The LR 92 A 1451 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1450 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1450 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1471

HFC MicroNode, upstream DFB 1470 nm

The LR 92 A 1471 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1470 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1470 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1491

HFC MicroNode, upstream DFB 1490 nm

The LR 92 A 1491 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1490 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1490 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1511

HFC MicroNode, upstream DFB 1510 nm

The LR 92 A 1511 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1510 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1510 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1531

HFC MicroNode, upstream DFB 1530 nm

The LR 92 A 1531 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1530 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1530 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1571

HFC MicroNode, upstream DFB 1570 nm

The LR 92 A 1571 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1570 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1570 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1591

HFC MicroNode, upstream DFB 1590 nm

The LR 92 A 1591 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1590 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1590 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 92 A 1611

HFC MicroNode, upstream DFB 1610 nm

The LR 92 A 1611 is an extremely low-noise optical receiver. Because of the high output level it is particularly well suited for the direct house distribution. It can be displayed through the LED and the DC measurement point, in the range of -8 to +1 dBm. The return path transmission is ensured through the 1610 nm DFB-laser. Multiple return path wavelengths on the same fibre are useable via CWDM. The output level is stable due to the automatic level control in the receive path. Its compact design requires a minimum amount of space, and the built-in measuring socket allows for control of the signals.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength | 1260...1610 nm |
| Optical input level | -8 ... +1 dBm |
| Frequency range downstream | 85 ...1006 MHz |
| RF output level, sloped | 98 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0 ... 20 dB |
| Noise current density | ≤ 4 pA/√Hz |
| Output test point | -20 dB |
| **Upstream** | |
| Laser type | Distributed Feedback (DFB) |
| Wavelength upstream | 1610 nm |
| Optical output power | +3 dBm |
| Frequency range upstream | 5 ... 65 MHz |
| Input level range | 70 ... 100 dBµV (for 5% OMI) |
| Attenuator upstream | 0 ... 30 dB |
| Input measurement socket | 70 dBµV (for 5% OMI) |
| **Connectors** | |
| F-socket | 2 pcs. (RF in-/output, test port) |
| Input return loss | 18 dB (-1,5 dB/Oct.) |
| SC/APC connectors | 2 pcs. (Downstream input, upstream output) |
| Optical return loss | > 40 dB |
| **General data** | |
| Operating voltage AC | 230 V |
| Power consumption | < 6 W |
| Operating temperature range | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- Compact HFC fiber node for FttB and FttH networks
- DFB laser for the return-transmission with high signal quality
- Several upstream wavelengths on one common fiber by using CWDM
- High output level enables direct in-house distribution
- Extremely low receiver noise for good reception quality at low input levels
- Manual adjustment of optical level compensation for maximum flexibility
- LED and DC test point for monitoring of optical input power

# Mini Line

## LR 91 W

Compact node for CATV downstream reception and RF Overlay


The LR 91 W is a compact receiver for CATV distribution networks and RF overlay. The integrated WDM filter makes it possible to decouple the xPON wavelengths in addition to the CATV. It has a high output level up to 100 dBµV in the frequency range up to 1 GHz.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength CATV | 1551 nm (±6,5 nm) |
| Optical input power | -8...+1 dBm |
| LED monitoring optical input level | red: low/high, green: OK |
| Frequency range | 47...1006 MHz |
| RF output level, sloped | 100 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0...20 dB (infinitely variable) |
| Frequency response | ±1 dB |
| Equivalent noise input | max. 4 pA/√Hz |
| Output test point | -20 dB |
| **PON-WDM** | |
| PON wavelengths | 1260 ... 1537,5 nm & 1564,5 ... 1620 nm |
| Insertion loss | <1 dB |
| Isolation COM -> RF downstream | >45 dB (@ 1310 nm & 1610 nm) |
| Isolation COM -> PON | >15 dB (@ 1551 ± 6.5 nm) |
| Isolation PON -> RF-Downstream | >60 dB |
| **Connectors** | |
| Optical connector PON Port | SC/APC connectors |
| Optical connector | SC/APC connectors |
| RF connectors | F female, 75 Ω |
| **General data** | |
| Fiber type | Single mode fiber 9/125µm |
| RF return loss | min. 16 dB |
| Supply voltage | 230 V AC |
| Power consumption | 6 W |
| Ambient temperature | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**characteristics**

- compact receiver for CATV-distribution networks and RF-Overlay
- Extremely low noise optical receiver
- High RF output level, switchable: 80 dBµV (flat) or 100 dBµV (6 dB slope) for 4% OMI
- Manual adjustment of optical level compensation for maximum flexibility
- Test port for RF output signal
- Monitoring LED and DC test port for optical input power
- High-Isolation PON pass-through port for CATV overlay in single-fiber FttX networks

# Mini Line

## LR 91 W 1550

Compact node for CATV downstream reception and RF Overlay


The LR91 W 1550 is a compact receiver for CATV distribution networks and RF overlay. The integrated, very narrow-band, WDM filter allows the out-coupling of the xPON wavelengths, which are additionally connected to the CATV. It has a high output level up to 100 dBµV in the frequency range up to 1 GHz.

| Technical data | |
|---|---|
| **Downstream** | |
| Wavelength CATV | 1551 nm (±6,5 nm) |
| Optical input power | -8...+1 dBm |
| LED monitoring optical input level | red: low/high, green: OK |
| Frequency range | 47...1006 MHz |
| RF output level, sloped | 100 dBµV (CENELEC 42 channels, 6 dB slope, at CSO/CTB >60 dB) |
| RF output level, flat | 80 dBµV (CENELEC 42 channels, flat, at CSO/CTB >60 dB) |
| Attenuator downstream | 0...20 dB (infinitely variable) |
| Frequency response | ±1 dB |
| Equivalent noise input | max. 4 pA/√Hz |
| Output test point | -20 dB |
| **PON-WDM** | |
| PON wavelengths | 1260 ... 1537,5 nm & 1564,5 ... 1620 nm |
| Insertion loss | <1 dB |
| Isolation COM -> RF downstream | >45 dB (@ 1310 nm & 1610 nm) |
| Isolation COM -> PON | >25 dB (@ 1551 ± 6.5 nm) |
| Isolation PON -> RF-Downstream | >60 dB |
| **Connectors** | |
| Optical connector PON Port | SC/APC connectors |
| Optical connector | SC/APC connectors |
| RF connectors | F female, 75 Ω |
| **General data** | |
| Fiber type | Single mode fiber 9/125µm |
| RF return loss | min. 16 dB |
| Supply voltage | 230 V AC |
| Power consumption | 6 W |
| Ambient temperature | -20...+50 °C |
| Dimensions (width x height x depth) | 163 x 90 x 50 mm |

**Characteristics**

- Compact node for CATV downstream reception and RF Overlay
- Extremely low noise optical receiver
- High RF output level, switchable: 80 dBµV (flat) or 100 dBµV (6 dB slope) for 4% OMI
- Manual adjustment of optical level compensation for maximum flexibility
- Test port for RF output signal
- Monitoring LED and DC test port for optical input power
- High-Isolation PON pass-through port for CATV overlay in single-fiber FttX networks

# Value Line

## LR 22 2001

Fiber nodes, locally powered

The LR 2x series of fiber nodes are optical nodes for HFC, RFoG or RF Overlay applications. They can be operated in RFoG (burst-mode) and HFC (continuous wave) mode.

| Technical data | |
|---|---|
| **Downstream** | |
| Optical input power | -8...+2 dBm |
| Wavelength | 1270...1610 nm |
| Frequency range | 85...1218 MHz (depending on diplexer) |
| Noise current density | < 4,5 pA/√Hz |
| Attenuator downstream | 0...20 dB (0,5 dB steps) |
| Equalizer downstream | 0...15 dB (0,5 dB steps) |
| Output level CENELEC 42 Ch. 10 dB slope | 119 dBµV (CSO/CTB = 60 dB) |
| Output level CENELEC 42 Ch. flat | 114 dBµV (CSO/CTB = 60 dB) |
| Output level all QAM (121 QAM-256 Ch.) 10 dB slope | 110 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Output level all QAM (121 QAM-256 Ch.) flat | 107 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Test point | -20 dB |
| RF return loss | > 18 dB (-1 dB/oct., min. 14 dB) |
| Optical return loss | > 40 dB |
| **Upstream** | |
| **with LT 22 xxxx** | |
| Optical output power | 3 dBm |
| Wavelength | 1270...1610 nm (CWDM grid, corresponding to order code) |
| Frequency range | 5...204 MHz (depending on diplexer) |
| Nominal RF input level | 75 dBµV (OMI 5%) |
| Attenuator range | 3%...10% (OMI attenuation) |
| Test point | 75 dBµV (for 5% OMI per channel) |
| Ingress Control Switch (ICS) | 0/-6/-45 dB |
| RF return loss | > 18 dB (-1 dB/oct., min. 14 dB) |
| Optical return loss | > 40 dB |
| **Interfaces** | |
| SC/APC connectors | 2 pcs. (Downstream input & upstream output separated) |
| RF Interfaces | 2x PG11 (75 Ohm) |

| Technical data | |
|---|---|
| Bluetooth antenna (optional) LB 01 | 1x PG11 |
| **User interfaces** | |
| Status LED downstream | Optical input power |
| Status LED upstream | Laser activity |
| Management ports RJ11 | 1 pcs. (for handset OH 41) |
| Remotely controlled parameters via FSK | DS on/off, US on/off, ICS 0/-6/-45 (with optional Rx module) |
| Bluetooth version | 4.0 / LE |
| Bluetooth profiles | GATT |
| Bluetooth transmit power | ≤ 0 dBm |
| Bluetooth frequency | 2.4 GHz |
| Bluetooth app compatibility | Android 4.3 or higher |
| **General data** | |
| Supply voltage | 180...264 V AC |
| Power consumption max. | 16 W |
| Dimensions (width x height x depth) | 232 x 145 x 86 mm |
| Electro Magnetic Compatibility (EMC) | EN 50083-2 |
| Protection class | IP 66 |
| Ambient temperature | -20...+55 °C |

**characteristics**

- High RF output level of 117 dBµV for coaxial distribution of FTTC or FTTB signals
- DOCSIS-3.1-compliant frequency range: Downstream up to 1.2 GHz, Upstream up to 204 MHz
- Pluggable diplexers enable migration towards DOCSIS 3.1 upstream
- Pluggable output splitters / taps for flexible configuration of the two RF outputs
- Device control via bluetooth app or via handset OH 41
- Optional: Remote control compliant to IEC 60728-14 via FSK receiver module
- Compact housing for outdoor deployment (IP66)
- Optical ALC for regulated output levels

# Value Line

## LR 22 6001

Fiber Node, remote-fed

The LR 2x series of fiber nodes are optical nodes for HFC, RFoG or RF Overlay applications. They can be operated in RFoG (burst-mode) and HFC (continuous wave) mode.

| Technical data | |
|---|---|
| **Downstream** | |
| Optical input power | -8...+2 dBm |
| Wavelength | 1270...1610 nm |
| Frequency range | 85...1218 MHz (depending on diplexer) |
| Noise current density | < 4,5 pA/√Hz |
| Attenuator downstream | 0...20 dB (0,5 dB steps) |
| Equalizer downstream | 0...15 dB (0,5 dB steps) |
| Output level CENELEC 42 Ch. 10 dB slope | 119 dBµV (CSO/CTB = 60 dB) |
| Output level CENELEC 42 Ch. flat | 114 dBµV (CSO/CTB = 60 dB) |
| Output level all QAM (121 QAM-256 Ch.) 10 dB slope | 110 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Output level all QAM (121 QAM-256 Ch.) flat | 107 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Test point | -20 dB |
| RF return loss | > 18 dB (-1 dB/oct., min. 14 dB) |
| Optical return loss | > 40 dB |
| **Upstream** | |
| **with LT 22 xxxx** | |
| Optical output power | 3 dBm |
| Wavelength | 1270...1610 nm (CWDM grid, corresponding to order code) |
| Frequency range | 5...204 MHz (depending on diplexer) |
| Nominal RF input level | 75 dBµV (OMI 5%) |
| Attenuator range | 3%...10% (OMI attenuation) |
| Test point | 75 dBµV (for 5% OMI per channel) |
| Ingress Control Switch (ICS) | 0/-6/-45 dB |
| RF return loss | > 18 dB (-1 dB/oct., min. 14 dB) |
| Optical return loss | > 40 dB |
| **Interfaces** | |
| SC/APC connectors | 2 pcs. (Downstream input & upstream output separated) |
| RF Interfaces | 2x PG11 (75 Ohm) |

| Technical data | |
|---|---|
| Bluetooth antenna (optional) LB 01 | 1x PG11 |
| **User interfaces** | |
| Status LED downstream | Optical input power |
| Status LED upstream | Laser activity |
| Management ports RJ11 | 1 pcs. (for handset OH 41) |
| Remotely controlled parameters via FSK | DS on/off, US on/off, ICS 0/-6/-45 (with optional Rx module) |
| Bluetooth version | 4.0 / LE |
| Bluetooth profiles | GATT |
| Bluetooth transmit power | ≤ 0 dBm |
| Bluetooth frequency | 2.4 GHz |
| Bluetooth app compatibility | Android 4.3 or higher |
| **General data** | |
| Supply voltage | 27...65 V AC |
| Power consumption max. | 16 W |
| Dimensions (width x height x depth) | 232 x 145 x 86 mm |
| Electro Magnetic Compatibility (EMC) | EN 50083-2 |
| Protection class | IP 66 |
| Ambient temperature | -20...+55 °C |

**characteristics**

- High RF output level of 117 dBµV for coaxial distribution of FTTC or FTTB signals
- DOCSIS-3.1-compliant frequency range: Downstream up to 1.2 GHz, Upstream up to 204 MHz
- Pluggable diplexers enable migration towards DOCSIS 3.1 upstream
- Pluggable output splitters / taps for flexible configuration of the two RF outputs
- Device control via bluetooth app or via handset OH 41
- Optional: Remote control compliant to IEC 60728-14 via FSK receiver module
- Compact housing for outdoor deployment (IP66)
- Optical ALC for regulated output levels

# Value Line

## LR 27 2xx2

Fiber nodes, locally powered

The LR 2x series of fiber nodes are optical nodes for HFC, RFoG or RF Overlay applications. They can be operated in RFoG (burst-mode) and HFC (continuous wave) mode.

| Technical data | |
|---|---|
| **Downstream** | |
| Optical input power | -8...+2 dBm |
| Wavelength | 1535...1565 nm |
| Frequency range | 85...1218 MHz (depending on diplexer) |
| Noise current density | < 4,5 pA/√Hz |
| Attenuator downstream | 0...20 dB (0,5 dB steps) |
| Equalizer downstream | 0...15 dB (0,5 dB steps) |
| Output level CENELEC 42 Ch. 6 dB slope | 117 dBµV (CSO/CTB = 60 dB) |
| Output level CENELEC 42 Ch. flat | 114 dBµV (CSO/CTB = 60 dB) |
| Test point | -20 dB |
| RF return loss | > 18 dB (-1 dB/oct., min. 14 dB) |
| Optical return loss | > 40 dB |
| **Upstream** | |
| Optical output power | +3 dBm |
| Wavelength | 1270...1610 nm (according Order Code) |
| Frequency range | 5...65 / 204 MHz (depending on diplexer) |
| Low pass (switchable) | 85/204 MHz or 65/204 MHz (see order code) |
| RF input level | 70...100 dBµV |
| Attenuator range | 0...30 dB (Input Attenuation) |
| Test point | 70 dBµV (for 15% OMI per channel) |
| Ingress Control Switch (ICS) | 0/-6/- >45 dB |
| RF return loss | > 18 dB |
| Optical return loss | > 40 dB |
| **RFoG-Upstream (RFoG Mode „on“)** | |
| RF input level | 70...100 dBµV |
| Attenuator | 0...30 dB |
| Test point | 70 dBµV (@ 15 % OMI) |
| **HFC-Upstream (RFoG Mode „off“)** | |
| Nominal RF input level | 70 dBµV (5 % OMI) |

| Technical data | |
|---|---|
| OMI | 3...10 % (adjustable) |
| Test point | 70 dBµV @ 10 % OMI |
| **Interfaces** | |
| SC/APC connectors | 1 pcs. (Downstream input & upstream output) |
| PG 11 connectors | 4 pcs. (2x RF input/output) |
| **User interfaces** | |
| Status LED downstream | Optical input power |
| Status LED upstream | Laser activity |
| Management ports RJ11 | 1 pcs. (for handset OH 41) |
| Remotely controlled parameters via FSK | DS on/off, US on/off, ICS 0/-6/-45 (with optional Rx module) |
| Bluetooth version | 4.0 / LE |
| Bluetooth app compatibility | Android 4.3 or higher |
| **General data** | |
| Supply voltage | 180...264 V AC |
| Power consumption max. | 16 W |
| Dimensions (width x height x depth) | 232 x 145 x 86 mm |
| Electro Magnetic Compatibility (EMC) | EN 50083-2 |
| Protection class | IP 66 |
| Ambient temperature | -10...+50 °C |

**characteristics**

- High RF output level of 117 dBµV for coaxial distribution of FTTC or FTTB signals
- DOCSIS-3.1-compliant frequency range: Downstream up to 1.2 GHz, Upstream up to 200 MHz
- Pluggable diplexers enable migration towards DOCSIS 3.1 upstream
- Pluggable output splitters / taps for flexible configuration of the two RF outputs
- Device control via bluetooth app or via handset OH 41
- Optional: Remote control compliant to IEC 60728-14 via FSK receiver module
- Compact housing for outdoor deployment (IP66)
- Optical ALC for regulated output levels

# Value Line

## LR 27 6xx2

Fiber Node, remote-fed

The LR 2x series of fiber nodes are optical nodes for HFC, RFoG or RF Overlay applications. They can be operated in RFoG (burst-mode) and HFC (continuous wave) mode.

| Technical data | |
|---|---|
| **Downstream** | |
| Optical input power | -8...+2 dBm |
| Wavelength | 1535...1565 nm |
| Frequency range | 85...1218 MHz (depending on diplexer) |
| Noise current density | < 4,5 pA/√Hz |
| Attenuator downstream | 0...20 dB (0,5 dB steps) |
| Equalizer downstream | 0...15 dB (0,5 dB steps) |
| Output level CENELEC 42 Ch. 6 dB slope | 117 dBµV (CSO/CTB = 60 dB) |
| Output level CENELEC 42 Ch. flat | 114 dBµV (CSO/CTB = 60 dB) |
| Test point | -20 dB |
| RF return loss | > 18 dB (-1 dB/oct., min. 14 dB) |
| Optical return loss | > 40 dB |
| **Upstream** | |
| Optical output power | +3 dBm |
| Wavelength | 1270...1610 nm (according Order Code) |
| Frequency range | 5...65 / 204 MHz (depending on diplexer) |
| Low pass (switchable) | 85/204 MHz or 65/204 MHz (see order code) |
| RF input level | 70...100 dBµV |
| Attenuator range | 0...30 dB (Input Attenuation) |
| Test point | 70 dBµV (for 15% OMI per channel) |
| Ingress Control Switch (ICS) | 0/-6/- >45 dB |
| RF return loss | > 18 dB |
| Optical return loss | > 40 dB |
| **RFoG-Upstream (RFoG Mode „on“)** | |
| RF input level | 70...100 dBµV |
| Attenuator | 0...30 dB |
| Test point | 70 dBµV (@ 15 % OMI) |
| **HFC-Upstream (RFoG Mode „off“)** | |
| Nominal RF input level | 70 dBµV (5 % OMI) |

| Technical data | |
|---|---|
| OMI | 3...10 % (adjustable) |
| Test point | 70 dBµV @ 10 % OMI |
| **Interfaces** | |
| SC/APC connectors | 1 pcs. (Downstream input & upstream output) |
| PG 11 connectors | 4 pcs. (2x RF input/output) |
| **User interfaces** | |
| Status LED downstream | Optical input power |
| Status LED upstream | Laser activity |
| Management ports RJ11 | 1 pcs. (for handset OH 41) |
| Remotely controlled parameters via FSK | DS on/off, US on/off, ICS 0/-6/-45 (with optional Rx module) |
| Bluetooth version | 4.0 / LE |
| Bluetooth app compatibility | Android 4.3 or higher |
| **General data** | |
| Supply voltage | 27...65 V AC |
| Power consumption max. | 16 W |
| Dimensions (width x height x depth) | 232 x 145 x 86 mm |
| Electro Magnetic Compatibility (EMC) | EN 50083-2 |
| Protection class | IP 66 |
| Ambient temperature | -10...+50 °C |

**characteristics**

- High RF output level of 117 dBµV for coaxial distribution of FTTC or FTTB signals
- DOCSIS-3.1-compliant frequency range: Downstream up to 1.2 GHz, Upstream up to 200 MHz
- Pluggable diplexers enable migration towards DOCSIS 3.1 upstream
- Pluggable output splitters / taps for flexible configuration of the two RF outputs
- Device control via bluetooth app or via handset OH 41
- Optional: Remote control compliant to IEC 60728-14 via FSK receiver module
- Compact housing for outdoor deployment (IP66)
- Optical ALC for regulated output levels

# Value Line

## LR 47 x x1x0

HFC Fiber Node – 1x1x1/1x1x2

Optical node with integrated fibre management. Plugin modules for return path transmitter, diplex filter and splitter/taps. Local configuration with OH 41 handset or Android app via Bluetooth. Remote management via HMS or DOCSIS 2.0 transponder.

| Technical data | |
|---|---|
| **Down-Stream / DS** | |
| Wavelength | 1290...1610 nm |
| Optical return loss | >40 dB |
| Fiber type | Single Mode 9/125 µm |
| Optical connector | E2000/APC, SC/APC, LC/APC |
| Output impedance | 75 Ω |
| Output return loss | ≥18 dB (-1dB/Octave, min. 14 dB) |
| Frequency range | 47...1218 MHz (depending on diplexer) |
| Opt. input level for controlled Electrical output level | -6...+2 dBm |
| Output level range | 95...115 dBµV (OMI 4% per channel), (0,5 dB step) |
| Equalizer downstream | 0...20 dB (0,5 dB steps) |
| Amplitude response (O-E) | ≤ ±0,75 dB |
| Equivalent input noise | ≤4,5 pA/√Hz |
| Test point | -20 dB |
| **Signal quality per output** | |
| Frequency range | 47...1218 MHz |
| Output return loss | ≥18 dB (-1,5 dB/Oct. min.14 dB) |
| Output level CENELEC 42 Ch. flat | 115 dBµV (CSO/CTB = 60 dB) |
| Output level CENELEC 42 Ch. 10 dB slope | 119 dBµV (CSO/CTB = 60 dB) |
| Output level all QAM (121 QAM-256 Ch.) flat | 109 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Output level all QAM (121 QAM-256 Ch.) 10 dB slope | 112 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Test point | -20 dB |
| **Upstream (US)** | |
| Wavelength | 1270 nm, 1290 nm, 1310 nm, ..., 1610 nm |
| Optical output power | 3 dBm |
| Frequency range | 5(15)...204 MHz (65/ 85/ 117 MHz optional) |
| Input return loss | ≥20 dB (-1,5 dB/Oct. min.16 dB) |
| RIN | < -145 dBHz-1 |
| Nominal input level | 75 dBµV |

| Technical data | |
|---|---|
| OMI setting range | 3...10 % (@75 dBµV input, 0,5 % steps) |
| Frequency response | ±0,5 dB |
| Ingress Control Switch (ICS) | 0/6/ >45 dB |
| Test point | 75 dBµV (OMI 5%) |
| **General data** | |
| HF-connections | PG 11 |
| Supply voltage | 180...265/27...65 V AC (local/ remote feeding) |
| Remote power | <8 A |
| Ambient temperature | -20...+50 °C |
| Protection class | IP66 |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 288 x 125 x 302 mm |
| Power consumption | ≤ 20 W |

**characteristics**

- Redundant Node with one active output
- Pluggable (2x) receiver and (2x) transmitter modules
- Local and remote feeding types
- All settings available locally managable with a OH 41 handset from WISI, Android app via Bluetooth or via remote connected NMS with HMS or DOCSIS 2.0 transponder installed
- Diplex filters and splitter / tap modules pluggable
- Electronic upstream configuration redundancy/ clustering
- One ICS-switch for every input
- Automated level setting control (ALC ) via optical input power or pilot controlled VX 58 B

# Compact Line

## LR 47 x x8x0

HFC Fiber Node – 2x2x2

Optical node with integrated fibre management. Plugin modules for return path transmitter, diplex filter and splitter/taps. Local configuration with OH 41 handset or Android app via Bluetooth. Remote management via HMS or DOCSIS 2.0 transponder.

| Technical data | |
|---|---|
| **Down-Stream / DS** | |
| Wavelength | 1290...1610 nm |
| Optical return loss | >40 dB |
| Fiber type | Single Mode 9/125 µm |
| Optical connector | E2000/APC, SC/APC, LC/APC |
| Output impedance | 75 Ω |
| Output return loss | ≥18 dB (-1dB/Octave, min. 14 dB) |
| Frequency range | 47...1218 MHz (depending on diplexer) |
| Opt. input level for controlled Electrical output level | -6...+2 dBm |
| Output level range (distribution) | 95...115 dBµV (OMI 4% per channel), (0,5 dB step) |
| Equalizer downstream | 0...20 dB (0,5 dB steps) |
| Amplitude response (O-E) | ≤ ±0,75 dB |
| Equivalent input noise | ≤4,5 pA/√Hz |
| Test point | -20 dB |
| **Signal quality per output** | |
| Frequency range | 47...1218 MHz |
| Output return loss | ≥18 dB (-1,5 dB/Oct. min.14 dB) |
| Output level CENELEC 42 Ch. flat | 115 dBµV (CSO/CTB = 60 dB) |
| Output level CENELEC 42 Ch. 10 dB slope | 119 dBµV (CSO/CTB = 60 dB) |
| Output level all QAM (121 QAM-256 Ch.) flat | 109 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Output level all QAM (121 QAM-256 Ch.) 10 dB slope | 112 dBµV (BER <1 exp-9), (@ 2,4% OMI) |
| Test point | -20 dB |
| **Upstream (US)** | |
| Wavelength | 1270 nm, 1290 nm, 1310 nm, ..., 1610 nm |
| Optical output power | 3 dBm |
| Frequency range | 5(15)...204 MHz (65/ 85/ 117 MHz optional) |
| Input return loss | ≥20 dB (-1,5 dB/Oct. min.16 dB) |
| RIN | < -145 dBHz-1 |
| Nominal input level | 75 dBµV |

| Technical data | |
|---|---|
| OMI setting range | 3...10 % (@75 dBµV input, 0,5 % steps) |
| Frequency response | ±0,5 dB |
| Ingress Control Switch (ICS) | 0/6/ >45 dB |
| Test point | 75 dBµV (OMI 5%) |
| **General data** | |
| HF-connections | PG 11 |
| Supply voltage | 180...265/27...65 V AC (local/ remote feeding) |
| Remote power | <8 A |
| Ambient temperature | -20...+50 °C |
| Protection class | IP66 |
| EMC | EN50083-2 |
| Dimensions (width x height x depth) | 288 x 125 x 302 mm |
| Power consumption | ≤ 40 W |

**characteristics**

- Redundant Node with two active outputs
- Pluggable (2x) receiver and (2x) transmitter modules
- Local and remote feeding types
- All settings available locally managable with a OH 41 handset from WISI, Android app via Bluetooth or via remote connected NMS with HMS or DOCSIS 2.0 transponder installed
- Diplex filters and splitter / tap modules pluggable
- Electronic upstream configuration redundancy/ clustering
- One ICS-switch for every input
- Automated level setting control (ALC ) via optical input power or pilot controlled VX 58 B

WISI Accessories channel processing:

# The perfect match to our channel processing units

# Accessories channel processing


With the accessories for channel processing systems WISI offers the perfect complement to organize cabling in 19“ cabinets and the comfortable configuring of the systems via a hand-held unit.

## WISI Accessories channel processing at a glance:

- Compact design
- versatile applicable
- Simple clear installation
- High quality connections

# Accessories for optical nodes, Value Line

## LT 22 3311

Reverse-transmitter module 1310 nm

## LT 22 3511

Reverse-transmitter module 1510 nm

## LT 22 3531

Reverse-transmitter module 1530 nm

| Technical data | | | |
|---|---|---|---|
| **Upstream** | | | |
| Wavelength | 1310 nm | 1510 nm | 1530 nm |
| Optical output power | +3 dBm | +3 dBm | +3 dBm |
| Frequency range | 5...204 MHz (depending on diplexer) | 5...204 MHz (depending on diplexer) | 5...204 MHz (depending on diplexer) |
| RF input level | 70...80 dBµV | 70...80 dBµV | 70...80 dBµV |
| Attenuator range | 3%...10% (OMI attenuation) | 3%...10% (OMI attenuation) | 3%...10% (OMI attenuation) |
| Test point | 75 dBµV (for 5% OMI per channel) | 75 dBµV (for 5% OMI per channel) | 75 dBµV (for 5% OMI per channel) |
| Ingress Control Switch (ICS) | 0 / -6 / -45 dB | 0 / -6 / -45 dB | 0 / -6 / -45 dB |
| RF return loss | > 18 dB | > 18 dB | > 18 dB |
| Optical return loss | > 40 dB | > 40 dB | > 40 dB |

# Accessories for optical nodes, Value Line

## LT 22 3551

Reverse-transmitter module 1550 nm

## LT 22 3571

Reverse-transmitter module 1570 nm

## LT 22 3611

Reverse-transmitter module 1610 nm

| Technical data | | | |
|---|---|---|---|
| **Upstream** | | | |
| Wavelength | 1550 nm | 1570 nm | 1610 nm |
| Optical output power | +3 dBm | +3 dBm | +3 dBm |
| Frequency range | 5...204 MHz (depending on diplexer) | 5...204 MHz (depending on diplexer) | 5...204 MHz (depending on diplexer) |
| RF input level | 70...80 dBµV | 70...80 dBµV | 70...80 dBµV |
| Attenuator range | 3%...10% (OMI attenuation) | 3%...10% (OMI attenuation) | 3%...10% (OMI attenuation) |
| Test point | 75 dBµV (for 5% OMI per channel) | 75 dBµV (for 5% OMI per channel) | 75 dBµV (for 5% OMI per channel) |
| Ingress Control Switch (ICS) | 0 / -6 / -45 dB | 0 / -6 / -45 dB | 0 / -6 / -45 dB |
| RF return loss | > 18 dB | > 18 dB | > 18 dB |
| Optical return loss | > 40 dB | > 40 dB | > 40 dB |

# Accessories for optical nodes, Compact Line

## LT 40 S

Optical transmitter module, 1310 nm


## LT 41 S

Optical transmitter module, 1310 nm, DFB laser


| Technical data | | |
|---|---|---|
| Laser type | Fabry-Perot | Dual stage isolated DFB laser |
| Optical output power | +3 dBm | +3 dBm |
| Wavelength | 1310 nm (± 40 nm) | 1310 nm (± 10 nm) |
| Frequency range | 10 ... 85 MHz | 10 ... 85 MHz |
| Relative intensity noise (RIN) | < -135 dB√Hz | < -145 dB√Hz |
| Nominal input level | 75 dBµV | 75 dBµV |
| Reference pilot | 6.5 MHz | 6.5 MHz |
| Input measurement socket | 75 dBµV (for 5% OMI) | 75 dBµV (for 5% OMI) |
| **Connectors** | | |
| SC/APC connectors | 1 pcs. (Return path-output) | 1 pcs. (Return path-output) |
| F-socket | 1 pcs. (Test port) | 1 pcs. (Test port) |
| **General data** | | |
| Operating temperature range | -20 ... +55 °C | -20 ... +55 °C |
| Storage temperature | -25 ... +75 °C | -25 ... +75 °C |

# Accessories for optical nodes, Compact Line

## LT 45 S 1470

Optical transmitter module, 1470 nm CWDM


## LT 45 S 1490

Optical transmitter module, 1490 nm CWDM


## LT 45 S 1510

Optical transmitter module, 1510 nm CWDM


## LT 45 S 1530

Optical transmitter module, 1530 nm CWDM


| Technical data | | | | |
|---|---|---|---|---|
| Laser type | Dual stage isolated DFB laser | Dual stage isolated DFB laser | Dual stage isolated DFB laser | Dual stage isolated DFB laser |
| Optical output power | +3 dBm | +3 dBm | +3 dBm | +3 dBm |
| Wavelength | 1470 nm (± 2 nm) | 1490 nm (± 2 nm) | 1510 nm (± 2 nm) | 1530 nm (± 2 nm) |
| Frequency range | 10 ... 85 MHz | 10 ... 85 MHz | 10 ... 85 MHz | 10 ... 85 MHz |
| Relative intensity noise (RIN) | < -145 dB√Hz | < -145 dB√Hz | < -145 dB√Hz | < -145 dB√Hz |
| Nominal input level | 75 dBµV | 75 dBµV | 75 dBµV | 75 dBµV |
| Reference pilot | 6.2 MHz | 6.4 MHz | 6,6 MHz | 6,8 MHz |
| Input measurement socket | 75 dBµV (for 5% OMI) | 75 dBµV (for 5% OMI) | 75 dBµV (for 5% OMI) | 75 dBµV (for 5% OMI) |
| **Connectors** | | | | |
| SC/APC connectors | 1 pcs. (Return path-output) | 1 pcs. (Return path-output) | 1 pcs. (Return path-output) | 1 pcs. (Return path-output) |
| F-socket | 1 pcs. (Test port) | 1 pcs. (Test port) | 1 pcs. (Test port) | 1 pcs. (Test port) |
| **General data** | | | | |
| Operating temperature range | -20 ... +55 °C | -20 ... +55 °C | -20 ... +55 °C | -20 ... +55 °C |
| Storage temperature | -25 ... +75 °C | -25 ... +75 °C | -25 ... +75 °C | -25 ... +75 °C |

# Accessories for optical nodes, Compact Line

## LT 45 S 1550

Optical transmitter module, 1550 nm CWDM


## LT 45 S 1570

Optical transmitter module, 1570 nm CWDM


## LT 45 S 1590

Optical transmitter module, 1590 nm CWDM


## LT 45 S 1610

Optical transmitter module, 1610 nm CWDM


| Technical data | | | | |
|---|---|---|---|---|
| Laser type | Dual stage isolated DFB laser | Dual stage isolated DFB laser | Dual stage isolated DFB laser | Dual stage isolated DFB laser |
| Optical output power | +3 dBm | +3 dBm | +3 dBm | +3 dBm |
| Wavelength | 1550 nm (± 2 nm) | 1570 nm (± 2 nm) | 1590 nm (± 2 nm) | 1610 nm (± 2 nm) |
| Frequency range | 10 ... 85 MHz | 10 ... 85 MHz | 10 ... 85 MHz | 10 ... 85 MHz |
| Relative intensity noise (RIN) | < -145 dB√Hz | < -145 dB√Hz | < -145 dB√Hz | < -145 dB√Hz |
| Nominal input level | 75 dBµV | 75 dBµV | 75 dBµV | 75 dBµV |
| Reference pilot | 7,0 MHz | 7,2 MHz | 7,4 MHz | 7,6 MHz |
| Input measurement socket | 75 dBµV (for 5% OMI) | 75 dBµV (for 5% OMI) | 75 dBµV (for 5% OMI) | 75 dBµV (for 5% OMI) |
| **Connectors** | | | | |
| SC/APC connectors | 1 pcs. (Return path-output) | 1 pcs. (Return path-output) | 1 pcs. (Return path-output) | 1 pcs. (Return path-output) |
| F-socket | 1 pcs. (Test port) | 1 pcs. (Test port) | 1 pcs. (Test port) | 1 pcs. (Test port) |
| **General data** | | | | |
| Operating temperature range | -20 ... +55 °C | -20 ... +55 °C | -20 ... +55 °C | -20 ... +55 °C |
| Storage temperature | -25 ... +75 °C | -25 ... +75 °C | -25 ... +75 °C | -25 ... +75 °C |

# Accessories for optical nodes, Compact Line

## XC 40

Plug-in module for configuration of an LT 4x transmitter module in LR 43 / LR 63


## XE 50 F 0850

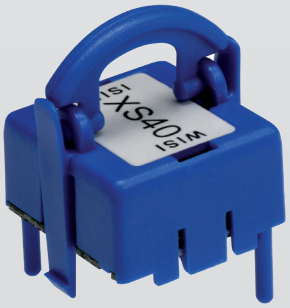
Diplexer 85/108 MHz


## XE 50 FA

Diplexer 65/85 MHz


## XS 40

Redundancy switch for LR43 S/63 S



**Always up to date**

The current versions of all
WISI product brochures can be found here!

download-area.wisi.de



**WISI Communications GmbH & Co. KG**
P.O. Box 1220
75219 Niefern-Oeschelbronn, Germany
Phone: +49 72 33-66-2 80
Fax: +49 72 33-66-3 50
E-mail: export@wisi.de

PROSD Catalog Optical components 05/2018