

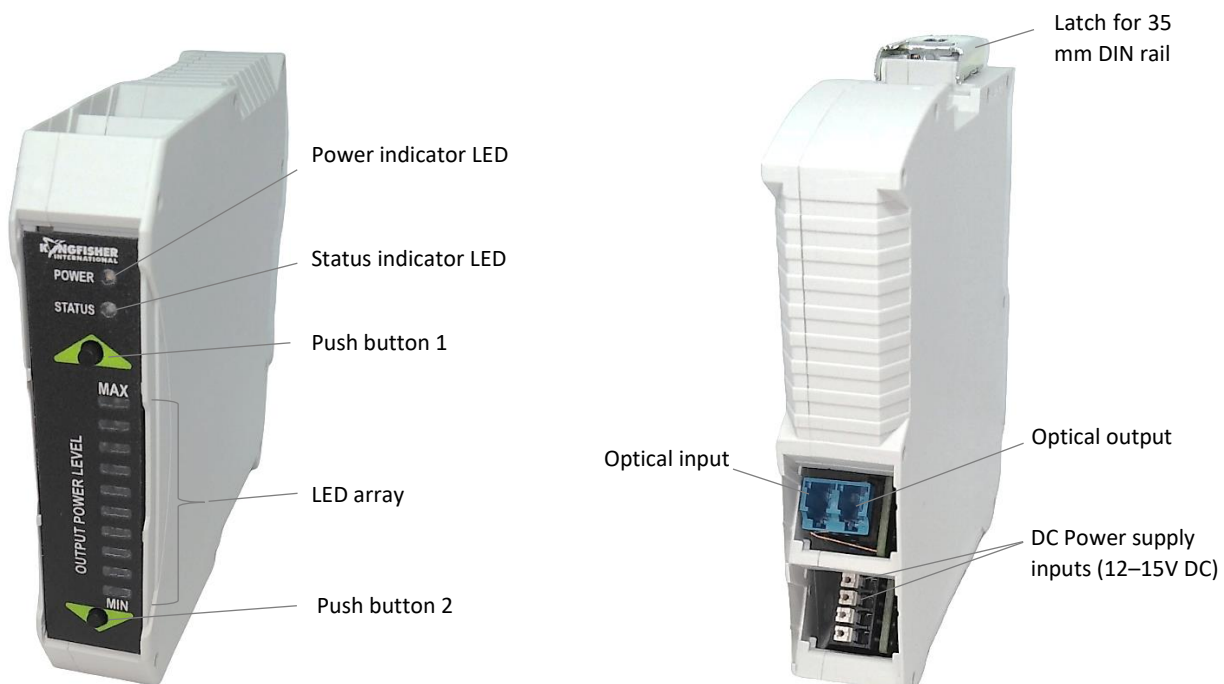
KI5000 Series Optical Power Leveler User Manual

Description

The KI5000 series Optical Power Leveler (OPL) is a device to stabilise the receive power level in a single mode fiber optic transmission system with LC-PC connectors, operating at 1270~1330 nm or 1490~1610 nm depending on model.

The OPL controls the output power level in one fiber with either single direction or bidirectional transmission, in which case attenuation is approximately identical in both directions.

Optical output power is kept at a stable level by use of an attenuator coupled with an internal power detector and control circuit.



Device Setup and Operation

The OPL clips onto on a 35 mm DIN rail. Pull latch to mount/unmount device onto/from rail.

Nominal input voltage range is 12 - 48 VDC, power consumption < 0.1 W.

The DC power can be connected (to connectors labelled “DC input”) in either polarity. Use a pointy tool to depress white latches beside each connector to connect/disconnect wires.

OPL optical interface is a duplex single mode LC/PC optical connector.

Connect optical port labelled “IN” to the external line

Connect port labelled “OUT” to local transceiver.

The device output power has been factory set to the -10 dBm mid-point of the transceiver operating range. Typically, no further user action is required after installation of power and optical fiber.

Two LED status indicators show green when the system is in stable operation.

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To observe the current device attenuation level, press any push-button. The position of the active LED on the array then shows the current attenuation level, e.g., near the top is high attenuation, and near the bottom is low attenuation. At a very low device attenuation, there is not much margin for further signal power drop.

Most users will not need to do anything further.

However, a user can adjust the output power set-point range from -7dBm to -17dBm with 0.5 dBm step as follows:

- To change the set-point, use an optical power meter connected to the output fiber, with the transmitters live, to check the absolute output power level.
To enter adjustment mode, depress both push-button together for 0.5-1 sec, status LEDs blink orange. In this mode solid LED position in the bar graph represents a setpoint level in the range -7 to -17 dBm, which can be adjusted by using Up/Down buttons.
Then nudge the set-point power level up (push-button 1) or down (push-button 2) while observing the power meter level, to obtain the required level. Each button-push changes the set-point level about 0.5 dB.
- Adjustment mode will save and exit after about 10 seconds.

OPL User display modes

User interface of OPL Device consists of two bicolour “Status” LEDs, two user buttons, and bar graph level indicator (LED array). OPL has four defined user modes:

1. “Normal Operation” mode.
Green Power and Green status LEDs are displayed on the front panel. OPL output average power is successfully regulated to user setpoint. No device error is self-diagnosed.
2. “Out of Regulation” mode.
Green Power and Orange status LEDs are displayed on the front panel, Blinking led in a minimum or maximum position of bar graph indicator. OPL output average power is out of user setpoint is unregulated due to out-of-range input. No device error is self-diagnosed.
3. “Attenuation Display” mode.
If user want to evaluate a level of attenuation, which is currently applied to communication line, then this mode can be entered by pressing any push-button in “standby” state.
Solid LED position in the bar graph represents an attenuation, ranged from ~1dB (min) to 30dB (max).\
4. “Device Fault” mode
Green Power and Red status LEDs are displayed on the front panel; Device error is self-diagnosed. Minimum insertion loss is applied, optical output power is unregulated.
5. No Power supply
If device loses power, No LEDs are displayed. Minimum insertion loss is applied, optical output power is unregulated.

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General Specifications

Parameter	Value
Technology	Attenuator, power monitor & set-point control
Output power set-point	-7 ~ -17 dBm (user adjustable)
Output power stability	± 0.3 dB (@ 1310 nm for KI5010) / (@ 1550 nm for KI5011)
Output power setting resolution	0.5 dB
Attenuation range	2 to 30 dB
Operating wavelength	1270~1330 nm (KI5010) / 1490~1610 nm (KI5011)
Response time	< 1 sec
Connector type	LC-PC Duplex or LC/APC (one fiber in, one fiber out).
Input/output power handling	Single or bidirectional
Fiber type	9.5/125 μm SMF (typical)
ORL	Limited by LC/PC connectors
PDL	0.2 dB
Max continuous power	10 dBm
Operating temperature	-40 ~ 65 °C
Relative humidity	95% (non-condensing)
Housing	Internally mounted 35 mm DIN rail
MTBF	>100 Years @25 °C (theoretical)
Power supply	12~48 Volt DC (on electrical power loss: pass-through mode)
User controls	2 up/down buttons, status indication, simple numeric display, USB for maintenance
Size	115 (D) x 98(H) x 22(W) mm

Ordering Information

Description	Part number
Instrument, Optical Power Leveler, 1270~1330 nm	KI 5010
Instrument, Optical Power Leveler, 1270~1330 nm, APC	KI 5010-APC
Instrument, Optical Power Leveler, 1490~1610 nm	KI 5011
Instrument, Optical Power Leveler, 1490~1610 nm, APC	KI 5011-APC

Standard Accessories

Description	Quantity
User manual	1
QA certificate	1