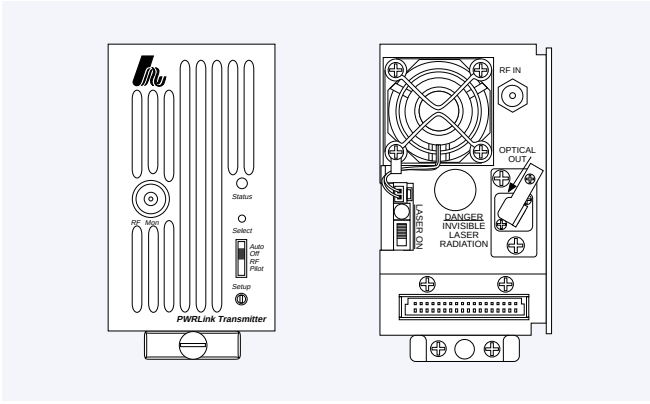
PWL 4800

PWRLink™ DFB Transmitter



Product Description

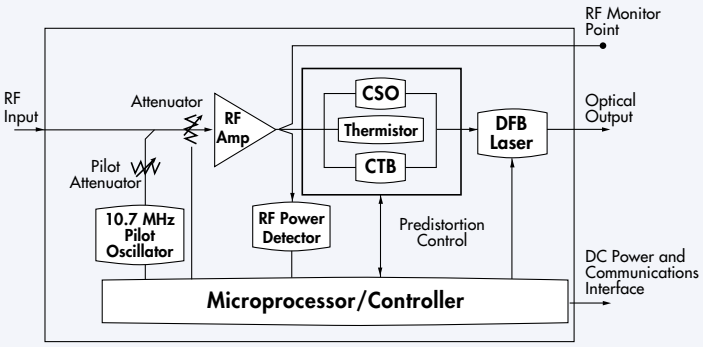
The Harmonic Lightwaves PWRLink is a high performance DFB laser transmitter module for the HLP 4000 System. The system can operate alone in local distribution and narrowcasting applications and in combination with Harmonic Lightwaves' externally modulated transmitter family for complete system solutions.

The PWRLink module is compact, flexible and easily configurable by means of the user-friendly interface, allowing for set-up in minutes. The laser can be set up via the HLP 4000WD front panel menu, the module front panel function slide switch and set-up adjustment, or using the NETWatch™ Element Management System. The PWRLink also incorporates automatic and manual RF level control, maintaining proper laser drive levels, further simplifying installation.

Due to its advanced predistortion circuitry, the PWRLink DFB module delivers high performance with a high modulation index and low RF distortion. This combination enables system designers to achieve very high carrier to noise specifications while reducing receiver overdrive concerns. The performance and long term stability of the transmitter are assured by a microprocessor and associated firmware which control and monitor all vital functions. These include laser temperature and operating point, optical power, module temperature and composite RF drive level. The transmitter's flat frequency response and wide operating temperature range maximize an operator's overall network performance.

The optical components within the PWRLink module have been designed for ease-of-use and maintenance. The DFB module is connectorized with an optical connector on a removable plate on the back of the unit. This feature facilitates periodic cleaning of the connector, thereby ensuring consistently high picture quality.

Standard Configuration



Advantages

The innovative design of the PWRLink transmitter and the complete HLP 4000 System offer the user many advantages to address the needs of today and tomorrow, making it a truly new-generation platform:

- Offers a wide range of performance levels, providing cost-effective solutions to meet specific system requirements.
- Advanced predistortion circuitry and algorithm for both CTB and CSO provide minimal distortion and a large modulation index over a wide temperature range.
- 870 MHz bandwidth provides flexibility in delivery of signals and services with either mixed analog and digital channels or full analog channel loading.
- Unparalleled frequency response provides high performance and efficient system integration.
- Complements MAXLink™ 1550 nm transmission system by the unique 10 log rule for adding CTB distortion, maximizing flexibility and cost-savings.
- Removable flange mounted optical connectors facilitate maintenance.
- Automatic or manual RF level control simplifies operation.
- Microprocessor control of all key parameters provides consistent and optimum product performance and allows for integrated network management.
- Simple "plug and play" operation reduces time and cost of installation.

Applications

- Local distribution
- Narrowcasting
- Combinations of broadcast video and digital narrowcasting
- DFB-1550 nm hybrid cascades for trunking, supertrunking and interconnects

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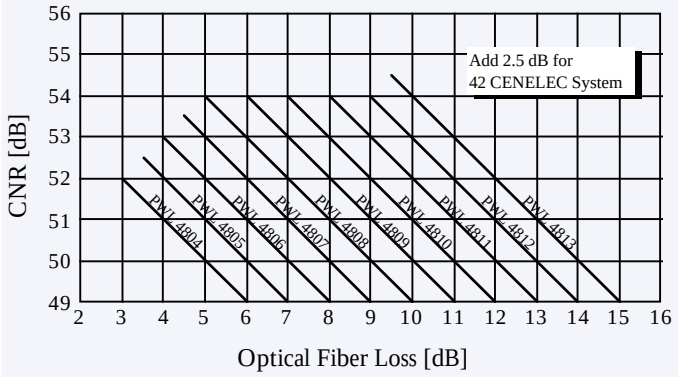
PWRLink CNR vs. Optical Fiber Loss

76 System B/G (PAL) Channels[1, 2]



1. Specifications for 76 unmodulated System B/G (PAL) channels.
2. Optical link defined as PWRLink transmitter + 100% fiber + HLR 3800RM optical receiver.

Link Performance

Carrier-to-Noise (CNR): Shown in figure above.
Carrier-to-CSO: > 63 dB
Carrier-to-CTB: > 67 dB
All performance specifications are WORST-CASE, given for 100% fiber optical links.
Add 1 dB to CNR specifications when link includes greater than 6 dB of optical splitter loss.
Add 1 dB to CSO and CTB specifications for typical performance. *Over 90% of PWRLink transmitters guaranteed to meet typical perfomance.*

Optical Output

Wavelength: 1290 - 1330 nm
Flatness: < 1.5 dB peak-to-valley
Laser shutdown: DISABLE/ENABLE switch
Eye protection: Safety shutter

Model	Output Power [dBm]	Typical Modulation Index[3] (%)
PWL 4804	5.0 ± 0.5	4.5 ± 0.25
PWL 4805	5.5 ± 0.5	4.6 ± 0.25
PWL 4806	6.0 ± 0.5	4.7 ± 0.25
PWL 4807	6.5 ± 0.5	4.9 ± 0.25
PWL 4808	7.0 ± 0.5	5.0 ± 0.25
PWL 4809	8.0 ± 0.5	5.0 ± 0.25
PWL 4810	9.5 ± 1.0	5.0 ± 0.25
PWL 4811	10.5 ± 1.0	5.0 ± 0.25
PWL 4812	11.0 ± 1.0	5.1 ± 0.25
PWL 4813	11.5 ± 1.0	5.2 ± 0.25

RF Input

Input level range: 25 to 32 dBmV
Operational bandwidth: 45 to 870 MHz
RF attenuator adjustment range: 10 dB
Impedance: 75 Ω
Return loss: > 16 dB
Level control: Auto/manual

User Interface

Front panel
- Bi-state status LED: Normal = Green, Alarm = Red
- Module selection indicator: Yellow LED
- Function slide switch and set-up adjustment
- Monitor point
  - Laser RF drive monitor
  - Flatness: ± 1.5 dB
  - Return loss: > 16 dB
  - Connector type: Male GSK

Rear panel
- Laser ENABLE switch
- Laser enabled: Yellow LED

Element Management System - NETWatch/HEM

HEM interface: RS-485, RS-232C connectors (in HLP 4000)
HEM carrier: 10.7 MHz (internally generated)

Power Requirements

Nominal: +24 VDC; supplied by HLP 4000 bus
Maximum: +28 VDC
Consumption: 22 Watts maximum

Environmental

Operating temperature range: 0˚ to +50˚ C[4] (+32˚ to 122˚ F)
Storage temperature range: –40˚ to +70˚ C (+32˚ to 158˚ F)
Automatic three speed fan adjustment at: 40˚ & 50˚ C (104˚ to 122˚ F)
Relative humidity: Maximum 85% non-condensing
Over temperature laser protection: Software and hardware

Physical

Dimensions: 6.6 cm W x 11.1 cm H x 27.2 cm D (2.6˝ W x 4.4˝ H x 11.7 ˝ D)
Weight: 1.55 kg (3.4 lbs.)
Mounting: HLP 4000 platform; one module slot
Optical connector type: SC/APC[5]
RF connector type: Standard F, RG-59 cable type (accepts 0.51 - 1.06 mm center conductor diameter)

3. Modulation index given for 42 CENELEC System.
4. For operation over entire temperature range, subtract 2 dB from CSO and CTB performance specifications.
5. Other connector types available upon request.

CSA, CE and gs certified.
Harmonic Lightwaves, Inc. continues to improve and update all product designs.
Specifications are subject to change without notice.