

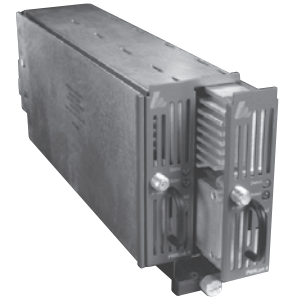
### HIGHLIGHTS

- 1003 MHz bandwidth provides flexibility in delivery of services with 76 PAL channels
- Automatic or manual gain control simplifies operation
- Auto setup feature simplifies installation
- Integrated RF pre-amplifier reduces transmitter drive level requirements
- Compact size enables 10 DFB transmitters to fit in a 3 RU platform
- Advanced predistortion circuitry and algorithm for both CTB and CSO provide state-of-the-art distortion cancellation over a wide temperature range
- Integrated element management with SNMP compatibility
- Microprocessor control of all key parameters provides consistent and optimum product performance and monitoring
- Offers a wide range of performance levels, providing cost-effective solutions to meet specific system requirements
- Unparalleled flat frequency response provides high performance and efficient system integration
- Simple plug-and-play operation reduces time and cost of installation

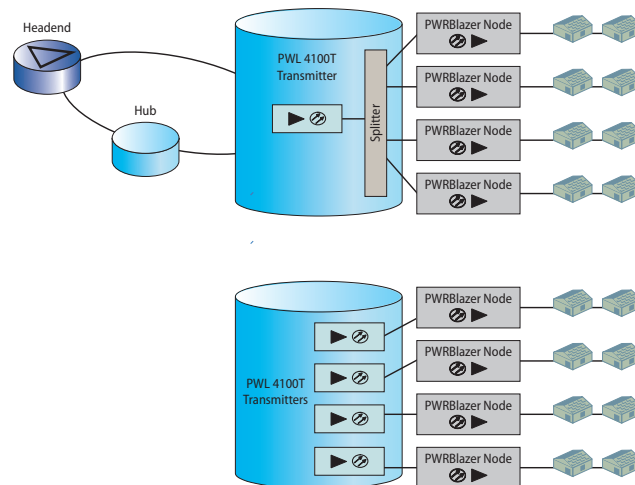
Harmonic's PWRLink™ II is a family of 1310 nm DFB laser transmitter modules. Designed for advanced broadband networks, PWRLink II transmitters can operate alone in local distribution and narrowcasting applications and in combination with Harmonic's externally modulated transmitter family for complete system solutions.

The PWRLink II transmitter modules are very compact with 10 transmitter modules fitting into a single three rack unit high HLP 4200 platform. The transmitter modules fit into the platform via the HMC 4000 module carrier adapter. They are intelligent and easy to configure by means of the user-friendly interface, allowing for set up in minutes. Set up is possible in three ways: via the HLP 4200WD platform front panel menu, the RF adjustment on the module front panel, or the NETWatch™ Element Management System.

Due to its advanced predistortion circuitry, the state-of-the-art PWRLink II transmitter delivers high performance with RF distortion suppression, enabling system designers to achieve very high carrier-to-noise performance while avoiding receiver overdrive problems. Continuous high performance and reliability of the transmitters are assured by a microprocessor and associated firmware which control and monitor all vital functions. Monitored functions include laser temperature and operating point, optical power and module temperature. The transmitter's flat frequency response and wide operating temperature range maximize overall broadband network performance.

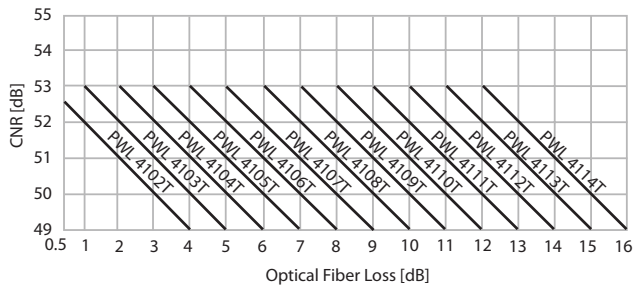


The optical components within the PWRLink II transmitter module have been designed for ease-of-use and maintenance. The optical connector is mounted on a removable plate on the back of the unit. This feature facilitates simple cleaning of the connector, ensuring consistently high picture quality.



Standard Configuration

**Estimated PWL 4100T CNR vs. Optical Fiber Loss -  
76 PAL B/G Channels<sup>1,2</sup>**



**MODELS AVAILABLE**

PWL 41xxT-zz  
xx = Model Number (02 to 14)  
zz = Connector Type (AS, AF, or AE)

**LINK PERFORMANCE**

Carrier-to-Noise (CNR)	Shown in figure above
Carrier-to-CSO <sup>1,3</sup>	> 64 dB
Carrier-to-CTB <sup>1,3</sup>	> 68 dB
When link includes optical splitter loss add 0.15 dB to CNR for every 1 dB of splitter loss.	

**OPTICAL OUTPUT**

Wavelength	1300 - 1320 nm
Model	Optical Power (dBm)
PWL 4102T	2.5 ± 0.5
PWL 4103T	4.0 ± 0.5
PWL 4104T	5.0 ± 0.5
PWL 4105T	5.5 ± 0.5
PWL 4106T	6.0 ± 0.5
PWL 4107T	7.0 ± 0.5
PWL 4108T	8.0 ± 0.5
PWL 4109T	9.0 ± 0.5
PWL 4110T	9.5 ± 0.5
PWL 4111T	10.5 ± 1.0
PWL 4112T	11.0 ± 1.0
PWL 4113T	11.5 ± 1.0
PWL 4114T	13.0 ± 1.0

**RF INPUT**

Input Level Range per Unmodulated Analog Channel	
PWL 4102T – PWL 4114T	16 to 22 dBmV
Operational Bandwidth	45 to 1003 MHz

Frequency Response	< 1 dB peak-to-valley
RF Attenuator Adjustment Range	10 dB
Impedance	75 Ω
Return Loss	> 16 dB
Level Control	Manual (MGC) / Automatic (AGC), Auto setup feature

**USER INTERFACE**

Front Panel	
Bi-state Status LED	Normal = Green, Alarm = Red
Module Selection Indicator	Yellow LED
RF attenuation adjustment	
Monitor Point	
Laser RF Drive Monitor	
Flatness	± 1.0 dB
Return Loss	> 16 dB
Connector Type	Standard Female F
Level	-20 ± 1.5dB below input

**NETWATCH™ ELEMENT MANAGEMENT SYSTEM**

HEM Interface	RS-485, RS-232C connectors (in HLP 4200)
Carrier Externally generated	

**POWER REQUIREMENTS**

Nominal	+24 VDC; supplied by HLP 4200 bus
Consumption	22 Watts maximum

**ENVIRONMENTAL**

Operating Temperature Range	0° to +50° C / +32° to 122° F
Storage Temperature Range	-40° to +70° C / -40° to 158° F
Relative Humidity	Maximum 85% non-condensing
Software over temperature laser protection	

**PHYSICAL**

Dimensions	1.3" W x 4.4" H x 12.7" D / 3.3 cm W x 11.2 cm H x 32.2cm D
Weight	2.1 lbs / 0.95 kg
Mounting	HLP 4200 platform; via HMC module carrier
Optical Connector Type <sup>4</sup>	SC/APC
RF Connector Type	Standard F, RG-59 cable type (accepts 0.64 - 0.8 mm center conductor diameter)

Notes:

1. Channel loading: 76 unmodulated PAL B/G.
2. Optical link defined as PWRLink II transmitter + 100% fiber link + HRM 3811 receiver.
3. For operation over entire temperature range, subtract 3 dB from CSO and 2 dB from CTB.
4. SC/APC is the connector type recommended by Harmonic. Other connector types available upon request.