



PremiseNode OTPN-2000C / OTPT-300A

HIGH OUTPUT FTTP PREMISE NODE: OPTICAL RECEIVER with OPTIONAL RETURN TRANSMITTER

Features / Benefits

- Flagship Model of the OT “Premise Node” family: *High-Output, Premium-Performance & Full-Featured*
- Stable, High RF Output Level (+46 dBmV) over Wide (+3 to -6dBm @ 1310/1550nm) Optical Input range
- Superior Low-Noise Performance (CNR > 49 dB @ -6 dBm Optical Input) & CSO/CTB Specs (> 64/69dB)
- Designed to Directly Feed 64+ television outlets in FTTH applications (more with line extender amplifiers)
- Inter-Stage Slope and RF Input/Output controls via internal Plug-in EQ’s and Plug-In attenuator Pads
- Calibrated external Optical Input Power Meter (1V/mW) and internal RF test points (@ -20dB)
- Full CATV Forward Path Bandwidth (Analog and QAM Digital) 54-1,000MHz (± 1.0 dB)
- DFB & CWDM Return Laser Transmitter options (field-installable) for two-way DOCSIS operation
- Choice of Return/Forward Frequency Diplexer Splits (42/54MHz, 65/85MHz or 30/45MHz)
- Built-in Universal 90-240 V_{AC} (@ 50/60 Hz) CE-approved Power Supply for local powering
- > 6kV surge tolerant RF output and SMT construction for consistency, reliability & performance
- Compact (3" x 5" x 8"), Lightweight, Rugged cast aluminum housing for easy installation

The **OLSON TECHNOLOGY, INC. PremiseNode Model OTPN-2000C** is a high-output, high-performance, full-featured CATV optical node designed around the very latest optical receiver technology to reliably deliver a full slate of multiplexed video, high speed data & telephony services in an HFC/PON fiber-to-the-premise (FTTP) environment.



The unit is ideally suited for direct fiber transmission of CATV RF signals in FTTH, MDU, industrial, corporate, government, educational or other I-Net applications where a high performance, compact indoor node is required. The unit is constructed with high quality components to enable it to meet or exceed its performance specifications over a wide temperature range in an uncontrolled environment, but does require protection from the elements. It is configured for standalone desktop, shelf or wall-mounting, or can be 2RU 19" EIA rack-mounted via the optional **OTLL-RMKIT2** kit. The **OTPN-2000C** is forced-air cooled via an external high-MTBF fan, which is designed to be field-replaceable without interrupting operation. The base “receiver-only” model is a rugged, self-contained device with an optical input range which is wider and more sensitive than traditional CATV node receivers, permitting its link deeper into the subscriber base. The **OTPN-2000C** accepts reliable plug-in attenuator pads to allow the RF output level to be adjusted

over a wide range of optical input power. The unit also allows for an interchangeable equalizer so that the slope of the RF output can be adjusted. See the middle chart on page 6 for more details. The units ships with a 15dB equalizer installed. The attenuator pad is usually in the 8dB to 10dB range. The **OTPN-2000C** includes a unique provision which provides for the addition of an optional high-performance return DFB or CWDM laser return transmitter, creating a complete two-way, DOCSIS-compatible indoor node in a low-profile, integrated package. This “sidecar” module, the **OTPT-300A**, is a separate unit, designed so it can be installed initially or added later in the field with a minimum of effort. The **OTPT-300A** also features an external wideband (5-300MHz) RF input, which eliminates the need for costly sub-band modulators and demodulators in local origination upstream video applications. The **OTPN-2000C** is the perfect companion to the Olson Technology, Inc. **LaserLite** (Models OTOT-1000C-x & OTOR-300) and **LaserPlus** (Models LP-OT-x and LP-OR) Forward Transmitter and Return Receiver product families, but is also designed to mate with analog optical transmitters and return receivers from most leading manufacturers.



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PremiseNode OTPN-2000C / OTPT-300A

OTPN-2000C (Forward Optical Receiver) SPECIFICATIONS

RF OUTPUT & PERFORMANCE PARAMETERS:

| | |
|------------------------------|---|
| Frequency Range (& Flatness) | 54-1,000MHz, 85-1,000MHz or 45-1,000MHz (± 1.0 dB) |
| Output Level * | +46dBmV @ 550MHz * |
| Return Loss | >16dB |
| Impedance | 75-Ohm |
| CNR* | >53dB @ -1dBm; >49dB @ -6dBm optical input* |
| CSO* | >64dBc @ -1dBm optical input* |
| CTB* | >69dBc @ -1dBm optical input* |
| RF Gain Adjustment | 0-18dB (with Model# 95080x plug-in pad) |
| Slope Adjustment | 4-17dB (with Model# 95180x plug-in equalizer) |
| RF Test Point | -20dB (internal) |
| RF Output Connector | Type F |

* NOTE: Typical; Measured with 12dB slope to 1,000MHz; +8dBm optical transmitter with OMI @ 2.8%, and; 77 NTSC Channel loading to 550MHz & digital loading to 1,000MHz (-6 dB below analog).

OPTICAL PARAMETERS:

| | |
|--------------------------------|---|
| Wavelength | 1280-1600nm |
| Optical Input Power Range | -6 dBm to +3dBm |
| Return Loss | >60dB with APC type connector |
| Optical Input Power Test Point | 1 V/mW (external) |
| Optical Connector | SC/APC standard; FC/APC optional); 8° APC |

ELECTRICAL, ENVIRONMENTAL & MECHANICAL PARAMETERS:

| | |
|-----------------------------|---|
| Dimensions | 3" H x 4.5" W x 8" D (7.75cm x 12.1cm x 20.5cm) |
| Weight | 2.1 lb. (0.96 kg) |
| Operating Temperature Range | -10 to +55°C |
| Enclosure IP Rating | IP20 |
| Powering | 90 - 240V _{AC} @ 50-60 Hz via IEC320 connector |
| Power Dissipation | 19W maximum |
| Cooling | Fan cooled, forced air (Field-replaceable) |



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Rev. B

Order From:



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PremiseNode OTPN-2000C / OTPT-300A

GENERAL SPECIFICATIONS : OTPT-300A Series (Return Optical Transmitters)

RF INPUT & PERFORMANCE PARAMETERS:

| | |
|---|---|
| Frequency Range (& Flatness) via Diplexer | 5-42MHz (NTSC) / 5-65MHz (PAL) ($\pm 1.0\text{dB}$) |
| Freq. Range (& Flatness) via Ext. Aux. RF Input | 5-300MHz ($\pm 1.0\text{ dB}$) |
| Return Loss | >16dB @ 5-42MHz, 5-30MHz or 5-65MHz |

OPTICAL PARAMETERS:

| | |
|--------------------------|---|
| Return Loss | >60dB with APC type connector |
| Laser Power Test Point | 1 V/mW (external) |
| Laser Current Test Point | 1 V/50 mA (external) |
| Optical Connector | SC/APC standard; FC/APC optional); 8° APC |

ELECTRICAL, ENVIRONMENTAL & MECHANICAL PARAMETERS:

| | |
|--------------------------------|---|
| Dimensions | 2.5" H x 0.75" W x 7.1" D (6.25cm x 1.8cm x 18cm) |
| Weight | 0.5 lb. (0.2 kg) |
| Powering (& Power Dissipation) | via OTPN-2000 (4W maximum) |

OTPT-304A & OTPT-305A SPECIFICATIONS (DFB Return Optical Transmitters)

RF INPUT & PERFORMANCE PARAMETERS:

| | |
|-------------------------|------------------------|
| Return Path NPR (DFB)** | >15dB over 41dB NPR ** |
| NPR 41dB Threshold | -57dBmV/Hz |

**NOTE: As measured with 10dB of fiber and OTOR-300 High Sensitivity Return Band Receiver

OPTICAL PARAMETERS:

| | |
|--|---|
| Wavelength (OTPT-304A) | 1310nm $\pm 20\text{nm}$ |
| Laser Type; Optical Output Power (OTPT-304A) | Distributed Feedback: +3.0mW $\pm 0.5\text{ mW}$ |
| Wavelength (OTPT-305A) | 1550nm $\pm 20\text{nm}$ |
| Laser Type; Optical Output Power (OTPT-305A) | Distributed Feedback: +2.0 mW $\pm 0.5\text{ mW}$ |

OTPT-347A thru OTPT-361A SPECIFICATIONS (CWDM Return Optical Transmitters)

RF INPUT & PERFORMANCE PARAMETERS:

| | |
|-------------------------|------------------------|
| Return Path NPR (DFB)** | >15dB over 41dB NPR ** |
| NPR 41dB Threshold | -57dBmV/Hz |

**NOTE: As measured with 10dB of fiber and OTOR-300 High Sensitivity Return Band Receiver

OPTICAL PARAMETERS:

| | |
|--|---|
| Wavelengths (OTPT-347 thru 361) | 1470, 1490, 1510, 1530, 1550, 1570, 1590 or 1610 nm $\pm 3\text{ nm}$ |
| Laser Type; Optical Output Power (OTPT-347 thru 361) | Course Wave Division Mux: +2.0mW $\pm 0.5\text{mW}$ |

ACCESSORIES

| MODEL | DESCRIPTION |
|--------------|--|
| PAD1G-xxx | Single 1GHz Pad (Forward or Reverse) |
| PAD1G-KIT-x | 1GHz Pad Kits (Forward or Reverse) |
| OTLL-SCFCKIT | SC/APC to FC/APC Optical Connector Adapter |
| OTLL-RMKIT-2 | Rack Mount Kit (Holds 3 OTPN-1000's) |
| OTOA-1000 | Optical Attenuator |
| OTLL-FANKIT | OTPN-1000 Replacement Fan Assembly |

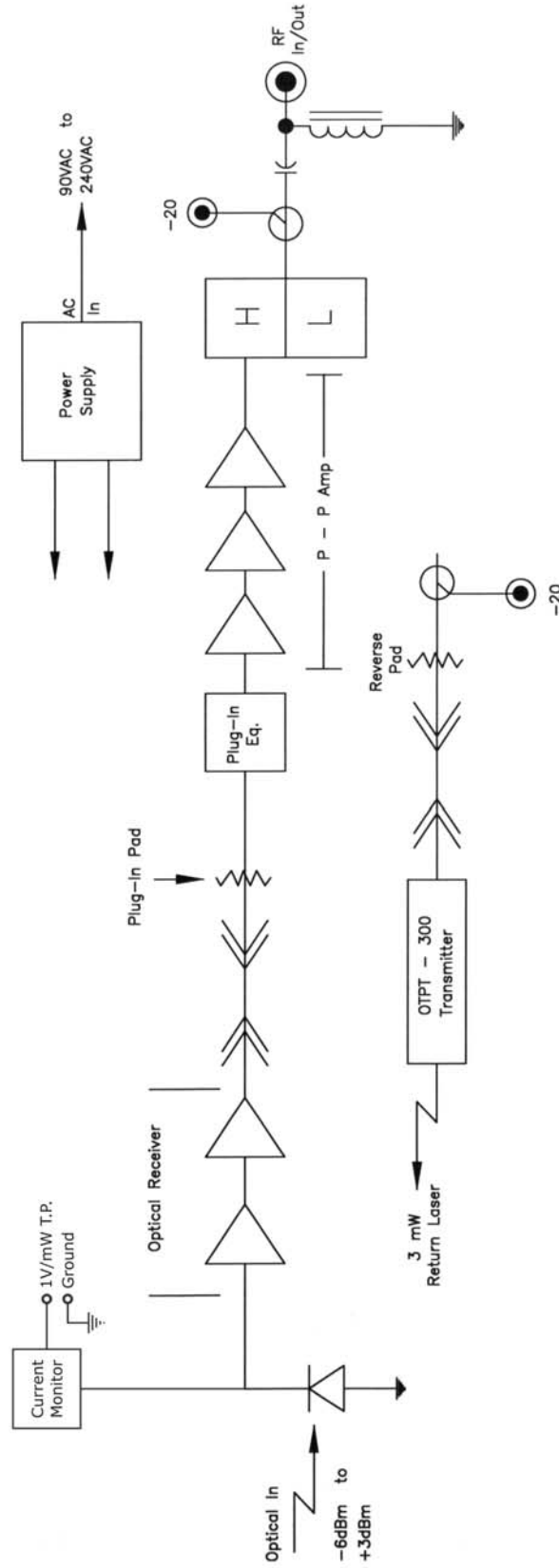
RELATED OLSON TECHNOLOGY PRODUCTS

| MODEL | DESCRIPTION |
|----------------|--|
| OTPN-2000C | Receive only wideband indoor node, 5-42MHz return band |
| OTPN-2000C-PAL | Receive only wideband indoor node, 5-65MHz return band |
| OTPN-2000C-SP1 | Receive only wideband indoor node, 5-30MHz return band |
| OTOR-300 | Indoor return band optical receiver |

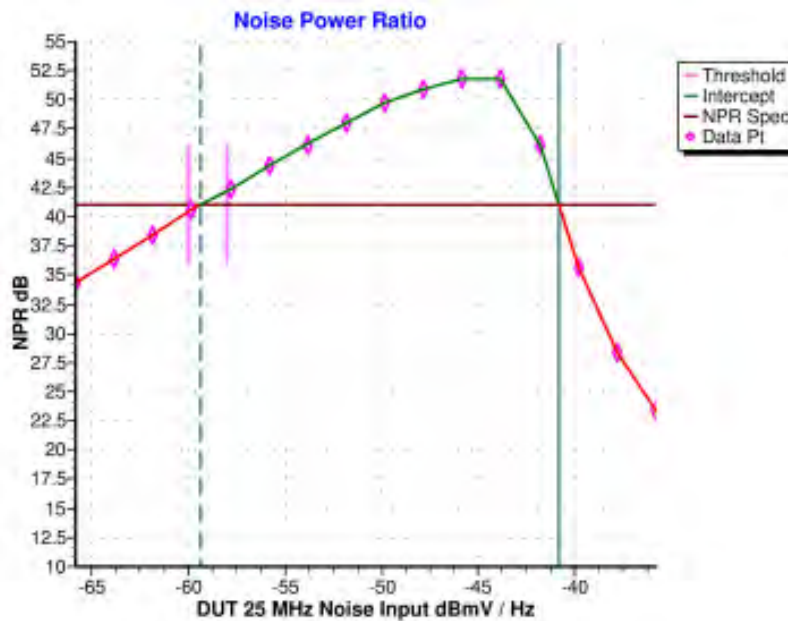
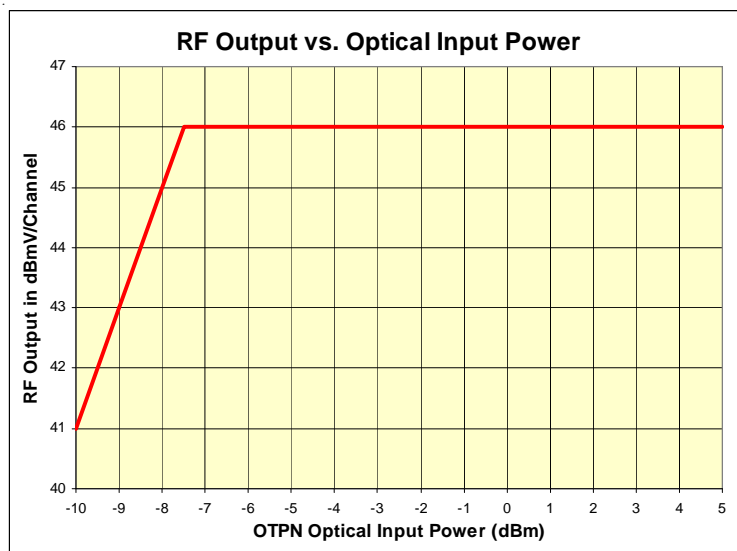
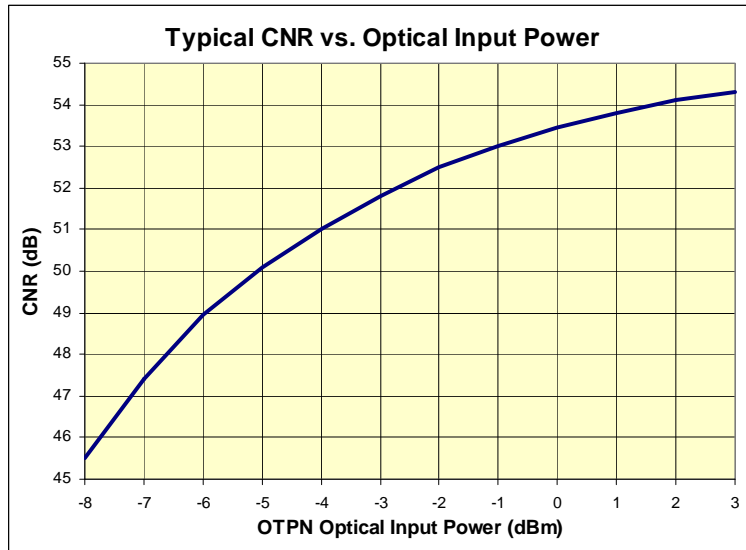
OTPT MODELS

| OT MODEL# | OT PART # | RETURN LASER |
|-----------|------------|-----------------------|
| OTPT-304A | 037-000471 | 3mW, 1310nm, DFB |
| OTPT-305A | 037-030471 | 2mW, 1550nm, DFB |
| OTPT-347A | 037-040471 | CWDM, 2mW, 1470nm DFB |
| OTPT-349A | 037-050471 | CWDM, 2mW, 1490nm DFB |
| OTPT-351A | 037-060471 | CWDM, 2mW, 1510nm DFB |
| OTPT-353A | 037-070471 | CWDM, 2mW, 1530nm DFB |
| OTPT-355A | 037-080471 | CWDM, 2mW, 1550nm DFB |
| OTPT-357A | 037-090471 | CWDM, 2mW, 1570nm DFB |
| OTPT-359A | 037-100471 | CWDM, 2mW, 1590nm DFB |
| OTPT-361A | 037-110471 | CWDM, 2mW, 1610nm DFB |

OTPN-2000C / OTPT-300A Block Diagram



OTPN-2000C / OTPT-300A Performance



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