OTPT-300A

LOW COST INDOOR
RETURN LASER TRANSMITTER

INSTRUCTION MANUAL

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OTPT-300 - Specifications For Use With DFB Laser

Reverse Frequency Range	5MHz to 42MHz, or 5MHz to 65MHz
Reverse Frequency Response	±1.0dB 5MHz to 42MHz or 5MHz to 65MHz
Ext. Aux. RF Input Response	5-300MHz +/- 1.0dB
Input Return Loss	>16dB @ 5MHz to 42MHz or 5MHz to 65MHz
Return Laser Output Power	+3.0mW + 0.5mW
Return Path NPR	>15dB over 41dB NPR measured with 10dB fiber and Olson High Sensitivity Return Band Receiver
NPR 41dB Threshold	-57dBmV/Hz
Test Points	Laser Power 1V/mW Laser Current 1V/50mA
Optical Connector	SC/APC or FC/APC
Weight	0.5 lbs.
Dimensions	2 7/16" H x 11/16" W x 7 1/16" D - 6.25cm H x 1.8cm W x 18cm D

OTPT-300 - Specifications For Use With FP Laser

Reverse Frequency Range	5MHz to 42MHz, or 5MHz to 65MHz
Reverse Frequency Response	±1.0dB 5MHz to 42MHz or 5MHz to 65MHz
Ext. Aux. RF Input Response	5-300MHz +/- 1.0dB
Input Return Loss	>16dB @ 5MHz to 42MHz or 5MHz to 65MHz
Return Laser Output Power	+1.6mW + 0.5mW
Return Path NPR	>15dB over 37dB NPR measured with 10dB fiber and Olson High Sensitivity Return Band Receiver
NPR 41dB Threshold	-57dBmV/Hz
Test Points	Laser Power 1V/mW Laser Current 1V/50mA
Optical Connector	SC/APC or FC/APC
Weight	0.5 lbs.
Dimensions	2 7/16" H x 11/16" W x 7 1/16" D - 6.25cm H x 1.8cm W x 18cm D

SAFETY WARNINGS

LASER RADIATION

The OTPT-300A laser transmitter emits invisible radiation that can cause permanent eye damage. ***AVOID DIRECT EXPOSURE TO BEAM***. Operate the transmitter only with the proper optical fiber installed in the transmitter optical connector. Power to the OTPT-300A should be turned-off or preferably, disconnected whenever the optical connector cover is opened and there is no installed fiber (as when the fiber connector is being installed or removed from the transmitter connector).

NEVER **USE ANY OPTICAL INSTRUMENT TO VIEW THE OUTPUT OF THE LASER TRANSMITTER. "OPTICAL INSTRUMENT" INCLUDES MAGNIFYING GLASSES, etc.**

NEVER **LOOK INTO THE OUTPUT OF THE LASER TRANSMITTER.**
NEVER **LOOK INTO THE OUTPUT OF A FIBER CONNECTED TO A LASER TRANSMITTER.**

NEVER **LOOK INTO OR USE ANY OPTICAL INSTRUMENT TO VIEW THE DISTANT END OF A FIBER THAT MAY BE CONNECTED DIRECTLY OR VIA AN OPTICAL SPLIT, TO A TRANSMITTER THAT MAY BE OPERATING. THIS SPECIFICALLY APPLIES TO FIBERS THAT ARE TO BE CONNECTED TO RECEIVERS (SUCH AS THE OTOR-300) OR OTHER DEVICES AT ANY DISTANCE FROM THE LASER TRANSMITTER.**

HIGH VOLTAGE

The power supply section (bottom section) of the OTPN-1000 contains no user serviceable parts. There is exposed high voltage inside this section. Only factory service technicians should open the power supply section.

FIRE HAZARD

The AC line input fuse is contained in the OTPN-1000 IEC power input connector. This fuse is a 3AG, 0.5A, slow blow fuse. To avoid a risk of fire, this fuse should be replaced only with an identically rated fuse.

SHOCK HAZARD

The OTPT-300A is designed for indoor use only. Direct exposure to moisture must be avoided.

INTRODUCTION

The Olson Technology OTPT-300A is a cost effective field installable return laser transmitter with an RF passband of 5 to 70 MHz. The unit has a DFB laser with 3mW output (+4.8dBm) or a FP laser with 1.6mW output (2.0dBm). This transmitter is intended only for indoor applications. This transmitter must be mounted to an OTPN-1000 Piconode. It will not function as a stand-alone device. The diplex filter, test point, return OMI pad, and AC power supply are part of the OTPN-1000. The actual return passband is determined by the diplex filter in the OTPN-1000. The OTPT-300A is equipped with an auxiliary external RF input for 5-300MHz operation that can be used in upstream video or block converter applications.

ENVIRONMENTAL CONSIDERATIONS

The OTPT-300A is specified to operate from -10°C to +55°C. It will probably not require an air-conditioned environment. It should be mounted in an adequately ventilated area. Like any other electronic equipment, it will probably have a longer life span if it is not operated at the upper limit of the temperature range. Installation in wet areas or areas of extremely high humidity should be avoided. Extremely dirty or dusty areas should be avoided if possible. Objects or debris should not be allowed to block the openings in the OTPN-1000 housing or fan. The unit should not be installed in areas that are accessible to children.

OPTICAL CONNECTORS AND CLEANING

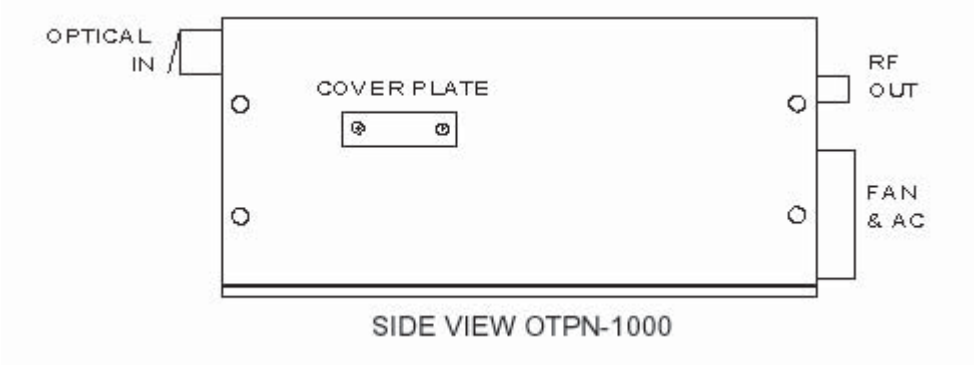
The standard optical connector is an SC/APC. In order to use FC/APC connectors, you must order a conversion kit, OTLL-SCFCKIT. The standard optical connector location is on the opposite side from the RF connector. The connector can be moved to the other side by swapping it with a cover plate. Only a screwdriver is required for either operation.

Either of these operations **must** be done **before** the OTPT-300A is mounted to the OTPN-1000. Failure to replace all of the OTPT-300A cover screws can cause RF ingress problems.

The fiber ends can be damaged by the insertion of contaminated connectors. Some types of customer damage to connectors are **not** covered under warranty. Fiber connectors should never be left uncovered. Prepackaged alcohol wipes are the most convenient means of cleaning optical connectors. Clean alcohol and lint free wipes or swabs may also be used.

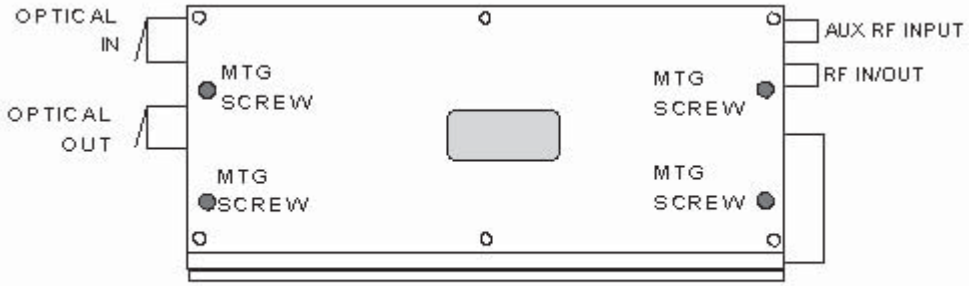
INSTALLATION

1. If the OTPN-1000 is operational, REMOVE power from the OTPN-1000 before proceeding.
2. Remove the cover plate on the side of the OTPN-1000. Save the plate and screws in order to eliminate RF ingress if the OTPT-300A should ever be removed.



SIDE VIEW OTPN-1000

3. Carefully push the OTPT-300A onto the side of the OTPN-1000. Clean the side of the OTPN-1000 with alcohol if required. No heat sink gasket or compound is required between the OTPT-300A and the OTPN-1000.
4. Firmly screw in the four mounting screws provided. If the original screws are missing, use 4-40x7/8" or 4-40x1" screws with lockwashers.



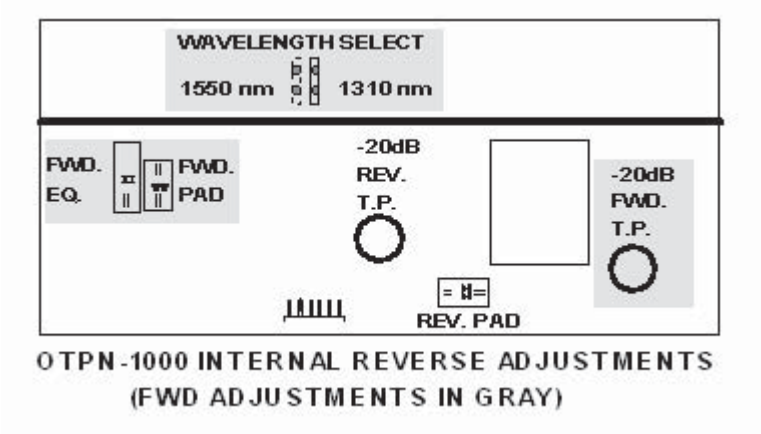
SIDE VIEW OTPN-1000 W/OTPT-300A

5. Apply power to the OTPN-1000.
6. Measure the OTPT-300A output power with an optical power meter and record the result.
7. Remove power from the OTPN-1000.
8. Clean the return fiber per your system standards and insert into the optical output connector.
9. Apply power to the OTPN-1000.
10. Measure the OTPT-300A laser power and laser current test points and record the results.
12. Remove the top cover from the OTPN-1000.

12. The specification for the return band transmitter RF input level is -57dBmV/Hz (measured at the OTPN-1000 R.F. port). This value operates the system at the NPR threshold. The OTPN-1000 has a plug-in attenuator in the reverse path. Also included is a -20dB test point in the return path. Note that the -20dB test point is before the plug-in attenuator. The single carrier equivalent of -57dBmV/Hz is +9dBmV. The pad must be selected to set the return carrier level to +9dBmV actual, after the attenuator. With a test carrier present at the port, measure its level at the reverse -20dB test point. Use the actual level (test point +20dB) measured, to determine what value of attenuator must be used to provide +9dBmV after the attenuator.

EXAMPLE: Test Point reading of +5dBmV plus -20dB test point equals +25dBmV minus +9dBmV equals 16dB pad required.

13. Firmly replace all OTPN-1000 top cover screws. Failure to do so can result in cooling, RF radiation, or RF ingress problems.



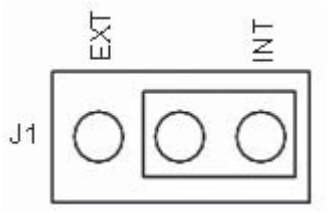
OTPN-1000 INTERNAL REVERSE ADJUSTMENTS
(FWD ADJUSTMENTS IN GRAY)

AUXILIARY RF INPUT

When using the OTPT-300A in the external auxiliary RF input mode (5-300MHz) the level will be +6.0dBmV per channel and has no input attenuator or test point.

INTERNAL CONTROLS

Switching from internal diplex (5-42MHz) operation to external RF input (5-300MHz) is achieved by an internal jumper J1on the OTPT-300A printed circut board.



There is no user adjustable internal laser power adjustment. Any change to the laser power will result in poorer modulation characteristics and reduced link performance.

The return pad and return test point are located inside the OTPN-1000 as shown above.

EXTERNAL CONTROLS AND TEST POINTS

The OTPT-300 has 2 external DC test points. One reads laser current at 1V per 50mA. A typical laser current of 25mA would read .5V at this test point. The laser power test point is 1V per mW. This is for historical tracking. The optical power meter is a much more accurate means of measuring power. Both of these test points should be measured with a high impedance voltmeter.

ACCESSORIES

MODEL	DESCRIPTION
PAD-xxx	Single Pad (Forward or Reverse)
PAD-KIT-x	Pad Kits (Forward or Reverse)
OTLL-SCFCKIT	SC/APC to FC/APC Optical Connector Adaptor
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-1000	Receive only wideband indoor node 5-42 MHz return band.
OTPN-1000-PAL	Receive only wideband indoor node 5-65 MHz return band.
OTOR-300	Indoor return band optical receiver.
OTPT-300-FP	Field installable return transmitter with 1.6mW FP laser.