

Model OLAT/OLAR Advanced L-Band System

Advanced L-Band Systems

Most Compact, full-featured L-Band system on the market!

Extreme bandwidth range of 10MHz to 4,000MHz handles all satellite signals.

Digital gain control with 25dB range for both the transmitter and the receiver.

Excellent L-Band performance with digital gain control over a 25dB range.

A receiver APD Detector option is available for the receiver offers extreme optical sensitivity. PIN Detector is standard.

1310nm, 1550nm, CWDM, and DWDM wavelength DFB laser options.

Built-In test points, LED indicators and alarms for easy setup and maintenance.

OTAPS-4000-AC Power supply has built-in programming option for LNB voltage and 22kHz selection.

Multiple powering options: "F" connector or OTAPS-4000-AC via DIN connector option.

75 Ohm "F" RF connector standard, 50 Ohm RF SMA connector option.

SC/APC optical connector standard, FC/APC connector optional.



The Olson OLAT/OLAR Advanced L-Band System offers a feature-rich, versatile system in a very compact package. The Advanced L-Band system has been engineered to meet today's high performance standards for L-Band transport with an extreme bandwidth range that will also allow the system to handle the next generation of satellite signals. The system is ideal for a wide variety of communications applications, including L-Band satellite antenna remoting, trunking radio, telemetry tracking, and time and frequency reference distribution. The extended frequency range to 4GHz allows this system to accommodate additional transponders coinciding with common European satellite communication applications.

The enhanced bandwidth to 4GHz is also unique in that it facilitates stacked LNB applications to accommodate additional transponders with enhanced DBS programming services (e.g., HDTV, local channels, etc.) over single-mode fiber for DBS television distribution in campus, fiber-to-the-premise (FTTx), and multiple dwelling unit (MDU) environments. All units are offered with 75 Ohm impedance using "F" connectors or 50 Ohms with SMA connectors. Optical connector options include FC/APC and SC/APC. Operating at 1310nm, 1550nm, CWDM, or DWDM wavelengths, the Advanced L-Band System will meet any satellite transport requirements.

The transmitter, receiver, and power supply are housed in rugged, compact, standalone enclosures. The Olson Technology adapter mounting plate refits the units on a 1RU or 2RU 19" plate for installation in an EIA 19" rack. The 2RU plate will allow up to six units to be mounted in a 2RU space. (The 2RU plate is pictured below.)



Model OLAT Advanced L-Band Transmitters



The Advanced L-Band Transmitter transmits 10MHz to 4,000MHz RF signals over single-mode optical fiber. The unit has a 25dB digital gain control (Model OLAT). Laser output power options include +5dBm (1310nm & 1550nm DFB), +4dBm (CWDM), or +10dBm (DWDM).

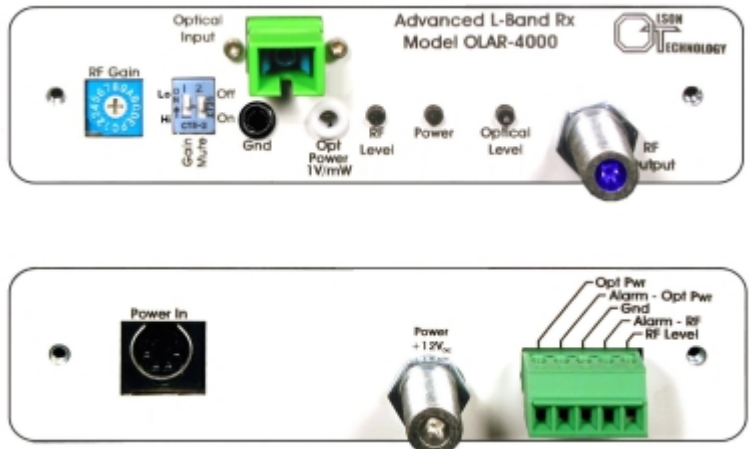
The transmitter includes two LNB powering options; Through a standard "F" connector or via the OTAPS-4000-AC power supply. The OTAPS-4000-AC has selector switches allowing each transmitter to have its LNB voltage set at +13V or 17V and also to set a 22kHz tone on or off. Built-in test points, LED indicators and alarms allow the transmitter to be easily set up and maintained.

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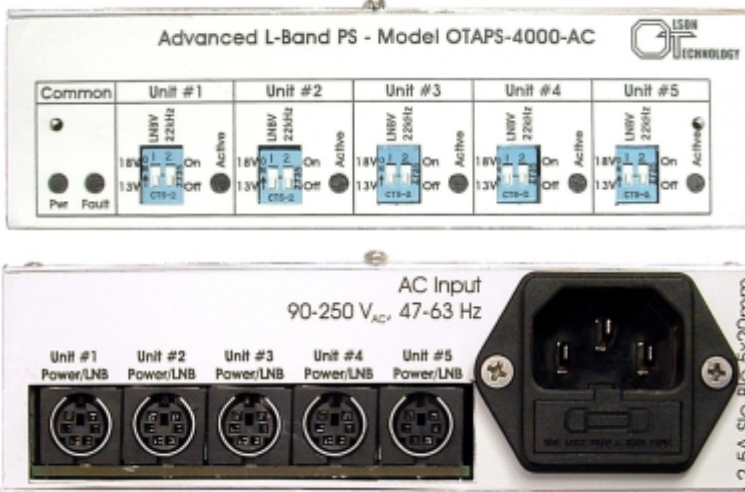
Model OLAR Advanced L-Band Receivers

The OLAR L-Band Receiver accommodates 10MHz to 4,000MHz RF signals. The unit has a 25dB digital gain control (Model OLAR). Optical input power ranges from -15 to +3dBm in the wavelength range of 1270-1610nm.

The receiver offers a high sensitivity APD detector version with enhanced sensitivity (about 7dB better). Built-in test points, LED indicators and alarms allow the receiver to be easily set up and maintained. The receiver can be powered through an "F" connector or via the OTAPS-4000-AC power supply.



Advanced L-Band Power Supply & Rackmount Options



The Model OTAPS Advanced L-Band Power Supply offers additional functionality to the system. The power supply incorporates a selectable +13/+17V power supply option to power the LNB for each transmitter. A selectable 22kHz tone is also available. The power supply accepts 100-240 Volts, 50 or 60 Hz AC (Model OTAPS-4000-AC) input. One power supply will power up to five transmitters or receivers in any combination. An LED indicator indicates that a given unit is being powered.

Rack mount configurations of the Advanced L-Band System offer an economical, high density solution. No adapters are required; all units mount directly to a Model OTLL-RMKIT-4 adapter plate that can accommodate three

transmitter/receiver modules in a 1RU space or six units to a Model OTLL-RMKIT-5 in a 2RU space. The system includes a tray area for fiber organization. The OTAPS ships with a North American AC power cord and five (5) DIN cables each 24" long.

System Specifications

Optical Characteristics (with SM 9/125µm Fiber)

	Min	Typ	Max	Units
Operating Wavelength		1310		nm
Operating Wavelength		1550		nm
Operating Wavelength (CWDM)	1290		1610	nm
Operating Wavelength (DWDM)	22		46	ITU ch
Tx Optical Output Power (DFB)		+5		dBm
		3		mW
Tx Optical Output Power (CWDM)		+4		dBm
		2.5		mW
Tx Optical Output Power (DWDM)		+10		dBm
		10		mW
Rx Opt. Input Power (PIN Det.)	-15		+3	dBm
Rx Opt. Input Power (APD Det.)	-22		-3	dBm
Tx/Rx Opt. Return Loss		>55		dB
Optical Loss Budget (PIN Det. Rx):				
+4dBm, CWDM DFB	1		19	dB
+5dBm, 1310/1550nm DFB	2		20	dB
+10dBm, DWDM DFB	7		25	dB
Optical Loss Budget (APD Det. Rx):				
+4dBm, CWDM DFB	7		26	dB
+5dBm, 1310/1550nm DFB	8		27	dB
+10dBm, DWDM DFB	13		32	dB
Optical Connector (Standard)		SC/APC		
Optical Connector (Optional)		FC/APC		

Electrical and Environmental Characteristics (OTAPS)

	Min	Typ	Max	Units
Power Supply Voltage (AC)	100		240	V _{AC}
Power Frequency	50		60	Hz
Operating Temp. Range	0		+55	°C
Storage Temp. Range	-20		+70	°C
Humidity	5		95	%

Transmitter & Receiver Powering Characteristics

	8V _{DC}	12V _{DC}	15V _{DC}	18V _{DC}	24V _{DC}
Tx	410	275	220	185	135
Rx	265	180	140	120	90

Typical Current Requirements (mA) vs. Supply Voltage

NOTES:

- The RF gain changes 2dB for each 1dB of optical loss.
- The transmitter P_{1dB} and also IP3 varies dB per dB as the gain is changed. See the manual for detailed data.
- The receiver P_{1dB} and IP3 is almost constant over the full RF gain range.
- Noise figure is a complex variable that is influenced by the Tx and Rx attenuator settings as well as the optical loss. See the manual for detailed data.
- The current drawn by the transmitter and receiver is highest at the lowest DC supply voltage and lowest at the highest supply voltage.
- The Hi/Lo Gain switch on the front panel changes the gain by 10dB. The hexadecimal rotary switch on the front panel changes the gain in 1dB steps. The "0" setting on the rotary switch is the lowest gain. The "F" setting on the rotary switch is the highest gain.

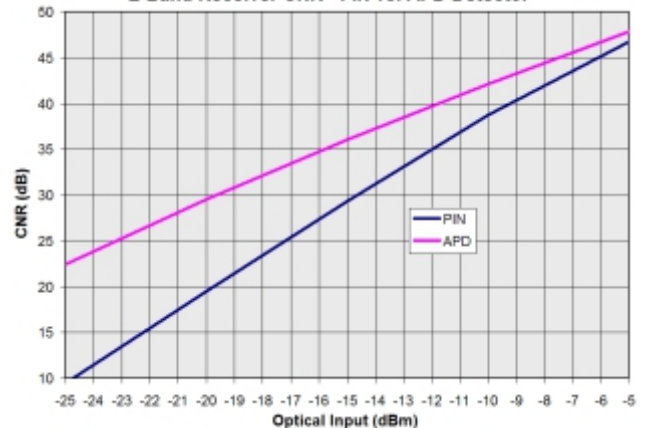
RF and System Characteristics

	Min	Typ	Max	Units
Frequency (non-DWDM Models)	10		4,000	MHz
Amplitude Flatness	Any 500MHz / ±1.5dB			
	Any 40MHz / ±0.35dB			
Return Loss	10			dB
Output Impedance (Standard)		75		Ohms
Output Impedance (Option)		50		Ohms
Link Gain	-50		+30	dB
Noise Figure (See manual)	10		45	dB
Tx Input IP3 (Varies with gain)	-10		+15	dBm
Rx Output IP3		+12		dBm
Tx Input P _{1dB} (Varies with gain)	-12.5		+12.5	dBm
Rx Output P _{1dB}		-2		dBm
Tx Input/Rx Output VSWR	1.9:1			
Tx Total RF Input Power	-25		0	dBm
Hi/Lo Gain Switch		10		dB
Hexadecimal Rotary Gain Switch	0		15	dB

Physical Characteristics

	Min	Typ	Max	Units
Tx Weight		10		oz.
		285		g
Rx Weight		10		oz.
		285		g
Power Supply Weight		20		oz.
		570		g
Tx/Rx Dimensions	5.0 x 4.125 x 1.25			in.
	127 x 105 x 32			mm
Power Supply Dimensions	5.0 x 8.0 x 1.45			in.
	127 x 203 x 37			mm

L-Band Receiver CNR - PIN vs. APD Detector



Advanced L-Band Rx CNR with PIN & APD

Ordering Information

Transmitter Part Numbers

Model OLAT-X4013-D5-75-FA	Transmitter, 4GHz, 1310nm, +5dBm/3mW DFB Laser, 75 Ohm F Connector, FC/APC
Model OLAT-X4013-D5-75-SA	Transmitter, 4GHz, 1310nm, +5dBm/3mW DFB Laser, 75 Ohm F Connector, SC/APC
Model OLAT-X4013-D5-50-FA	Transmitter, 4GHz, 1310nm, +5dBm/3mW DFB Laser, 50 Ohm SMA Connector, FC/APC
Model OLAT-X4013-D5-50-SA	Transmitter, 4GHz, 1310nm, +5dBm/3mW DFB Laser, 50 Ohm SMA Connector, SC/APC
Model OLAT-X4015-D4-75-FA	Transmitter, 4GHz, 1550nm, +4dBm/2.5mW DFB Laser, 75 Ohm F Connector, FC/APC
Model OLAT-X4015-D4-75-SA	Transmitter, 4GHz, 1550nm, +4dBm/2.5mW DFB Laser, 75 Ohm F Connector, SC/APC
Model OLAT-X4015-D4-50-FA	Transmitter, 4GHz, 1550nm, +4dBm/2.5mW DFB Laser, 50 Ohm SMA Connector, FC/APC
Model OLAT-X4015-D4-50-SA	Transmitter, 4GHz, 1550nm, +4dBm/2.5mW DFB Laser, 50 Ohm SMA Connector, SC/APC
Model OLAT-X40zz-C4-75-FA	Transmitter, 4GHz, CWDM Wavelengths, +4dBm/2.5mW DFB Laser, 75 Ohm F Connector, FC/APC
Model OLAT-X40zz-C4-75-SA	Transmitter, 4GHz, CWDM Wavelengths, +4dBm/2.5mW DFB Laser, 75 Ohm F Connector, SC/APC
Model OLAT-X40zz-C4-50-FA	Transmitter, 4GHz, CWDM Wavelengths, +4dBm/2.5mW DFB Laser, 50 Ohm SMA Connector, FC/APC
Model OLAT-X40zz-C4-50-SA	Transmitter, 4GHz, CWDM Wavelengths, +4dBm/2.5mW DFB Laser, 50 Ohm SMA Connector, SC/APC
Model OLAT-X40yy-E10-75-FA	Transmitter, 4GHz, DWDM Wavelengths, +10dBm/10mW DFB Laser, 75 Ohm F Connector, FC/APC
Model OLAT-X40yy-E10-75-SA	Transmitter, 4GHz, DWDM Wavelengths, +10dBm/10mW DFB Laser, 75 Ohm F Connector, SC/APC
Model OLAT-X40yy-E10-50-FA	Transmitter, 4GHz, DWDM Wavelengths, +10dBm/10mW DFB Laser, 50 Ohm SMA Connector, FC/APC
Model OLAT-X40yy-E10-50-SA	Transmitter, 4GHz, DWDM Wavelengths, +10dBm/10mW DFB Laser, 50 Ohm SMA Connector, SC/APC

NOTES:

- 1) The "zz" in the CWDM model number may be 47, 49, 51, 53, 55, 57, 59, 61, for each of the eight available ITU-grid CWDM wavelengths.
- 2) The "yy" in the DWDM model number may be 22, 23, ...45, 46 for each of the available ITU-grid DWDM wavelengths (*Note: Availability of some DWDM channels is limited at times*).

Receiver Part Numbers

Model OLAR-X4000-75-FA	Receiver, 4GHz, PIN Detector, 1270-1610nm, 75 Ohm F Connector, FC/APC
Model OLAR-X4000-75-SA	Receiver, 4GHz, PIN Detector, 1270-1610nm, 75 Ohm F Connector, SC/APC
Model OLAR-X4000-50-FA	Receiver, 4GHz, PIN Detector, 1270-1610nm, 50 Ohm F Connector, FC/APC
Model OLAR-X4000-50-SA	Receiver, 4GHz, PIN Detector, 1270-1610nm, 50 Ohm F Connector, SC/APC
Model OLAR-X4000S-75-FA	Receiver, 4GHz, APD Detector, 1270-1610nm, 75 Ohm F Connector, FC/APC
Model OLAR-X4000S-75-SA	Receiver, 4GHz, APD Detector, 1270-1610nm, 75 Ohm F Connector, SC/APC
Model OLAR-X4000S-50-FA	Receiver, 4GHz, APD Detector, 1270-1610nm, 50 Ohm SMA Connector, FC/APC
Model OLAR-X4000S-50-SA	Receiver, 4GHz, APD Detector, 1270-1610nm, 50 Ohm SMA Connector, SC/APC

Power Supply Part Numbers

Model OTAPS-4000-AC	Advanced L-Band System Power Supply with Selectable LNB Voltage & 22kHz, 100-240 Volts AC <i>Note: The OTAPS ships with a North American AC power cord and five (5) DIN cables each 24" long.</i>
Model OTPS-12A-F	Basic universal AC Power Supply, +12V, +1.5A with "F" Connector

Rackmount Adapter Plate Part Numbers

Model OTLL-RMKIT-4	1RU Adapter Plate, for 3 Transmitter, Receiver or Power Supply Modules (Includes 2 blank plates)
Model OTLL-RMKIT-5	2RU Adapter Plate, for 6 Transmitter, Receiver or Power Supply Modules (Includes 5 blank plates)