

Optiva OTS-1 Ref-1 1 MHz Reference Oscillator Link

emcore®

DATASHEET | JULY 2017

SATCOM



Applications

- Satellite Reference Signals
- Satellite Time Code

Features

- Optimized for 1 MHz Reference Signals
- Designed for High Level Signal Input
- 50 Ohm SMA, E2000
- Receiver RF Power Monitoring via LED, SMA & Remote Monitoring
- SNMP Monitoring and Control
- High-Dynamic-Range, Optically-Isolated DFB Lasers Run Cooler and Require Less Power
- Fits in Optiva Enclosures -16, 6, 2, & 1 Slot Enclosures Available
- Hot Swap Redundant Power Supplies Virtually Eliminate Downtime
- CE & CSA Certified, RoHS Compliant

The Optiva OTS-1 Ref-1 Reference Oscillator Link is optimized for the transport of 1 MHz high-level reference signal input. It features low phase noise and high-dynamic-range, with optically-isolated DFB lasers that run cool and have low power consumption requirements.

Optiva Reference Oscillator Links are SNMP compliant. They can be housed in the same chassis and monitored by the same Network Management System (NMS) as other Optiva cards to support transport of multiple signal formats and frequency bands in a single flexible platform.



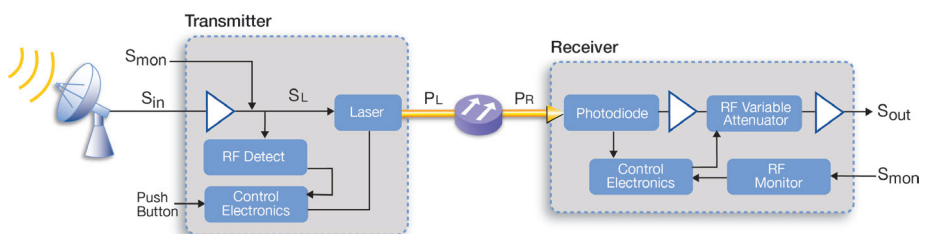
System Design

The Optiva platform includes a wide range fiber optic transport products for satellite and microwave communications from 1 MHz to 40 GHz. These units can be used to construct transparent inter- and intra-facility links for short- and long-haul RF and microwave signal transport, antenna remoting, electronic warfare systems and other high-dynamic-range applications.

optiva | PLATFORM

Optiva is a completely modular, hot-swappable platform. Both 19" rack-mount and compact tabletop, or wall-mountable enclosures are available. The 3 RU 19" rack-mount, fan-cooled enclosures (Model OT-CC-16 and OT-CC-16F) can support up to 16 insert cards and utilize two dual-redundant, hot-swappable 200 watt power supplies. The 1 RU 19" rack-mount, fan-cooled enclosure (Model: OT-CC-6-1U) can accommodate 6 insert cards and utilizes two hot-swappable 60 watt power supplies. Compact one-slot (OT-DTCR-1), or two-slot (OT-DTCR-2) enclosures are also available that use an external wall-mount power supply.

Block Diagram



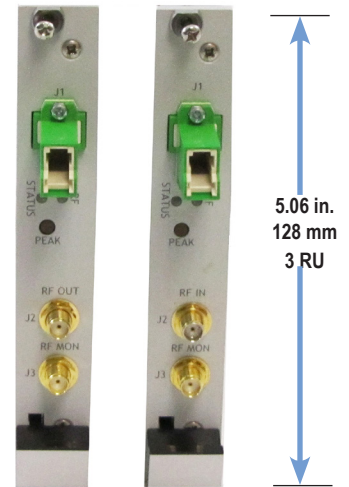
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Performance Highlights

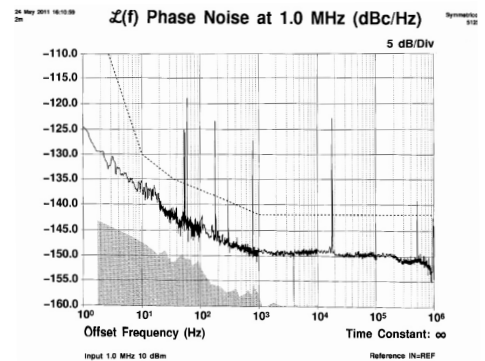
	Parameter	Min	Typical	Max	Units	
Link	Frequency Range	0.9	-	1.1	MHz	
	Fiber Distance	0	2	4	Km	
	Optical Loss ²	0	1	2	dBo	
	Phase Noise ² @ +11 dBm RF Input, 1 dB Optical loss, 25°C	> 1 Hz	-	-	-95	dBc/Hz
		> 10 Hz	-	-	-130	
		> 35 Hz	-	-	-135	
		> 100 Hz	-	-	-137	
		> 1 KHz	-	-	-142	
		> 350 KHz	-	-	-142	
	> 1 MHz	-	-	-142		
Air Temperature	-10	-	50	°C		
TX	RF Input ²	-	11	-	dBm	
	2nd Order Harmonic	-	-	-40	dBc	
	Non Harmonic Distortion	-	-	-80	dBc	
	Wavelength	1280	-	1340	nm	
	Input Return Loss	-12	-	-	dB	
	RF Monitor Port Insertion Loss	-	29	-	dB	
	DC Power (@ 25°C) ³	-	-	500	V	
		-	-	-	mA	
	Optical Output	6	7	-	dBmo	
	RX	RF Output (Tx at peak, 1 dBmo into Rx)	-	14	-	dBm
Output IP3		25	30	-	dBm	
Output 1dB compression		-	20	-	dBm	
Output Return Loss		-10	-	-	dB	
Optical Input		5	6	-	dBmo	
DC Power		-	12	-	V	
	-	-	300	mA		

1. dBmo & dBo indicate optical power & loss to minimize confusion with RF dBm & dB
 2. May degrade when operating outside of specified RF input and optical loss
 3.1.5 A Max Current at Temperature

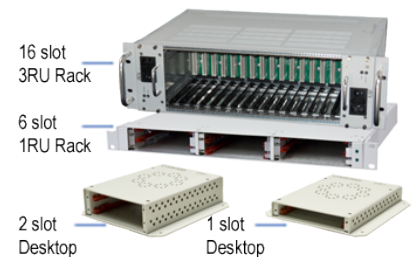
OTS-1 Ref (Tx & Rx)



Typical Phase Noise



Enclosure Options



Optiva OTS-1 Ref-1 1 MHz Reference Oscillator Link

Ordering Information

Product Code	Specifications
OTS-1RefT-1/S5-1307-E2-IC	Transmitter, 1 MHz, SMA 50 ohm, 1310 nm, 7 dBm, E2000
OTS-1RefR-1/S5-E2-IC	Receiver, 1 MHz, SMA 50 ohm, E2000
OPV-CTLR-IC	NMS SNMP Controller Card & MIB for Optiva Family
OTP-1ETR-A2/A2	Optical Tcwr, 1 Ch, Ethernet, SM, Dual LC
OT-CC-16F-XXX	Chassis, Rack-Mount, 16-Slot, 3 RU -- See OT-CC-16F data sheet for exact models
PS-200F-XX	Power Supply, 12 VDC, 100 to 240 VAC, 50/60 Hz, (Specify power cord (NA, EU, UK)
OT-CC-6-XX	Chassis, Rack-Mount, 6-Slot, 1 RU -- See OT-CC-6 data sheet for exact models
OT-DTCR-1 / OT-DTCR-2	Chassis, Flange-Mount, w/Power Supply, 1 slot / 2 slot

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All Versions of this laser are Class 1M laser product, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example: eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example: telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm.

Maximum power = 30 mW.



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

*IEC is a registered trademark of the International Electrotechnical Commission.