



RF OVER FIBER OPTIC TRANSCEIVER

OZ810 – 3GHz with RS232



Features

- 30 MHz to 3 GHz Bandwidth
- Rugged Dust-Tight Housing
- 3 x 5 x 1.25 in. Weight ¾ lb.
- -20°C to +75°C Operating Temperature
- Wide DC Input Range of +9V to +30 V Supply
- LD/PD Monitoring and Alarm
- High Spurious Free Dynamic Range
- Automatic Optical Power Control
- 1.3 or 1.5 μ m Low Noise Isolated DFB Lasers
- Laser conforms to Class 1 Laser Safety, EN60825-1:2007.

Options

- Extended Bandwidth of 10 KHz to 3.5 GHz
- CWDM DFB Lasers
- Internal WDM
- RS232 Data Modem
- Manual Gain Adjustment 30dB Dynamic Range
- Internal transmitter LNA
- Multimode Fiber Compatibility
- Low Power Dissipation

Applications

- L-band SatCom
- GPS Distribution
- Optical Delay Line
- Cellular Backhaul
- MMDS
- Remote Antenna Location
- In-Building Solutions DAS
- Public Safety
- 10MHz low phase noise Clock distributions (Optional)

OZ810

Description

The OZ810 is a high performance broadband optical transceiver with a very Wide Dynamic Range, designed for RF over Fiber applications. A pair of OZ810 transceivers will create a bidirectional RF to Optical and Optical to RF link. OZ810 may also be configured as individual Transmitter (Tx) or Receiver (Rx) units. It is designed in a rugged, compact dust-tight cast metal housing with optional WDM integrated, internally, for bidirectional transmission on a single strand of Single Mode Fiber. These linear RFoF links are an excellent alternative to using coaxial cable systems. The OZ810 delivers significant improvement in the transport of RF signals in their native format, reliably, in many optical networks across a broad range of frequencies. The OZ810 offers high Spurious Free Dynamic Range (SFDR) with operational frequencies from 30 MHz to 3.0 GHz. An optional extended bandwidth of 10 KHz to 3.5 GHz is also available.

The Manual Gain Control and AGC provide installers an easy way to adjust receiver output RF level, to facilitate simple field installations. The standard optical connector is SC/APC (FC/APC is also available) for low back reflection applications. The transceiver features a high performance InGaAs photodiode and a linear Isolated DFB Laser operating at 1.3 μ m (A) and 1.5 μ m (B) over 9/125 μ m Single Mode Fiber. Average Automatic Power Control (AAPC) is incorporated for optimal optical power stability over the full operating temperature range. The RF interface is via a 50-ohm SMA connector and the RS232 and alarm and monitoring functions are available through DB9. Manual Gain control is also available.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Storage Temperature (Case)	T _s	-40	+85	°C
Operating Temperature (Case 1310nm DFB Laser, -20C for 1550nm Laser)	T _o	-40	+75	°C
DC Supply Voltage	V _{cc}	+8	+32	Volts
Maximum RF Input into TX (with LNA)			+5	dBm
Maximum RF Input into TX (No LNA)			+17	dBm
Maximum Optical Input into Rx			12	mW

Characteristics of OZ810

Parameter	Symbol	Min	Typical	Max	Units	Notes
Power Supply Voltage	VCC		+12		Volts	
Power Supply Current	ICC		250	400*	mA	*Imax for RF+Rs232 Data
Power Supply Current (with LNA)	ICC		320	460*	mA	*Imax for RF+Rs232 Data
Laser Optical Output Power			2.5	6	mW	1
Transmitter Operating Wavelength A/B		1270	1310 or 1550	1610	nm	2
Receiver Operating Wavelength A/B		1270		1610	nm	2
High Frequency Cutoff	HFC		3000	3100	MHz	3
Low Frequency Cutoff	LFC	20	30		MHz	4
Frequency Response (30 - 3000 MHz)			-/+ 1.5	-/+1.75	dB	
Input/Output Impedance	Z		50		Ohms	
Input/Output VSWR (30 - 3000 MHz)			1.7:1	2:1		
Spur Free Dynamic Range	SFDR		109		(dB/Hz) ^{2/3}	5
RF Link Gain		-1	+1	+3	dB	5
RF Link Gain (with LNA)		+19	20	+22	dB	5
Input Noise Density @ 1GHz	EIN		-133	-130	dBm-Hz	5
Input Noise Density @ 1GHz (with LNA)	EIN		-154	-150	dBm-Hz	5
Input Third Order Intercept @ 1GHz	IIP3	29	32		dBm	5, 6
Input Third Order Intercept @ 1GHz (with LNA)	IIP3	8	10		dBm	5, 6
MGC Optical Dynamic Range (dB)			30		dB	7
Isolation		50	60		dB	8
Isolation (with LNA)		45	50		dB	8
RS232 Data Rate (Factory pre-set)		1.2	19.2	38.4	Kbps	9
Group Delay Over (30 - 3000 MHz)			0.5	1	nS	

¹ 1310nm max optical power can reach 6mw under factory operational setting @ 25C

² 1310/1550 nm WDM integration optional for single fiber operation for A or B module matching set.

³ Typical High Frequency Cutoff (HFC) is 3000 MHz. For higher HFC contact Factory.

⁴ Typical Low Frequency Cutoff (LFC) is 30 MHz, for lower LFC contact Factory.

⁵ Measured and Specified with Optical loss budget of 0 dB, and 1 meter of Single Mode Fiber.

⁶ Equivalent to IMD 60dB@0 dBm Total Output Power (2 tone measurement).

⁷ Optional AGC not available currently. Contact factory for more details

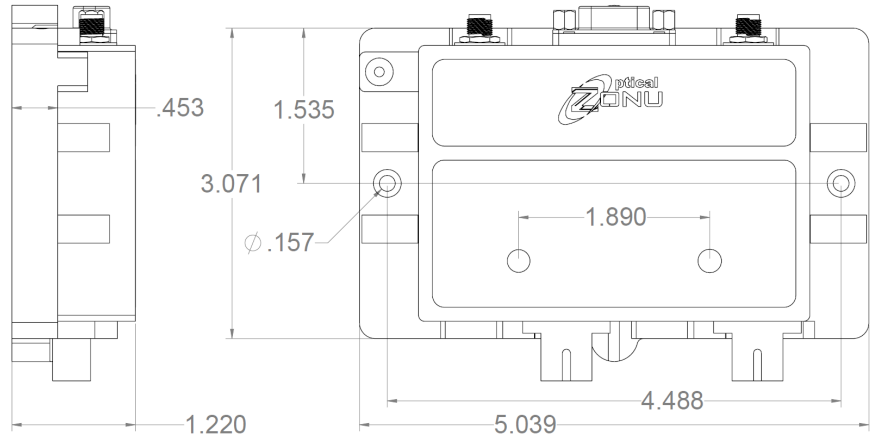
⁸ Measured at 1GHz.

⁹ The Baud rates are Factory setting ONLY and NOT auto negotiable. Customers must determine their required data rate in advance and inform factory prior of placing any order.

For lower power dissipation version contact factory

DB-9 Configuration

Pin	Function
1	Laser Enable (+12V = Laser ON)
2	Data INPUT (Tx RS232) / OR NC
3	Data OUTPUT (Rx RS232) / OR NC
4	+12 Volts
5	Ground
6	Laser Bias Monitor (0.1 V = 10 mA)
7	Laser Bias Alarm (open collector, 25 mA)
8	Received Power Monitor (0.1V = 1 mW)
9	Received Power Alarm (open collector, 25 mA)

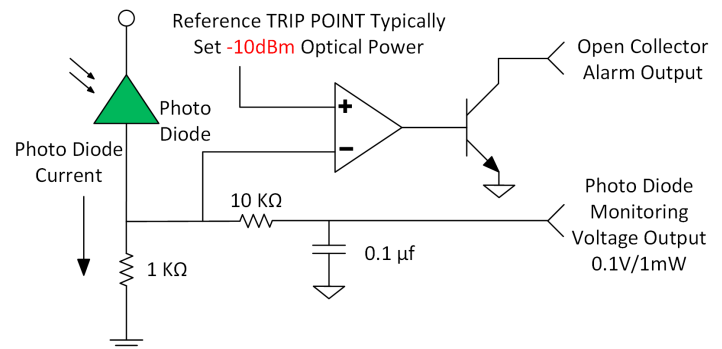
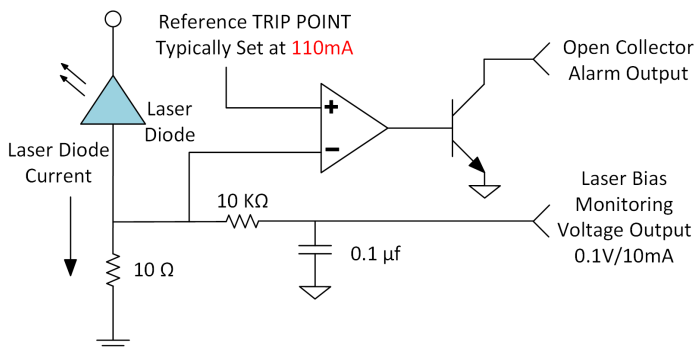


RF Connector = SMA Female
Optical Connector = SC/APC or FC/APC
DATA + ALARM = DB9

NOTE: RS232 remote resets via Transmitter pin 1 Laser Enable.
To reset temporarily set the +12V on pin 1 to Zero (0) Volts.

Individual Tx Alarm & Monitoring Circuit Diagram

Individual Rx Alarm & Monitoring Circuit Diagram



All alarms are Open Collector topology, with Active Low for Normal operations and during Alarm condition the open collector will Pull to High logic levels. Reverse polarity alarm is also available upon request, such as under normal conditions the Open collector will be High and vice versa under fault conditions.



RF OVER FIBER OPTIC TRANSCEIVER

OZ810 – 3GHz with RS232

Ordering Information

PART NO.

AX3- Z810 – XXX – AX – XXXX

1 – Tx only	D31 – 1310 nm	S – SC / APC	S – Single Mode Fiber Compatible	L – Built-in LNA on Tx	W – Internal WDM	R – RS232 Data Modem
2 – Rx only	D55 – 1550 nm	F – FC / APC	M – Multimode Fiber Compatible	– No LNA	– No WDM	– No RS232
0 – Transceiver	00 – for Rx only					



Contacts

HEADQUARTERS

7510 Hazeltine Avenue, Van Nuys, CA 91405
Main: 818-780-9701 Fax: 818-780-9739 info@opticalzonu.com

INSIDE SALES

818-780-9701 x122 ;
818-616-2043
sales@opticalzonu.com

CUSTOMER SUPPORT

818-780-9701 x276 ;
818-452-5131
support@opticalzonu.com

SALES - RF

818-780-9701 x122 ;
818-579-9630
sales@opticalzonu.com

SALES - RF EAST

818-780-9701 x140 ;
818-579-9594
sales@opticalzonu.com

SALES - SATCOM

818-780-9701 x242 ;
818-452-5896
sales@opticalzonu.com

SALES - DIGITAL

818-780-9701 x131 ;
818-579-9592
sales@opticalzonu.com

TECHNICAL SUPPORT

818-780-9701 x134 ;
818-579-2359
support@opticalzonu.com

MADE IN

U. S. A.

