



Features

- RF Signal Transport 30 MHz to 3 GHz (6 GHz is optional)
- 0°C to 50°C Ambient Operating Temperature Range
- Houses up to 8 "OZ5xx-style" Transmitters and/or Receivers
- IRIG-B / 1PPS / TTL Signal Transport
- 10 – 200 MHz Low Phase Noise Reference Transport
- 1310 nm, 1550 nm, CWDM Wavelengths
- Remote Monitoring via SSH, HTML, Embedded GUI Application, SNMP v2 and v3
- Local LED and Dry Contact Alarms
- Dual Universal AC Power Supply
- MTTF Exceeds 10 Years at 50°C
- 1RU, 19" x 15" Chassis
- Lasers Conform to Class 1 Emission Level Per CDRH and IEC-825 (EN 60825) Standards

Options

- Extended Low Frequency, 10 kHz
- Extended Operating Temperature Range, 0°C to +60°C
- Multiple Integrated CWDM Configurations
- DC Power Supply
- Multimode Fiber Compatibility
- 1RU, 19" x 12" Chassis

Applications

- Interfacility Links
- RF Over Fiber Transport
- Teleport RF Signal Distribution
- Antenna Site Diversity
- Timing Distribution
- Radar Systems RF Signal Transport
- GPS Distribution
- TVRO
- VSAT
- 4G LTE
- Cellular Backhaul

OZC9500

Description

The OZC9500 platform is an EIA 310-D 19" 1RU chassis that accommodates up to eight OZ5xx-style fiber optic transmitter and/or receiver sub-assemblies. Transmitters feature linear uncooled isolated DFB laser diodes. Receivers feature high performance InGaAs photo-diodes. Any combination of the following signal formats are available.

- RF, 30 – 3000 MHz
- RF, 30 – 4000 MHz
- RF, 30 – 6000 MHz
- 10 – 200 MHz Low Phase Noise Reference
- IRIG-B / 1PPS / TTL
- L1, L2 GPS

Options exist for extending the low frequency RF roll-off down to 10 kHz. RF modules are optimized for linear signal transport with high spur free dynamic range (SFDR). The standard RF interface is 50Ω SMA.

Signals may be transported on dedicated fibers (up to 8). In environments with limited fiber, or where there may exist an advantage for transport over a single fiber, coarse wavelength division multiplexing (CWDM) is available. Up to 8 signals (in either direction) may be multiplexed onto a single fiber. Depending on the location of other sites in the fiber transport network, 2-8 signals may be multiplexed onto a single fiber.

Sub-assemblies within the OZC9500 platform may be monitored and controlled in a number of ways. Locally, status LEDs for each module are present on both the front and the back of the chassis. Alarm and monitor functions are also available via dry relay contacts accessed by means of a DSUB-25 connector on the front of the chassis. There are multiple ways to monitor and control modules within the OZC9500 remotely. Administrators may access the modules via a serial or SSH console connection, a Web User Interface, and an embedded Optical Zonu graphical command and control interface. No external installed applications are required – just a standard web browser. OZC9500 also supports SNMP v2 and v3.

The OZC9500 chassis is powered by dual AC or –48 VDC (optional) power supplies. +12 VDC is also an option. For multimode fiber transport options, please contact Optical Zonu.



Absolute Maximum Ratings

Parameter	Symbol	Minimum	Typical	Maximum	Units
Operating Temperature	T_{op}	0	-	50	°C
Storage Temperature	$T_{storage}$	-40	-	85	°C
AC Power Supply Voltage	V_{AC}	85	-	264	VAC
Transmitter RF Input					
no LNA	RF_{in}	-	-	+17	dBm
with LNA	RF_{in}	-	-	-3	dBm
Transmitter Optical Output Power	$P_{Tx,out}$	-	-	+8	dBm
Receiver Optical Input Power	$P_{Rx,in}$	-	-	+12	dBm
Power Supply Certifications	-	EN 60950 ITE, EN 60601-1 Medical			-
Power Supply EMC Compliance	-	EN 61000-4-2, 3, 4, 5, 6, 11, EN 60601-1-2			-
Power Supply Emissions	-	Class B per EN 55022, 11			-
MTTF @ 50°C	MTTF	-	10	-	Years
Unpackaged Weight	-	-	-	5.1	kg
Relative Humidity	RH	20	-	90	%
Altitude	-	-	-	10,000	MASL

Performance Characteristics

Signal Format

30 - 3000 MHz RF

30 - 4000 MHz RF

30 - 6000 MHz RF

10 - 200 MHz Low Phase Noise

IRIG-B/1PPS/TTL

GPS

Reference

[see OZ51x Datasheet](#)

[see OZ52x Datasheet](#)

[see OZ52x Datasheet](#)

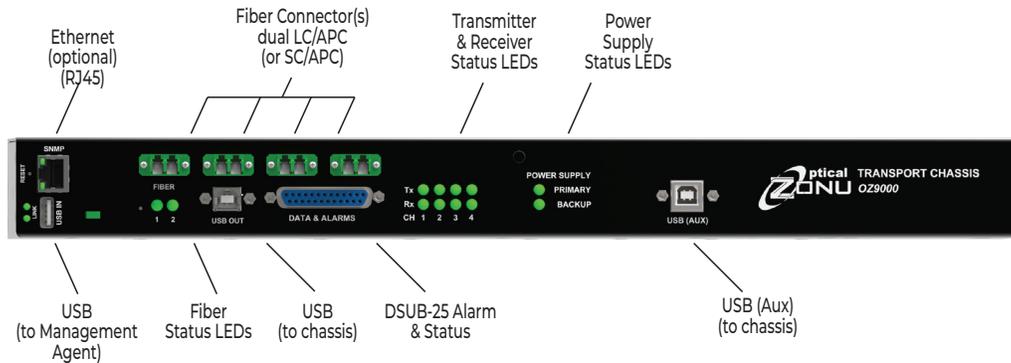
[see OZ52x Datasheet](#)

[see OZ510 Low Phase Noise Datasheet](#)

[See IRIG-B/1PPS/TTL Datasheet](#)

[see GPS Datasheet](#)

Front Panel Features

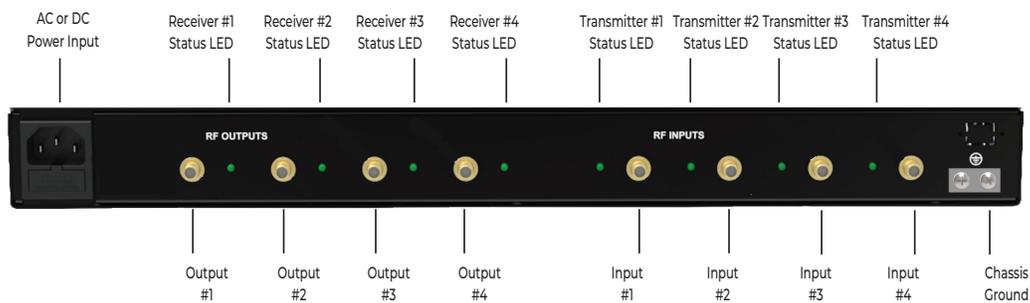


Note: Depending on the number of signals and use of CWDM, the number of optical connectors will vary. Each of (up to) four possible optical connectors may be an SC/APC or dual LC/APC. Therefore the number of fibers that may connect to the OZC9500 chassis ranges from 1 to 8.

The Ethernet (RJ45) port and the internal Management Agent are optional features that enable remote access to the chassis. The USB (to chassis) serial port provides access to sub-assemblies within the OZC9500. This access may be from a Management Agent within the OZC9500 chassis, or from the Management Agent within any other Optical Zonu Chassis via serial USB. An optional Auxiliary USB port, may provide access to the OZC9500 from a separate Optical Zonu Management Agent.

Some architectures may require two sites to be connected by redundant fiber paths. In such situations, an optical switch within the OZC9500 will route to one of two fibers. Either Fiber 1 or Fiber 2 LED will be GREEN, depending on which fiber is active. If a redundancy switch is not present, both fiber LEDs will be dark. A typical redundant fiber architecture is shown on page 11. Contact Optical Zonu for detailed information.

Back Panel Features



Note: Depending on the number and direction of signals, the 50Ω SMA connectors may be labeled differently. The figure above assumes a maximum of four transmitters AND a maximum of four receivers. Contact Optical Zonu for additional configurations.

LED Definitions - Modules Front/Back Panel

LED State	Transmitter LED	Receiver LED
OFF	Module Not Powered	Module Not Powered
GREEN	Normal Operation	Normal Operation
GREEN (blinking)	-	Low RF Output Power Alarm
YELLOW	-	High RF Output Power Alarm
RED (blinking)	Bias-T Current Error ¹	Receiver Bias-T Alarm
RED	Transmitter Optical Power High/Low Alarm, and/or Transmitter Bias Current High/Low Alarm, and/or Transmitter PCB Temperature High/Low Alarm, and/or Transmitter LNA Error ²	Receiver Optical Input Power High/Low Alarm, and/or Receiver PCB Temperature High/Low Alarm

¹ For transmitters configured with a Bias-T

² For transmitter models that include LNA

LED Definitions - Power Supplies

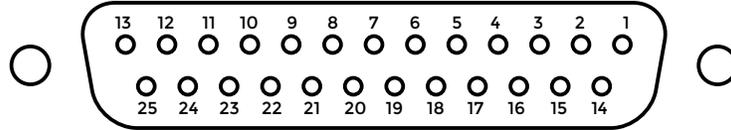
LED State	Power Supply LED
OFF	No Power
GREEN	Normal Operation
YELLOW (blinking)	Low Voltage Alarm, and/or Low Current Alarm, and or Low Temperature Alarm
RED	High Voltage Alarm, and/or High Current Alarm, and or High Temperature Alarm

LED Definitions - Fiber

LED State	Fiber LED
OFF	Fiber Not Selected
GREEN	Fiber Selected

Note: LEDs are not active if internal optical switch is not configured.

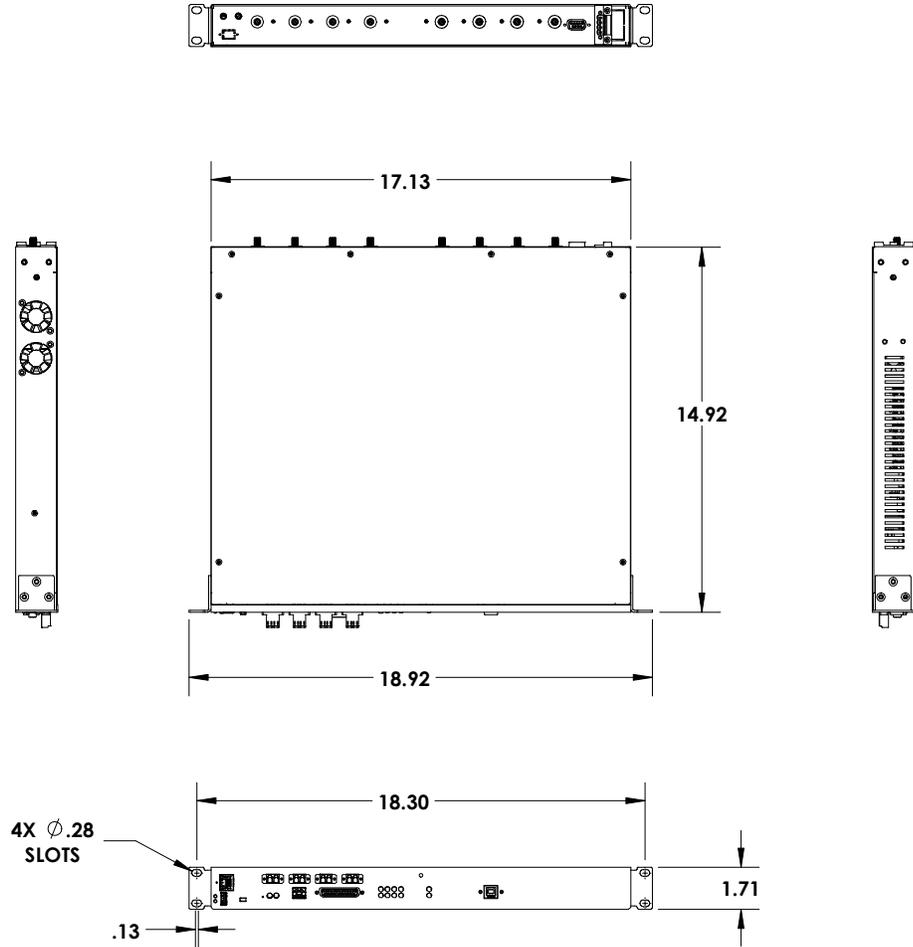
A03 DSUB-25 Alarm Pin Configuration



Pin	Definition	Note
1	Receiver #1 Alarm, Pin < -10 dBmO	Closed = OK, Open = Fault
2	Receiver #2 Alarm, Pin < -10 dBmO	Closed = OK, Open = Fault
3	Receiver #3 Alarm, Pin < -10 dBmO	Closed = OK, Open = Fault
4	Receiver #4 Alarm, Pin < -10 dBmO	Closed = OK, Open = Fault
5	No Connection	-
6	Transmitter #1 Alarm	Closed = OK, Open = Fault
7	Transmitter #2 Alarm	Closed = OK, Open = Fault
8	Transmitter #3 Alarm	Closed = OK, Open = Fault
9	Transmitter #4 Alarm	Closed = OK, Open = Fault
10	No Connection	-
11	Ground	-
12	No Connection	-
13	+12 VDC Out	500mA Internal Fuse
14	Receiver #1 Optical Monitor	0.1 V / mW
15	Receiver #2 Optical Monitor	0.1 V / mW
16	Receiver #3 Optical Monitor	0.1 V / mW
17	Receiver #4 Optical Monitor	0.1 V / mW
18	No Connection	-
19	Transmitter #1 Optical Monitor	0.1 V / mW
20	Transmitter #2 Optical Monitor	0.1 V / mW
21	Transmitter #3 Optical Monitor	0.1 V / mW
22	Transmitter #4 Optical Monitor	0.1 V / mW
23	No Connection	-
24	No Connection	-
25	No Connection	-

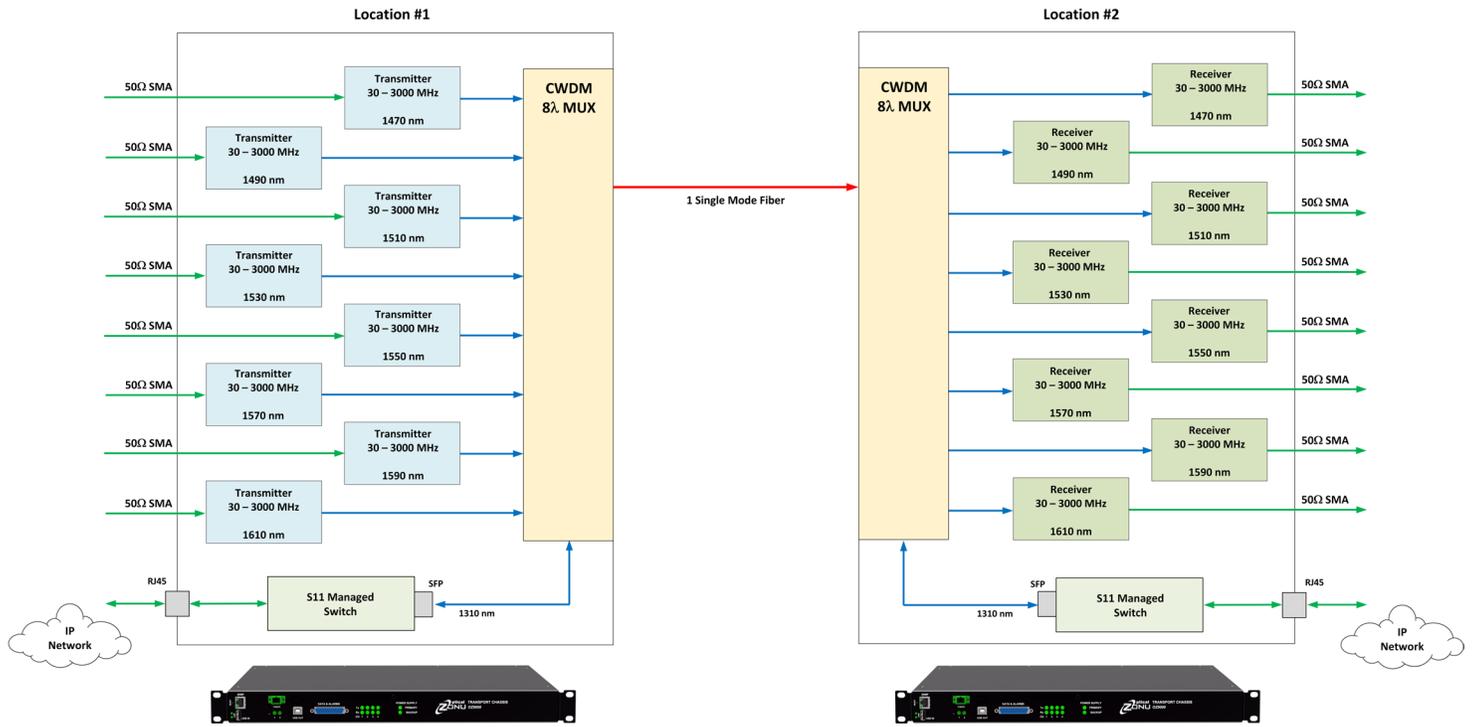
Note: Pin definitions assume a maximum of four transmitters and a maximum of four receivers. Contact Optical Zonu for other configurations.

Mechanical Outline



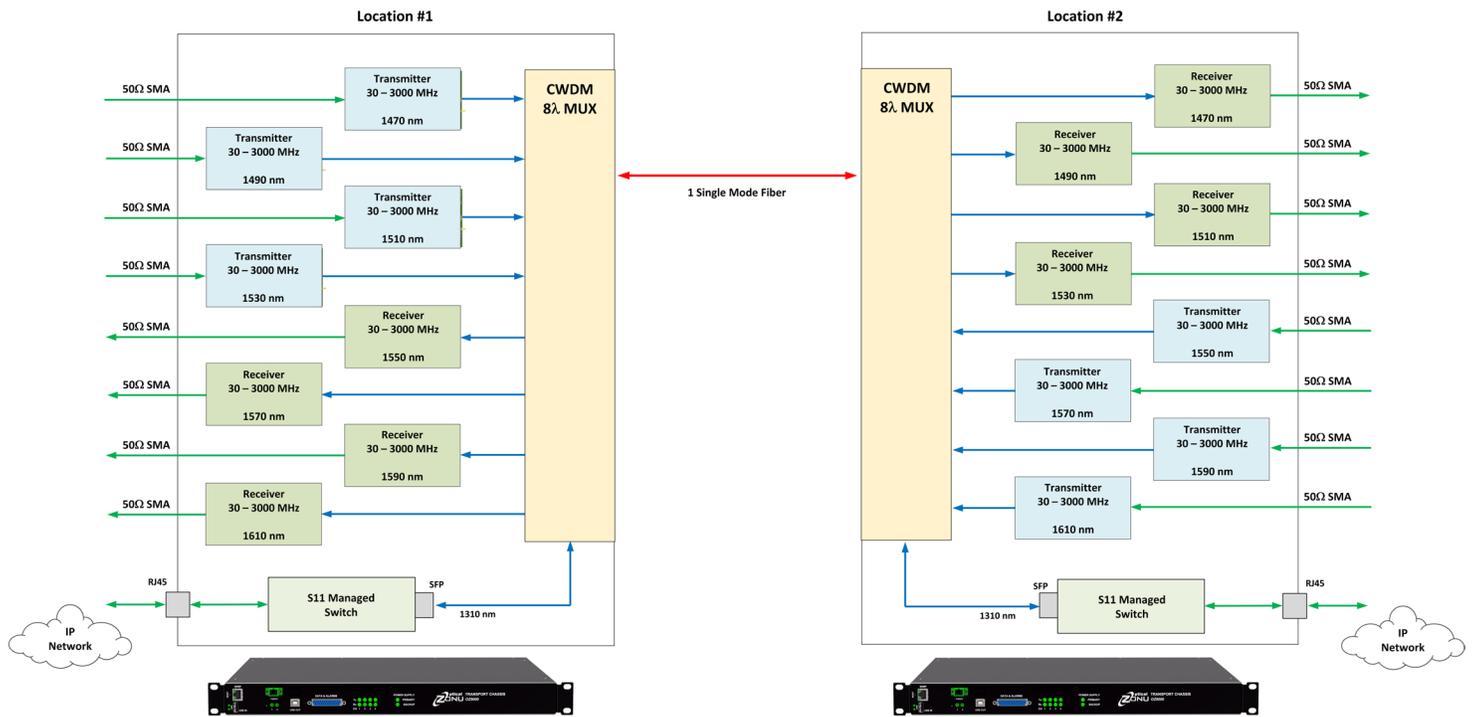
Note: Depending on configuration, front panel may have 1-4 optical connectors. Optical connectors may be SC/APC or dual LC/APC.

Typical Configurations - Eight Signals, One Fiber, One Direction



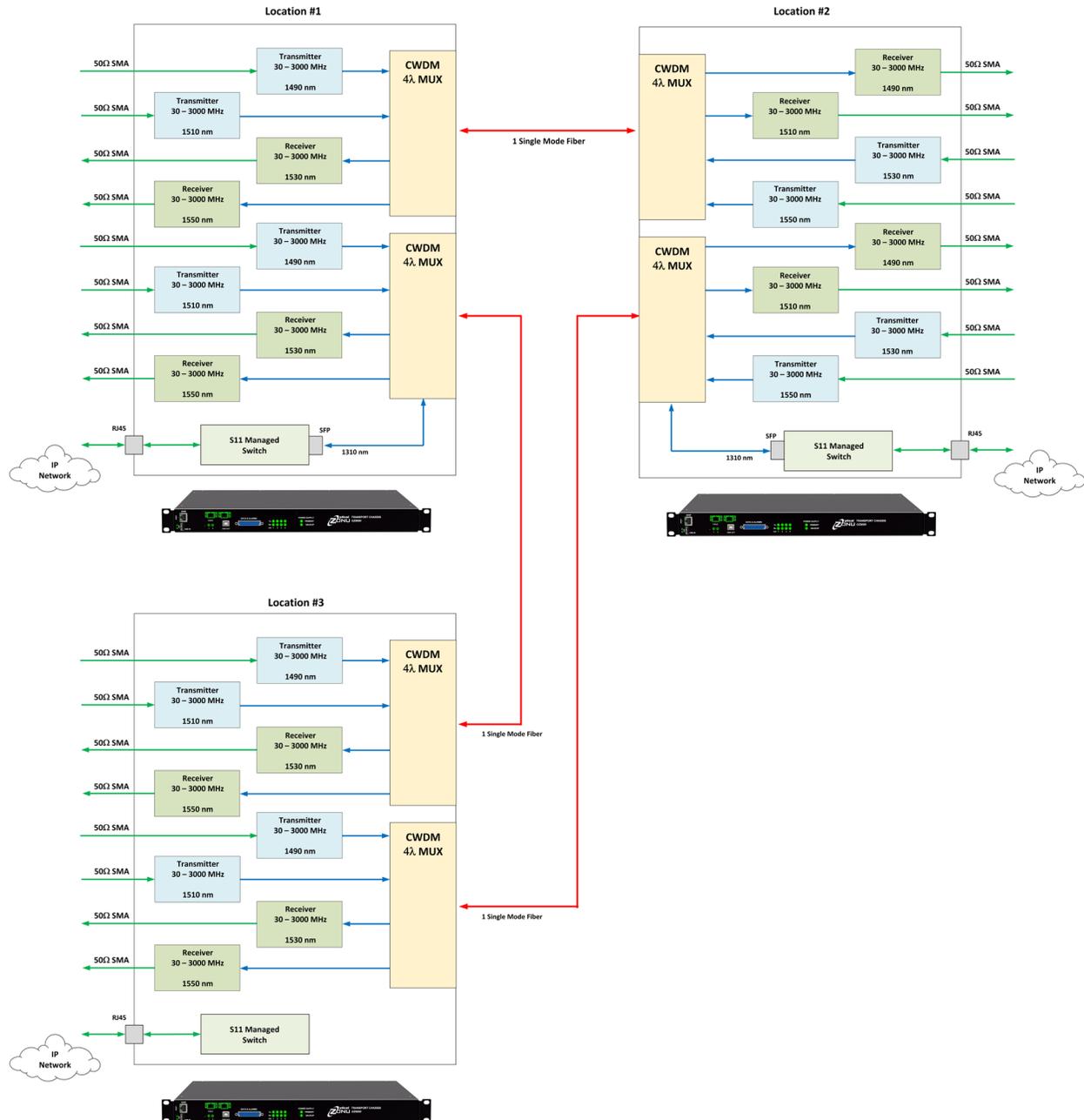
Eight signals may be passed from one site to another on a single fiber using CWDM.

Typical Configurations - Eight Signals, One Fiber, Two Directions



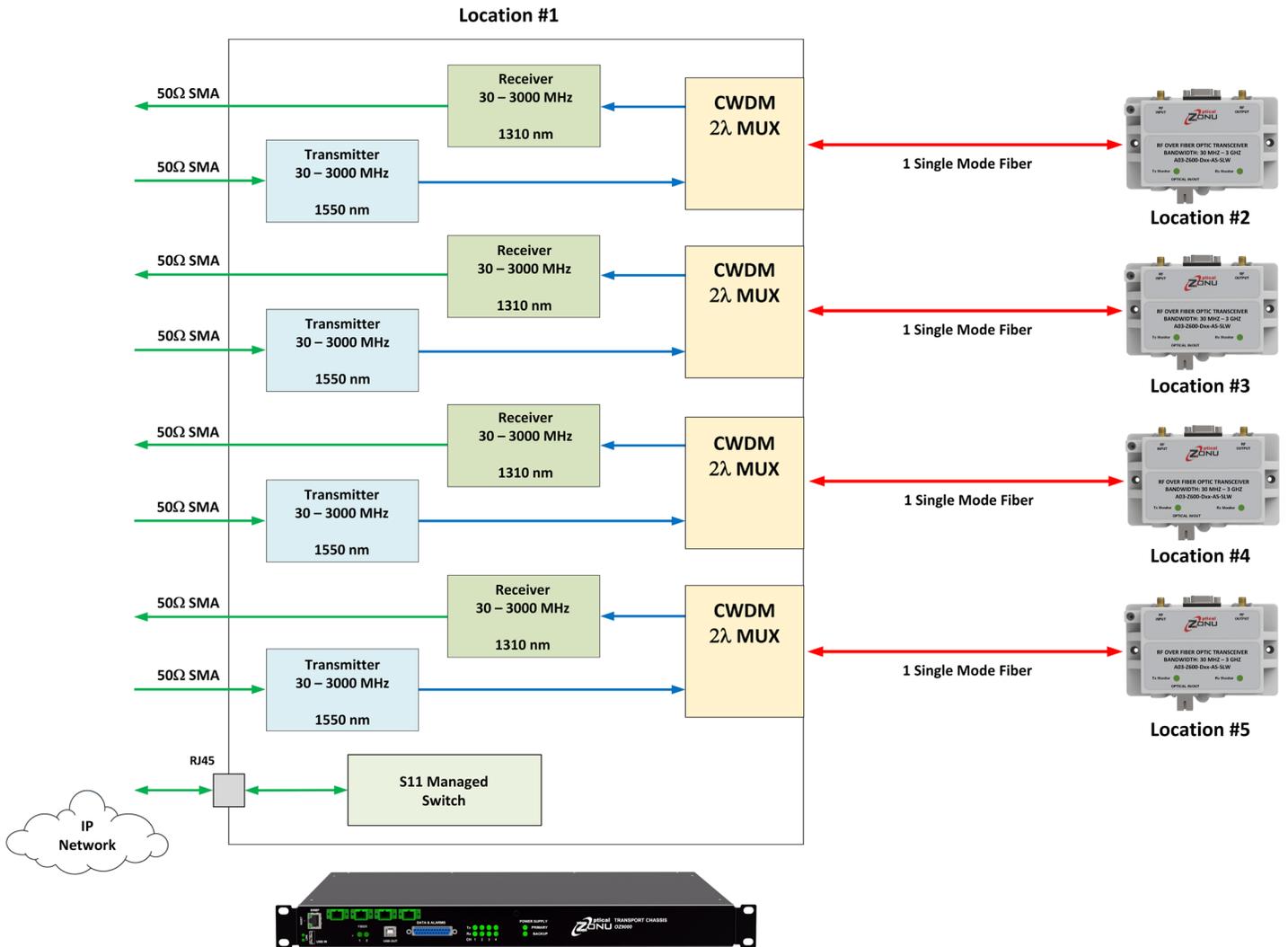
Four bidirectional signals (4 transmit + 4 receive) may be passed between two sites on a single fiber using CWDM.

Typical Configurations – Three Locations, Four Signals & One Fiber Between Each Site



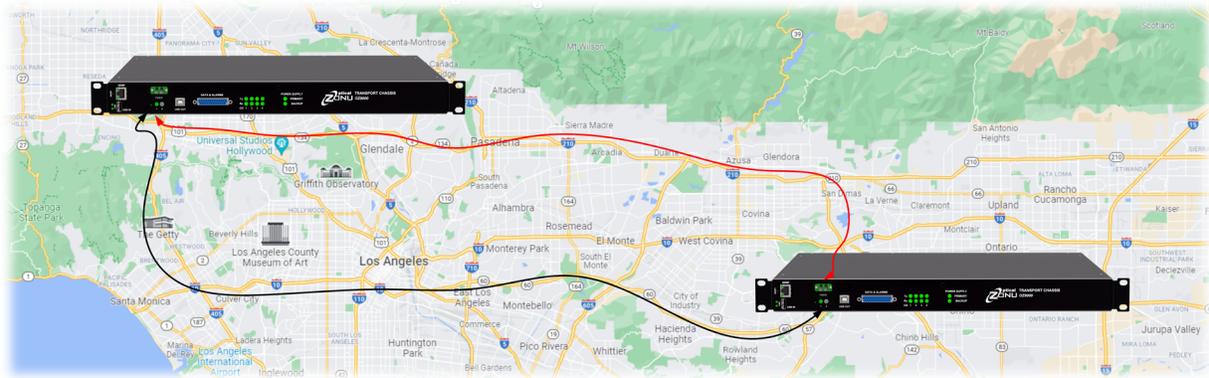
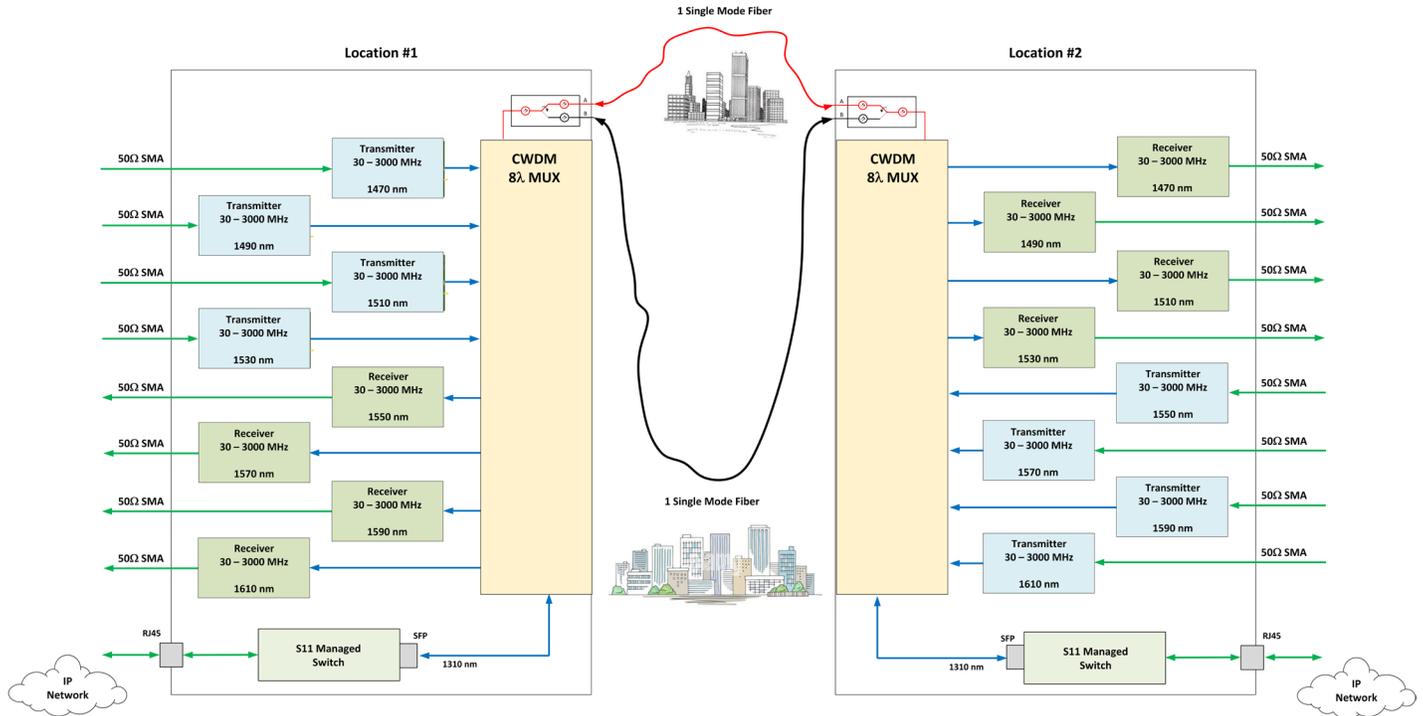
Two bidirectional signals (2 transmit + 2 receive) may be passed between each pair of sites in a three site system. Using CWDM, a single fiber may connect each pair of sites. Two of the three sites may be connected by Ethernet datalink over fiber. This optical datalink may be multiplexed onto the same fiber as the RF.

Typical Configurations – Bidirectional Signals to Four Sites Connected by a Single Fiber



A bidirectional signal (1 transmit + 1 receive) may be passed between a central location and four physically separated sites. Using CWDM, a single fiber may connect each remote site to the central location.

Typical Configurations – Optical Fiber Fault Detection & Auto Fiber Switchover

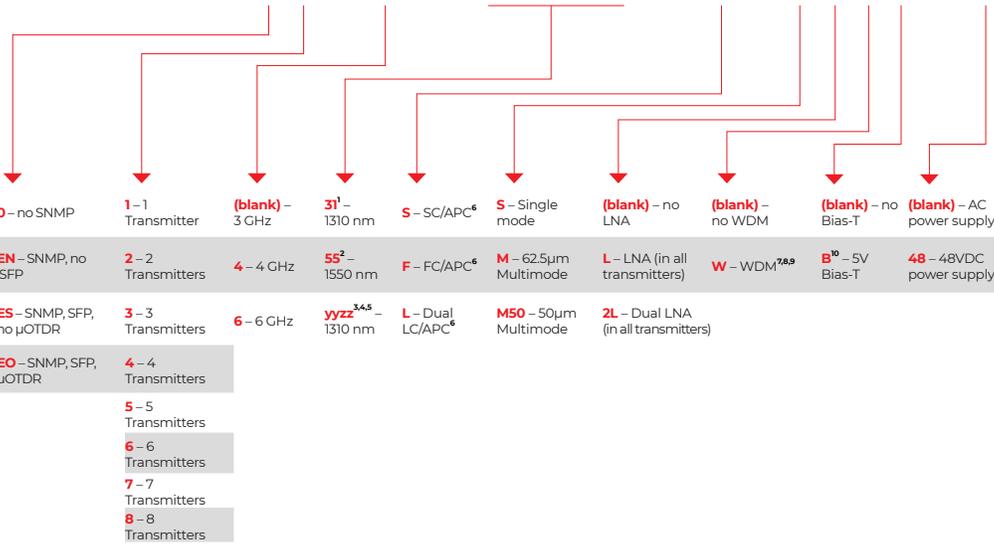


Some architectures may require two sites to be connected by redundant fiber paths. In such cases, the OZC9500 may include an integrated fiber switch to select between one of two paths. On each side of the fiber link, the switch detects the presence or absence of an optical signal and switches accordingly.

Ordering Information

TRANSMITTER PART NO.

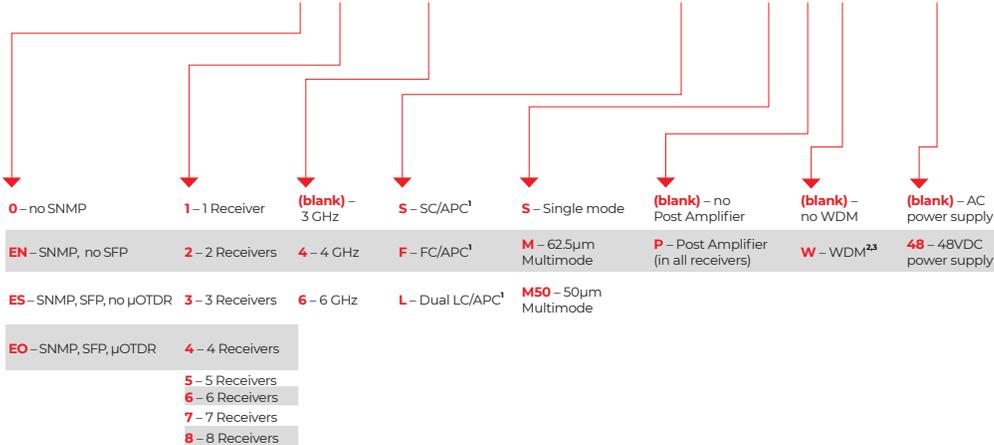
A13 - ZC95XX - X - DXXXX - AX - XXXX - X



¹ All transmitters are 1310 nm
² All transmitters are 1550 nm
³ yy corresponds to shortest transmitter wavelength
⁴ zz corresponds to longest transmitter wavelength
⁵ CWDM wavelengths - e.g., 47 = 1470 nm. Standard wavelengths 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610 nm. Transmitted wavelengths are contiguous.
⁶ Up to four connectors per chassis.
⁷ For single wavelength OZC9500, WDM is not a valid option
⁸ For # Transmitters ≤ 4, use 4-wavelength MUX
⁹ For # Transmitters > 4, use 8-wavelength MUX
¹⁰ For 12V Bias-T, contact Optical Zonu

RECEIVER PART NO.

A23 - ZC95XX - X - 00 - AX - XXX - X



¹ Up to four connectors per chassis.
² For # Receivers ≤ 4, use 4-wavelength MUX
³ For # Receivers > 4, use 8-wavelength MUX



Related Products

[OZ51x OEM Transmitter/Receiver Modules \(30 - 3000 MHz\), Low Size/Weight/Power, optional CWDM](#)

[OZ52x OEM Transmitter/Receiver Modules \(30 - 6000 MHz\), Tunable RF Gain, CWDM, I2C Serial Interface, optional Dual LNA](#)

[Low Phase Noise Transmitter/Receiver Modules \(10 - 200 MHz\), Multiple Form Factors, optional CWDM](#)

[IRIG-B / 1PPS / TTL OEM Transmitter/Receiver Modules, CWDM](#)

Additional Resources

[Standalone RF Over Fiber Modules](#)

[RF Over Fiber Rack Mount Integrated Subsystems](#)

[RF Over Fiber Rack Mount Modular Subsystems](#)

[RF Over Fiber Applications](#)

[19" 1RU J-Chassis](#)

[19" 3RU J3U Chassis](#)

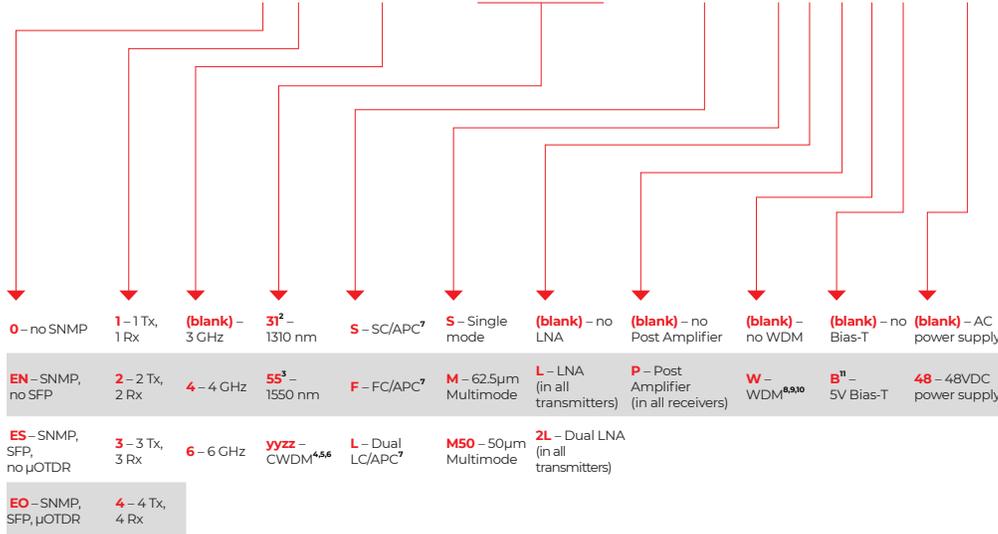
[19" 1RU OZC9500 Chassis](#)



Ordering Information

TRANSCIVER PART NO.

A03 - ZC95XX¹ - X - DXXXX - AX - XXXXX - X



¹ For other combinations of transmitters and receivers, contact Optical Zonu
² All transmitters are 1310 nm
³ All transmitters are 1550 nm
⁴ **yy** corresponds to shortest transmitter wavelength
⁵ **zz** corresponds to longest transmitter wavelength
⁶ CWDM wavelengths - e.g. **47** = 1470 nm. Standard wavelengths 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610 nm. Transmitted wavelengths are contiguous.
⁷ Up to four connectors per chassis.
⁸ For single wavelength (transmitted) OZC9500, dedicated WDM (and connector) for each transmitter
⁹ For # Transmitters + # Receivers ≤ 4, use 4-wavelength MUX
¹⁰ For # Transmitters + # Receivers > 4, use 8-wavelength MUX
¹¹ For 2V Bias-T, contact Optical Zonu

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



Related Products

[OZ51x OEM Transmitter/Receiver Modules \(30 - 3000 MHz\), Low Size/Weight/Power, optional CWDM](#)

[OZ52x OEM Transmitter/Receiver Modules \(30 - 6000 MHz\), Tunable RF Gain, CWDM, I2C, Serial Interface, optional Dual LNA](#)

[Low Phase Noise Transmitter/Receiver Modules \(10 - 200 MHz\), Multiple Form Factors, optional CWDM](#)

[IRIG-B /IPPS / TTL OEM Transmitter/Receiver Modules, CWDM](#)

Additional Resources

[Standalone RF Over Fiber Modules](#)

[RF Over Fiber Rack Mount Integrated Subsystems](#)

[RF Over Fiber Rack Mount Modular Subsystems](#)

[RF Over Fiber Applications](#)

[19" 1RU J-Chassis](#)

[19" 3RU J3U Chassis](#)

[19" 1RU OZC9500 Chassis](#)

