

## RF/Fiber Optic WDM Transceiver AC231W

### Features

- 2000 MHz Bandwidth
- 1.3 or 1.5  $\mu\text{m}$  DFB Low Noise Laser
- High Dynamic Range
- WDM for bidirectional transmission
- Internal Optical Isolator
- Monitoring and Alarm Capability
- Laser Disable
- Singlemode Fiber

### Description

The AC 231W is a linear, low noise RF fiber optic transceiver designed for fiber optic wireless systems and broadband RF applications. The system is composed of a fully integrated transceiver module designed for wide temperature performance and transmission over a single fiber. The transmitter utilizes a high performance, linear, optically isolated DFB laser operating at 1.3 or 1.5  $\mu\text{m}$  over 9/125  $\mu\text{m}$  singlemode fiber. For optimal stability, the laser incorporates average optical power feedback which monitors and actively adjusts the laser for constant power output over temperature and lifetime.



The receiver utilizes a broadband, low distortion InGaAs PIN diode photodetector. The RF interface is via a 50 $\Omega$  SMA connector and the optical connector is a low reflection FC/APC connector. The frequency response is from 50 to 2000 MHz. The unit requires a single 12 volt DC supply. Options exist for IP3, NF and bandwidth. A laser and received optical power monitor and alarm is provided. An internal WDM permits bidirectional transmission over one fiber. The AC 231W-1.3 transmits at 1.3 $\mu\text{m}$  and the AC 231W-1.5 transmits at 1.5  $\mu\text{m}$  wavelength. Three channel systems are also available.

### Specifications (Tc = 25°C)

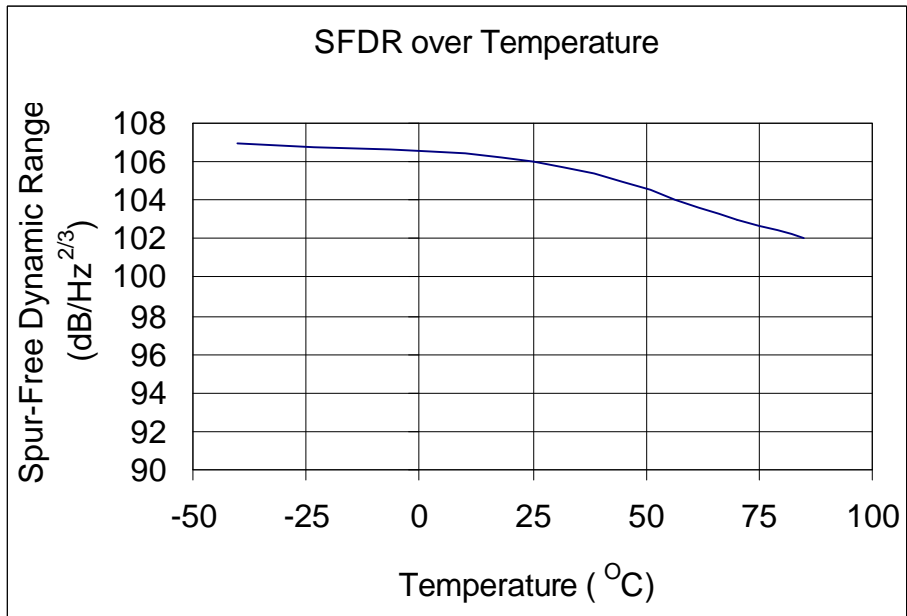
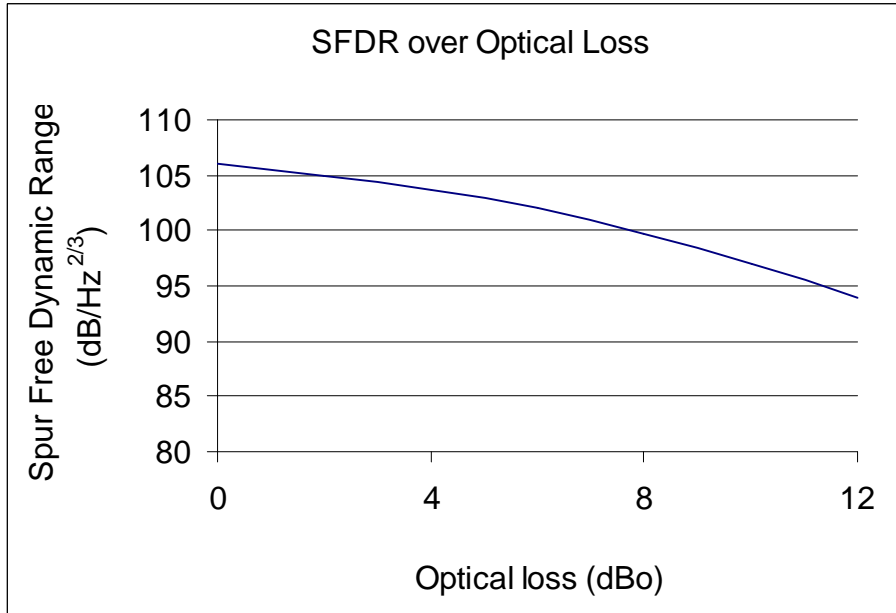
Parameter	Min	Typ	Max	Units
Wavelength, peak	1520	1550	1570	nm
	1280	1310	1360	nm
Bandwidth ( WB option)	50		2000	MHz
Frequency Flatness, 800–2000 MHz (WA,WB)		+/- 1.5		dB
Input and Output VSWR		1.5:1	1.8:1	--
RF Isolation, In-band (1)		40		
Spur Free Dynamic Range (2)	103	106		dB/Hz <sup>2/3</sup>
RF Link Gain (2)	- 2	0	+ 2	dB
Noise Figure (2)	WM option	34		dB
	WA option	38		
	WB option	42		
Input 3rd Order Intercept (2)	WM option	+22		dBm
	WA option	+26		
	WB option	+29		

Notes:

- (1) Higher Isolation is available.
- (2) SFDR, Gain, Noise and IP3 are specified with 1 meter fiber.

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## Typical Performance

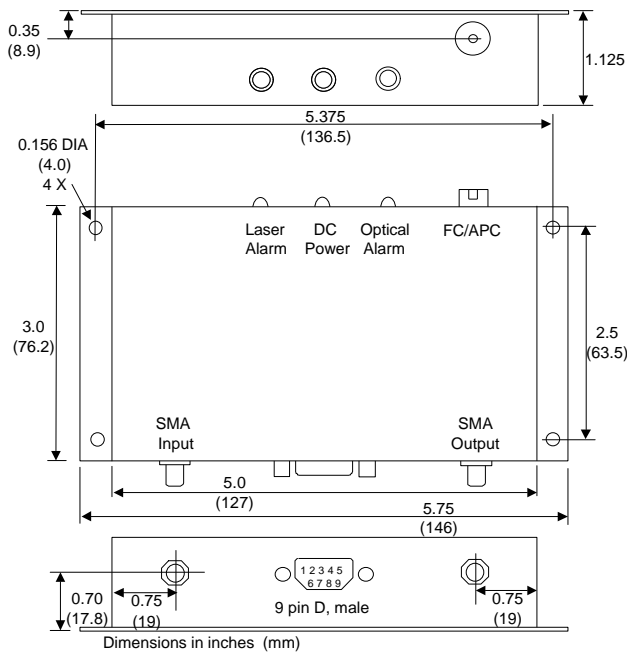


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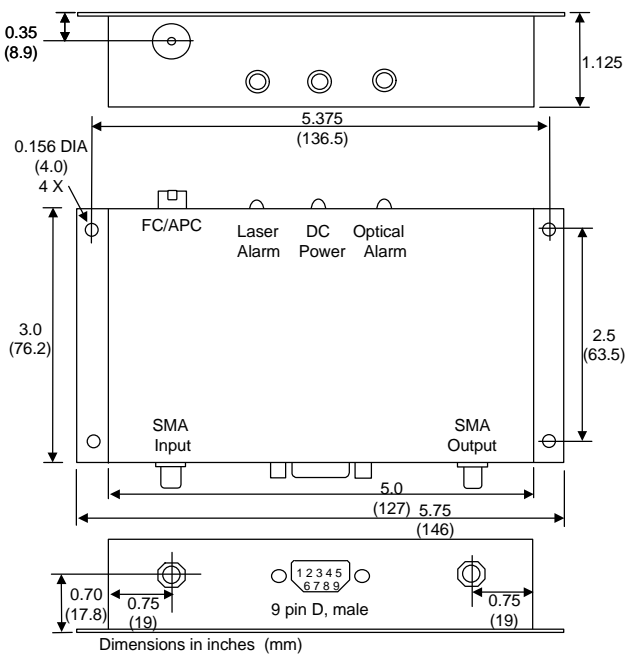
## Absolute Maximums

Parameter	
Operating Temperature	-30 to +75°C
Storage Temperature	-40 to +85°C
Maximum RF Input to Transmitter	+10 dBm
Maximum Optical Input to Receiver	4 mW
D.C. Supply Voltage	12 volts $\pm$ \-5%

## Package Schematic



AC 231W-1.3



AC 231W-1.5

<b>9 pin D Pinout</b>
1. Laser Disable (+12 V = Laser ON)
2. Ground
3. +12 volts (250 mA max)
4. Ground
5. Ground
6. Laser Bias Monitor (0.1 V = 10 mA)
7. Laser Bias Alarm (open collector, 25 mA)
8. Received Power Monitor (1V = 1mW)
9. Received Power Alarm (open collector, 25 mA)

Pinout applies to both modules.

# RF/Fiber Optic WDM Transceiver AC231W

## Ordering Information

Model Number: AC 231W<sub>x</sub>-1.3 (1.3 TX, 1.55 RX)  
AC 231W<sub>x</sub>-1.5 (1.55 TX, 1.3 RX)  
Description: RF/Fiber Optic WDM Transceiver  
x – designates options M,A or B

Options: Three options exist to set the dynamic range window. The bandwidth changes based on option selected. Please consult our applications department for more information.

Option WM: Lowest NF, band-limited  
Option WA: Broadband with low NF  
Option WB: Broadband with highest IP3

Please consult the Sales Department for other packaging configurations



Laser Warning: Invisible Laser Radiation emitting from optical connector. Avoid direct exposure to beam.  
50 mW max. @ 1310nm and 1550nm. Class IIb. Product complies with 21 CFR 1040.10 and 1040.11.

The information is considered to be accurate however to provide the best product possible, Anacom Systems Corporation reserves the right to make changes and improvements to the specifications without notice.

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Anacom Systems Corporation [www.anacomsystems.com](http://www.anacomsystems.com) [techinfo@anacomsystems.com](mailto:techinfo@anacomsystems.com)

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100 Jersey Avenue, Bldg. A, New Brunswick, N.J. 08901 • Tel: 732 846-2680 Fax: 732 846-2626