



5016-Series Fiber-Transceiver

The 5016-Series transceiver line delivers unmatched performance for radar testing, signal processing, phased antenna array, and phase noise testing when used in conjunction with the 355A Fiber-optic Delay Line and when used as a standalone product it serves as a high dynamic range transceiver for Microwave applications. These rugged devices eliminate many of the problems that are inherent in alternative delay line technologies including acoustic wave devices and coaxial delay lines.

Ortel's fiber-optic transceivers provide bandwidth that is essentially independent of fiber length, loss or delay, and triple transit signals that are immeasurable. In addition to enhanced electrical performance, the delay lines provide several mechanical advantages. Ortel's technology takes advantage of the rigid yet flexible properties of fiber-optic cable to provide repeatable enhanced phase and group delay characteristics.

The small size of these components allows for a long delay in a compact package with the superior temperature stability of fiber.

Applications

- Radar testing/calibration
- Signal processing
- Phased antenna array
- Phase noise testing
- Antenna remoting
- Cellular and PCS networks
- Military triband communications
- Tracking Telemetry & Control TT&C

Features

- Bandwidth to 18 GHz
- High dynamic range
- Built-in optical isolator
- 1310 nm

Performance Highlights

	Min	Typical	Max	Units
Wavelength Options	1290		1340	nm
Temperature Range	-25	-	+65	°C
Frequency Range	0.1	-	10 - 18	GHz

See following pages for complete specifications and conditions.

For more information on this and other products:

Contact Sales at Emcore 626-430-4000, or visit www.emcore.com.

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min	Max	Units
Operating Temperature Range of Baseplate:	T _{OP}	continuous	-40	+65	°C
Storage Temperature	T _{STG}	-	-55	+85	°C
RF Input Power	P _{IN}	60 seconds	-	20	dBm
ESD, module	-	HBM: R = 1500 Ohm, C = 100 pF	-500	500	V

dc Interface Characteristics

Pin Number	Min	Typ	Max	Max Ripple	Current
1	14V	15V	16V	100 mV p-p	0.3 A max
2	4.5V	5V	5.5V	200 mV p-p	1.6 A max

Pin/Package Information

Nine-Pin D-sub Connector

Pin	Description
1	+15 Vdc
2	+5 Vdc
3	NC
4	Power Ground
5	Reference Ground
6	Laser Photodiode Current Monitor
7	Received Optical Power
8	Laser Current Monitor
9	Laser Over-temperature Alarm ¹

1: Open collector outputs

Ordering Information

Option	Connector/Pigtail
-020	FC/APC Bulkhead Optical Connector
-022	FC/APC Optical Connector/ 3mm Fiber Pigtail

Front Panel LEDs

- Power on

dc Monitor Voltages

- Laser Photodiode current, pin6
 - 1V/100mA $\pm 2\%$ accuracy (into 1 M Ω load). Proportional to laser optical power
- Photodiode current, pin7
 - 1V/mA $\pm 2\%$ accuracy (into 1 M Ω load). Proportional to photodiode input power
- Laser dc current, pin 8:
 - 1V/100mA $\pm 2\%$ accuracy (into 1 M Ω load). Alarm Circuits

Alarm Circuits

The alarms are open-collector outputs capable of sinking 20 mA to ground when active and withstanding 15V when off.

- Laser temperature, pin 9
 - Sinks current when laser internal temperature exceeds ± 2 °C of set-point (nominally 25°C).

For more information on this and other products:

Contact Sales at Emcore 626-293-3400, or visit www.emcore.com.

5016-Series Fiber-Transceiver**DATA SHEET | DECEMBER 27, 2007****Electrical/Optical Characteristics****Optical**

Parameter	Specifications	Unit
Fiber	Single mode (9/125)	μm
Optical Connectors	FC/APC	-
Optical Transmitter Output Power		
5016A,B,C only	8 (+9)	mW (dBm), min
5016D only	2 (+3)	mW (dBm), max
5016A,B,C,D used with 355A delay spool	5 (+7)	mW (dBm), max
Optical Receiver Input Power		
Low Power System, 5016D	2 (+3)	mW (dBm), max
High Power System, 5016A,B,C	15 (+12)	mW (dBm), max

RF Characteristics

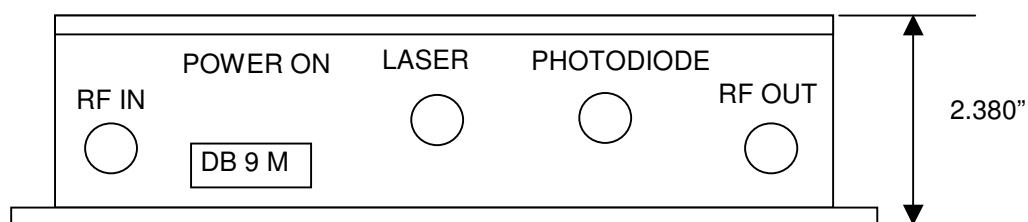
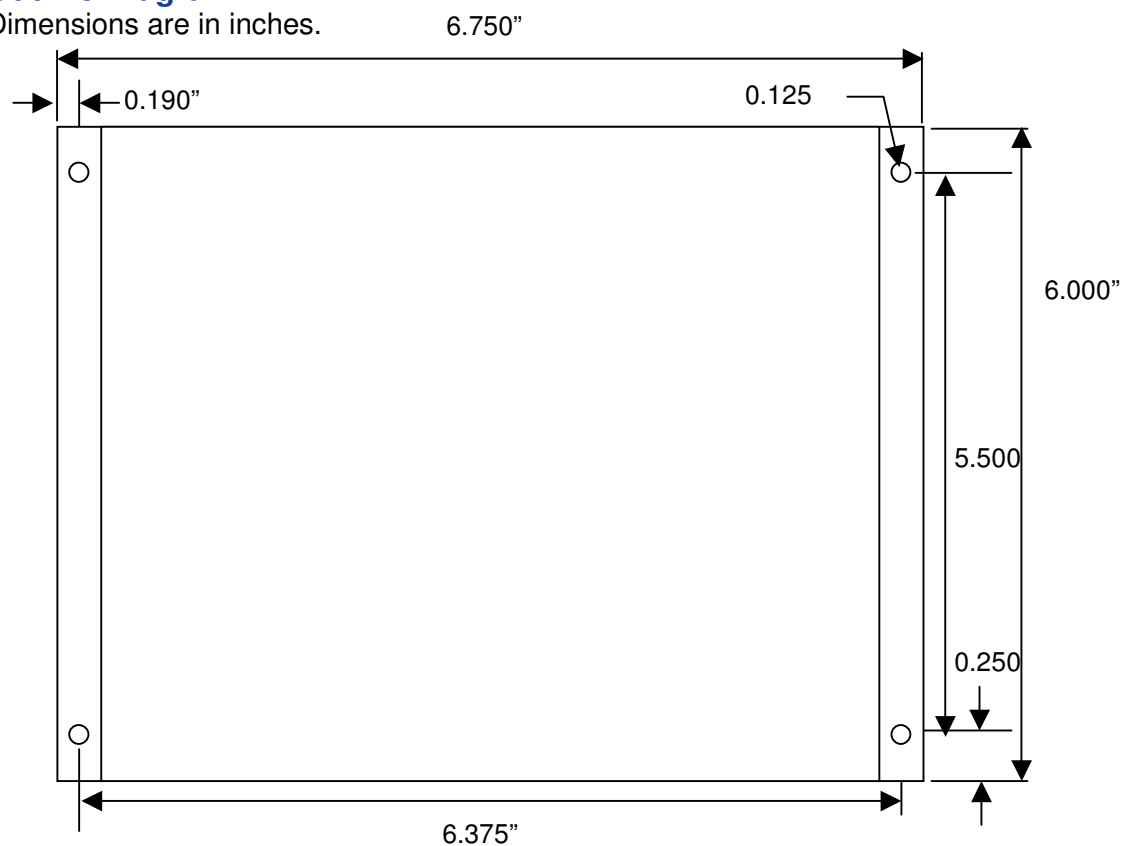
Parameter	5016A	5016B	5016C	5016D	Unit
RF Connectors	SMA				-
Upper Band Edge Frequency	4	10	15	18	GHz
Lower Band Edge Frequency	0.1	0.1	0.1	0.1	GHz
Insertion Loss (0 dB Optical)	28			34	dB
Amplitude Flatness	± 1.5	± 2.0	± 2.5	± 3.0	dB
Input / Output RF Return Loss	9.5	9.5	6	6	dB
Impedance	50				Ω
Input 1 dB Compression	+20				dBm
Input Third Order Intercept					
0.01 GHz – 2.5 GHz	35	-	-	-	dBm
2.5 GHz – 6.0 GHz	30	-	-	-	dBm
6.0 GHz – 10.0 GHz	-	25	25	25	dBm
10.0 GHz – 18.0 GHz	-	-	-	20	dBm
Noise Figure					
0.01 GHz – 10.0 GHz	46	46	46	46	dB
10.0 GHz – 15.0 GHz	51	51	51	51	dB
15.0 GHz – 18.0 GHz	57	57	57	57	dB

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Outline Diagram

Dimensions are in inches.



Laser Safety

Class IIIb Laser Product

FDA/CDRH Class IIIb laser product. All versions are Class IIIb laser products per CDHR 1040 Laser Safety Requirements. All versions are class 3B laser products per *IEC*® 60825-1:1993. The device has been classified with the FDA under accession number 220191.

This product complies with 21 CFR 1040.10 and 1040.11.

Single-mode fiber pigtail

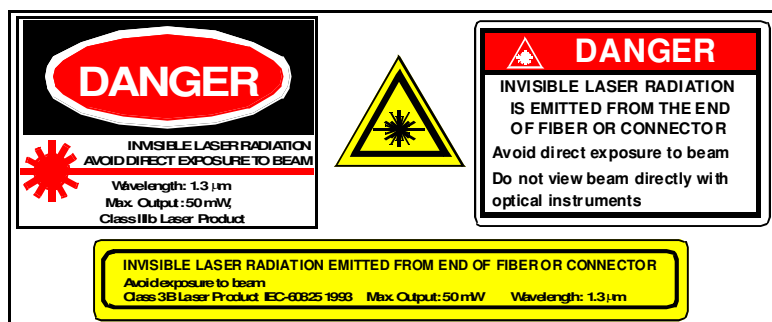
Wavelength = 1.3 μ m

Maximum power = 30 mW

Because of size constraints, laser safety labeling (including an FDA class IIIb label) is not affixed to the module but attached to the outside of the shipping carton.

Product is not shipped with power supply.

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.



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