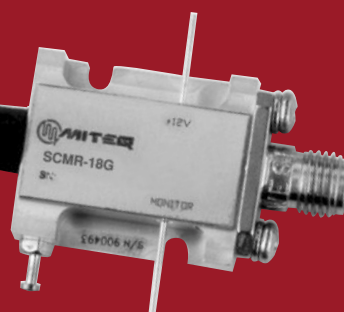




18 GHz SCM FIBER OPTIC LINK



FEATURES

- Small size
- 18 GHz instantaneous bandwidth
- No external control circuits required
- Transimpedance amplifier in both transmitter and receiver

TYPICAL APPLICATIONS

- Antenna remoting
- Local oscillator remoting
- Interfacility communication links
- EMC testing
- Shipboard and airborne configurations available

SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

PARAMETER	CONDITION	UNITS	MIN.	TYP.	MAX.
Operating frequency	3 dB bandwidth		100 MHz to 18 GHz		
Gain		dB	10	18	25
Noise figure		dB		19*	25
Group delay	Peak-to-peak	ns		0.1	0.2
VSWR	Tx input/Rx output				2:1
Phase noise	100 Hz offset	dBc	100		
Input power at 1 dB compression		dBm	-15		
Spurious-free dynamic range	At 15 GHz bandwidth	dB/Hz ^{2/3}		101	
Maximum input power	No damage	dBm			+10
RF connectors	"K" style female (male optional)				
Impedance	Input/output	Ohms		50	

* At -18 GHz.

NOTE: Test condition at -30 dBm input power, 1 meter of fiber.

OPTICAL PERFORMANCE SPECIFICATIONS

PARAMETER	CONDITION	UNITS	MIN.	TYP.	MAX.
Fiber	Single mode fiber (9/125)				
Fiber optic connectors	FC/APC standard (other connector types optional)				
Spectral width	FWHM	nm		0.06	
Optical power in fiber	Reference only	mW	3	5	9
Side mode suppression ratio		dB	30	40	

DC POWER REQUIREMENTS

PARAMETER	CURRENT @ 25°C BASE PLATE (TYP.)	PIN #	MIN.	TYP.	MAX.
Transmitter	260 mA typ., 300 mA max.	4	+11V	+12V	+16V
	105 mA typ., 300 mA max.*	5	-11V	-12V	-16V
	100 mA @ 25°C, 1A max.	1	+3.5	+5	+6
Receiver	100 mA	2	+11V	+12V	+16V

* At low case temperatures, <5°C, the laser cooler switches to heat mode and will exceed 105 mA typical current.

ENVIRONMENTAL CONDITIONS

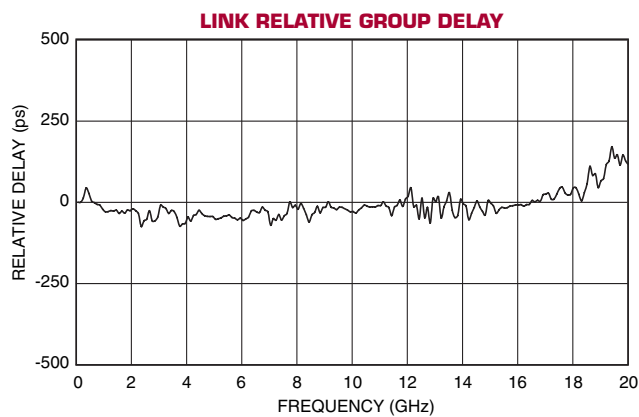
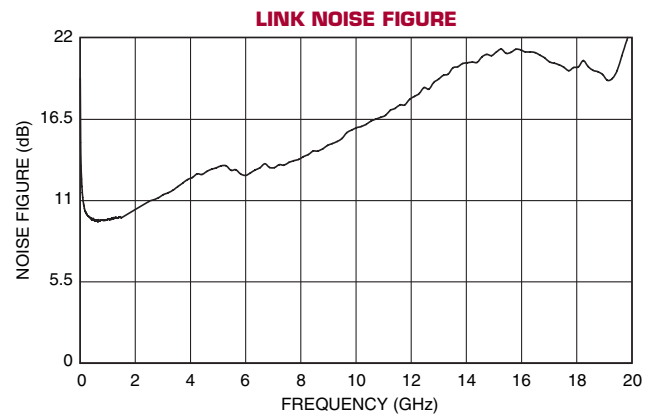
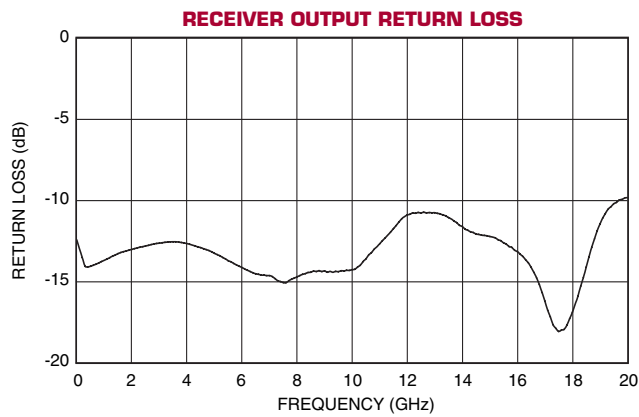
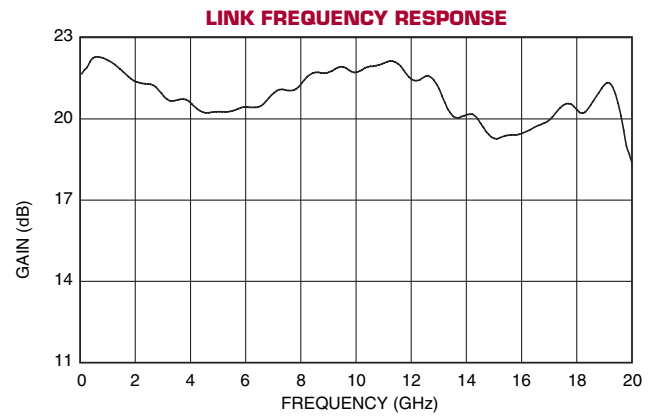
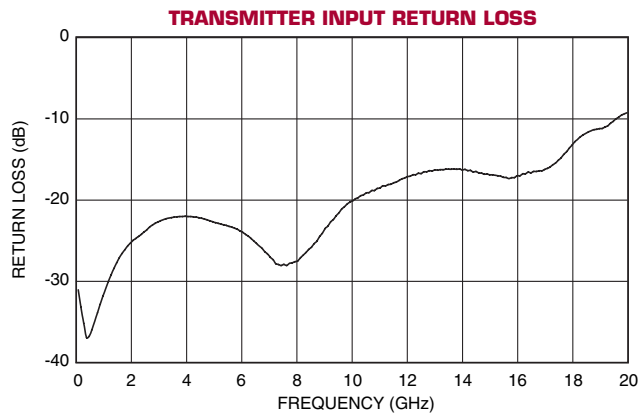
Operating temperature..... -20 to +50°C
 Storage temperature..... -40 to +85°C
 Humidity..... 95% relative humidity, noncondensing
 Vibration..... 7.3 g's rms, 20-2000 CPS, Per MIL-STD-810B, Method 514, Procedure 5

ORDERING INFORMATION

Transmitter..... Part number: SCMT-18G
 Receiver..... Part number: SCMR-18G

NOTE: Link, gain, noise figure and power compression can be tailored for specific applications.
 Please contact MITEQ.

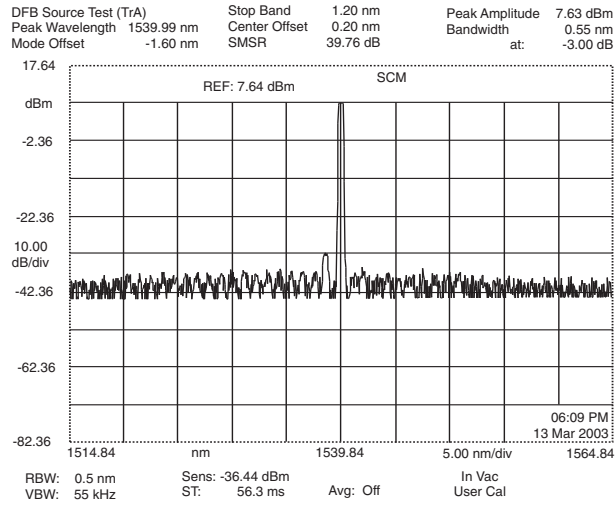
TYPICAL TEST DATA



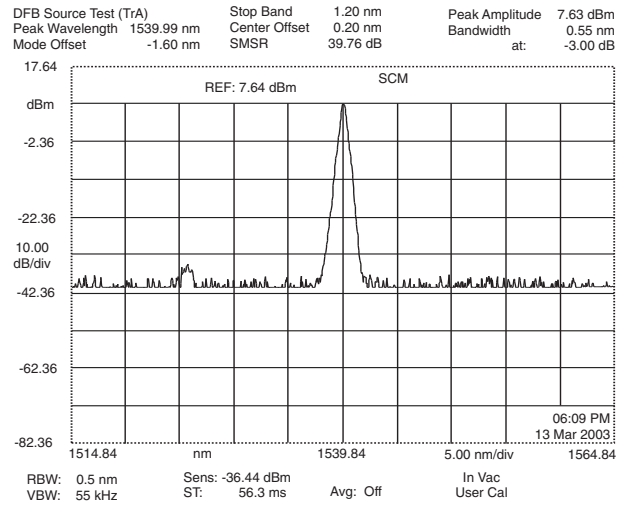
NOTE: Typical data taken with 1 or 2 meters of optical fiber.

TYPICAL TEST DATA (CONT.)

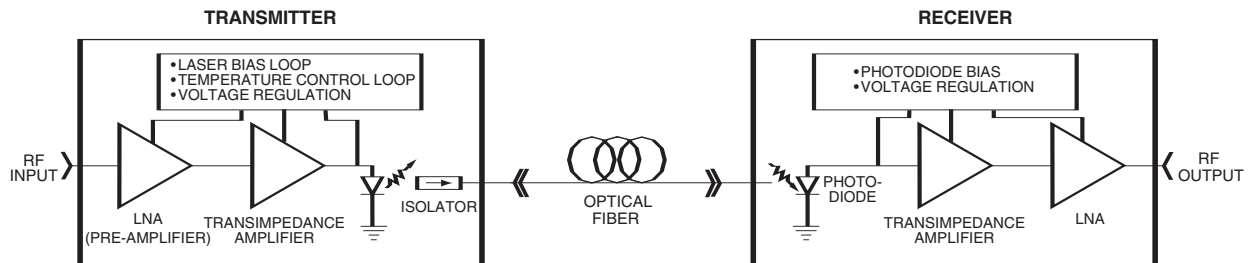
TRANSMITTER SPECTRUM 50 nm Span



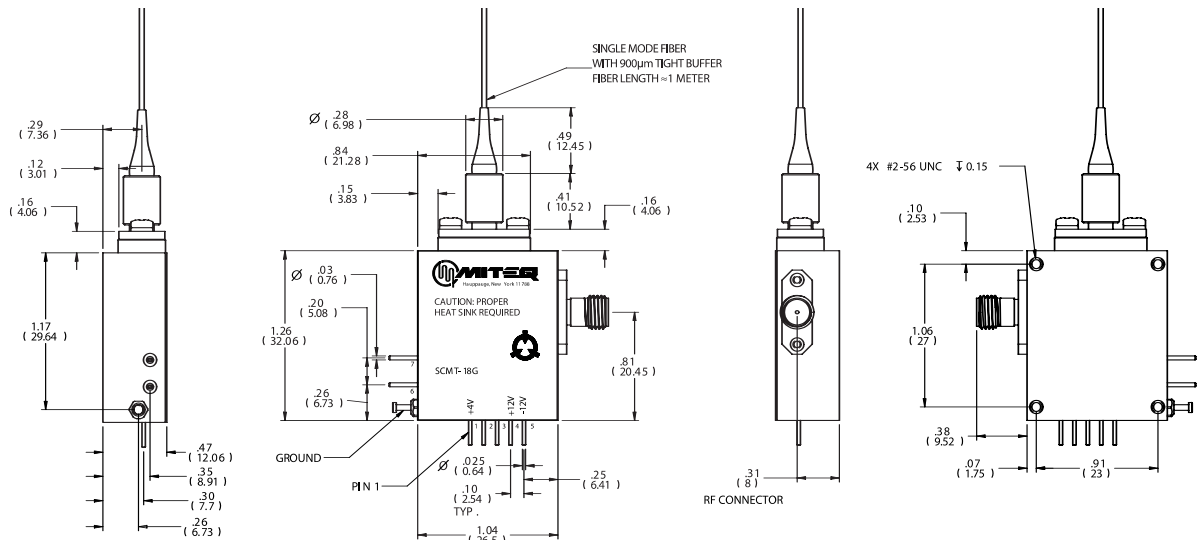
TRANSMITTER SPECTRUM 5 nm Span



BLOCK DIAGRAM



TRANSMITTER OUTLINE DRAWING



APPLY ALL VOLTAGES SIMULTANEOUSLY, OR IN THE FOLLOWING ORDER:

- +4V
- -12V
- +12V

RF CONNECTORS: "K" STYLE (FEMALE STANDARD)
OPTICAL CONNECTOR: FC/APC STANDARD (OTHER STANDARDS AVAILABLE)
OPTICAL FIBER: SINGLE MODE

TRANSMITTER POWER SUPPLY

PIN	VOLTAGE	CURRENT (AMPS)	NOTES
1	+4	0.1	@25°C BASE PLATE TEMP. FOR MAXIMUM COOLING
2	N/C	1	
3	N/C		
4	+12	0.3	
5	-12	0.1 typ., 0.30 max.	

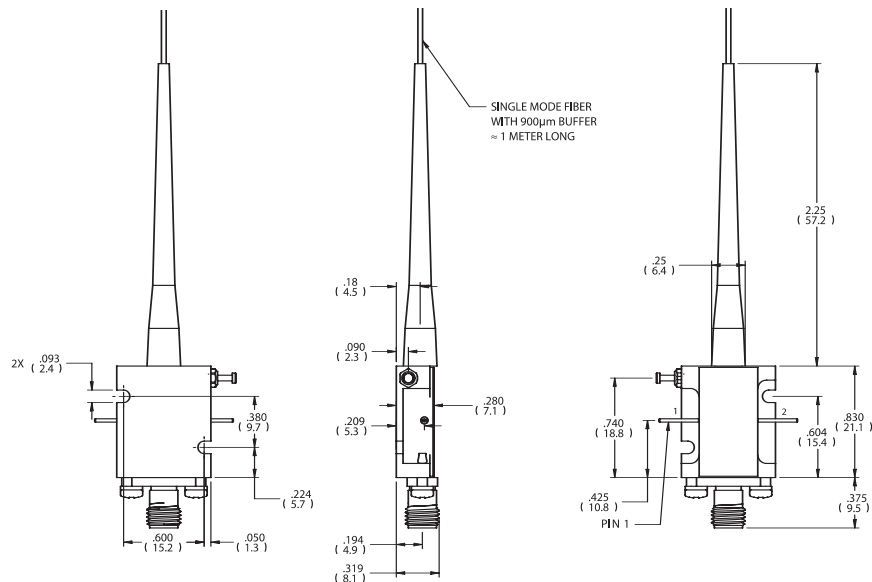
TRANSMITTER OPERATIONAL STATUS

PIN	DESCRIPTION	NORMAL VOLTAGE RANGE	NOTES
6	OPTICAL POWER MONITOR	-2.5 to -1.5	0 VOLTS INDICATES NO LASER LIGHT
7	LASER TEMP. MONITOR	-0.5 to +0.5	<-0.5 INDICATES HIGH LASER TEMP. >+0.5 INDICATES LOW LASER TEMP.

NOTE:
ALLOW 2 MINUTES FOR LASER TEMPERATURE
STABILIZATION AFTER APPLYING POWER.

NOTE: All dimensions shown in brackets [] are in millimeters.

RECEIVER OUTLINE DRAWING



RECEIVER POWER SUPPLY

PIN	VOLTAGE	CURRENT (AMPS)	NOTES
1	PHOTOCURRENT MONITOR		REFER TO "OPERATIONAL STATUS"
2	+11-16	0.1	

RECEIVER OPERATIONAL STATUS

PIN	DESCRIPTION	NORMAL VOLTAGE	NOTES
1	OPTICAL CARRIER DETECT	> 1.0 UP TO +8	0 VOLTS INDICATES NO CARRIER PRESENT. VOLTAGE INCREASES APPROXIMATELY 1.3V/mW WITH DETECTED OPTICAL POWER

RF CONNECTOR: "K" STYLE (FEMALE STANDARD)
OPTICAL CONNECTOR: FC/APC STANDARD (OTHER STANDARDS AVAILABLE)
OPTICAL FIBER: 9/125 SINGLE MODE

NOTE: All dimensions shown in brackets [] are in millimeters.

18 GHz SCM FIBER OPTIC LINK

FIBER OPTIC COMPONENT ENCLOSURES



D-286B

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