DiLink
4 GHz Fiber Optic Links

Rev. V1

Features

- Analog RF Bandwidth to 4 GHz
- RF Transport up to 20 km
- Small Size
- High Dynamic Range
- Wide Bandwidth
- Low Noise
- Temperature Compensated
- Harsh Environment Options
- TTL Controllable On/Off
- 1310nm, 1550nm, and CWDM options

Applications

- Antenna Remoting
- Radio-over-Fiber
- Network Infrastructure
- Multicarrier/Subcarrier Multiplexed Analog Transport

Description

MACOM's Directly Modulated Fiber Optic Links provide high performance transmission of wideband RF signals up to 4 GHz over optical fiber. Featuring high reliability and small size, the DiLink transmitter and receiver modules are easily integrated into communications systems for a variety of applications including antenna remoting, radio-over-fiber, network infrastructure and multicarrier/subcarrier multiplexed analog transport.

All modules are easy to use, requiring no external tuning or alignment. They feature a single RF connector, a pigtailed optical connector, and a single DB-9 for power, control, and status/Built-in-Test (BIT) functions. Wide temperature range with environmental sealing options are also available.

1310nm and 1550nm wavelength options allow for WDM bi-directional transmission over a single fiber. CWDM wavelength options can be used to increase the channel count within a single fiber.

Electrical Characteristics

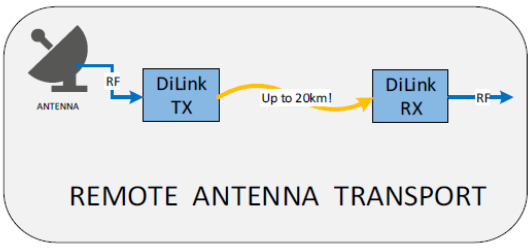
Style	Gain (dB)	Freq. (MHz)	Link Gain (dB) @ Centerband	RF Input Compression (dBm)	RF Input IP3 (dbM)	Link Noise Figure (dB)	SFDR3 Typical ($dB/Hz^{2/3}$)
W	0	100 - 1000	0 +/- 2	0	15	30	107
W	0	500 - 2500	0 +/- 2	0	15	30	107
W	0	1000 - 4000	0 +/- 2	0	12	30	107
W	15	100 - 1000	15 +/- 2	-6	10	30	104
W	15	500 - 2500	15 +/- 2	-6	10	30	103
W	15	1000 - 4000	15 +/- 2	-6	6	30	101
N	0	900 - 2250	0 +/- 2	4	17	30	108
N	0	2000 - 34000	0 +/- 2	2	12	28	106
N	15	900 - 2250	15 +/- 2	-1	13	30	105
N	15	2000 - 3400	15 +/- 2	-1	8	28	103

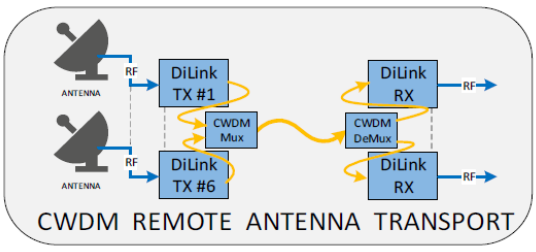
Absolute Maximum Ratings

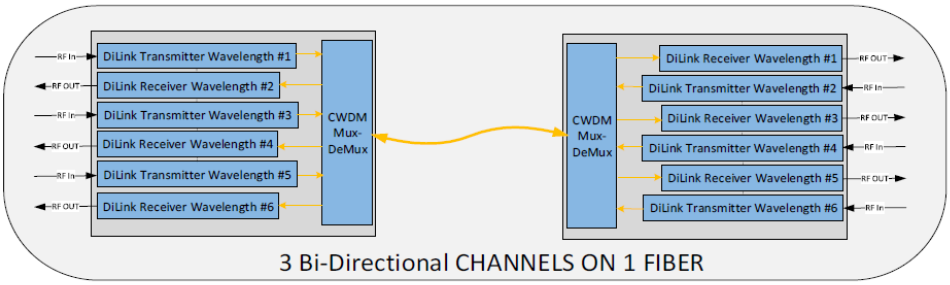
Parameter	Absolute Maximum
Storage Temperature	-40°C to +85°C
RF Input Level (TX)	+10 dBm
Optical Input Level (RX)	+5 dBm
Power Supply Voltage(s)	±5%
Transmitter Power Consumption	3 W
Receiver Power Consumption	3.5 W

All Units

Parameter	
Gain Variation over Temp.	+/- 1 dB
Gain Flatness Full Band	+/- 1 dB
Gain Flatness over any 250 MHz	+/- 0.25 dB
RF Input/Output Return Loss	10 dB min.
RF Connector	SMA Female

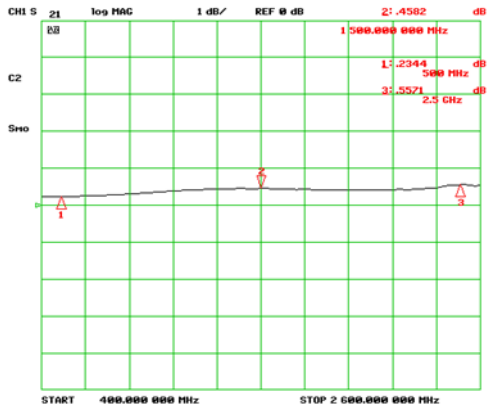




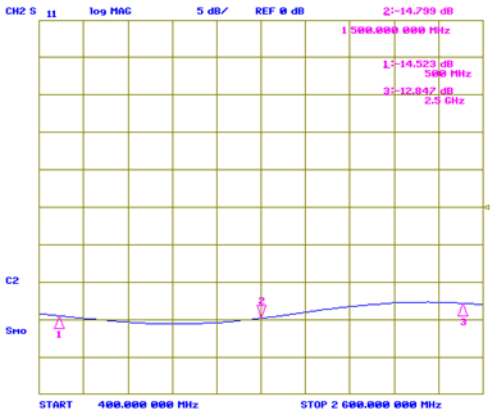


Typical Performance Curves

L-Band Link (Gain)



L-Band Link (Input Return Loss)



Ordering Information

D	L	m	w	s	f	g	c	v	t

example:
DLT3W40FSM
Transmitter
1310 nm
Wideband
1000 to 4000 MHz
0 dB Link Gain
FC/APC
Single Supply
-40 to +70 °C

m Module Type
T Transmitter
R Receiver

w Wavelength
3 1310
5 1550
C custom

s Style
W Wideband
N HDN/LN
I Obsolete - Contact Factory

f Frequency Range
1 Obsolete - Contact Factory
2 100 to 1000 (W style only)
3 500 to 2500 (W style only)
4 1000 to 4000 (W style only)
5 Obsolete - Contact Factory
6 Obsolete - Contact Factory
7 900 to 2250 (N style only)
8 2000 to 3400 (N style only)
C custom

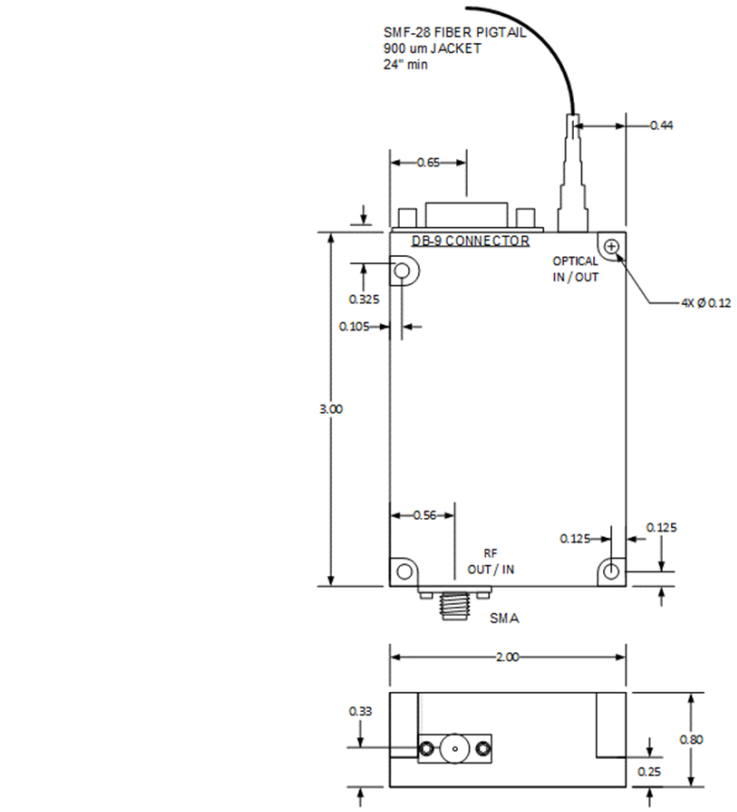
g Link Gain
0 0 dB
1 15 dB
C custom

c Connector
F FC/APC
S SC/APC
C custom

v Voltage
M multiple supply (Receiver Only) +12, +5, -5 V
S single supply +5 V

t Temp Range (Operating)
C 0 to 50 °C
M -40 to +70 °C

Outline



DiLink PINOUT (D-SUB 9-Pin Male)		
PIN #	Function	Description
1	+12V ±0.6V (Multi-Supply Only)	Power Supply Input (+12V ±0.6V)
2	+5V ±0.25V	Power Supply Input (+5V ±0.25V)
3	+5V ±0.25V (Multi-Supply Only)	Power Supply Input (+5V ±0.25V)
4	ALARM OUT	TTL Low Output if Unit is in Alarm
5	GROUND	Power Supply Ground
6	Optical Power Monitor	Analog Output 0.25V/mW
7	Power On (Active LOW)	Must Ground this Pin to Enable Output
8	Laser Current Monitor	Analog Output 100 mA/V (TX Only)
9	N/C	-