

Features

- Multiple Protocols
 - 1 PPS
 - CW/SINE Standards
 - IRIG
 - GPS
 - Two-Way Time Transfer
- Stable Group Delay
- Low Allan Variance
- Buffered Outputs



Applications

- Timing Distribution

Description

TimeLink DL Modules provide point-to-point time and frequency standard distribution over single mode fiber. Point-to-multipoint distribution is available using MACOM Interfacility Link (IFL) Timelink Products.

At the master site, choose from IRIG, 1 PPS, CW/Sine or GPS input protocols. TimeLink DL Transmit modules convert the electrical time signal standard to an intensity-modulated laser optical output. Featuring high reliability and small size, the TimeLink DL transmitter and receiver modules are easily integrated into communications systems for a variety of timing distribution applications.

At the remote site, the Receiver module converts the optical signal back to the electrical protocol while buffering the signal for directly driving single or multiple time devices.

Small form factor modules (2" x 3" x 0.8") and fully integrated internal electro-optics allow for simple plug-and-play integration into subsystem level equipment. 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.

For rack-mounted equipment and point-to-multipoint Time-Over-Fiber applications, see MACOM's Inter-Facility Link (IFL) TimeLink family of products.

Product Specifications

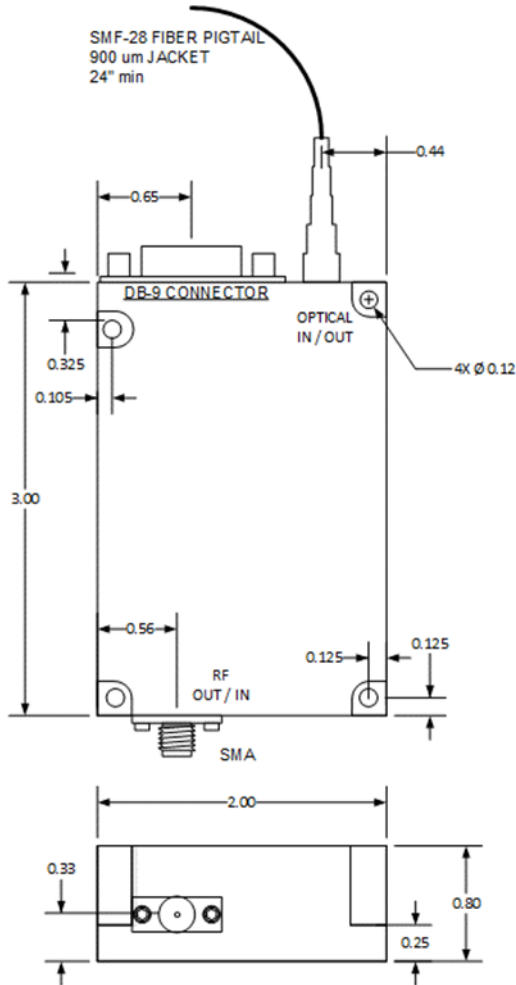
Transmitter		
Signal Input	Model type:	1PPS IRIG CW/Sine GPS/L-Band
		1 PPS Standard TTL / 50 Ω IRIG Standard 6 V modulated sine / 50Ω 1-100 MHz / 50 Ω / -50 to +15 dBm ¹ 1000-2000 MHz / 50 Ω / -50 to 0 dBm
Signal Input Connector	SMA	
Optical Output Pigtail	Single Mode FC/APC	
Optical Wavelength	1550 nm (standard)	± 40 nm
ALARM (Pin #5)	TTL Alarm Out	Alarm State =TTL High (5V)
OPT PWR (pin #6)	Optical Output Power Monitor	0.5V/mW
PWR DOWN (pin #7)	TTL High	Connect to GROUND to turn unit on

Receiver		
Signal Input	Model type:	1PPS IRIG CW/Sine GPS/L-Band
		1 PPS Standard TTL / 50 Ω IRIG Standard 6 V modulated sine / 50Ω 1-100 MHz 1000-2000 MHz
Signal Input Connector	SMA	
Optical Input Pigtail	Single Mode FC/APC	
Optical Wavelength	1550 nm (standard)	± 40 nm
ALARM (Pin #5)	TTL Alarm Out	Alarm State =TTL High (5V)
OPT PWR (pin #6)	Optical Input Power Monitor	0.5V/mW
PWR DOWN (pin #7)	TTL High	Connect to GROUND to turn unit on

End-to-End Link		
Gain	1PPS IRIG CW/Sine and GPS/L-Band	Fixed Output 1 PPS regenerated (<2 ns rise time) Fixed Output IRIG Linear Transfer with ALC Linear Transfer 0 dB Gain with 1 km fiber
Group Delay Variation	+500 fs/°C typical	

¹ Phase noise performance of the CW/Sine Link is best with transmitter input power close to +15 dBm

Mechanical Outline

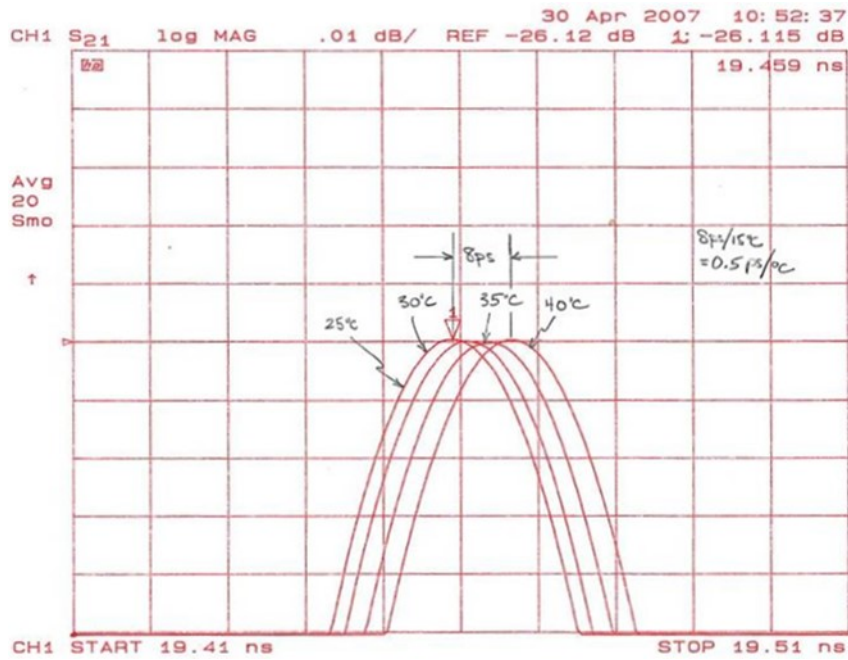


Environmental Specifications		
Parameter	Unit	Typ.
Operating Temp. Range (C Version)	°C	0 to 50
Operating Temp. Range (M Version)	°C	-40 to 70
Link Length		0 to 10 km

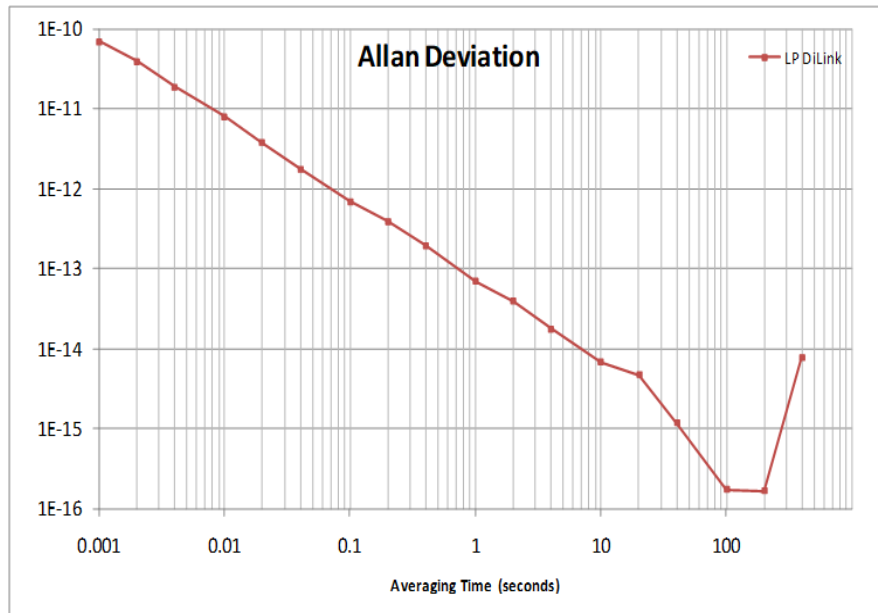
TimeLink DL Connector Pinout (D-Sub 9 Pin MALE)			
Pin	Label	Transmitter Function	Receiver Function
1	+12	+12V DC Input, 100MA max.	+12V DC Input, 160MA max.
2	+5	+5V DC Input, 50MA max.	+5V DC Input, 100MA max.
3	-5	-5V DC Input, 75MA max.	Not used. Do not connect.
4	ALARM	TTL ALARM Output	TTL ALARM Output
5	GND	Case and Signal Ground	Case and Signal Ground
6	OPT PWR	Optical Output Power Monitor	Optical Input Power Monitor
7	PWR DOWN	Power Down (Must ground unit to turn on)	Power Down (Must ground unit to turn on)
8	n/c	Not used. Do not connect.	Not used. Do not connect.
9	n/c	Not used. Do not connect.	Not used. Do not connect.

Typical Performance Curves

Pulsed Group Delay vs Temperature HF CW/Sine Link Modules



System Allan Variance HF CW/Sine Link Modules



Ordering Information

D	T	M	m	p	c	v	t
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example:
DTMTPFMC
Transmitter
1 PPS Protocol
FC/APC Connector
Multiple Supply
Commercial Temp (0 to 50)

m	Module Type
T	Transmitter
R	Receiver
p	Protocol
P	1 PPS
R	IRIG
H	HF, 1-100 MHz
L	GPS/L-Band
c	Optical Connector
F	FC/APC
L	LC/PC
v	Supply Voltage
M	Multiple (sole option)
t	Operating Temperature
C	0 to 50 C
M	-40 to 70 C

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