

Time over Fiber TimeLink DL Modules

Linear Photonics TimeLink DL Modules provide point-to-point time and frequency standard distribution over single mode fiber.

1 PPS

CW/SINE STANDARDS

IRIG

GPS

TWO-WAY TIME TRANSFER

STABLE GROUP DELAY

LOW ALLAN VARIANCE

BUFFERED OUTPUTS

SINGLE/MULTIPLE SUPPLY OPTIONS

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.

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.

TimeLink DL PART NUMBER INFORMATION

D T M m p c v t

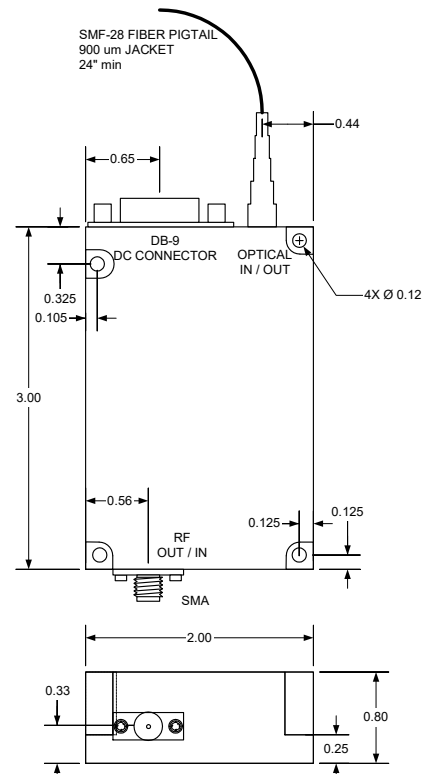
example:

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

TimeLink DL MECHANICAL OUTLINE



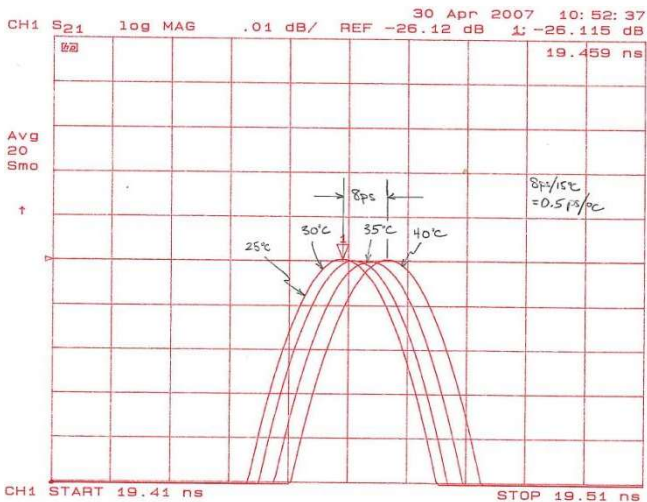
TimeLink DL LINK PERFORMANCE

Transmitter			
Signal Input	model type:	1 PPS	1 PPS Standard TTL / 50 Ω
		IRIG	IRIG Standard 6 V modulated sine / 50 Ω
		CW/Sine	1-100 MHz / 50 Ω / -50 to +15 dBm (Note 1)
		GPS/L-Band	1000-2000 MHz / 50 Ω / -50 to 0 dBm
Signal Input Connector	SMA		
Optical Output Connector	Single Mode FC/APC		
Optical Wavelength	1550 nm (standard)		
Optical Output Power	5 dBm (nom)		
Optical Pigtail Length	24" minimum		
Receiver			
Signal Output	model type:	1 PPS	1 PPS Standard TTL / 50 Ω
		IRIG	IRIG Standard 6 V modulated sine / 50 Ω
		CW/Sine	1-100 MHz
		GPS/L-Band	1000-2000 MHz
Optical Input Connector	Single Mode FC/APC		
Signal Output Connector	SMA		
End-to-End Link			
Gain		1 PPS	Fixed Output 1 PPS regenerated (< 2 ns rise time)
		IRIG	Fixed Output IRIG Linear Transfer with ALC
		CW/Sine and GPS/L-Band	Linear Transfer 0 dB Gain with 1 km fiber
Group Delay Variation	+500 fs/°C typical		
Environmental			
Operating Temp Range		"C" version	0 to 50°C
		"M" version	-40 to 70°C
Link Length	0 to 10 km		

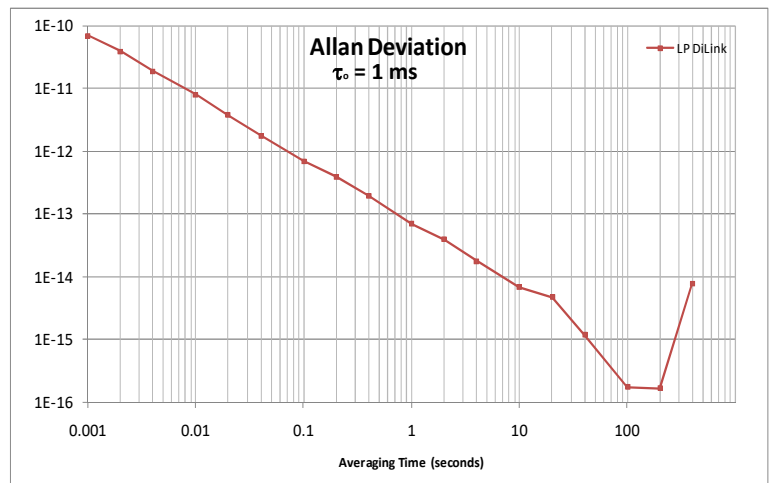
Note 1: Phase noise performance of the CW/Sine Link is best with transmitter input power close to +15 dBm.

TimeLink DL DC CONNECTOR INTERFACE

Pin	Label	Transmitter	Receiver
1	+12	+12 VDC Input, 100mA max	+12 VDC Input, 20mA max
2	+5	+5 VDC Input, 50mA max	+5 VDC Input, 100mA max
3	-5	-5 VDC Input, 75mA max	not used, leave open
4	ALARM	TTL ALARM OUTPUT	
5	GND	Case and Signal Ground	
6	OPT PWR	Optical Output Pwr Mon (0.5 V/mW)	Optical Input Pwr Mon (0.5 V/mW)
7	PWR DOWN	Power Down (TTL Input): Connect to GROUND to turn the unit ON	
8	n/c	not used, leave open	
9	n/c	not used, leave open	



Pulsed Group Delay vs Temperature
 HF CW/Sine Link Modules



System Allan Variance
 HF CW/Sine Link Modules