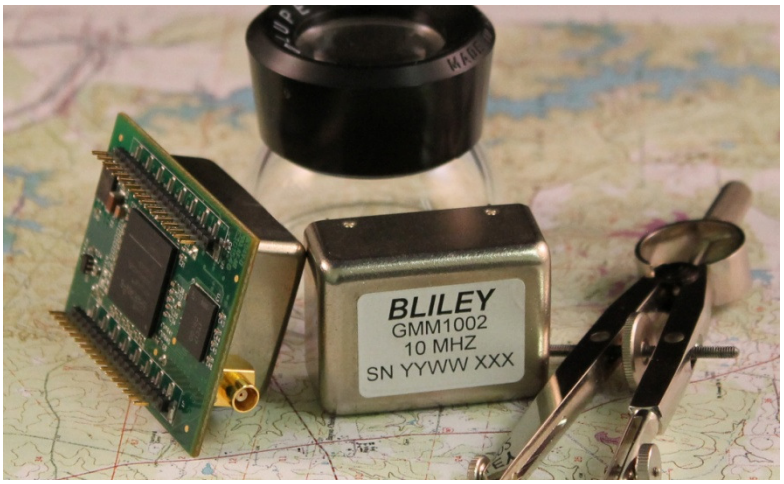
GPS Frequency And Timing Module

Bliley Technologies Inc.
2545 W Grandview Blvd
Erie, Pa 16506
Factory +1-814-838-3571



Features:

- Provides 10MHz and 1pps
- Outputs synchronized to GPS
- Excellent Phase Noise
- Excellent holdover capability
- Takes two external references.
- UART Port with NMEA protocol for monitoring
- Supply Voltage 5VDC

Description:

The Bliley GMM1002 GPS module is a small form factor time and frequency reference module. This modules compact size, simple interface and excellent holdover makes it ideal for WiMAX and LTE wireless systems.

Electrical Specifications

1. Output Characteristics

	Parameter	Specification	Unit	Test Conditions
1.0	Frequency			
1.0.1	Output 1 (1)	10	MHz	Into 50Ω
1.0.2	Output Signal (1)	5±2	dBm	Into 50Ω
1.0.3	Output 3 (1)	10	MHz	Differential LVDS
1.0.4	Accuracy Locked	≤1e-12		24-hours average when locked to GPS
1.0.5	Accuracy Initial (1)	≤2	Hz	After power on, without GPS
1.0.6	Output 1 Phase Noise (1)			
	$\mathcal{L}$(f)@10Hz	-120	dBc/Hz	
	$\mathcal{L}$(f)@100Hz	-140	dBc/Hz	
	$\mathcal{L}$(f)@1KHz	-150	dBc/Hz	
	$\mathcal{L}$(f)@10KHz	-150	dBc/Hz	
	$\mathcal{L}$(f)@100KHz	-150	dBc/Hz	

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1. Output Characteristics (Continued)

	Parameter	Specification	Unit	Test Conditions
1.0.7	Output Spurious	≤-60	dBc	Non-Harmonic
1.1	Time Output			
1.1.1	Output 2	1	PPS	TTL into 50Ω
1.1.2	Output 4	1	PPS	Differential LVDS, duty cycle 50%
1.1.3	Output Accuracy Locked	±50	nS RMS	Over any 20-min. interval @ constant temperature
1.1.4	Output Accuracy Holdover (1)	≤10	uS	Over 8-Hours, under limited temperature variations

2. Input Characteristics

	Parameter	Specification	Unit	Test Conditions
2.0	GPS Input	1575.42	MHz	L1 GPS C/A code from active antenna
2.1	GPS Antenna Power (4)	+5.0	VDC	100mA max., short circuit protection
2.2	GPS Receiver			
2.2.1	Independent tracking channels	12		
2.2.2	TTFF Cold Start	36	S	
2.2.3	TTFF Hot Start:	4	S	
2.2.4	Sensitivity Acquisition (cold)	-141	dBm	
2.2.5	Sensitivity Acquisition (hot, warm)	-149	dBm	
2.2.6	Sensitivity Tracking	-156	dBm	
2.2.7	Sensitivity Navigation	-155	dBm	
2.3	External Reference 1	1		
2.4	External Reference 2	10		
2.5	Supply Voltate (4)	5		

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2 Input Characteristics (continued)

	Parameter	Specification	Unit	Test Conditions
2.6	Power			
	Start Up	2	Watts	Max.
	Steady State	3	Watts	@Room Temperature
2.7	Warm up time	3	Min.	@Room Temperature

3. Environmental, and Mechanical Specifications

	Parameter	Specification	Unit	Test Conditions
3.1	Operating Temperature (3)	-20 to +70	°C	Ambient
	Operating Altitude	-200 to 40,000	Ft	
		-60 to 12,000	M	
	Operating Humidity	90	%	non-condensing
	Package Size			
	Length	1.9 [48]	In [mm]	
	Width	1.4 [36]	In [mm]	
	Height	0.87 [22]	In [mm]	

4 Communication Specifications

	Parameter	Specification	Unit	Test Conditions
4.0	Communications Interface (2)	UART		9600 bauds, 8 bits, 1 stop bit No Parity
4.1	Communications Protocol (2)	NMEA-0183		Custom commands to support module control
4.2	Status Indicators	Active High		HOLD, LOCKED, FREERUN, ALARM and GPSLOCK indicators (LED, LVCMOS output)
4.3	Antenna Input	MCX		

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4 Communication Specifications (continued)

	Parameter	Specification	Unit	Test Conditions
4.4	I/O Voltage Levels			
4.4.1	LVCMOS			
	V_{IH}	2	V	
	V_{IL}	0.8	V	
	V_{OH}	3	V	
	V_{OL}	0.8	V	
4.4.2	LVDS			
	V_{ID}	100	mV	
	V_{IDL}	300	mV	
	V_{OD}	250	mV	
	V_{OCM}	1125	mV	
4.5	34 pin Header Connections (5)	Pin 1 VCC Pin 2 EX REF1 Pin 3 N/C Pin 4 EX REF2 Pin 5 N/C Pin 6 N/C Pin 7 RESET Pin 8 VCON Pin 9 GND Pin 10 N/C Pin 11 RX0 Pin 12 TX0 Pin 13 GND Pin 14 OUT2 Pin 15 GND Pin 16 OUT1 Pin 17 GND	Pin 34 VCC Pin 33 N/C Pin 32 HOLD Pin 31 LOCKED Pin 30 FREERUN Pin 29 ALARM Pin 28 GPSLOCK Pin 27 GND Pin 26 TDI Pin 25 TDO Pin 24 TMS Pin 23 TCK Pin 22 COUT4 Pin 21 OUT4 Pin 20 COUT3 Pin 19 OUT3 Pin 18 GND	

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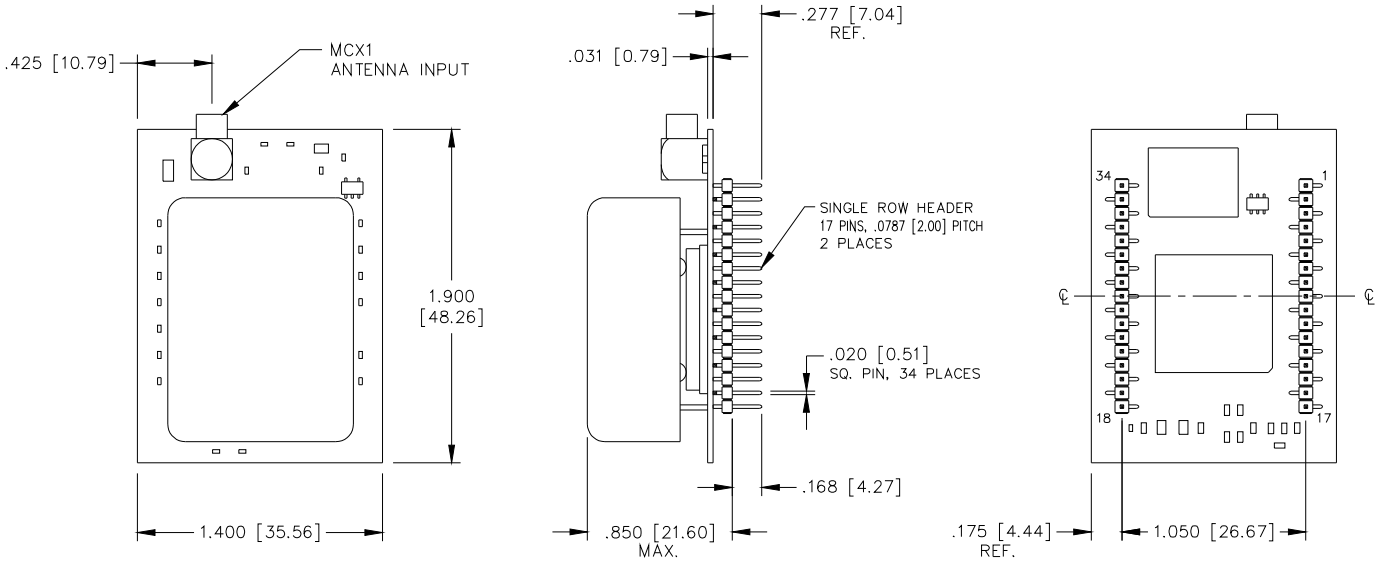

(1) **Others available on request. Performance varies with temperature variations and selected oscillator.**
(2) **Other communication protocols available on request**
(3) **Other operating temperatures available upon request.**
(4) **Other versions available.**
(5) **All N/C (Not Connected) programmable on request.**

Consult factory for ordering guidance