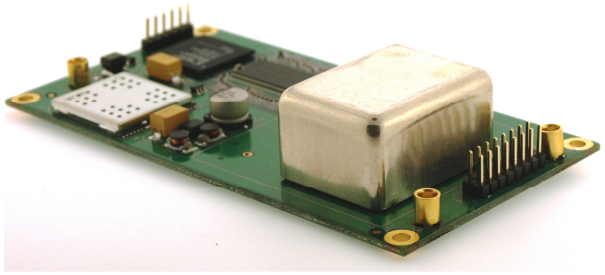
# GPS Frequency And Timing Module

# GMX1001

## DESCRIPTION:

**The Bliley GMX1001 GPS module is a flexible time and frequency reference module. This modules compact size, simple interface and outstanding holdover offers breakthrough price-performance in and adaptable high performance system.**



## FEATURES:

- **Provides 10MHz and 1pps**
- **Outputs synchronized to GPS**
- **Excellent Phase Noise**
- **Excellent holdover capability**
- **Different oscillator choices to meet the most applications**
- **UART Port with NMEA protocol for monitoring**
- **Supply Options 5VDC and 12VDC**

| Electrical Performance | | | |
|---|---|---|---|
| ***Parameter*** | ***Conditions*** | ***Specification*** | ***Unit*** |
| Frequency Output[1] | Into 50Ω | 10 | MHz |
| Frequency Output Signal[1] | Into 50Ω | 7±2 | dBm |
| Frequency Accuracy Locked | 24-hours average when locked to GPS | ≤1E-12 | |
| Frequency Accuracy Initial[1] | After power on, without GPS | ≤2 | Hz |
| Frequency Output Phase Noise[1] | -10Hz<br>-100Hz<br>-1KHz<br>-10KHz<br>-100KHz | -120<br>-140<br>-150<br>-155<br>-155 | dBc/Hz<br>dBc/Hz<br>dBc/Hz<br>dBc/Hz<br>dBc/Hz |
| Frequency Output Spurious | Non-Harmonic | ≤-70 | dBc |
| Time Output | TTL Into 50Ω | 1 | PPS |
| Time Output Accuracy Locked | Over any 20-min. interval @ constant temperature | ±50 | nS RMS |
| Time Output Accuracy Holdover[1] | Over 4-Hours, under limited temperature variations | ≤1 | µS |
| Communications Interface[2] | 9600 bauds, 8 bits, 1 stop bit, Odd parity | UART | |
| Communications Protocol[2] | Custom commands to support module control | NMEA-0183 | |
| Status Indicators | Lock and Sync indicators (LED, LVCMOS output) | Active High | |
| GPS Input | L1 GPS C/A code from active antenna, | 1575.42 | MHz |
| GPS Antenna Power | 100mA max, short circuit protection | +5 | VDC |
| GPS Receiver | Independent tracking channels<br>TTFF Cold Start<br>TTFF Hot Start:<br>Sensitivity Acquisition (cold)<br>Sensitivity Acquisition (hot, warm)<br>Sensitivity Tracking<br>Sensitivity Navigation | 12<br>36<br>4<br>-141<br>-149<br>-156<br>-155 | <br>s<br>s<br>dBm<br>dBm<br>dBm<br>dBm |
| External Reference | LVCMOS logic | 1 | PPS |
| Supply Voltage[4] | | 12 | VDC |
| Power | Start-up (max)<br>Steady State Power @ Room Temperature | 6<br>3 | W<br>W |
| Warm-up Time | Room Temperature | 3 | Min |

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| Environmental Specifications | | | |
|---|---|---|---|
| ***Parameter*** | ***Conditions*** | ***Specification*** | ***Unit*** |
| Operating Temperature[3] | Ambient | -10 to +70 | °C |
| Operating Altitude | | -200 to 40,000<br>-60 to 12,000 | ft<br>m |
| Operating Humidity | non-condensing | 90 | % |
| **Physical Specifications** | | | |
| ***Parameter*** | ***Conditions*** | ***Specification*** | ***Unit*** |
| Package Size | L x W x H | 4.5x2.36x1.06<br>114x60x27 | in<br>mm |
| Antenna Input | | MCX | |
| 1PPS Output | | MCX | |
| 10MHz Output | | MCX | |
| 16 Pin Header Connections[5] | Pin 1: 1PPS Input, Pin 2: N/C<br>Pin 3: GND, Pin 4: GND<br>Pin 5: RX, Pin 6: TX<br>Pin 7: 10MHz, Pin 8: N/C<br>Pin 9: LOCK, Pin 10: SYNC<br>Pin 11: N/C, Pin 12: RST<br>Pin 13: GROUND, Pin 14: GROUND<br>Pin 15: VCC, Pin 16: VCC | | |
| 16 Pin Header I/O Voltage Levels | $V_{IH}$ (Min)<br>$V_{IL}$ (Max)<br>$V_{OH}$ (Min)<br>$V_{OL}$ (Max) | 2.0<br>0.8<br>3.0<br>0.8 | V<br>V<br>V<br>V |

(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) +5V or 12V versions available
(5) All N/C (Not Connected) programmable on request

**Consult factory for ordering instructions**