GT-90

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Timing Multi-GNSS Receiver Module

Highly precise time & ultra-low jitter 1pps synchronized with UTC

- The world's highest level of stability under open sky <4.5ns (1σ)
- Single-frequency band positioning system with excellent cost performance
- World's lowest accuracy degradation in harsh urban multipath environments

GT-90 is a Multi-GNSS receiver module for time synchronization that delivers high-stability and high-resolution time pulse (1PPS). Time stability of less than 4.5ns (1σ), ideal for 5G mobile base stations, is achieved with a single-frequency band. This offers superior cost performance of the receiver and allows widely available single-frequency antennas to be used for greater total cost reduction.
GT-90 support all GNSS using L1 band, making it suitable for integration into globally deployed equipment.

The GT-90 also performs well not only in ideal environments with open skies, but also in urban areas with mixed multi-paths. Our proprietary Dynamic Satellite SelectionTM* technology (DSS), which appropriately chooses only the high-quality satellite signals, minimizes degradation of time stability.
* a new satellite signal selection algorithm developed by NTT

Jamming and spoofing are a threat to systems using GNSS receivers.
GT-90 has countermeasures against these threats and can be used safely and securely in critical infrastructure applications.
The main applications of GT-90 include 5G mobile base stations, police radios, emergency services radio systems, train radios, and time servers.

GT-90's sophisticated built-in security including secure boot and secure firmware update ensures maximum protection against tampering.

	GT-90
Grade	
Timing	●
GNSS	
GPS+QZSS/SBAS	●
GLONASS	●
Galileo	●
BeiDou	●
Frequency band	
L1	●
Interfaces	
UART	●
Features	
Time pulse output (1PPS)	●
Multipath resistant	● (DSS)
Anti-jamming	●
Anti-spoofing	●
Secure boot	●
Secure FW update	●
Power supply	
Power-supply voltage	3.3V

FURUNO

GNSS Timing Module

Model	GT-90
	
GNSS Reception Capability	GPS L1C/A, GLONASS L1OF, Galileo E1B/E1C,BeiDou B1I /B1C, QZSS L1C/A, SBAS L1C/A
GNSS Concurrent Reception	32 channels
Sensitivity *1	Acquisition : ≧ -147 dBm Tracking : ≧ -165 dBm
ITU-T Recommendation	Compliant with G.8272 PRTC-A and G.8272 PRTC-B *5
1PPS Stability *2	< 4.5 ns (1σ)
1PPS Accuracy *2	< ±40 ns (vs UTC)
1PPS Resolution	±0.2 ns
TTFF (Typical)*3	Hot Start: 2 sec (Typ), Cold Start: 35 sec (Typ)
Clock Configurable Range	None
Operating Temperature	-40℃ ～ +85℃
Supply Voltage	DC 3.3 V
Power Consumption *4	55mA
Package	47Pin LCC (Leadless Chip Carrier) 18.0mm x 17.8mm x 3.11mm
Interfaces	UART, Time Pulse (1PPS)
Protocol	PFEC (NMEA 0183 Ver4.11)
Security	Secure boot, Secure FW update
Function	Anti Jamming (8CW), Multipath Mitigation (Dynamic Satellite Selection™), Anti-Spoofing , T-RAIM Antenna Detection Circuit.

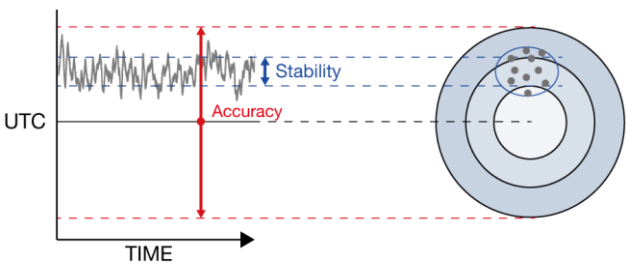
*1 Measurement environment using GNSS simulator *2 Open sky *3 Measurement platform with recommended active antenna
*4 Tracking Satellite outdoor *5 Compliant with TDEV (Time Deviation) /MTIE (Max Time Interval Error)

Evaluation Kit

Evaluation kit for GT-90.
The Evaluation Kit can supply power and communicate with USB interface.

FEATURES
- 5VDC Power supply through USB bus power
- Serial communication through USB
- 1PPS output from the SMA connectors
- SMA antenna connection
- Outer size is (w) 86mm x (D) 51mm x (H) 21mm
- Weight is about 65g
- Accessories are USB cable, Multi-GNSS Antenna and CD ROM containing the Communication Software and the documentations

Defining accuracy and stability



Accuracy refers to the maximum error deviation from UTC true value.
Stability refers to the degree of variation from accuracy over a period of time.
* FURUNO defines accuracy on the basis of UTC (vs UTC).

Specifications subject to change without notice

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GNSS receiver homepage :
https://www.furuno.com/en/gnss/
Product documentation :
https://www.furuno.com/en/gnss/datadownload/
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