

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47

<https://furuno.nt-rt.ru> || fon@nt-rt.ru

Timing Multi-GNSS Receiver Module Model GT-88



Extremely high stability of 4.5ns (1sigma) using a single band receiver

The GT-88 is the high-stability, high-accuracy timing Multi-GNSS receiver.

It incorporates Dynamic Satellite Selection™, which is a new satellite signal selection algorithm developed by NTT. Thanks to that GT-88 permits GNSS antennas to be mounted more freely than ever before including wall mounting and window mounting installations.

- **Enable to output accurate and robust UTC time and 1PPS synchronized with UTC time**

FURUNO technology made it possible to achieve 5G-required performance. 4.5ns (1 sigma) by a single band receiver is obtained. This is achieved by an improved and advanced position estimation algorithm. It optimizes position calculations using several different GNSS satellite constellations. It allows users to achieve 5G-required performance without changing existing single band GNSS antennas.

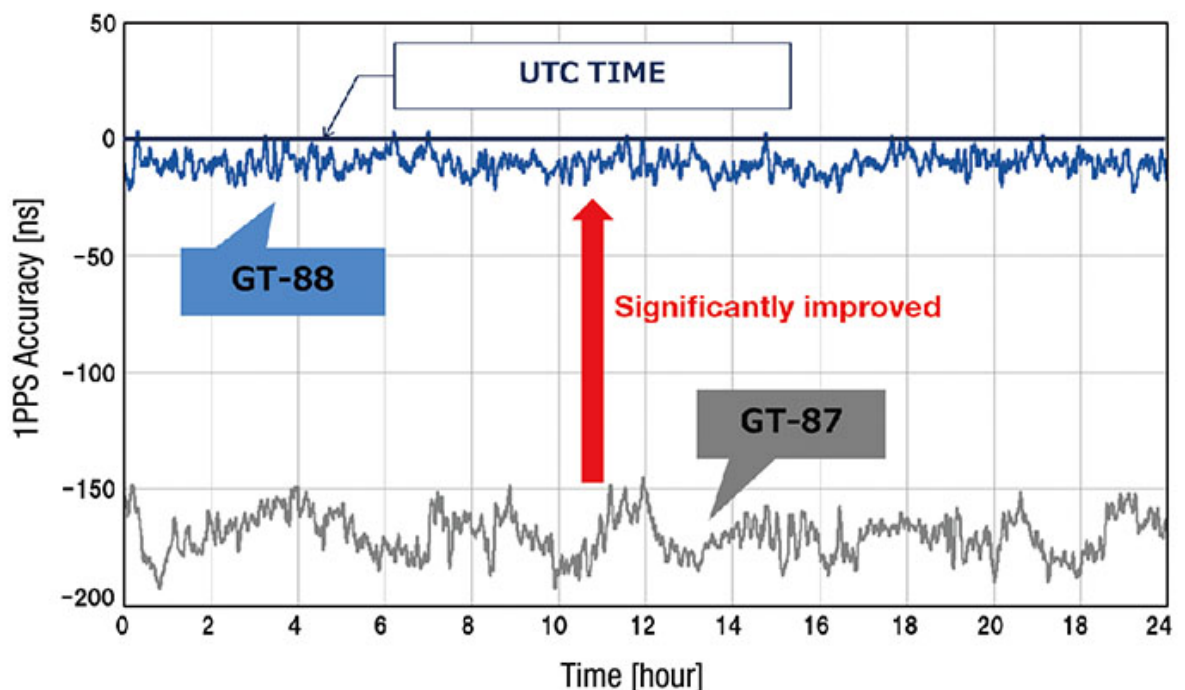
White Paper: High Stability of 4.5ns (1 sigma) using a single band GNSS timing receiver

- **GNSS antennas can be mounted on walls and windows of tall buildings**

The Dynamic Satellite Selection™* minimizes deterioration of time synchronization performance by choosing only the high quality satellite signals

* a new satellite signal selection algorithm developed by NTT

White Paper: Industry-leading multipath mitigation in urban canyon environments



- **Suitable for various RF · Broadcasting applications. Designed functions aiming to solve usual troubles on site.**

The number of radio stations applied with GNSS time synchronization, ex. PMR, local 5G, and V2X, has been increasing year by year. Especially in urban area, users have to face problems such as urban canyon (signals blocked) and multi-path (signals reflected) etc.

1. Multipath in Urban area
2. Jamming (interference wave)
3. Spoofing

Countermeasure for GNSS receiver failure. (White Paper)

- **Compliant with G.8272 PRTC-A**

*Compliant with TDEV/MTIE

- **Concurrent reception of GPS/GLONASS/Galileo/QZSS/SBAS**
- **Suitable for various communication and broadcasting applications**

TRAIM, Single Satellite Tracking, Multipath Mitigation, Anti-Jamming and Anti-Spoofing

- **Configurable frequency output (10 Hz to 40 MHz)**
- **Enhance performance in combination with recommended antenna**

Multi-GNSS antenna AU-217 has highly noise resistant as well as highly environmental resistant equivalent to IP67. AU-217 is suitable for use with Furuno timing Multi-GNSS modules and disciplined oscillators.

[Here's more on Multi-GNSS antenna AU-217](#)

Specifications

GENERAL

GNSS Reception Capability

GPS L1C/A, GLONASS L1OF, Galileo E1B/E1C, QZSS L1C/A, QZSS L1S, SBAS L1C/A

GNSS Reception

32 channels

Sensitivity

GPS

Tracking: > -162 dBm

Acquisition: > -148 dBm

GLONASS

Tracking: > -158 dBm

Acquisition: > -144 dBm

Galileo

Tracking: > -146 dBm
Acquisition: > -136 dBm

QZSS

Tracking : > -147 dBm
Acquisition : > -131 dBm

*Measurement platform with recommended active antenna

ITU-T Recommendation

Compliant with G.8272 PRTC-A

*Compliant with TDEV/MTIE

1PPS Stability

< 4.5 ns (1σ)

*Open sky

1PPS Accuracy

< ± 40 ns (vs UTC)

*Open sky

1PPS Resolution

± 1.75 ns

Clock Output

10 Hz to 40 MHz

TTFF (Typical)

Hot Start: <5 sec
Cold Start: <35 sec

*Measurement platform with recommended active antenna

Supply Voltage

3.3 VDC

Power Consumption

< 68 mA

*85°C when tracking

Operating Temperature

-40°C to +85°C

Package

24Pin LCC (Leadless Chip Carrier)
12.2mm × 16.0mm × 2.8mm

Protocol

eSIP (NMEA 0183 Standard Ver 4.10)

Interfaces

UART, Time Pulse (1PPS), Clock

Functions

Anti-Jamming (8CW), Multipath Mitigation (Dynamic Satellite Selection™),
Anti-Spoofing, T-RAIM

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47