

# GNSS Module

## SP-100

Multi-GNSS Receiver Module



### Multi-GNSS, Concurrent reception of GPS

- Supports concurrent GPS, GLONASS, SBAS and QZSS, Ready
- Fast TTFF : Hot start < 1 sec (Outdoor, Hot Start)
- Board mounting type. Available downsizing.
- Easy connection by Serial TTL level.
- Active Anti-Jamming
- Advanced Multipath Mitigation
- Dead Reckoning Solution is available.\*1

\*1 Using module will be changed.

GNSS = "Global Navigation Satellite System"

Specification

GNSS Reception Capability	GPS L1 C/A, GLONASS L1OF, SBAS L1 C/A, QZSS L1 C/A
Update Rate	1/2/5/10 Hz (Selectable)
Sensitivity	GPS
	Tracking : -161 dBm
	Hot Start : -161 dBm
	Cold Start : -147 dBm
	GLONASS
	Tracking : -157 dBm
	Hot Start : -157 dBm
	Cold Start : -143 dBm
	Outdoor : 2.5m(CEP) (GPS only)/2.0m(CEP) (GPS+SBAS)
Position Accuracy	Indoor : 19m(CEP)
TTFF	Hot Start (Outdoor) : <1 sec. (@-130dBm)
	Warm Start (Outdoor) : 30 sec. (@-130dBm)
	Cold Start (Outdoor) : 33 sec. (@-130dBm)
	Hot Start (Indoor) : 7 sec. (@-150dBm)
Supply Voltage	3.3V DC
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Dimensions	33.8 x 20.8 x 6.3 mm (not including projection)
Protocol	NMEA 0183 ver4.10 (eRide Serial Interface Protocol (eSIP) )
Anti-jamming	Available
Multipath Mitigation	Available

This specification will be changed subject to prior notice.

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# KOATSU GAS KOGYO CO., LTD.

Umeda Center Bldg., 28<sup>th</sup> Floor, 2-4-12, Nakazaki-Nishi,

Kita-Ku, Osaka 530-8411 Japan

Phone: +81-6-7711-2580 Fax: +81-6-7711-3355

E-mail: [kaigai@koatsugas.co.jp](mailto:kaigai@koatsugas.co.jp) <http://www.koatsugas.co.jp/>

# NTP Server (Network Time Server)

## *NTP-100*



Product Name : NTP Server

Model No. : NTP-100

### Special Feature

- NTP-100 incorporates SP-100(\*1) in the product, it can acquire each satellite, such as GPS(USA), GLONASS(Russia), SBAS, QZSS(Japan) (\*2) .
- NTP-100 is designed for vehicle installation, it can be used for driver's seat of the train.
- NTP-100 can send the position data and time data to various device through RS-232C or Ethernet.
- NTP-100 is NTP server which can be able synchronized with GNSS time.

Note (\*1) SP-100 is GNSS module manufactured by Koatsu Gas Kogyo Co., Ltd.

(\*2) GLONAA, SBAS, and QZSS are the name of Satellite positioning system..

## NTP-100 Specification

Satellite System	GPS L1 C/A, GLONASS L10F, SBAS L1 C/A, QZSS
No. of Satellite Acquired at once	26 satellites
Protocol	NMEA 0183 Ver.4.10(eRide Serial Interface Protocol(eSIP)
Antenna	Active Type
Dimensions	190(W)x140(D)x56(H)mm (excluding the projection portion of connector)
Power Supply	DC24V Using Insulated DC-DC converter.
Weight	Approx. 500g
Operation Temp.	-20 to +70 Degree C, Humidity : Less than 90%RH (No condensation)
Connector	RS-232C : D-sub9pin, Ethernet : M12

This specification will be changed subject to prior notice.

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Kita-Ku, Osaka 530-8411 Japan

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E-mail: [kaigai@koatsugas.co.jp](mailto:kaigai@koatsugas.co.jp) <http://www.koatsugas.co.jp/>