

## GB8002

### RACK-MOUNT HIGH PRECISION BEIDOU/GPS NTP TIME SERVER

GB8002 high precision BeiDou / GPS time server is developed by our company based on GPS timing technology device. It can display and send standard time. The time server uses the PPS and time message of BeiDou Navigation System and GPS (Global Positioning System) satellite to output time synchronization pulse. The device uses SMT surface mount technology for production and high-speed chip for control, with high precision, high stability, strong function, no accumulative error, cost-effective and easy to operate. It is also not limited by geographical and climatic conditions. The device can be widely used in electric power system, network synchronization, communication, traffic management and national defense need timing and punctuality etc.

The device has a variety of interfaces. such as RJ45, RS-232, RS-422/RS-485, IRIG-B, TTL Pulse etc. Multi-channel output pulses such as seconds, minutes and hours (free translation), convenient connections and related device, implements unidirectional or bi-directional communication.

## Application

1. Power plant;
2. Airport time system;
3. Hospital time system;
4. Electric power system;
5. Radio and television system;
6. Traffic management system;
7. Financial insurance company;
8. Network time synchronization;
9. Mobile communication system;
10. Petrochemical iron and steel enterprises;



## Features

1. All-weather signal coverage to ensure long-term continuous high-reliability high-precision timing.
2. Optional GPS or BeiDou or CDMA three satellite receiving modes, high signal strength, local distributed installation is convenient. Especially suitable for communication base station, power plant, substation, machine room and other equipment time synchronization.
3. The 32-bit high-speed microprocessor + large-scale integrated FPGA chip, parallel high-speed data processing and various codes, excellent performance.

4. 1U Frame structure ,19 inch standard chassis, easy installation and maintenance.
5. All signal input and output interfaces are photoelectric isolation measures, safe and reliable.
6. Central master clock has 1 channel pulse ,10 channels B code ,3 channels 232 serial port ,3 channels 485 serial port ,2 channels Ethernet.
7. Satellite signal receiving and self-service hot standby, according to priority automatically select clock source, seamless switching.
8. High-precision punctuality frequency is derived from adaptive synchronization technology, closed-loop control punctuality technology to tame constant temperature crystal oscillator, to achieve long-time high-precision punctuality.
9. Separate 10 M/100M network ports (each port has a separate MAC address), flexible configuration, can be used in different sub-nets or different physical isolation networks, using NTP/SNTP protocols to provide time synchronization services.
10. Provide programmable TTL pulse, can be set to PPS, PPM and PPH, flexible and convenient.
11. High performance, wide range switching power supply, AC-DC compatible input, convenient and reliable, stable operation.

## Parameters

Parameters					
1. Output Signal					
Timing signal type	Interface Type	Timing accuracy		Interface parameters	Number of interfaces
		Beidou-1	GPS		
Pulse	5V TTL level	-0.14 $\mu$ S	$\mu$ S 0.06	Phoenix terminal	1 channel
IRIG-B Time Code	RS485 level	$\mu$ S 0.12	$\mu$ S 0.2	Phoenix terminal	10 channels
Serial port	RS232	mS 0.18	mS 0.18	RJ45 interface	3 channels
	RS485/422	mS 0.18	mS 0.18	RJ45 interface	3 channels
Ethernet	NTP/SNTP	mS 10	mS 10	RJ45 interface	2 channels
2. Input Signal					
Name of clock source	Technical parameters				Remarks
Beidou-1	Receiver frequency :1561 MHz (B1 signal)				Optional
	Acceptance sensitivity :-127.6 dBmW				
	Capture time :35 S < 10 S; hot start and cold start				
	Timing accuracy : $\leq$ 100 ns( unidirectional), $\leq$ 20 ns( bidirectional)				

**Parameters - continued**
**2. Input Signal - continued**

GPS	Receiver frequency :1575.42 MHz (L1 signal)	Optional
	Receiving sensitivity: capture <-160 dBW, tracking <-163 dBW	
	Capture time :200 S <25 S; hot start and cold start	
	Timing accuracy :≤100 ns (1pps versus UTC time)	
	Simultaneous tracking: no less than 4 satellites in cold start; no less than 1 satellite in hot start; up to 12 satellites can be tracked at the same time, parallel 12 channels.	
Core punctuality clock module	Adopt high precision constant temperature crystal frequency precision reaches 2 E-11 order of magnitude.	Built-in
	Self-service error ≤18 us/24H.	

**3. Others**

Name of parameter	Parameters
Environmental parameters	Working temperature :-20 to +70 °C
	Storage temperature :-45 to +85 °C
	Humidity :<95%
Power supply	Power supply :220 V±20% or 110 V±20%,47 Hz-63 Hz
	DC power supply :220 V±20% or 110 V±20%
	Power consumption ≅ 10 W
EMC grade	Grade IV specified in the GB/T 17626-2008
Alarm signal	Relay air contact (250 V,5A)
Appearance Weight	Standard 19" Chassis , high is 1U, Integrated structure , weight is 2 KG.