

GB8005

BeiDou/GPS /GLONASS/GALILEO binary multi-source time server

The industrial grade BEIDOU/GLANOSS/GPS Network Time Server that GFUVE GROUP manufactured are specifically for electric power system, automatization system, telecom system, CCTV and traffic system that need high-precise time requirer. Our system is based on BEIDOU, GLONASS or GPS, and the precision of time is 20ns. The facility is secondary developed with the Beidou or GPS receiver that made by the special factory. It can track 12 Beidou, GLONASS or GPS satellites at the same time, and selects the best satellite automatically for locating and timing. It outputs UTC time ,and the synchronous precision is 1µs. The GB8005 is quite cost effective and high quality, its highest record of MTBF is 15 years. The GB8005 time synchronization system device provides accurate synchronization time signals to various power system automation devices by using the second synchronization signal and time information message sent by BeiDou Navigation System, GLONASS (global navigation satellite system) and GPS (Global Positioning System) satellite.

Application

1. Providing time synchronization signals for power network automation devices such as fault recorder, event recorder, microcomputer relay protection device, microcomputer measurement and control device, merging unit, intelli-



gent terminal and various safety automatic devices, telecontrol and microcomputer monitoring system, dispatching control system, etc.

- 2. The standard clock used for frequency monitoring, means the system frequency error accumulation is compared on the schedule by the difference between the power frequency clock and the standard time.
- 3. The synchronous clock used for phase measurement, the BG8005 is used to synchronize the sampling pulse, and the synchronization error is very small, which can ensure the accuracy of phase measurement.
- 4. For fault location, especially for the development of dual-terminal traveling wave ranging principle of the device to create conditions.
- 5. For relay protection device test, inspection line longitudinal protection (high frequency phase difference protection device).

Features

- 1. GPS, BD, CDMA three signal sources can be equipped with three options and two. especially suitable for electric power, machine room, hospital, etc.
- 2. Software interface can be set in English and Chinese, time zone can be set, panel with keys, easy to operate.
- 3. All-weather signal coverage, independent two-star system each other to ensure a long continuous high-precision timing.



- 4. Multiple 32-bit high-speed microprocessors + large-scale integrated FPGA chips, parallel high-speed data processing and various codes, excellent performance.
- 5. 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.
- 6. Automatic selection of clock source according to priority, when receiving and decoding external IRIG-B (DC) code, automatic delay compensation correction technology is used to improve timing accuracy.
- 7. Separate 10M/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.
- 8. Having two PTP V2 high-precision timing Ethernet interfaces while down-compatible with V1 protocols, telecom-level timing accuracy, support multicast and multicast transmission modes, and support the best master clock selection algorithm. (Optional)
- 9. Providing programmable pulse, can be set for PPS、PPM、PPH; to provide setable frequency output, can be set to 100 K、1M、2M、5M、10M output, flexible and convenient.
- 10. High performance, wide range switching power supply, AC-DC compatible input, convenient and reliable, stable operation.
- 11. All signal input and output interfaces are photoelectric isolation measures, safe and reliable.
- 12. 1U Frame structure, 19 inch standard chassis, easy installation and maintenance.

Parameters

Parameters							
1. Output Signal							
Timing signal type	Interface Type	Timing accuracy		Interface parameters	Number of interfaces		
Timing signal type	Interface Type	Beidou-1	GPS	Interface parameters	Number of filterraces		
Pulse	TTL level	-0.14μS	-0.06μS	5V level	1 channels		
Frequency	TTL level			5V level	1 channels		
IRIG-B Time Code	RS485 level	0.12μS	0.2μS	Differential balance level	1 channels		
Covial name	RS232	0.18mS	0.18mS	DB9 interface	2 channels		
Serial port	RS485	0.18mS	0.18mS	Phoenix terminal	2 channels		
Ethernet	NTP/SNTP	10mS	10mS	RJ45 interface	2/4 channels		
Ethernet	PTP	0.2μS	0.2μS	RJ45 interface	2 channels		

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Parameters - conti	nued				
2.Input Signal					
Name of clock source		Remarks			
Beidou-1	Receiver frequency :1561 MHz (B1 signal)				
	Acceptance sensitivity :-127.6 dBmW				
	Capture time :35 S < 10 S; hot start and cold start				
	Timing accuracy :≤100 ns (unidirectional),≤20 ns (bidirectional)				
GLONASS	Receiver frequency :1602~16				
	Acceptance sensitivity :-127.6 dBmW				
	Capture time :35 S < 10 S; hot start and cold start				
	Timing accuracy :≤100 ns (unidirectional)				
GPS	Receiver frequency :1575.42 MHz (L1 signal)				
	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				
	12 channels.				
	The IRIG-B code shall comply with the provisions of the IRIG Standard 200-04 and				
	contain the year and time signal quality information (reference IEEE C37.118-2005), the time is standard Beijing time.				
IRIG-B Time Code	Adopt IRIG-B000 format.				
	An automatic time delay compensation correction technique is used to μs the				
	timing accuracy better than 1 μs.				
DTD input	With E2E and P2P two modes of timing.				
PTP input	Support one-step, two-steps working mode.				
Core punctuality clock module	Adopt high precision constant temperature crystal frequency precision reaches 2 E-				
	11 order of magnitude.				
	Self-service error ≤18 us/24H.				
Alame of parameter		Parameters			
	Workingto	Working temperature :-20 to +70 °C			
invironmental param	-	Storage temperature :-45 to +85 °C			
		Humidity:<95%			
	·	Power supply :220 V±20% or 110 V±20%,47 Hz-63 Hz			
Power supply		DC power supply :220 V±20% or 110 V±20%			
one: supply		Power consumption ≤ 15 W			
EMC grade		Grade IV specified in the GB/T 17626-2008			
Alarm signal		Relay air contact (250 V,5A); Loss of satellite signals, power alarms, etc.			
Appearance Weight		Standard 19" Case, height is 3 U, back pluggable structure, weight is 5 KG.			
Phone in Colonia		Up to 8 slots are free to select various functional interface cards.			

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Accessory

