GB8007

BEIDOU/GPS SYNCHRONIZATION TIME SERVER WITH BINARY MULTI-SOURCE TIME

The GB8007 BEIDOU GPS time server synchronization system provides accurate synchronization time signals to various power system automation devices by using the second synchronization signals and time information messages sent by BEIDOU navigation system, GPS(GPS) satellites. A GPS time server utilizes the GPS receiver as a reference time source and distributes the received absolute time throughout the network. By using a time server with NTP the GPS signal looses its timing accuracy, it is therefore rather reasonable to use an IEEE1588 time server in combination with a GPS receiver, since PTP is able to distribute the highly accurate GPS time signal.

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

3. The synchronous clock used for phase measurement, the GB8007 is used for synchronizing 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).

6. 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.

7. Having two PTP V2 high-precision timing ethernet interfaces while down-compatible with V1 protocols, telecom-level timing accuracy, support multicast and unicast transmission modes, and support the best master clock selection algorithm.

8. Time interface using plug-in structure, users can be customized based on demand, a variety of configuration methods, it's convenient to manage and upgrade.

9. Providing group programmable pulse, each group can be set separately to PPS, PPM, PPH, flexible and convenient.

Features

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. 3U Frame structure, 19 inch standard chassis, plug-in functional interface module, easy installation and maintenance.

Parameters

Parameters					
1. Output Signal					
Timing signal type	Interface Type	Timing accuracy		Interface parameters	Number of interfaces
		Beidou-1	GPS		
Pulse	TTL level	-0.14μS	-0.06μS	5V level	2 channels
	Air contact	1μS	1μS	C/E room pressure 300 V/50mA	6 channels
	Optical fiber output	-0.14μS	-0.06μS	multimode, wavelength 850/1310 nm	6 channels
IRIG-B Time Code	TTL level	-0.08μS	0.01μS	5V level	2 channels
	RS485 level	0.12μS	0.2μS	Differential balance level	10 channels
	Optical fiber output	-0.08μS	0.01μS	multimode, wavelength 850/1310 nm	6 channels
	(AC) AC code	10μS	10μS	Transformer isolation output	4 channels
Serial port	RS232	0.18mS	0.18mS	DB9 interface	2 channels
	RS485/422	0.18mS	0.18mS	Phoenix terminal	10 channels
Ethernet	NTP/SNTP	10mS	10mS	RJ45 interface	2 channels
	PTP	0.2μS	0.2μS	RJ45 interface	2 channels
2.Input Signal					
Name of clock source	Technical parameters				Remarks
Beidou-1	Receiver frequency :2491.75MHz				Built-in
	Carrier frequency :1615.68 MHz				
	Acceptance sensitivity :-127.6 dBmW				
	Capture time :35 S ＜ 10 S; hot start and cold start				
	Timing accuracy :≤100 ns(unidirectional),≤20 ns(bidirectional)				
GPS	Receiver frequency :1575.42 MHz (L1 signal)				Built-in
	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.				

Parameters - continued

2.Input Signal - continued

IRIG-B Time Code	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.	Built-in
	Type of interface: multimode fiber, operating wavelength 850 nm or 1310 nm.	
	When the optical fiber is transmitted, the light should correspond to the high level, and the light should go out to the low level.	
	Adopt IRIG-B000 format.	
	An automatic time delay compensation correction technique is used to μs the timing accuracy better than 1 μs.	
PTP input	With E2E and P2P two modes of timing.	Built-in
	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.	Built-in
	Self-service error ≤3.5 us/24H.	

3.Others

Name of parameter	Parameters
Environmental parameters	Working temperature :-20 to +70℃
	Storage temperature :-45 to +85℃
	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 ≦15 W
EMC grade	Grade IV specified in the GB/T 17626-2008
Alarm signal	Relay air contact (250 V,5A)
Appearance Weight	Standard 19" Case, height is 3 U, back pluggable structure, weight is 5 KG. Up to 8 slots are free to select various functional interface cards.

Accessory