ZHCGPS-FM8
Digital Standard Frequency Generator

1. Introduction

ZHCGPS-FM8 digital standard frequency generator is a high-performance, high stability generator by digital control with GPS locked. This standard frequency generator can simultaneously track 12 satellites, and choose the best satellite locked according to the spatial position and the satellite signal quality; the standard frequency generator has a self-learning function, after more than 24 hours of training (GPS lock operation), when the GPS off, it still can maintain long-term stability and 1PPS output signal frequency. LCD screen can be viewed by satellite parameters, frequency locking status and other control parameters, the operator can set the GPS lock key parameters and output parameters to optimize the frequency control and optimization GPS locking and 1PPS frequency output. This digital standard frequency generator with its superior performance can be widely used for timing synchronization demanding fields such as telecommunications, radio & TV broadcasting station.

ZHCGPS-FM8 digital standard frequency generator main features:

● ZHCGPS-FM8 digital standard frequency generator can continuously track 12 satellites simultaneously and choose the best satellite locked according to the spatial position of the satellite and signal quality. It provides high performance and high stability 1PPS, 10MHz, 24.32MHz, 327.68MHz and 655.36MHz output, frequency stability up to $1.2 \times 10\text{-}12$ with low phase noise.

● ZHCGPS-FM8 digital standard frequency generator uses a Kalman filter to achieve self-learning function, when GPS signal cut off, it will into auto-hold function and automatic recovery function of GPS signal re-locked.

● ZHCGPS-FM8 digital standard frequency generator can set GPS lock parameters and 10MHz reference clock source for controlling parameter and setting adjustments.

● ZHCGPS-FM8 digital standard frequency generator receiving antenna length compensation.

● ZHCGPS-FM8 digital standard frequency generator real-time monitoring of satellite-related information, the frequency of the locked state and the reference clock source control parameters.

2. Specifications:

2.1. Technical specifications meet the following standard

《Thunderbolt GPS Disciplined Clock》

2.2. Technical specifications:

1. General   L1 frequency
                           C/A code (SPS)
                           12 Channels continuous tracking reception
2. Update Speed   1Hz
3. 1PPS definition   UTC 20ns (1 sigma)
4. 10MHz definition 1.2×10^{-12}（day mean）
                           1.2×10^{-11}（after locked）
5. 10MHz harmonics   ≤-40dBc
6. 10MHz pseudo-values   ≤-70dBc

7. 10MHz phase noise   ≤-120dBc/Hz (10Hz～100KHz)
8. 10MHz output   Sine   +12.5dBm±2.5dBm
9. 24.32MHz definition $1.0×10^{-10}$
10. 24.32MHz phase noise ≤-130dBc/Hz (1Hz～20KHz)
11. 24.32MHz temperature ≤±0.1ppm
12. 24.32MHz output   TTL/HCMOS
13. 327.68MHz definition $4.0×10^{-10}$
14. 327.68MHz harmonics   ≤-60dBc
15. 327.68MHz phase noise   ≤-120dBc/Hz (1KHz～20KHz)
16. 327.68MHz temperature   ≤±$5.0×10^{-8}$ppm
17. 327.68MHz output   Sine≥0.0dBm
18. 655.36MHz definition $4.0×10^{-10}$
19. 655.36MHz harmonics   ≤-60dBc
20. 655.36MHz phase noise   ≤-120dBc/Hz (1KHz～20KHz)
21. 655.36MHz temperature   ≤±$5.0×10^{-8}$ppm
22. 655.36MHz output   Sine≥-5.0dBm
23. Failure Maintenance   ±1 Microseconds (max in 2 hours)
24. Power Supply Voltage   AC180V～AC260V 47Hz~63Hz

2.3. Interface specification:

1. 1PPS Output Interface BNC connector, the difference between Static mode peak and UTC synchronous less than 20ns
2. 10MHz output interface   BNC connector，50Ω
3. 24.32MHz output interface   BNC connector，50Ω
4. 327.68MHz output interface   BNC connector，50Ω
5. 655.36MHz output interface   BNC connector，50Ω
6. Remote control interface   DB9-F interface

2.4. Physical specifications:

1. Rack Standard   19inch
2. Rack Size   1U（485mm×305mm×44mm）
3. Weight   3Kg
4. Environment Temperature 0℃～+40℃
5. Relative humidity   ＜95%
6. Altitude   ＜4500m