

PRECISION TIMING

TA1100 Optically-pumping Cesium Atomic Clock

The TA1100 Optically-pumping Cesium Atomic Clock combines advanced optical-pumping technology and laser testing, providing precise frequency standards for communication, power, and transportation systems.

Overview

The **TA1100 Optically-pumping Cesium Atomic Clock** is a high-performance atomic clock that adopts optical-pumping and laser test technologies. With compact size, low power consumption, and excellent frequency stability, it is tailored for time synchronization, frequency measurement, and atomic timekeeping systems. For inquiries, please [contact us](#).

Features

- Adopt optical-pumping and laser test technology.
- Small size, low consumption, and high performance.
- Automatically monitor and record operation status.
- Wide operating temperature range.

Main Specifications

General Specifications

Specification	Details
Frequency Accuracy	≤1E-12
Frequency Stability	≤1.2E-11/1s ≤8.5E-12/10s ≤2.7E-12/100s ≤8.5E-13/1000s ≤2.7E-13/10000s ≤8.5E-14/100000s
Frequency Reproducibility	≤5E-13
Manual Sync Range	±1E-9
Resolution	1E-15
Warm-up Time	≤40min at +20°C ≤2 hours at -10°C
Power Voltage (Customizable)	DC: -40VDC60VDC AC: 100VAC240VAC (45~55Hz)
Power Consumption	Warm-up: ≤130W (DC supply) Stable: ≤80W (DC supply, 25°C)
Operating Temperature	-10°C to +40°C
Storage Temperature	-20°C to +50°C
Weight	≤30 kg
External Dimensions	45 x 45.6 x 177 mm³
MTBF	≥100,000 hours
Service Life	≥8 years

Output Signals

Signal Type	Details
10 MHz Sine Wave (Standard)	Channels: 2 Amplitude: 7~13 dBm Harmonic: ≤-40 dBc Non-harmonic: ≤-80 dBc Phase Noise: @1Hz: ≤-90 dBc/Hz @10Hz: ≤-125 dBc/Hz @100Hz: ≤-140 dBc/Hz @1kHz: ≤-150 dBc/Hz @10kHz: ≤-150 dBc/Hz
2.048 MHz (Optional)	Channels: 2 Signal Feature: FPGA Code
1PPS TTL (Optional)	Signal Level: 5V TTL Rising Time: ≤10 ns Sync Accuracy: ≤20 ns Jitter: ≤1 ns

Applications

- Atomic time-keeping clock sets.
- Communication, power, and transportation industries.
- Time synchronization systems.
- Precision time-frequency measurement.