北斗邦泰
BDSTAR TIME

-TRA85

High-performance

Rubidium atomic clock

Product profile

TRA85 Is a high performance rubidium atomic clock, at the same time has high stability, low phase noise, low aging rate, low temperature coefficient and other core characteristics, and can accept 1 PPS tame and 10 MHz calibration, it can measures and automatically calibrates its own frequency, suitable for testing measurement, high performance instrumentation, synchronous broadcasting, digital television, single frequency network system, synchronous acquisition system, etc.

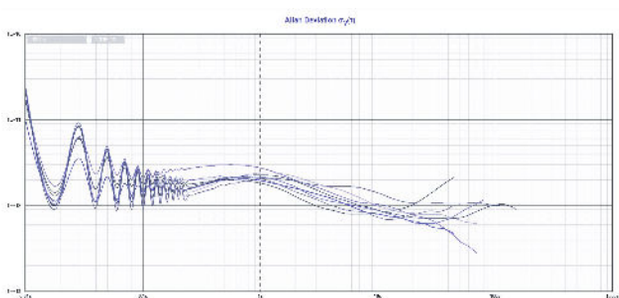
Application area

- Wireless base stations
- Communication
- Aerospace
- Astronomy
- Time-frequency measuring instruments
- Synchronous broadcasting
- Network synchronization
- Atmosphere
- Aircraft tracking and TT&C
- Synchronous acquisition system
- Single-frequency network system
- Digital Television

Product features

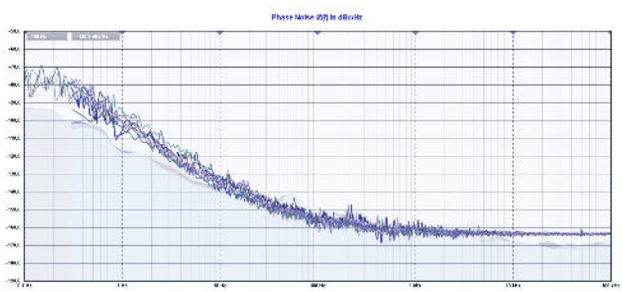
- Operating temperature range -40°C ~ + 65°C
- The short-term stability is better than the 3E-12 / 1s
- Room temperature stable power ⩽ 15W
- Low aging rate, low temperature frequency coefficient full temperature range <2E-10, preferably to <5E-11
- High stability and low phase noise, with a typical value of-135 dBc / Hz@10Hz
- 1 PPS taming and 10 MHz calibration

Typical curve



Typical value of the frequency stability:

100ms:	1.5×10^{-12}	1s:	2.0×10^{-12}
10s:	8.0×10^{-13}	100s:	2.5×10^{-13}
1000s:	2.0×10^{-13}		



Typical values of the phase noise:

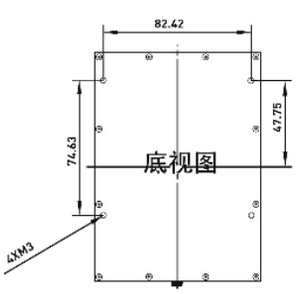
1Hz:	-100dBc/Hz	10Hz:	-135dBcHz
100Hz:	-155dBc/Hz	1kHz:	-161dBc/Hz
10kHz:	-162dBc/Hz		

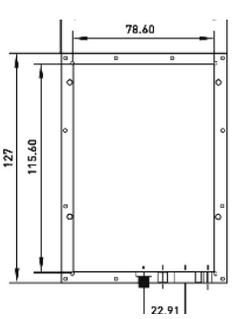
Technical Parameters

-TRA85

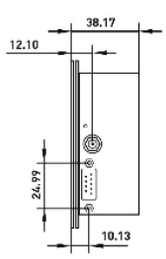
Test Item		Technical Indicators		
Output frequency	Condition	10MHz，1-way sine wave（50Ω，⩾ 7dBm）		
Factory accuracy		⩽ 5×10^{-11}		
Frequency control	Voltage pressure control	0~5V，with the total range of at least±1.5×10^{-9}		
	Instruction adjustment	Seamless adjustment range of at least±1×10^{-6}，Resolution：6.81×10^{-13}		
Locking time	Indoor temperature	⩽ 5min		
Frequency stability	1s	⩽ 3×10^{-12}		
	10s	⩽ 1.5×10^{-12}		
	100s	⩽ 5×10^{-13}		
Phase noise	1Hz	⩽ -95dBc/Hz		
	10Hz	⩽ -130dBc/Hz		
	100Hz	⩽ -150dBc/Hz		
	1kHz	⩽ -160dBc/Hz		
	10kHz	⩽ -160dBc/Hz		
Frequency drift rate		±1×10^{-12}/day，±3×10^{-11}/month	FD5：±5×10^{-13}/day，±1×10^{-11}/month	
Frequency reproducibility	Switch 24h	±2×10^{-11}		
Temperature and Frequency Characteristics		⩽ 2×10^{-10}	TC1：⩽ 1×10^{-10}	TC0.5：⩽ 5×10^{-11}
Harmonic And Clutter		harmonic ⩽ -30dBc，clutter ⩽ -80dBc		
Working temperature	Bottom plate temperature	-40°C ~+65°C		
Storage temperature		-40°C ~+85°C		
Power supply	±4%	+12V~+15V or +24V		
Rate of work	Preheat	⩽ 45W		
	Steady state（+25°C）	⩽ 15W		
External Dimension	Body size	116mm×79mm×38mm		
	Bottom plate size	127mm×93mm		
Weight		⩽ 500g		
1PPS input		+3V~+5V TTL，Judder <300ns，Pulse width ＞ 100ns		
1PPS output		Rising edge / Falling edge：⩽ 10ns，Pulse width：1us~999ms，		
Taming accuracy	After 24h of synchronization	Taming jet lag：±50ns，Time-keeping accuracy：⩽ 1us@24h，Frequency accuracy：⩽ 1×10^{-12}@24h		

External Dimension





Unit:mm



Pin Definition

1: Ground
2:1 PPS-IN
3: RS232-TX
4: RS232-RX
5: Locking indication
6: Power
7:1 PPS-OUT
8: Ground
9: Frequency pressure contro