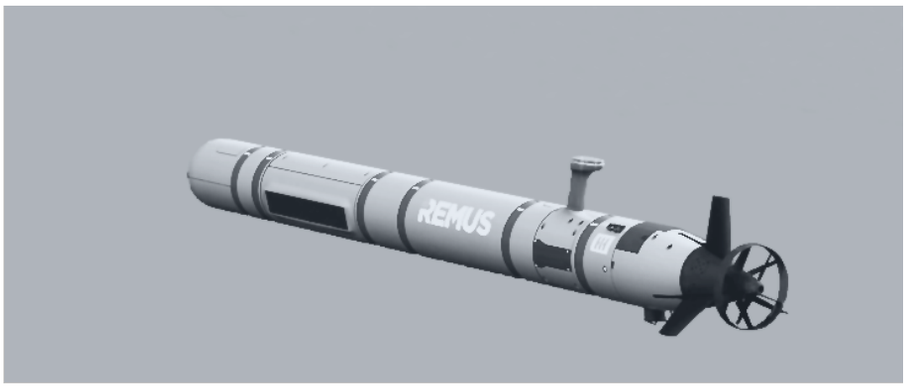
北斗邦泰
BDSTAR TIME

-TRS75



Small and High-performance

Rubidium atomic clock

Product profile

TRS75 is a high-performance and small-sized rubidium atomic clock, with a frequency stability similar to that of large-size rubidium atomic clocks, reaching E-12/s. The TRS75 integrates 1PPS taming and 1PPS outputs, and additionally provides a 10MHz square wave signal output and an external 10MHz signal calibration function, which can be used to automatically calibrate the TRS75 frequency using cesium clock and hydrogen clock signals as standard, or as an integrated standard 10MHz frequency comparator. The TRS75 is ultra-small and all signals are integrated in one DSUB9 connector, making it more suitable for installation in tight spaces.

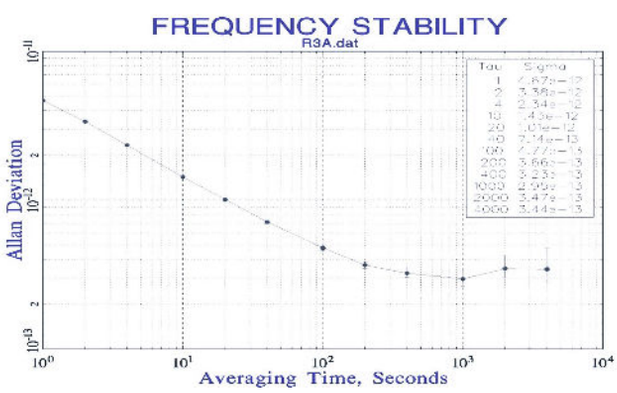
Application area

- Wireless base station
- High-end instrumentation
- Communication
- Aerospace
- Astronomy
- Synchronouscol lection
- High performance server
- Network synchronization

Product features

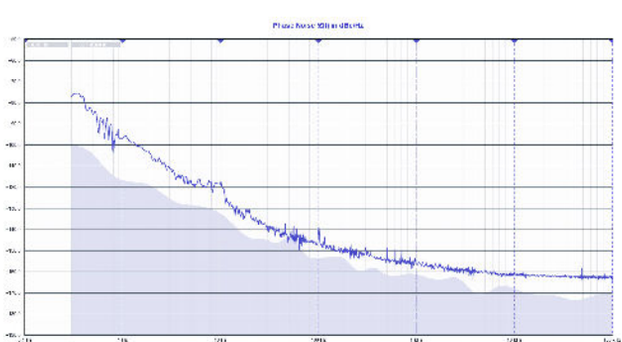
- Small volume 76mm×76mm×18mm
- The short-term stability is better than the 6E-12 / 1s
- Room temperature stable power ⩽ 14.5W
- Stability typical value 1.5E-12/10s
- Typical values of phase noise -125dBc/Hz@10Hz
- 1 PPS taming and 10 MHz calibration

Typical curve



Typical value of the frequency stability:

100ms:	2.5×10^{-12}	1s:	5.0×10^{-12}
10s:	2.0×10^{-12}	100s:	6.0×10^{-13}
1000s:	3.5×10^{-13}		



Typical values of the phase noise:

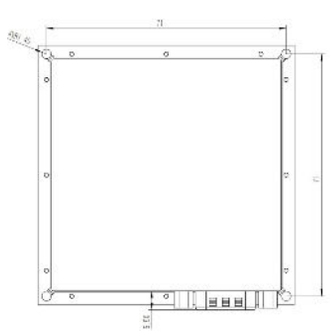
1Hz:	-95dBc/Hz	10Hz:	-125dBc/Hz
100Hz:	-147dBc/Hz	1kHz:	-157dBc/Hz
10kHz:	-162dBc/Hz		

Technical Parameters

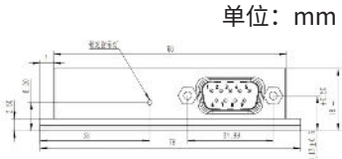
-TRS75

Test Item		Technical Indicators			
Output frequency	Condition	10 MHz, 1-way sine wave （50Ω, ⩾ 7dBm）and a 1-way 3 VTTL square wave			
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	Coarse adjustment of at least±1×10^{-6}，fine adjustment range of at least±1.5×10^{-9}，The resolution is better than1×10^{-12}			
Locking time	Indoor temperature	⩽ 5min			
Frequency stability	1s	⩽ 1×10^{-11}	AD6：	⩽ 6×10^{-12}	
	10s	⩽ 3×10^{-12}	AD6：	⩽ 2×10^{-12}	
	100s	⩽ 1×10^{-12}	AD6：	⩽ 6×10^{-13}	
Phase noise	1Hz	⩽ -85dBc/Hz			
	10Hz	⩽ -120dBc/Hz			
	100Hz	⩽ -145dBc/Hz			
	1kHz	⩽ -150dBc/Hz			
	10kHz	⩽ -155dBc/Hz			
Frequency drift rate	/Day	±1×10^{-11}	FD5：±5×10^{-12}	FD3：±3×10^{-12}	FD1：±1×10^{-12}
Frequency reproducibility	Switch 24h	±2×10^{-11}			
Temperature and Frequency Characteristics		⩽ 5×10^{-10}	TC3：⩽ 3×10^{-10}	TC1：⩽ 1×10^{-10}	TC0.5：⩽ 5×10^{-11}
Harmonic And Clutter		harmonic ⩽ -30dBc，clutter ⩽ -70dBc			
Working temperature	Bottom plate temperature	-40°C ~+65°C			
Storage temperature		-40°C ~+85°C			
Power supply	±4%	+12V~+15V			
Rate of work	Preheat	⩽ 28.5W			
	Steady state (+25°C)	⩽ 14.5W			
External Dimension	Body size	68mm×68mm×18mm			
	Bottom plate size	76mm×76mm			
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



单位：mm



Pin Definition:

1: Ground
2:1 PPS-IN
3: RS232-TX
4: RS232-RX
5: Lock indication
6: Power supply
7:1 PPS-OUT
8:10M, sine wave output
9:10M square wave output / frequency pressure