PTS PRECISION TEST SYSTEMS

RFS10E 10 MHz Rubidium Frequency Standard

RFS10E Rear View

Key Features

- Rubidium Oscillator as main frequency reference.
- Five sinewave outputs as standard. Five additional outputs available as option 05.
- 1 pps output derived from the rubidium oscillator
- Low Phase Noise, e.g. -128 dBc/Hz at 100 Hz offset.
- 19" 1U high rack mountable case.
- Three versions of rubidium's available giving different levels of performance.
- Optional RS232 interface. Full control and interrogation of the rubidium oscillator.
- Optional change of frequency to 5 MHz outputs
- Optional dual output of 5 MHz and 10 MHz outputs
- Optional programmable squarewave output
- Optional 1 pps input. Lock rubidium to an external 1 pps input such as GPS (option 03).
- Optional 1 µHz to 80 MHz DDS Output. Generate any frequency from 0 to 80 MHz in 1 µHz steps.
- Optional single frequency output. Single frequency is fixed and can be anywhere from 0 to 10 GHz.
- Optional alarm relay outputs. Dual changeover relay is operated in an alarm condition.
- Optional time code outputs (IRIG-B, IRIG-E and ESE-TC90)
- Optional redundancy. Operate two units in a redundancy set-up for added security with automatic switchover. Five 10 MHz outputs as standard. More outputs can be added if required.
- Optional Slave Clock Display. Display provides 25 mm high digits of time or date.
- Optional Windows Software. Allows RFS10E to be monitored from a remote location.
- Optional GSM Interface. GPS10RB can send a text message to GSM phones in the event of an alarm
- High quality design.
- Custom built options available upon request.

Description

The RFS10E is a 10 MHz rubidium frequency standard with many options as described above. An optional input allows the RFS10E to be locked to a 1 pps signal such as GPS. Also the 1 pps output derived from the rubidium will align itself in time to the 1 pps input to within 150 ns.

Options

Various options are available such as additional frequency outputs.

Specifications

Description	Specification	Remarks
Rubidium Oscillator		
Output Frequency	10 MHz sinewave	Other frequencies available from
Aging (after 30 days)	$< 3 \times 10^{-10}$ /month or $< 1 \times 10^{-9}$ /year	Optional 5×10^{-11} /month or $< 5 \times 10^{-10}$ /year
Accuracy at shipment	$< \pm 5 \times 10^{-11}$	
Phase Noise	< -72 / -90 /- 128 / -140 dBc/Hz	At 1 / 10 / 100 /1000 Hz offsets
Spurious	-53 dBc	
Frequency Retrace	$\pm 2 \times 10^{-11}$ (24 hours on, 24 hours off)	
Settability	$< 1 \times 10^{-12}$	
Trim Range	$\pm 1 \times 10^{-7}$ (0-5 VDC), ± 1ppm (via RS232)	
Warm-Up Time	< 8 minutes to within 1×10^{-9}	
Temperature Coefficient	3×10^{-9} (-10 °C to +50 °C)	Optional 1×10^{-10} (-10 °C to +50 °C)
Magnetic Field	$< 4 \times 10^{-11}$ for 2 Gauss field reversal	
10 MHz Outputs		
Connector	BNC socket on rear panel	
Number of Outputs	Five as standard, ten with option 05	
Frequency	10 MHz	
Accuracy	Same as main Rubidium Reference	
Signal Type	Sine wave	
Amplitude	0 dBm to + 10 dBm	Internally adjustable. Option for 15 dBm
Harmonic Distortion	- 65 dBc	-30 dBc
Return Loss	> 20 dB @ 10 MHz	> 25
Channel to Channel Isolation	90 dB @ 10 MHz	
Output to Input (Reverse) Isolation	130 dB at 10 MHz	
Phase Coherence of outputs	1.3 ° between sets of five outputs	
1 pps Output		
Connector	BNC rear panel socket	
Frequency	1 pulse per second	
Signal Type	Pulse Output	Pulses high for 10 µs when rubidium is
Amplitude (open circuit)	0 to 5 V, TTL Compatible	locked. +5V DC when rubidium not locked.
Optional 1 pps Input		
Connector	BNC socket on rear panel	
Input type	1 pulse per second, TTL level.	
Miscellaneous		
Operating Temperature	-10 °C to +50 °C	
Storage Temperature	-20 °C to +60°C	
AC Power Inlet with switch	IEC320 power cord	Rear Panel
AC Voltage Range	100 to 240 VAC	
Power consumption	50 W Max	
Width	482.6 mm (19.00 inches)	
Depth	348 mm (13.7 inches)	
Height	44 mm (3.5 inches)	
Weight	7 kg (15.4 lbs)	
Consult Precision Test Systems for further details of these options. Not all options can be fitted at the same time.		

Precision Test Systems			
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