

PTS PRECISION TEST SYSTEMS

GPS10RB-02A-16 Frequency & Time Extension Unit



Key Features

- BCD Time Code output with resolution to 100 ns. BCD time code updated every 100 ns
- BCD output accurate to UTC world time to typically ± 200 ns (when used with the GPS10RB)
- BCD output can drive 50 Ω cables
- BCD Output and Complementary output available on two 50 way D connectors
- Variable Frequency Output locked to GPS satellite system (when used with the GPS10RB)
- Variable Frequency Output adjustable from 780 MHz to 820 MHz in 100 kHz steps. Frequency generator has low phase noise and spurious output. Frequency range can be customized.
- 2U Rack mount case with LCD readout
- RS232 interface
- Operates in conjunction with GPS10RB or can be used as a stand alone unit
- High quality design
- Low price
- Can be adapted to specific customers requirements

General Description

The GPS10RB-02A-16 Frequency and Time Code Extender operates in conjunction with a GPS10RB: GPS Frequency Standard. It generates a 13 digit, 48 bit, BCD Time Code Output with 100 ns frequency resolution and typically 150 ns accuracy to the 1 pps input.

The BCD time code output is synchronized to the rising edge of the 1 pps external input signal. The BCD output is updated every 100 ns and accuracy is typically 150 ns to the rising edge of the external 1 pps input.

The BCD format is HH:MM:SS.SSSSSS, where H = hours, M = minutes and S = seconds and fractional seconds. The output is available on two 50 way "D" connectors.

Also included in this unit is a 780 MHz to 820 MHz variable frequency output with long term accuracy to 1×10^{-13} . This output can be set from 780 to 820 MHz in 100 kHz increments.

Two by 10 MHz inputs and one 1 pps signal are derived from the GPS10RB. One 10 MHz input is used as the reference to the phase lock loop, the other 10 MHz input is used as a counter for the BCD time code output.

Although the GPS10RB-02A-16 was designed to operate with the GPS10RB Frequency Standard, it can run as a stand alone unit if the optional GPS receiver and OXCO oscillator is fitted.

Specifications		
Description	Specification	Remarks
BCD Time Code Output		
Connectors	50 way D connector female socket	Two connectors
Output Level	AM26LS31 compatible	ANSI TIA/EIA-422-B
Code type	Binary Coded Decimal (BCD)	
Format	HH:MM:SS.SSSSSS	H = hours, M = minutes, S = Sec
Resolution and update rate	100 ns and 100 ns	
Accuracy to 1 pps input	< ± 150 ns typical	Rising edge of 1 pps input used
1 pps Input		
Frequency	1 pulse per second	1 pps output also available
Minimum pulse width	10 µs	
Input Level	TTL	
Edge used for synchronization	Rising edge	
10 MHz Inputs		
Frequency	10 MHz sinewave or squarewave	
Input level	+8 dBm to +13 dBm	
Phase Lock Loop (PLL) Output		
Output Frequency and step size	780 to 820 MHz at 100 kHz steps	Set by front panel keyboard
Output Level	> +13 dBm	+15 dBm typical
Spurious and Harmonic Output	-60 dBc and -20 dBc	
Accuracy	Same as 10 MHz reference input	
Locking Time	100 ns typical	
Phase Noise @ dBc/Hz offset	-88 / -102 / -104 / -115 / -130	100 Hz / 1 / 10 / 100 / 1000 kHz
Allan Deviation @ gate time	$4 \times 10^{-10} / 8 \times 10^{-11} / 2 \times 10^{-11}$	1 sec / 10 sec / 100 sec gate time
RS232 Interface		
Settings	9600 baud, 1 stop bit, no parity	Use Special RS232 cables only
Miscellaneous		
Ambient Temperature	0 °C to +40 °C	
AC Power Inlet with switch	IEC320 power cord	Rear Panel
AC Voltage Range	115 VAC ± 10% or 230 VAC ± 10%	Voltage range selectable on rear panel
Power consumption	66 watts	
Dimensions (W x D x H) and weight	482.6 x 348 mm x 88 mm and 7 kg	
Accessories Supplied		
Power Cord	IEC320 type	
RS232 Interconnection Cables	“D” Connectors	Two supplied for GPS10RB & PC
BNC Cables	3 x 300 mm BNC to BNC cables	Connect to GPS10RB
Instruction manual		

All other options

Consult Precision Test Systems for further details of other options. Not all options can be fitted at the same time.

Precision Test Systems			
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Specifications subject to change without notice. (290311)