ICP Electronics
Australia Pty Ltd
TEL: 02 9457 6011
sales@icp-australia.com.au
www.icp-australia.com.au
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GPS-721U-MRTU

56-channel GPS Receiver with 1-channel Digital Output and 1-channel PPS Output plus Active External GPS Antenna

Features

- 56-channel GPS Receiver
- RS-485 Interface supports either the DCON or the Modbus RTU Protocol
- RS-232 supports the NMEA 0183 v3.0 Format, as well as either the DCON or Modbus RTU Protocol
- 1-channel Digital Output, 1-channel PPS Output (1 pulse/s), RS-485, and RS-232 Interfaces
- PPS: 100 ms pulse/s output for precise timekeeping and time measurement
- Fully compatible with SBAS (WAAS, EGNOS, MSAS)

Introduction

The GPS-721U-MRTU module provides high sensitivity and low power consumption with an ultra small form factor. The GPS module is powered by a u-blox solution and provides superior sensitivity and performance, even in an urban environment, or an environment that features dense foliage.

Applications

- Satellite Time Correction
- Personal Positioning and Navigation
- Automotive Navigation
- Marine Navigation

I/O Specifications

Digital Output		
Channels		1 (Sink)
Type		Non-isolated Open Collector
Current		100 mA
Load Voltage		+5 VDC ~ +30 VDC

System Specifications

GPS Receiver		
Chip		u-blox Solution
Frequency		L1 1575.42 MHz, C/A Code
Channels		56
Position Accuracy	Autonomous	2.5 m
	SBAS	2.0 m
Max. Altitude		< 50000 m
Max. Velocity		< 500 m/s
Acquisition Time		Cold Start (Open Sky) = 29 s (Typical)
Sensitivity	Tracking	Up to -161 dBm
	Cold start	Up to -148 dBm
Protocol Support		NMEA 0183 version 2.3 (compatible to 3.0)
GPS Output		
PPS		1 pulse per second output (Default 100 ms pulse/sec)
RS-232 Interface		GPS Data Output
LED Indicators		
Power/Communication		1
GPS		3
Power		
Protection		Power Reverse Polarity Protection
Frame Ground for ESD Protection		Yes
Required Supply Voltage		+10 VDC ~ +30 VDC (Non-regulated)
Power Consumption		0.8 W
Mechanical		
Dimensions (L x W x H)		117 mm x 72 mm x 35 mm
Environment		
Operating Temperature		-25 to +75°C
Storage Temperature		-40 to +85°C
Humidity		5 to 95% RH, Non-condensing

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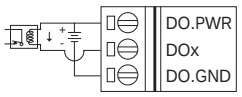
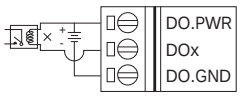
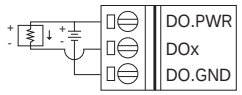
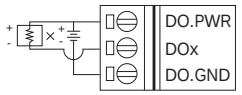
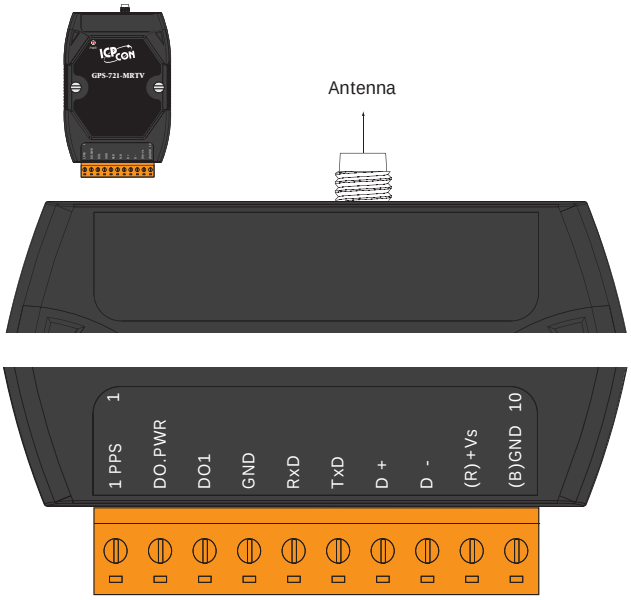
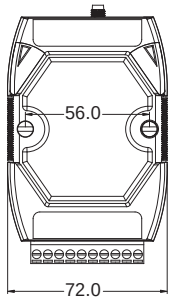
Wiring

Output Type	ON State LED ON Readback as 1	OFF State LED OFF Readback as 0
	Relay ON	Relay OFF
Drive Relay		
Resistance Load		

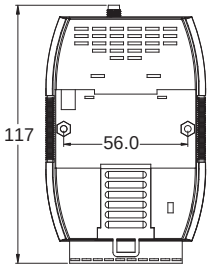
Appearance



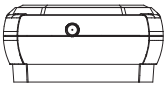
Dimensions (Units: mm)



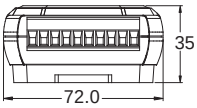
Front View



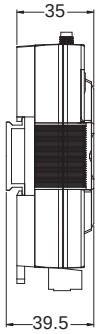
Rear View



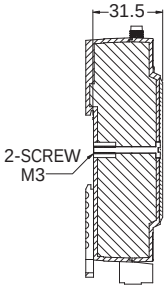
Top View



Bottom View

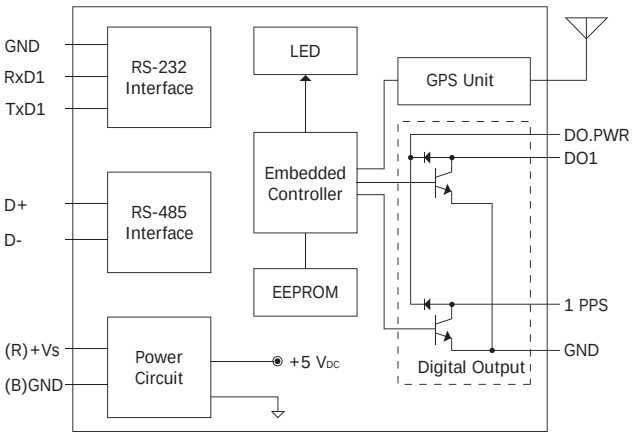


Din-Rail Mounting Bracket



Side View

Internal I/O Structure



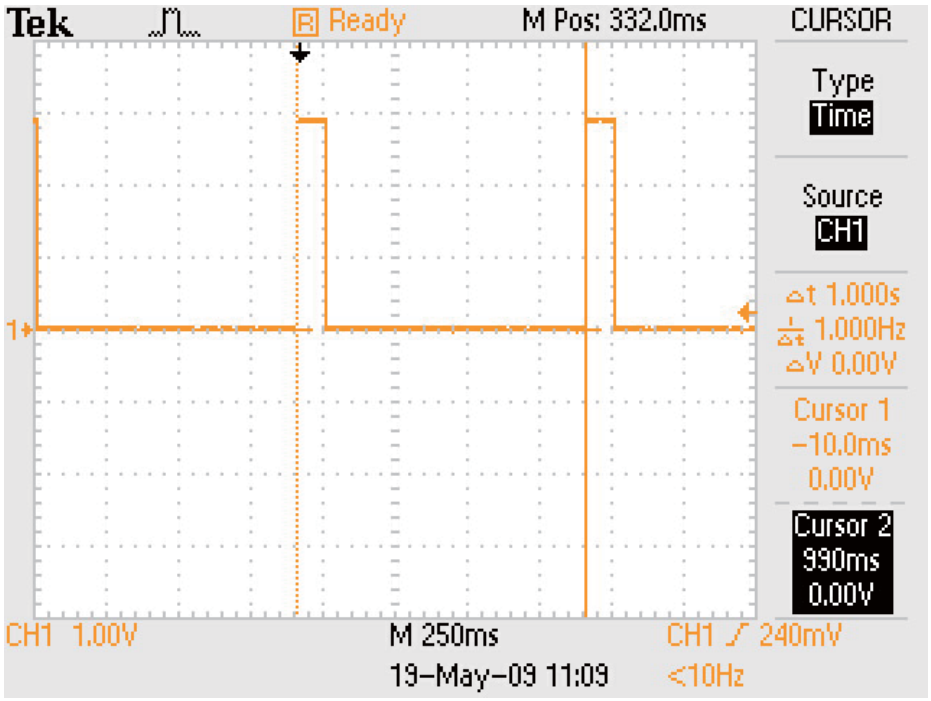
Ordering Information

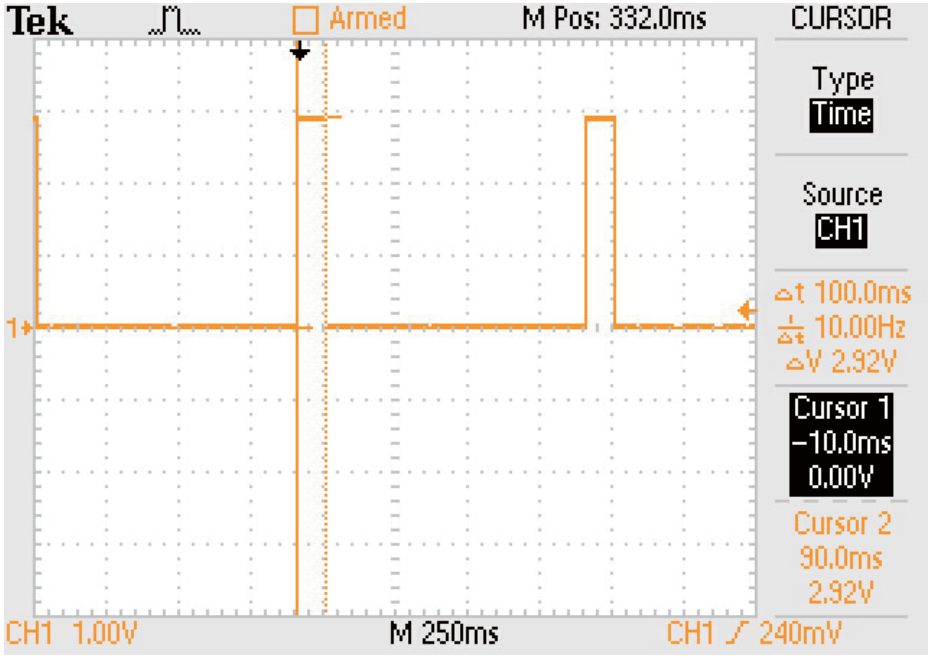
GPS-721U-MRTU CR	GPS Receiver with 1-channel Digital Output and 1-channel PPS Output (RoHS)

Accessories

ANT-115-03 CR	4PI81K0000001	5 m Active External GPS Antenna (SMA Plug) (RoHS)

1 Pulse Per Second (PPS - Pulse Duration is 100 ms)





The Global Positioning System (GPS) can also be used as a time reference for radio clocks, but requires an accurate 1PPS output to be reliably used for time signals

A pulse per second (PPS) is an electrical signal that very precisely indicates the start of a second. PPS signals are output by various types of precision clock, including some models of GPS receivers. Depending on the source, properly operating PPS signals have an accuracy ranging from a few nanoseconds to a few milliseconds.

PPS signals are used for precise timekeeping and time measurement. One increasingly common use is in computer timekeeping, including the NTP protocol. Since GPS is considered a stratum-0 source, a common use for the PPS signal is to connect it to a PC using a low-latency, low-jitter wire connection and allow a program to synchronize with it: this makes the PC a stratum-1 time source. Note that because the PPS signal does not specify the time, but merely the start of a second, one must combine the PPS function with another time source that provides the full date and time in order to ascertain the time accurately and precisely.