



GPS-721U-MRTU GPS-721U-MRTU-UTA

GPS Receiver Module with RS-485, supports NEMA, DCON and Modbus/RTU protocols

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, GPS-721U-MRTU-UTA 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.

I/O Specifications

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

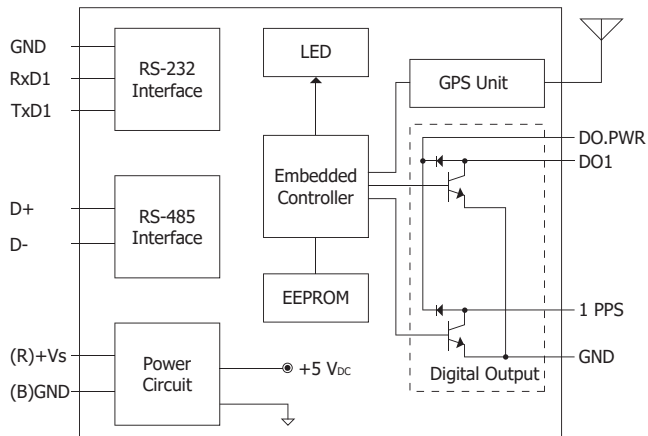
Applications

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

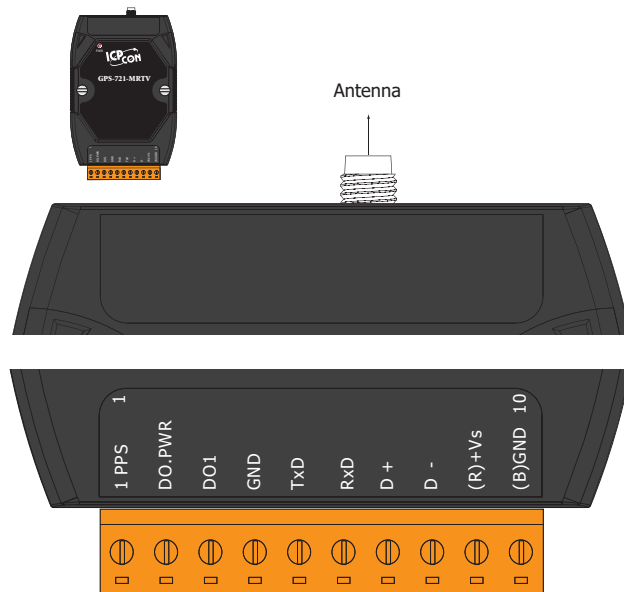
System Specifications

Model		GPS-721U-MRTU	GPS-721U-MRTU-UTA
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	-40 ~ +75°C
Storage Temperature		-40 to +85°C	
Humidity		5 to 95% RH, Non-condensing	

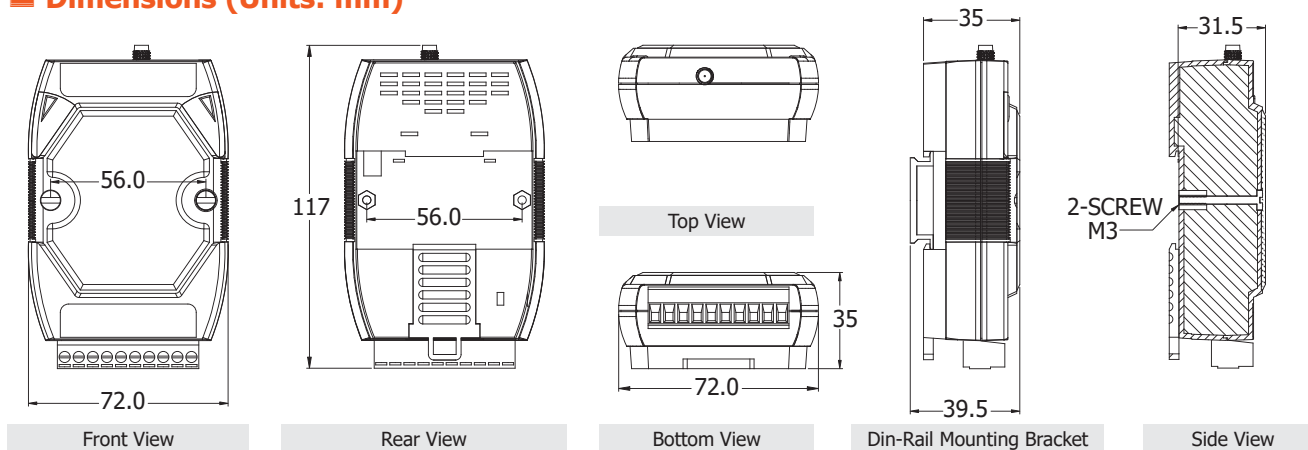
Internal I/O Structure



Appearance



Dimensions (Units: mm)



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		

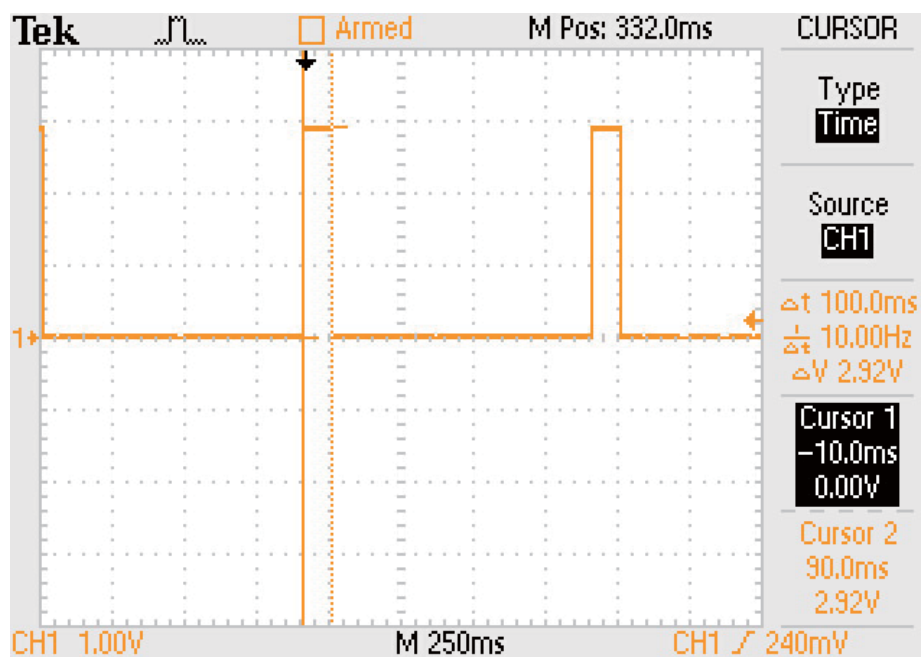
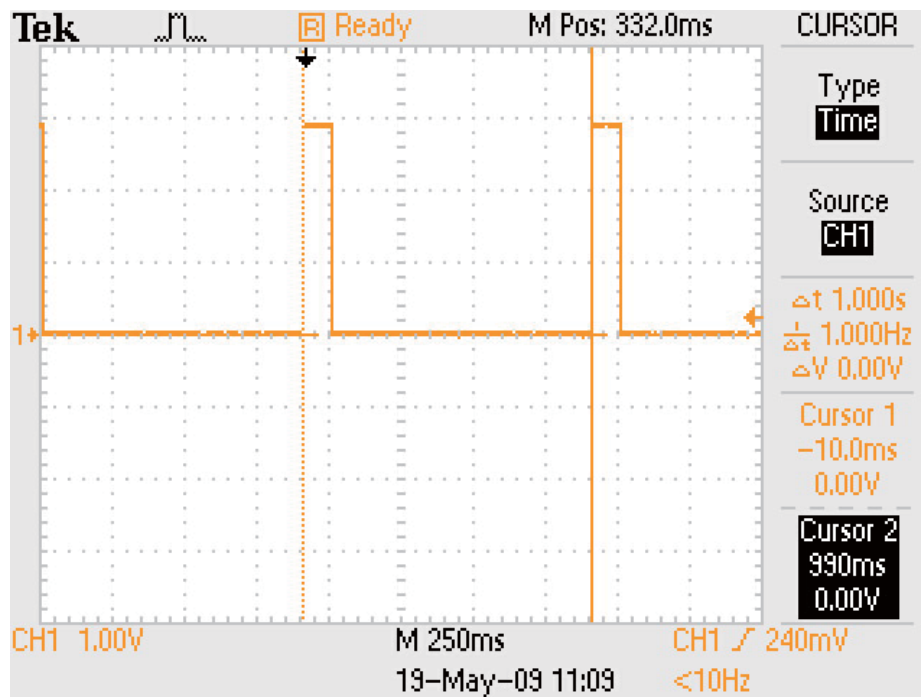
Ordering Information

GPS-721-MRTU CR	GPS Receiver Module with RS-485, supports NEMA, DCON and Modbus/RTU protocols (RoHS) Includes a 5 m GPS antenna (ANT-115-03)
GPS-721-MRTU-UTA CR	GPS Receiver Module with RS-485, supports NEMA, DCON and Modbus/RTU protocols (-40 ~ +75°C)(RoHS) Includes a 5 m GPS antenna (ANT-115-03)

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.