GPS-721U-MRTU

GPS/GLONASS Module with RS-232, RS-485, supports NEMA, DCON and Modbus/RTU protocols

GPS-721U-MRTU-UTA

GPS/GLONASS Module with RS-232, RS-485, supports NEMA, DCON and Modbus/RTU protocols (for -40 °C application)

Features

- Support GPS/GLONASS
- RS-232 and RS-485 support NMEA v0183 format, DCON or Modbus RTU protocol
- Built-in 1 channel DO, 1 channel PPS (1 pulse per second), 1 RS-485 port, 1 RS-232 port
- PPS: 100 ms pulse/s output for precise timekeeping and time measurement
- With various system LED indicators
- 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/GLONASS 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

- Automotive navigation
- Marine navigation
- Personal positioning and navigation
- Precise timekeeping and time measurement
- Satellite time correction

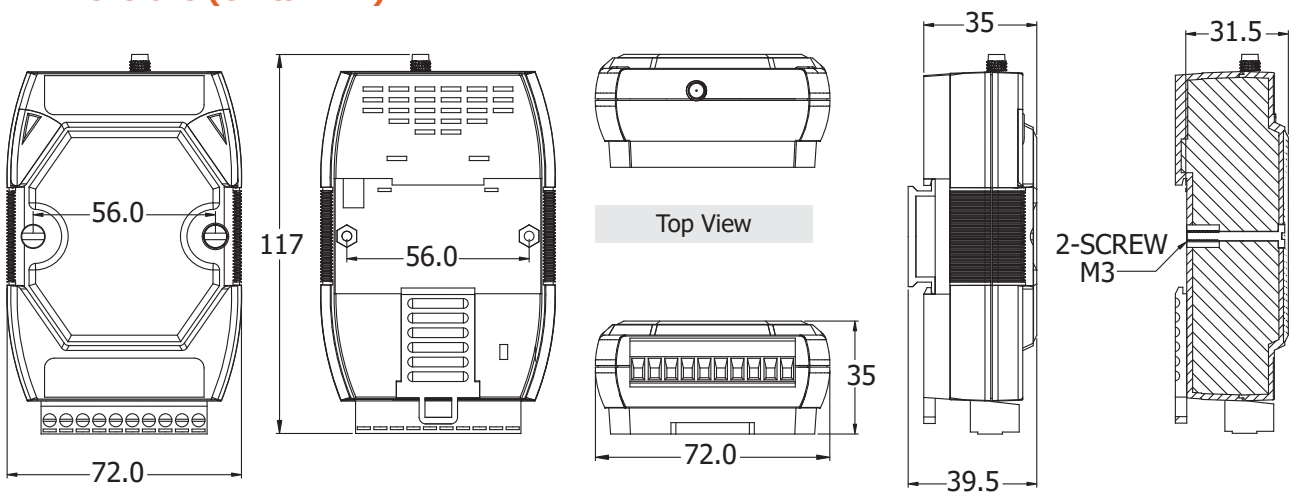
Specifications

Model	GPS-721U-MRTU	GPS-721U-MRTU-UTA
LED Indicators		
Status	1 x Power/Communication 3 x GNSS	
GPS/GNSS		
Acquisition Time	Cold Start (Open Sky) = 29 s (typical)	
Chip	u-Blox solution	
Frequency	L1 1575.42 MHz, C/A code	
Max. Altitude	<50,000 m	
Max. Velocity	<500 m/s	
Position Accuracy	Autonomous: 2.5 m SBAS: 2.0 m	
Protocol	NMEA 0183 (9600 bps, N81 Fixed)	
Sensitivity	Tracking: Up to -161 dBm Cold start: Up to -148 dBm	
Support Channels	56	
1 PPS	Pulse per second output (Default 100 ms pulse/sec)	
Digital Output		
Channels	1 (Sink)	
Type	Non-isolated Open Collector	
Load Voltage	+5 VDC~ +30 VDC	
Load Current	100 mA	

Specifications

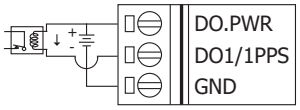
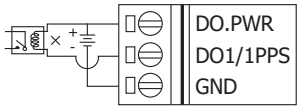
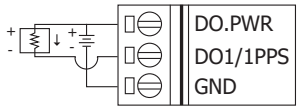
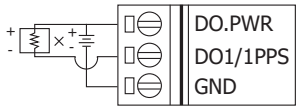
COM Ports	
Ports	1x RS-232, 1x RS-485
Baud Rate	1200 ~ 115200 bps
Data Format	N81, N82, E81, O81
Protocol	RS-232/RS-485: DCON, Modbus RTU or NMEA 0183 (9600bps,N81 fixed)
Power	
Input Range	+10 VDC ~ +30 VDC (Non-regulated)
Consumption	2.5 W
Mechanical	
Casing	Plastic
Dimensions (mm)	72 x 117 x 35 (W x L x D)
Weight	200 g
Environment	
Operating Temperature	-25 ~ +75°C → GPS-721U-MRTU -40 ~ +75°C → GPS-721U-MRTU-UTA
Storage Temperature	-40 ~ +80°C
Humidity	5 ~ 95% RH, Non-condensing

Dimensions (Units: mm)

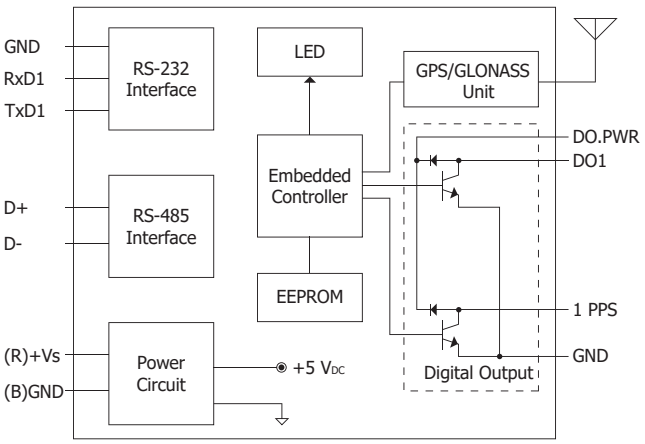


Front View | Rear View | Top View | Bottom View | Din-Rail Mounting Bracket | Side View

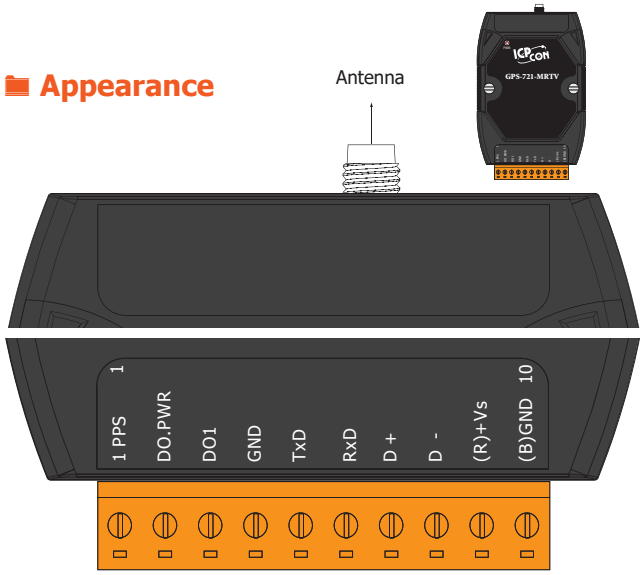
Wiring

Output Type	ON State (LED ON)	OFF State (LED OFF)
Drive Relay	Relay ON	Relay OFF
		
Resistance Load		
		

Internal I/O Structure



Appearance



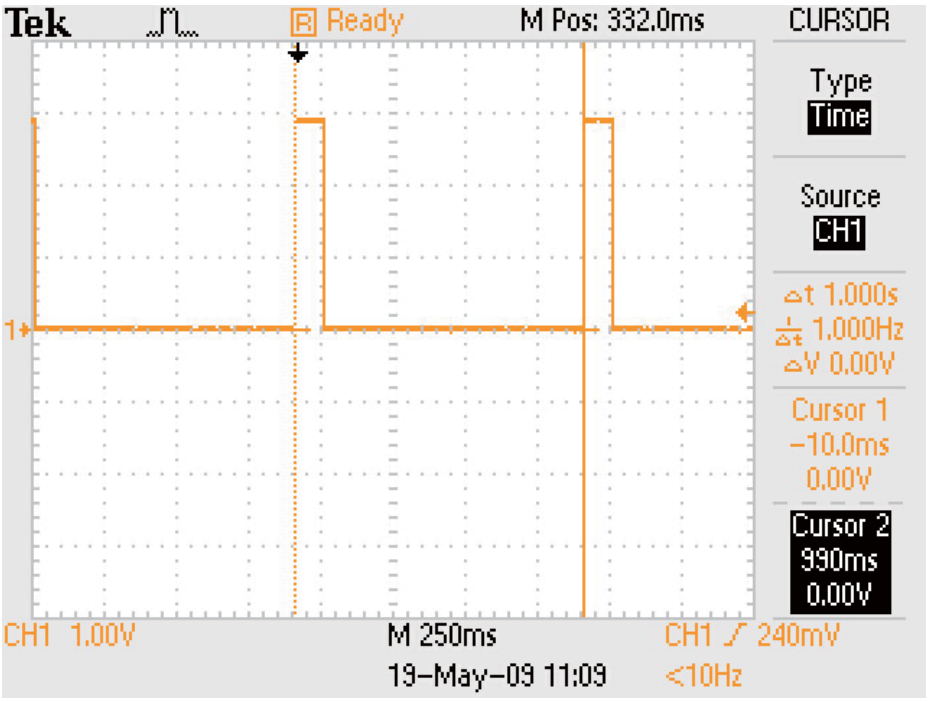
Ordering Information

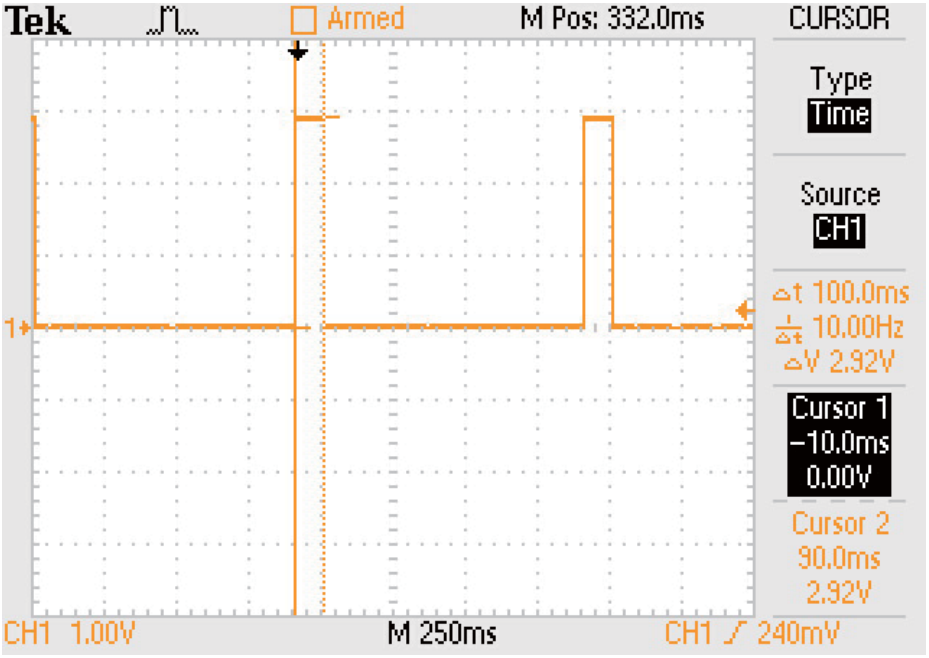
GPS-721-MRTU CR	GPS/GLONASS Receiver Module with RS-232, RS-485, supports NMEA, DCON and Modbus/RTU protocols (RoHS) Includes a 5 m GPS antenna (ANT-115-03-02)
GPS-721-MRTU-UTA CR	GPS/GLONASS Receiver Module with RS-232, RS-485, supports NMEA, DCON and Modbus/RTU protocols (for -40 °C application) (RoHS) Includes a 5 m GPS antenna (ANT-115-03-02)

Accessories

ANT-115-03-02 CR	5 m Active External GPS Antenna (SMA Plug) (RoHS)

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





The GPS-721U-MRTU and the GPS-721U-MRTU-UTA 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/GLONASS 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/GLONASS 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.