

# GPS-721-MRTU Quick Start v1.0



High-quality Industrial Data Acquisition and Control Products

# 1. Pin Assignments and LED Indicators

## ● Pin Assignments

Terminal No.	Pin Assignment
01	1 PPS
02	DO.PWR
03	DO1
04	GND
05	RxD
06	TxD
07	D+
08	D-
09	(R)+Vs
10	(B)GND



## ● LED Indicators

LED	Status	Description
Sys.	ON	The module is operating/functioning correctly
	OFF	The module has encountered an error
DO1	ON	Digital Output is active
	OFF	Digital Output is inactive
S1	ON	Fewer than 5 signals received from GPS satellites.
	OFF	Module is unable to receive sufficient GPS signals
S2	ON	The number of signals received from GPS satellites is 5 to 8
	OFF	The number of signals received from GPS satellites is less than 5
S3	ON	The number of signals received from GPS satellites is more than 8
	OFF	The number of signals received from GPS satellites is less than 8
1 PPS	ON	The PPS signal is active
	OFF	The PPS signal is inactive

## 2. Operation Modes

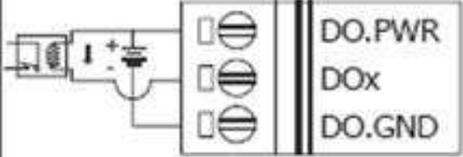
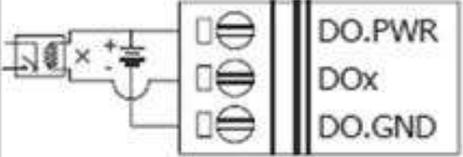
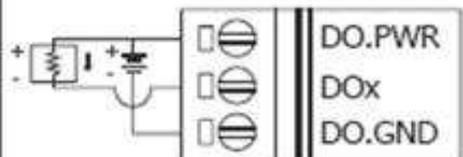
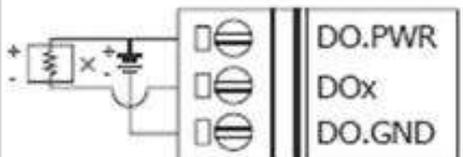
The back panel of the GPS-721-MRTU contains the frame ground and the INIT/Normal Switch. The module has two operation modes (INIT and Normal modes), which can be determined via the switch mechanism on the chassis. The description and figure are as follows.



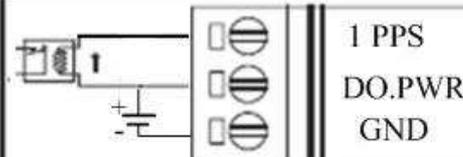
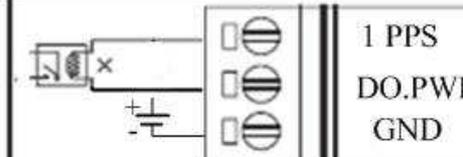
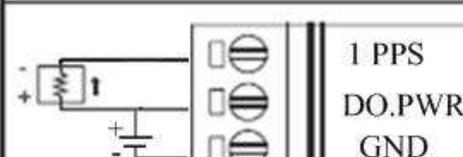
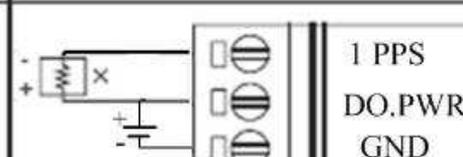
Mode	Description
INIT	<p>After setting the module to “INIT” mode and restarting the module, a connection can be established using the default module address and communication settings, allowing new parameters for the module to be set.</p> <p>INIT Mode:</p> <ul style="list-style-type: none"> <li>● Protocol: DCON</li> <li>● Module Address: 00</li> <li>● Communication Baud Rate: 9600bps</li> <li>● Checksum: Disabled</li> </ul> <p>Note: The DCON command to set the address, the Baud Rate and the checksum is %AANNTTCCFF. Refer to section 2.1 for details.</p>
Normal	In Normal mode, the module will operate based on the user’s settings.

### 3. Wiring

- Digital Output 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		

- PPS Wiring

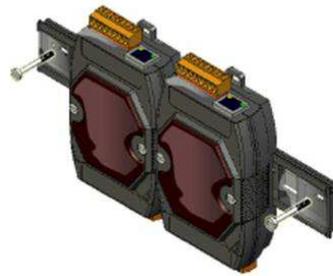
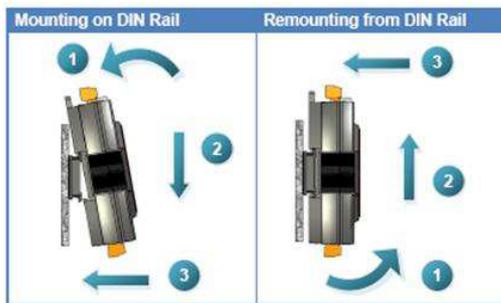
Output Type	ON State	OFF State
	Relay ON	Relay Off
Drive Relay		
Resistance Load		

## Mounting

The GPS-721-MRTU can be mounted on either a DIN-Rail or a wall, or it can be piggybacked to other modules using the bottom of the chassis.

- **DIN-Rail Mounting**

The GPS-721-MRTU includes simple rail clips that allow for reliable mounting on a standard 35 mm DIN rail.



Three new DIN-Rail models are available, and each is made of stainless steel, which is stronger than those made of aluminum. There is a screw at one end, and a ring terminal is included so that it can be easily connected to the earth ground.

Part number	Maximum number of modules	Dimensions
DRS-125	2	125 mm x 35 mm
DRS-240	3	240 mm x 35 mm
DRS-360	5	360 mm x 35 mm

Part number	Max. number of modules	Dimensions
DRS-125	2	125mm x 35mm

Part number	Max. number of modules	Dimensions
DRS-240	3	240mm x 35mm

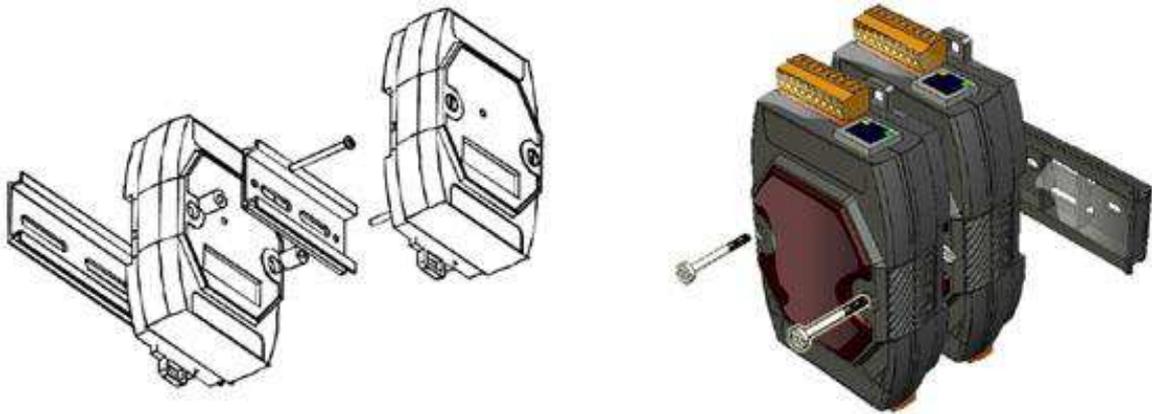
Part number	Max. number of modules	Dimensions
DRS-360	5	360mm x 35mm

Note: It is recommended that a 16 – 14 AWG wire is used to connect the DIN rail to the earth ground.

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**● Piggyback Mounting**

The GPS-721-MRTU has two holes on either side of the module to enable piggyback mounting. Refer to the figure below for an illustration of how to piggyback the modules.



## 4. Using the Module

This section describes the installation of the GPS-721-MRTU, and provides details of how to begin using the module.



1. Refer to Section 1 for details of the pin assignments.
2. Connect the module to the RS-485 network using the DATA+ and DATA- pins. See Section 1 for details of the pin assignments. If the Host is only equipped with an RS-232 interface, then an RS-232 to RS-485 converter will be required. The GPS-721-MRTU supports RS-232 connections. Refer to the "I-7000 Bus Converter User Manual" for more information.

**Default address and communication parameters:**

- **Protocol: Modbus RTU**
- **Module address: 01**
- **Communication Baud Rate: 9600 bps**

Configure the module by sending the %AANNTTCCFF command. See Section 2.1 of the “GPS-721-MRTU User Manual” for details.

ICP DAS provides two free tools that allow the GPS-721-MRTU to be easily configured, the DCON Utility and the Send232 application, both of which can be downloaded from

[http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon\\_utility/](http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/)

3. All module functions can be implemented using the DCON commands described in Section 2.
4. If the Host is a PC with a Windows operating system installed, the DCON Utility can be used to allow easy configuration and reading of data. The DCON Utility can be downloaded from the ICP DAS website (<http://www.icpdas.com>), and documentation for the DCON Utility can be found in the “Getting Started For I-7000 Series Modules” manual.

Note 1: The DCON Utility is provided to enable commands to be sent to the GPS-721-MRTU. The graphic settings of the GPS-721-MRTU are not supported by the DCON Utility.

Note 2: If GPS-721-MRTU is unable to receive a GPS signal, check the position of the antenna and if the problem persists, try relocating the GPS antenna outside.

Should you encounter any problems while using the GPS-721-MRTU module, and are unable to find help either in this manual or on our website, please contact ICP DAS Product Support.

**● Technical Support**

Email: [service@icpdas.com](mailto:service@icpdas.com)

Website: <http://www.icpdas.com/sevices/support.htm>