



## HRT-310 / HRT-310-UTA

Modbus RTU/ASCII to HART Gateway

### Features

- Support HART Short/Long frame
- Support HART Burst mode
- Allow two HART Masters
- Working in point-to-point or multi-drop HART mode
- Connecting up to 15 HART modules
- Support Modbus RTU and ASCII format
- Provide LED indicators
- Support Loop Power function (Provides +30VDC)
- Built-in HART loop resistor (250 Ohm, 1W)
- Enhanced HART signal (longer comm. distance)



SYSTEMES

### Introduction

The HRT-310 gateway is specially designed for the master device of HART protocol. It allows the Modbus master device to access the HART slave devices. These HART devices may be a transmitter, an actuator, a current output device and so forth. In addition, we also provide the utility (HG\_Tool) for module configuration and HART device diagnosis. By using this module, users can integrate their HART devices into Modbus network easily and quickly.

### Modbus Support

- Support the following Modbus commands

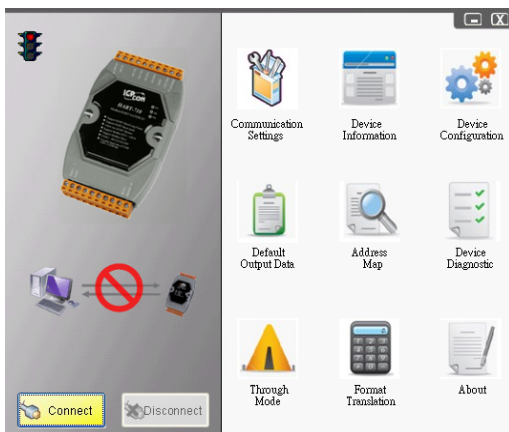
| Code | Name                    | Description   |
|------|-------------------------|---|
| 01   | Read Coil Status        | Read the ON/OFF status of discrete outputs in the slave                   |
| 02   | Read Input Status       | Read the ON/OFF status of discrete inputs in the slave                    |
| 03   | Read Holding Registers  | Read the binary contents of holding registers in the slave                |
| 04   | Read Input Registers    | Read the binary contents of input registers in the slave                  |
| 05   | Force Single Coil       | Write a single output to either ON or OFF in the slave                    |
| 06   | Preset Single Register  | Write an integer value into a single register in the slave                |
| 15   | Force Multi. Coils      | Write each coil in the sequence of coils to either ON or OFF in the slave |
| 16   | Preset Multi. Registers | Write a block of contiguous registers in the slave                        |

### Pin Assignments

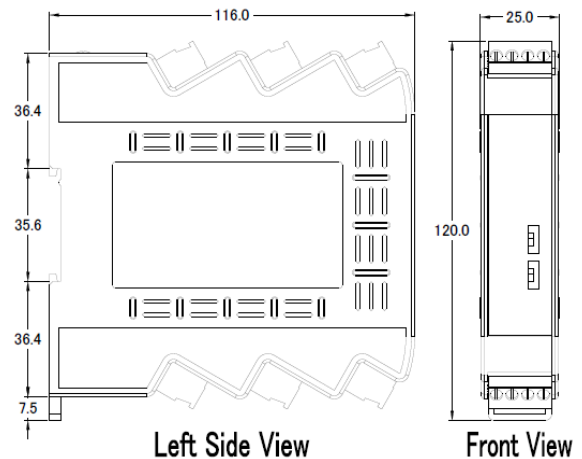


### Utility Features

- Read/Write HART device by HART command
- Provide diagnostic Information
- Read/Write module configuration of the HRT-310
- Show Modbus address of HART command



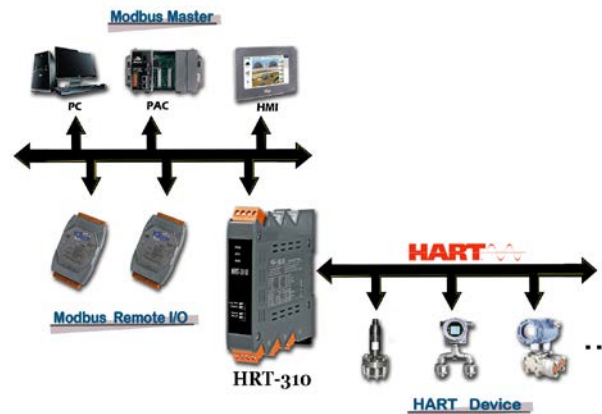
### Dimensions (Units: mm)



## Hardware Specifications

|                       |  |
|-----------------------|--|
| <b>Hardware</b>       |  |
| Watchdog              | Watchdog IC  |
| ESD Protection        | 4 kV class A   |
| <b>UART Interface</b> |  |
| COM Connector         | RS-232 => Rx, Tx, GND (3 wire)<br>RS-422 => Rx+, Rx-, D+, D-<br>RS-485 => D+, D- |
| Baud Rate (bps)       | 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200                              |
| Protocol              | Modbus RTU / Modbus ASCII  |
| <b>HART Interface</b> |  |
| HART Channel          | 1  |
| HART Interface        | 2-pin screwed terminal block (H+, H-)  |
| HART Device           | 2-wired or 4-wired HART devices  |
| HART Topology         | Point to Point or Multi-Drop   |
| HART Data             | Only Digital Data  |
| HART Frame Type       | Short and Long Frame   |
| Burst Mode            | Supported  |
| Max. HART Device      | 15   |
| Loop Resistor         | 250 Ω (1W) resistor by Dip-Switch  |
| Isolation             | Follow UL1577 Spec.  |
| <b>Power</b>          |  |
| Power supply          | Unregulated +10 ~ +30 VDC  |
| Protection            | Power reverse polarity protection, Over-voltage brown-out protection             |
| Power Consumption     | 3.5 W (Max.)   |
| <b>Mechanism</b>      |  |
| Installation          | DIN-Rail   |
| Dimensions            | 25 mm x 116 mm x 120 mm (W x L x H)  |
| <b>Environment</b>    |  |
| Operating Temp.       | HRT-310: -25 ~ +75 °C<br>HRT-310-UTA: -40 ~ +75 °C                               |
| Storage Temp.         | HRT-310: -30 ~ +80 °C<br>HRT-310-UTA: -40 ~ +80 °C                               |
| Humidity              | 10% ~ 90% RH, non-condensing   |

## Application



## Ordering Information

|                       |  |
|-----------------------|--|
| <b>HRT-310 CR</b>     | Modbus RTU/ASCII to HART Gateway (Upright) (RoHS)                    |
| <b>HRT-310-UTA CR</b> | Modbus RTU/ASCII to HART Gateway (Upright, -40°C Application) (RoHS) |