

## Modbus / TCP Remote Digital I/O Module

# RIO-2010



### Features

- Web Based Remote I/O Monitoring and Control
- Web Server and Web Interface Ready
- Modbus, AJAX, MQTT
- Stand-Alone Alarm Relay Control and Email Alert
- Periodically Data and Event Publishing to Server (Broker) via MQTT
- 8 x Relay Out Form A or Form B Relay with Contact Rating 30VDC@1A or 125VAC@0.5A
- 16 x Isolated Digital Input and 3 x Maxim 1-Wire Temperature Measurement
- 1 x 10/100Mbps Ethernet Port

### H/W Specifications

#### CPU / Memory

- CPU: NXP Arm Cortex-M3 LPC1768 100MHz
- Memory: 512KB on-chip Flash, 64KB SRAM

#### Network Interface

- Type: 1 x 10/100Mbps, RJ45 connector
- Protection: 1500Vrms magnetic isolation

#### RS-485 Interface

- Isolation Protection: 2500Vrms
- Direction Control: Auto, by hardware
- Connector: Terminal block
- Baud Rate: 1.2~460.8Kbps
- Parity: None, Even, Odd, Mark, Space
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2

#### Digital Input

- No. of Channels: 16
- Photo Isolation (AC in): 5000Vrms
- Logical High: 5~24VDC
- Logical Low: 0~1.5VDC
- LED Indicators: Yes

#### Relay Output

- No. of Channels: 8
- Contact Rating: 30VDC@1A or 125VAC@0.5A
- LED Indicators: Yes

#### Maxim 1-Wire Interface

- No. of Channels: 3
- Connector: 3-pin header (VDD, DQ, GND)

#### General

- Temperature Sensor: Maxim DS18B20 (optional accessory 91-6DS18-001)
- Temperature Range: -55°C~125°C
- Accuracy: +/-0.5°C
- Real-Time Clock (RTC): Manual or NTP (Network Time Protocol) setup and sync.
- Power Input: +9 ~ +48VDC
- Power Consumption: 12VDC@220mA(max.), 12VDC@55mA(min.)
- Dimensions (W x H x D): 182 x 118 x 36mm (7.16x4.64x1.42in)
- Operating Temperature: 0~70°C (32~158°F)

### Access Control Guidelines

#### Default Access Ports

- Modbus / TCP Port: 502
- Telnet Console Port: 5001
- HTTP Port: 5003

#### Access Through Modbus Protocols

- Modbus / TCP via LAN interface
- Modbus / ASCII, Modbus / RTU via RS-485 interface

#### Access Through HTTP GET / POST Protocols

- AJAX-enabled demo page for up-and-running web-based monitoring and controls

#### Operation Mode

- Modbus TCP / RTU slave
- Web direct I/O control
- MQTT auto data and event publish and log
- Stand-alone alarm relay control and email alert
- C / C++ programmable controller (RIO-2010PG)



### Ordering Information

#### RIO-2010

- Modbus / TCP Remote Digital I/O Module

#### CB-F10M9-20 (91-0P9M9-001)

- Console Cable (10Pin Header to DB9 Male, 20cm)

#### DS18B20 (91-6DS18-001)

- Programmable Resolution 1-wire Digital Thermometer

#### PWR-12V-1A (31-62100-000)

- 110~240VAC to 12VDC 1A Power Adapter

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

### US

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +1 347 719 4508

Support: +1 347 719 4508

1309 Coffeen Ave  
Ste 1200  
Sheridan  
WY 82801  
USA

### EMEA

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +44 (0)1785 879 050

Support: +44 (0)1785 879 050

Unit A5 Douglas Park  
Stone Business Park  
Stone  
ST15 0YJ  
United Kingdom

VAT Number: 120 9546 28

Business Registration Number: 07699660