Modbus RTU Mini-SCADA Unit

The RFI-MSIO is a Modbus capable low cost Mini-SCADA unit ideal for remote telemetry applications. The unit provides access to analog and digital inputs and outputs in a simple, ready to use package with no need to program.

The unit is compatible with all Modbus RTU devices and ready to use with RF Innovations data radio networks.

Features
- Operates as a Modbus RTU Slave
- Modbus RTU Master operation for small point-to-multipoint systems
- 8 inputs analog or digital
- 8 outputs analog or digital
- Analog standard 0-5V or 4-20mA
- Digital 0-5V or Relay (dry contact)
- Can be installed back-to-back for additional I/Os
- LED status indicators
- Watchdog timer and output for link fail indication and fall-back
- Can be installed without programming

Applications
The RFI-MSIO is suited for applications in Utilities, Mining, Agriculture and Transport industries where reliable wide area I/O transfer is critical.

The RFI-MSIO can be used in a point-to-point mode out of the box, providing simple transfer of the available inputs and outputs, or as a part of a larger telemetry and SCADA system.

The unit can be used in large scale telemetry and SCADA systems for providing an easy to use alternative to remote PLC slave units.
Specifications

Simple Operation  The RFI-MSIO can be used ‘out of the box’ with no need for ladder logic programming

Master Mode  For point-to-point systems the unit can be put into Master mode via DIP switches, removing the need for a complex Modbus Master PLC or software

Watchdog Output  The watchdog timer output can be used to determine the operation of the system and to control fall back operation of a remote station in the case of network failure

Expandable I/O  Use two units back to back to expand to 16 inputs and 16 outputs

LED Status Indicators  Status indicators show the operation of the unit, serial communication status and system communication status

Radio Enabled  Protocol communication and timing settings are ready to use over a cabled or wireless network

Modbus RTU Enabled  Industry standard Modbus RTU implementation means the unit can be seamlessly added to existing control systems

**PHYSICAL**
Dimensions: 190mm x 85mm x 35mm
Weight: 260g
Construction: Powder coated mild steel chassis and cover

**GENERAL**
Operating Voltage: 11V to 16V DC negative ground (24VDC option available)
Operating Current: 30 mA @12 V DC (no I/O loading)
8 mA @ 12 V DC per active 4-20 mA analogue output
2 mA @ 12 V DC per active digital or relay output
2 mA @ 12 V DC per active 0-5 V analogue outputs
Operating Temp: -10 to + 60°C
Operating Humidity: Up to 95% non-condensing relative humidity
Mode Configuration: via DIP switches
Parameter Configuration: via terminal

**I/O SYSTEM**
I/O Refresh Rate: 10Hz (100ms)
Protocol: Modbus RTU over serial (www.modbus.org)
Protocol Resolution: 16 bit
Serial Interface: RS232C
Interface speed: 300 to 38400 bps software selectable

**DIGITAL**
Outputs: 0-5V or 3-wire Relay (factory set)
Inputs: 0-5V internal pull up
Protection: Over voltage, reverse voltage and short circuit

**ANALOG**
Outputs: 0-5V or 4-20mA (factory set)
Inputs: 0-5V internal pull up or 4-20mA (factory set)
Protection: Over voltage, reverse voltage and short circuit

**CONNECTORS**
Data: Custom DB25 Female connector
Power: Terminal block
Expansion card: Custom DB25 Male connector

**OPTIONS**
RFI-MSIO - XXYYZaabb
Where
XX = IC: Independent Card
PC: Primary Card
EC: Extension Card
YY = A: 12V nominal input voltage
24: 24V nominal input voltage
Za = 0: 8 Digital In, 8 Relay Out
2: Analog 0-5V In, 2 Analog 0-5V Out, 6 Relay Out
6 Analog 0-5V Out, 6 Relay Out
B: 2 Analog 4-20mA In, 6 Digital In, 2 Analog 4-20mA Out, 6 Relay Out
E: 4 Analog 4-20mA In, 4 Digital In, 4 Analog 4-20mA Out, 4 Relay Out
Cc = MM: System Master
S1 to S4: Slave of Address 1 to 4
N2 to N4: Network with 2 to 4 slaves
bb = PP: Point to point network

Specifications subject to change without notice V161122