



ProtoBeamer Gateway Series DATA SHEET

Serial Device Server With Modbus Gateway

The Serial Device Server with Modbus Gateway product, from ProtoSense Technologies, serves the industry and R&D house needs for converging from serial links/protocols towards the more convenient and efficient to use Ethernet network and the protocols which run over Ethernet data-link like TCP/IP, Modbus etc.

The Serial Device Server (SDS) enables PC systems and other equipment with a Ethernet connectivity to access serial protocol devices connected to a RS-485 bus or similar. The PC systems and equipment with Ethernet connectivity can use readily available TCP/IP Socket function to send/receive either standard or proprietary protocol packets to/from serial devices/instruments.

The Modbus Gateway functionality supports the normally required Modbus-RTU (RS-485) To Modbus-TCP/IP protocol converter requirements.

The Modbus Gateway functionality offers an easy and transparent communication links between Modbus-TCP/IP based PC systems, PLCs etc. and Modbus-RTU based field devices like meters, test instruments etc. The Modbus Gateway allows any Modbus-TCP Master to talk to any of the Modbus-RTU Slave device transparently with the actual Modbus protocol packet translation happening inside the Gateway.

The Modbus Gateway also works as reverse Modbus protocol packet translation device to provide for Modbus-RTU Master device(s) to communicate transparently with the Modbus-TCP/IP Slave device(s).



FEATURES

- Embedded fan-less and rugged system for industrial applications.
- Compact aluminum enclosure with provisions for both DIN-rail and wall mounting.
- Support for both 24V DC and AC power source.
- Minimal power consumption design at the given CPU speed.
- Fast, efficient and full-featured Modbus protocol stack.
- Two isolated RS-485 serial ports provides for reliable field connections.
- Each RS-485 serial port allows connecting up to 30 field devices.
- Easy to use Web based GUI configuration tool.
- Web based UI also provides product operational status and communication statistics.

Technical Specifications

HARDWARE PLATFORM

- SoC with CPU core running at 800 MHz.
- 256 MB RAM and 128 MB Flash.
- Watchdog timer for reliable operation.
- Battery backed Real-Time Clock.

SOFTWARE PLATFORM

- Real-time Embedded Operating System.
- Multi-threaded and fast response application architecture.
- Embedded Web Server

COMMUNICATION PORTS

- Galvanically Isolated RS-485 serial ports with built-in ADDC support.
 - ✓ Isolation barrier withstands 2500V_{RMS} for 1 minute.
 - ✓ +/- 15kV ESD protection.
- Serial Port Interface:
 - RS-485: 2-wire interface D+, D- and Isolated-GND.
 - RS-422: Txd+, Txd-, RxD+, RxD- and Isolated -GND.
- Serial Ports Setup Support :
Baud: 9600, 19200, 38400, 57600 and 115200.
Parity: None, Even and Odd.
Data Bits: 7, 8.
Stop Bits: 1, 2.
- 10/100 Mbps, Auto-MDIX Ethernet port.
- Screw-terminal connectors(Terminal block headers and connectors) for easy connection.

USER INTERFACE

- Rx and Tx activity status LEDs for each serial port.
- SDS and Modbus activity status and error indication LEDs.
- Push-button for easy 'Reset to factory defaults' operation.
- Ethernet LAN LED indications for ACT and LINK.

POWER SUPPLY

- 12 to 28V DC, 200mA@24V DC.
- 24V AC.
- Screw-terminal connector.

MECHANICAL

- Aluminum enclosure with DIN-rail and wall-mount options.
- Dimensions: 260mm x 135mm x 35mm (W x H x D).
- Good EMI protection and EMC adherence.

ENVIRONMENTAL

- Operating temperature: 0 to 50 degree Celsius.
- Humidity: 10-90% non-condensing.

PROTOCOL SPECIFICATIONS

Serial Device Server

Client Connectivity Services

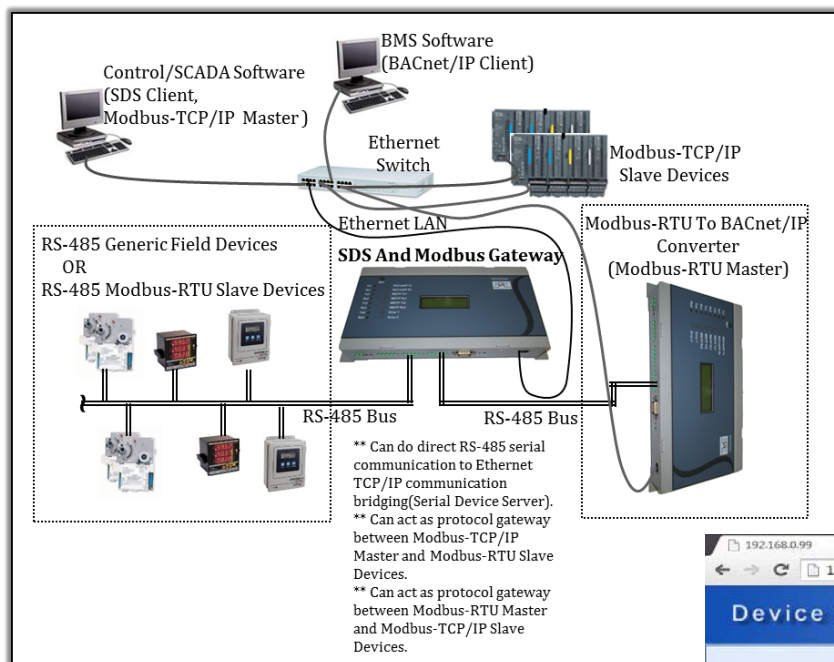
- ✓ TCP/IP Server
- ✓ HTTP
- ✓ ICMP
- ✓ ARP

Modbus Services Supported

Datapoint Access Services

- ✓ Read Coils (FC 0x01)
- ✓ Read Discrete Inputs (FC 0x02)
- ✓ Read Holding Registers (FC 0x03)
- ✓ Read Input Registers (FC 0x04)
- ✓ Write Single Coil (FC 0x05)
- ✓ Write Single Register (FC 0x06)
- ✓ Write Multiple Coils (FC 0x0F)
- ✓ Write Multiple Registers (FC 0x10)

Product Information & Ordering



A typical application scenario of the Serial Device Server is as shown in the configuration diagram to the left. There are various types of serial field devices/controllers connected to the SDS through RS-485/RS-422. The Control Software or any SCADA software, running on a PC system, is now able to access any of the serial field device using the Ethernet link and TCP/IP protocol.

The SDS with Modbus Gateway product is supplied with an easy to use Web User Interface for configuring and setup of the various product features. The SDS UI provides for enabling TCP/IP server on each of the serial port, configuring

Serial Port	TCP/IP Port	TCP/IP Activity Timeout (Sec)	Enable
Serial Port 1 mapped to LAN port through:	5001	0	<input type="checkbox"/>
Serial Port 2 mapped to LAN port through:	5002	0	<input checked="" type="checkbox"/>
Serial Port 3 mapped to LAN port through:	5003	0	<input type="checkbox"/>
Serial Port 4 mapped to LAN port through:	5004	0	<input type="checkbox"/>

Submit Reset

Master(s) to Slaves mappings through Port	Virtual Slave ID Start	Virtual Slave ID End	Actual Slave ID Start	Actual Slave ID End	Enable
Master(s) to Slaves mappings through Port 1:	1	60	1	60	<input checked="" type="checkbox"/>
Master(s) to Slaves mappings through Port 2:	61	120	1	60	<input type="checkbox"/>
Master(s) to Slaves mappings through Port 3:	121	180	1	60	<input type="checkbox"/>
Master(s) to Slaves mappings through Port 4:	181	240	1	60	<input type="checkbox"/>

Slave Response Timeout For Port 1(in ms): 1000

Slave Response Timeout For Port 2(in ms): 1000

Slave Response Timeout For Port 3(in ms): 1000

Slave Response Timeout For Port 4(in ms): 1000

Modbus-TCP Server Listen Port No: 502

Submit Reset

related parameters and also the latest status and statistics.

The Modbus Gateway UI provides for controlling the Modbus-TCP/IP to Modbus-RTU protocol translation and vice versa. This UI also displays the status and statistics about the protocol packet routing happening on each of the serial port. The Web UI also has UI controls for setting up other product operational parameters like IP Address Settings etc. and remote firmware upgrade feature.

Product Type

Serial Device Server And Modbus Gateway With Two isolated RS-485 ports.

Product Code

SDS-MBGW-2P

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