Arctic Modbus Gateway

Network your Distributed Industrial Equipment with Arctic Modbus Gateway

Building Block for Industrial Networks

Arctic Modbus Gateway effectively integrates serial Modbus devices to IP based management systems via Ethernet, GPRS and EDGE. This is achieved by protocol conversion from Modbus serial protocols to Modbus TCP protocol and vice versa.

Combining this to many other Modbus specific features Arctic Modbus Gateway is powerful and flexible building block for industrial Modbus communication.

Also mobile operator independent systems (when GPRS/EDGE is used) can be built with Viola M2M Gateway which provides virtual static IP addresses and VPN connections for Arctic devices.

The Modbus protocol family is a vendor-independent industrial communication standard supported by industrial automation control units (PLCs, RTUs, data loggers, sensors etc.) and controlling software such as SCADA programs.

Usually field devices use serial mode (RTU or ASCII) protocol where as control network communication uses Modbus TCP protocol. The Modbus user community has defined gateway functionality for required protocol integration. This functionality (protocol-conversion) is implemented in Arctic Modbus Gateway.

Arctic Modbus Gateway offers powerful and easy-to-use features for building wireless communication networks for distributed industrial systems. Also local area networks can be effectively built by the Ethernet version of Arctic Modbus Gateway.

Many industrial devices like PLCs and data loggers support RS-485 Modbus RTU protocol. Arctic Modbus Gateway can integrate unlimited number of serial slaves to IP network. All Modbus protocol versions are supported!

Arctic Modbus Gateway can also be used as a serial slave at the SCADA end in the systems where SCADA is not supporting Modbus TCP. In this case Arctic Modbus Gateway is connected to SCADA machine’s serial port (Modbus RTU) and it is routing serial Modbus messages from SCADA to a single Modbus TCP recipient (Acting as a Modbus TCP master for it) thus avoiding message broad-casting and extra network traffic over wireless GPRS/EDGE networks.
Data loggers, PLCs, Frequency converters, Water purification plants.

Integrate field bus segments together.

Integrate RTUs, HMIs, Modbus RTU over TCP/UDP, Modbus ASCII over TCP/UDP, Unlimited slaves and masters, Number of routes: 32 max., Number of masters: 20 max.

Parameters: Response timeout, inter-frame timeout, master or slave, gateway exception generation and filtering, network port

Arctic Modbus Router can be configured with a graphical user interface with an internet browser or via a conventional console interface (Telnet or via serial console).

**Network protocols**
- PPP, IP, ICMP, UDP, TCP, ARP, DNS, DHCP, FTP, TFTP, HTTP, POP3, SMTP

**Tunneling (VPN)**
- SSH server and client, Web, SSH, Telnet and console

**Modbus Serial**
- Protocols: Modbus RTU, Modbus ASCII
- Unlimited slaves and masters
- Parameters: Response timeout, inter-frame timeout, master or slave

**Modbus Network**
- Protocols: Modbus TCP, Modbus RTU over TCP/UDP, Modbus ASCII over TCP/UDP
- Unlimited slaves
- Number of routes: 32 max.
- Number of masters: 20 max.
- Parameters: Response timeout, inter-frame timeout, master or slave, gateway exception generation and filtering, network port

**Processor Environment**
- 32 bit RISC processor
- 8 MB FLASH memory
- 32 MB SDRAM memory

**Power**
- 6 – 26 VDC nominal input voltage
- 1 – 5 W power consumption
- Resettable (Automatic) fuse
- ESD protection

**Environment**
- Temperature ranges: -40 to +75 °C
- -40 to +85 °C (storage)
- Humidity 5 to 85 % RH

**Serials**
- RS-232 DTE, RS-422, RS-485
- RTS/CTS signals
- 1 stop bit, no parity (8N1)
- 19200 bps, 8 data bits, and short circuit

**Modbus Serial**
- Protocols: Modbus RTU, Modbus ASCII
- Unlimited slaves and masters
- Parameters: Response timeout, inter-frame timeout, master or slave

**Serial 1 / Console**
- RS-232 DTE, Male DB-9 connector
- Full serial and modem signals
- Speed 300 – 460 800 bps
- Data bits – 7 or 8
- Stop bits - 1 or 2
- Parity - None, Even, Odd
- Flow control – None, RTS/CTS
- Protection – 15 kV ESD and short circuit
- Console – RS-232, 19200 bps, 8 data bits, 1 stop bit, no parity (8N1)

**Modbus ASCII/RTU**
- RS-232 DTE, RS-422, RS-485 (selectable)
- Male DB-9 connector
- Full serial and modem signals
- Bising and termination selectable
- Speed 300 – 460 800 bps
- Data bits - 7 or 8
- Stop bits - 1 or 2
- Parity - None, Even, Odd
- Flow control – None, RTS/CTS
- Protection – 15 kV ESD and short circuit

**Modbus Network**
- Protocols: Modbus TCP, Modbus RTU over TCP/UDP, Modbus ASCII over TCP/UDP
- Unlimited slaves
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**Configuration & Management**
Arctic Modbus Router can be configured with a graphical user interface with an internet browser or via a conventional console interface (Telnet or via serial console).

**Application Examples**
- Integrate serial Modbus slaves and masters to IP network
- Integrate field bus segments together
- Substation automation
- Water purification plants
- Frequency converters
- Data loggers, PLCs, RTUs, HMIs

**Key Features**
- Modbus serial-network gateway for industrial applications
- Serial protocol support for Modbus RTU and ASCII
- Network protocol support for Modbus TCP/RTU/ASCII over TCP and UDP
- Supports both serial and network masters
- One RS-232 and one RS-232/422/485 port up to 460800 bps
- Firewall and SSH for secure communication
- Mobile operator independent static IP addresses with Viola M2M Gateway
- DIN rail mounting (optional)

**Software**
- Network protocols: PPP, IP, ICMP, UDP, TCP, ARP, DNS, DHCP, FTP, TFTP, HTTP, POP3, SMTP
- Tunneling (VPN): SSH server and client, Web, SSH, Telnet and console, FTP, TFTP and HTTP software update
- Routing related: Static routing, Proxy ARP, Port Forward, IP Masquerading/NAT, Firewall

**Hardware**
- Processor Environment: 32 bit RISC processor, 8 MB FLASH memory, 32 MB SDRAM memory
- Power: 6 – 26 VDC nominal input voltage, 1 – 5 W power consumption, Resettable (Automatic) fuse, ESD protection
- Environment: Temperature ranges: -40 to +75 °C, -40 to +85 °C (storage), Humidity 5 to 85 % RH

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**Networking Interfaces**
- Ethernet: 10/100 Base-T, Shielded RJ-45, 1,5 kV isolation transformer, Ethernet IEEE 802-3, 802-2
- GPRS (2202): Quad band GSM850/900/1800/1900, GPRS multi-slot class 12, Max. 85.6 kbps GPRS downlink and uplink speed, Coding schemes CS1-4
- GPRS/EDGE (2203): Quadband (850/900/1800/1900 MHz), Internal module and SIM card socket, EDGE class 10: max 236.8 kbps (downlink), Mobile station class B, Modulation and coding scheme MCS 1-9, GPRS class 12, Multislot up + down 4 + 4, total max. 5, Mobile station class B, PBCCH support, Coding schemes CS 1-4
- CSD (GSM data) (2202/2203): Up to 14.4 kbps, V.110, Non-transparent mode, USSD support, FME external antenna connector (50Ω), (Stub antenna included)

**Ordering Information**

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<td>2202</td>
<td>Arctic Modbus Gateway (GPRS)</td>
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<td>Arctic accessory kit</td>
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<td>Magflex antenna with 2.5 m cable</td>
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