VIOLA systems

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 management systems via Ethernet or GPRS. 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 is used) can be built with Viola M2M Gateway which provides virtual static IP addresses 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 use Modbus TCP protocol. The Modbus user community has defined gateway functionality for required protocol integration. This functionality is implemented in Arctic Modbus Gateway. Arctic Modbus Gateway offers powerful and easy-to-use features for building local area and distributed industrial communication networks

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. It routes serial Modbus messages to single Modbus TCP recipient thus avoiding message broad-casting and extra network traffic.

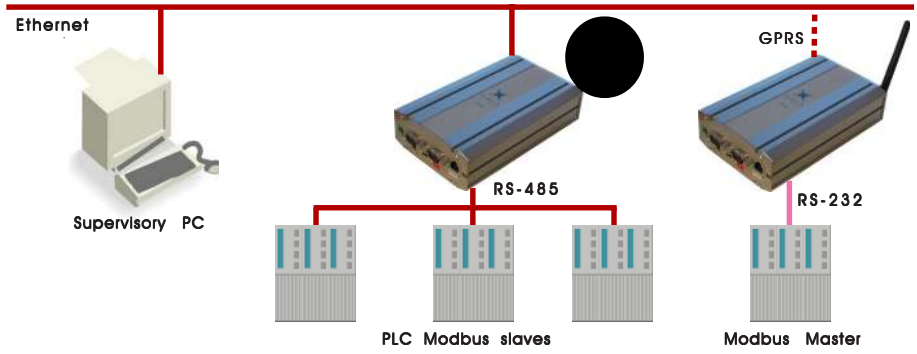
Slaves can only respond to queries made by master, which causes difficulties with time critical asynchronous events (like alarms). Conventional solution is to poll the slaves often enough or use a special event output connected to alarm transmitting equipment. The frequent polling approach suits well for local area serial communication but can become unpractical in networked and distributed systems. Arctic Modbus Gateway handles this limitation by polling the slaves locally, storing the results to a log file and reporting using alarm delivery methods supported by most SCADA and network management applications The conventional event output signal can also be connected to one of the digital inputs of Arctic Modbus Gateway (with optional I/O extension).

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
- Local polling of slaves for log and alarm generation
- Firewall and SSH for secure communication
- Mobile operator independent static IP addresses with Viola M2M Gateway
- Internal heater and battery back-up for demanding environmental conditions (optional)
- DIN rail mounting (optional)

Application Examples

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



Ordering Information

Arctic Modbus Gateway (Ethernet) - 2201
Arctic Modbus Gateway (GPRS) - 2202

Options

Internal battery back up
Internal heater
Power supply 100/240VAC-12VDC
DIN rail mounting kit
I/O extension board (8xDI, 2xDO)
Magnetic antenna with 2,5 m cable
Rooflex antenna with 2,5 m cable

Ordering Address

Viola Systems Ltd.
Lemminkäisenkatu 14 - 18 B
FIN-20520 Turku, Finland
Phone + 358 (0)20 1226 226
Fax + 358 (0)20 1226 220

sales@violasystems.com

www.violasystems.com

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
Resetable fuse and ESD protection
External 110 – 230 VAC adapter (option)

Other
Temperature sensor, real time clock

Environment
Temperature ranges:
–20 to +55 °C (w/o heater)
–40 to +55 °C (w heater, optinal)
–30 to +85 °C (storage)
Humidity 5 to 85 % RH

Network Interfaces

Ethernet
10/100 Base-T. Shielded RJ-45
1,5 kV isolation transformer
Ethernet IEEE 802-3, 802-2

GPRS (2202)
Internal module and SIM card socket
FME external antenna connector (50 Ω)
Class 10
Dual-band (900/1800) or
SMS, USSD, CSD, GPRS

Approval
CE

Serial Ports

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

Serial 2
RS-232 DTE, RS-422, RS-485 (selectable)
Male DB-9 connector
Full serial and modem signals
Biasing 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 Serial

Protocols:	Modbus RTU, Modbus ASCII
Number of slaves:	Unlimited
Number of masters:	Unlimited
Parameters:	Response timeout, inter-frame timeout, master or slave

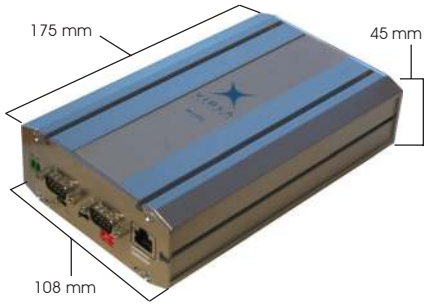
Modbus Network

Protocols:	Modbus TCP, Modbus RTU over TCP/UDP, Modbus ASCII ove TCP/UDP
Number of slaves:	Unlimited
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

Modbus Poller

Independent polls:	20
Event triggers:	No response, exception response, internal error, bit mask, value, recovery
Poll log:	Compact flash (optional)

Dimensions



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October, 2005