MultiNet4

MULTI-PORT SERIAL SERVER & MANAGED SWITCH

Fast, Secure, and Reliable. Network Enable Many Serial Devices

KEY BENEFITS

- Converts Modbus RTU into Modbus TCP over Ethernet
- Substation hardened to meet the requirements for harsh utility and industrial applications
- Simple plug & play device setup and configuration using Multilin EnerVista (TM) Software
- Connects a large number of serial devices to a Ethernet network
- Rich Network Management and Security functions
- Fast collection of data via individually-configurable Modbus TCP settings for each serial port.
- Enhanced Reliability with Fast Fault Recovery via Link-Loss Alert (LLA)
- Flexible mounting options allows for easy installation

APPLICATIONS

- Provides Modbus TCP connectivity to relays, meters, and other serial devices
- Connection point to network for both serial and Ethernet devices
- Connect serial devices to SCADA network and HMI applications
- Provides visibility to serial devices through EnerVista(TM) management software

FEATURES

- High density solution provides 4 serial ports
- Connect up to 128 devices
- Integrated 4-port fully managed Ethernet switch
- Supports both 10/100BaseT and 100BaseF fiber optic connections
- Allows multiple Modbus TCP masters for serial devices
- Support of common network communication ports

Digital Energy
Multilin

Overview

The MultiNet Family is a line of industrially-hardened serial port servers that provide access for ModBus RTU devices onto a TCP/IP Ethernet network. Designed to meet the unique networking and environmental requirements of the Protection & Control industry, MultiNet devices ensure continuous connection with and control of GE Multilin devices through your communications network. The MultiNet family of devices are designed and built to meet the needs of the utility industry, and are tested to the same environment and conditions as all GE Multilin devices to deliver a solution that maximizes the availability of your critical infrastructure.

High Density solution for any serial devices

MultiNet4 provides devices with serial ModBus to ModBus TCP/IP communications capability on an Ethernet network, allowing connection to LAN and WAN network systems via fiber or wire media. MultiNet4's four serial ports have the capability to connect up to 128 serial ModBus devices, which eliminates complex wiring and additional communications converters..

In order to ensure fast access to serial device data, MultiNet4 features individually-configurable serial ports that can be set to work at different speeds and even with different Modbus TCP port settings, enabling optimization of serial data collection. MultiNet4 has been environmentally hardened to withstand severe utility and industrial conditions, and with a variety of mounting options, the device can be placed anywhere it is required to work.

4-port serial port server

- Converts Modbus RTU over RS485/RS232 into Modbus TCP/IP over Ethernet
- Connect up to 128 serial devices to an Ethernet network.
- Fast collection of serial device data via individually-configurable Modbus TCP settings for each serial port.
- Simple "plug & play" device setup with EnerVista software

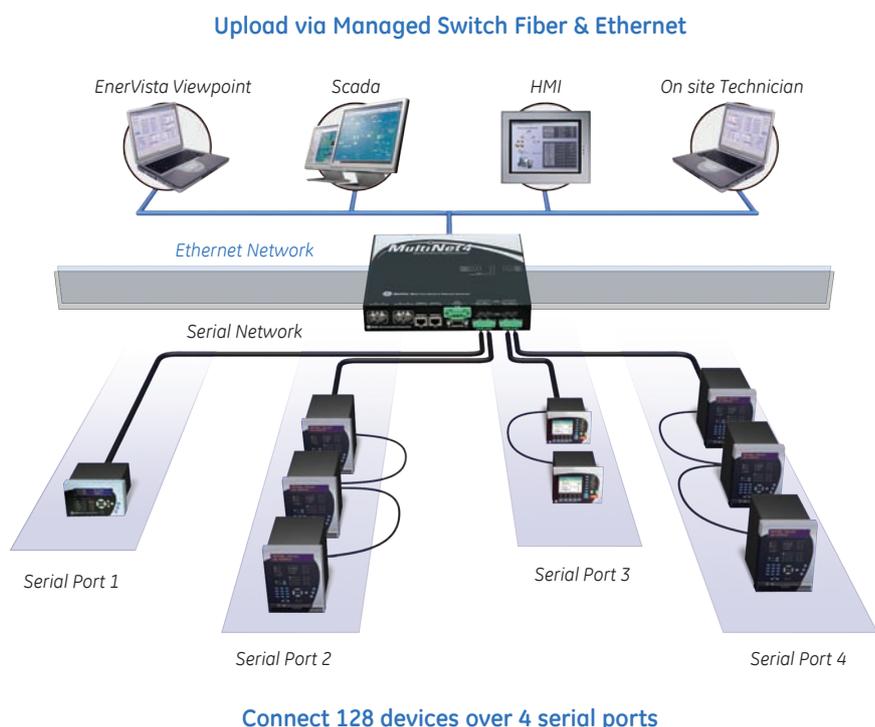## The easiest way to add Ethernet communications to ModBus devices

In addition to connecting serial devices to the network, MultiNet4's built in 4-port Ethernet switch provides highly reliable network connectivity, both upstream to SCADA and management applications, as well as downstream to other Ethernet devices. With options for 100Base-FL fiber optic interfaces MultiNet4 is designed for applications where long cable runs, EMI/RFI immunity, and the inherent electrical isolation that optical fiber offers is required. With multiple options for connection port types, MultiNet4 can connect to almost any Ethernet device and ensures connectivity through fast recovery from broken links using Link Loss Alert (LLA). In addition, the built-in 4-port Ethernet switch is fully-managed and configurable and provides users with the ability to finely control, view, and manage MultiNet4 as part of the network. The MultiNet switches support most 802.1 network management features and are configurable using either Command Line Interface (CLI) or our Web Management Interface. Management functionality includes :

- SNMPv3 for secure switch management
- Web Management Interface for easy administration
- RSTP (802.1w), VLAN (802.1q) and QoS (802.1p) for network traffic optimization
- Port Mirroring to assist network troubleshooting

Enhanced Network Security

MultiNet4 includes advanced techniques for providing security in network communications including:

- SNMP v1/v2/v3 for secure access to network devices via authentication and encryption
- Embedded RADIUS support for remote access and password control
- SSL Web encryption to secure and ensure integrity of users and data
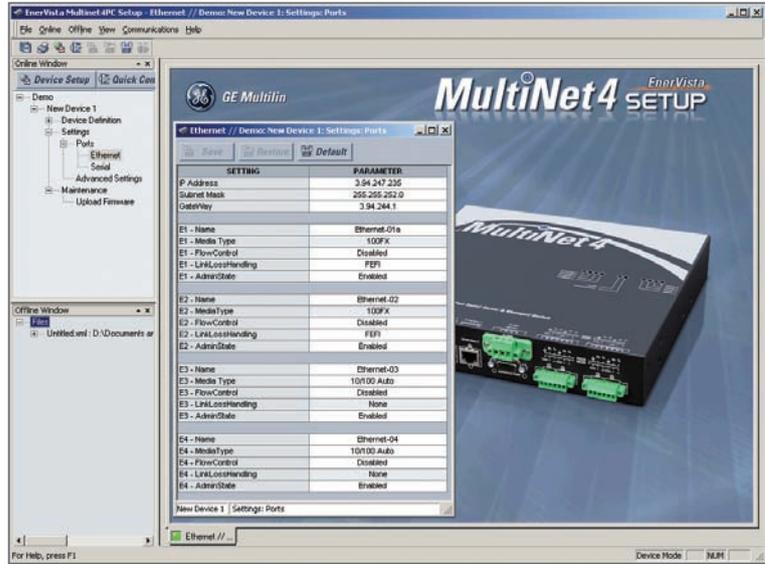- Port Security to block unauthorized MAC addresses
- Event Logging and

Upload via Managed Switch Fiber & Ethernet

EnerVista Viewpoint · Scada · HMI · On site Technician

Ethernet Network

Serial Network

Serial Port 1

Serial Port 2

Serial Port 3

Serial Port 4

Connect 128 devices over 4 serial ports

Part of your complete Industrial Networking solution

Like all Multilin products, MultiNet4 is designed and built by the same people who build GE Multilin IEDs and relays, and are designed as part of complete solution for utility and indiustrial applications. Because of this, MultiNet4 is designed not only to work with any standard serial device, but is fully supported by the Viewpoint Monitoring and EnerVista Integrator software packages, allowing integration of the status of the Local Area Networks and Alarming of Network problems and Security Alerts into your Monitoring and Control Systems.

- SNTP for synchronizing the switch's internal clock
- Event Logs for a historical record of events occurring on the network

Quick and Easy Setup

MultiNet4 is supported by GE Multilin's PC Setup Application, a Windows-based software program for installing and configuring the communication drivers that allows complete configuration and setup with a few mouse-clicks. MultiNet4 uses non-volatile flash memory for firmware storage. This allows future product upgrades to be loaded with ease.

Quick and Easy Setup with EnerVista

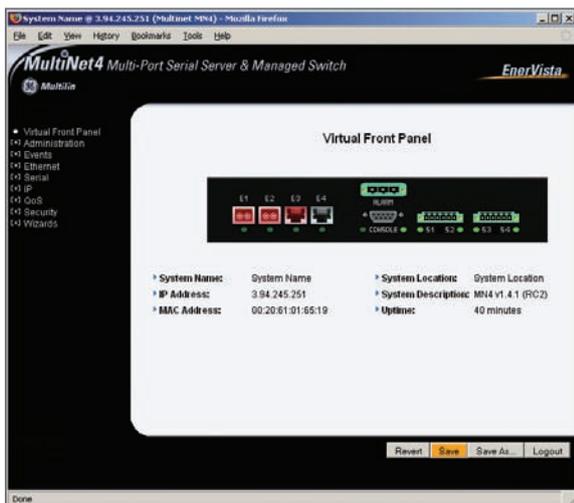## Designed for industrial and utility environments

MultiNet4 was designed for industrial and utility applications. Unlike traditional communication devices, MultiNet4 is industrially hardened to withstand the harshest environmental conditions.

- Internal DC and AC Power supply
- DIN rail Mounting
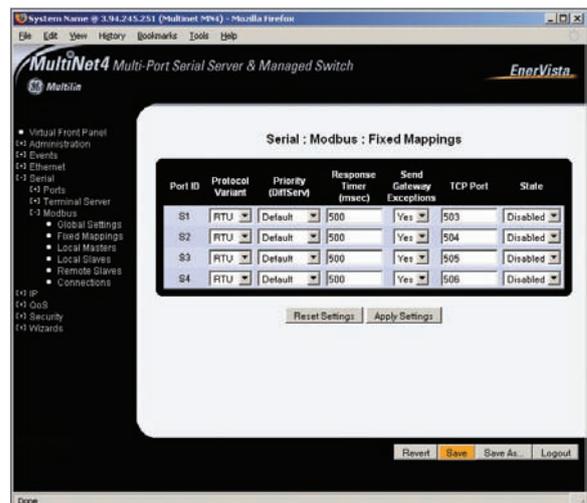- Transients Protection (IEC and IEEE standards)

MultiNet4 is compatible with all GE Multilin IEDs

MultiNet4 provides a simple way to add Ethernet communications to your existing devices, and its convenient size can be accommodated easily in any panel. MultiNet4 can be used with any GE Multilin or any other standard ModBus device, including:

- PQM Meters/PQMII – Meters
- M Series
- SR Series
- DDS

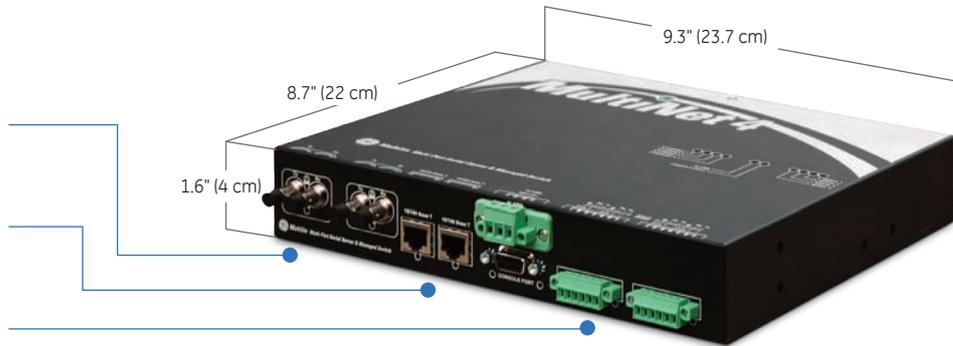*EnerVista Provides User-Friendly Configuration and Network Monitoring*

Port Configuration

Supports up to 2x 100 Mbit LC/SC/ST Fiber Ports

Supports up to 4x 10/100 Mbit Copper Ethernet Ports

4 independently configurable and discrete RS-485/RS-232 Serial Ports

9.3" (23.7 cm)

8.7" (22 cm)

1.6" (4 cm)

Technical Specifications

USER INTERFACES
Ethernet
- Version 2.0/IEEE 802.3
- 10/100BaseT: RJ45 connection
- 10/100BaseF: multi-mode or single-mode, fiber optic with ST, SC, or LC connectors
- ModBus® TCP/IP

RS485 ports
- RS485/RS232 2-wire, half duplex, isolated
- Baud Rate: 600 bps to 115 Kbps
- Protocol: ModBus® RTU

Installation
- Configuration screen through Telnet Interface
- Configuration through enerVista setup software
- Configuration via Web Management Interface

MECHANICAL
Mounting:	DIN-rail (35 mm) Flush mount brackets
Material:	Metal enclosure
Dimensions:	
Shipping box:	
Ship weight:	

ENVIRONMENTAL
Humidity:	95% non-condensing
Operating Temp.:	-40°c, 16 hours (60068-2-1) 85°c, 16 hours (60068-2-2)
Storage Temp.:	-40 to 85°C
IP rating:	IP20

POWER SUPPLY
DC power:	90 to 250 VDC (HI) or 24 to 48 VDC (LO)
AC power:	90 to 250 VAC 50/60 Hz

APPROVALS
ISO:	Manufactured to an ISO9001 registered program
UL:	Listed for US and Canada under E83849
CE:	EMC:EN 50082-2
Safety:	IEC 1010-1

TYPE TESTS
Conditions:	IEC60255-6
ESD:	IEC60255-22-2
	IEEE C37.90.3
Surge Immunity:	IEC 60255-22-5
Fast Transient:	IEC 60255-22-4
	IEEE C37.90.1
	IEC 61850-3
Oscillatory:	IEEE C37.90.1
	IEC 60255-22-1
Dielectric Strength:	IEC 60255-5

TYPE TESTS (CONTINUED)
Insulation Resistance:	IEC 60255-5
Impulse Voltage:	IEC 60255-5
Power Fr. Magnetic Field:	IEC 61000-4-8
	IEC 61850-3
Pulse Magnetic Field:	IEC 61000-4-9
Voltage Dip/ Interruption:	IEC 61000-4-11
	IEC 61850-3
RF cond. & radiated emission:	IEC 60255-25
	IEC 61850-3
RF Conducted Immunity:	IEC 60255-22-6
	IEC 61000-4-6
	IEC 61850-3
RF Radiated Immunity:	IEC 60255-22-3
	IEC 61000-4-3
	IEC 61850-3
	IEEE C37.90.2

TYPE TESTS (CONTINUED)
Digital Port. Tel. Immunity:	IEC 50204
Temperature:	
Cold:	IEC 60068-2-1
Hot:	IEC 60068-2-2
Relative humidity:	IEC 60068-2-30
Sinusoidal Vibration:	IEC 255-21-1
Ingress Protection:	IEC 60529
Electrostatic Discharge	IEC61000-4-3
	IEC61850-3
Surge Immunity	IEC61000-4-5
	IEC61850-3
Damped Magnetic Immunity	IEC61000-4-10
	IEC61850-3
Damped Oscillatory Burst	IEC61000-4-12
	IEC61850-3
Power Supply Ripple	IEC61000-4-17
	IEC61850-3
Voltage Dips & Interrupts	IEC61000-4-29
	IEC61850-3
Non-destructive transient	NEMA TS2
Power Transients:	
Low Repetition	NEMA TS2
High Repetition	NEMA TS2 2.1.6.1
Transient I/O Terminals	NEMA TS2 2.1.7.1
Humidity	NEMA TS2 2.1.5
Shock	NEMA TS2 2.2.9
Operating Voltage	NEMA TS2 2.1.2
Operating Frequency	NEMA TS2 2.1.3
Vibration	MIL-STD-167-1

Please refer to MultiNet4 Serial Server & Managed Switch Instruction Manual for complete technical specifications.
Note: specifications are subject to change without notice.

Ordering

MultiNet4 - ** - XX - ** - X

Base Unit	HI	MultiNet4 Chassis with Universal 90-250VDC / 90-250 VAC Power Supply and 2x 10/100 RJ45 Copper
	LO	MultiNet4 Chassis with 24-48 VDC Power Supply and 2x 10/100 RJ45 Copper
Ethernet Module	A1	2x 100 Mb ST mm Fiber
	A2	2x 100 Mb ST sm Fiber 15km
	A3	2x 100 Mb ST sm Fiber 30km
	A4	2 x 100 Mb ST sm Fiber 60km
	A5	2x 100MB SC mm Fiber
	A6	2x 100MB SC sm Fiber 15km
	A7	2x 100MB SC sm Fiber 30km
	A8	2x 100MB SC sm Fiber 60km
	A9	2x 100MB LC mm Fiber
	AA	2x 100MB LC sm Fiber 15km
	AB	2x 100MB LC sm Fiber 40km
	AD	2x 10/100 RJ45 Copper
	X	Standard Environment

Accessories for the MultiNet4:

- Multinet4 DIN Rail Mounting Accessories
- Multinet4 19" Rack Mount Bracket Accessories
- Multinet4 Panel Mount Bracket Accessories
- Multinet4 Reverse 19" Rack Mount Bracket Accessories

Visit www.GEMultilin.com/Multinet4 to:

- Download the instruction manual
- Review applications notes and support documents
- Buy a MultiNet4™ online
- View the MultiNet4™ brochure