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AAA

DNP3 ROUTER

The DNP3 Router provides intelligent data routing between EtherNet/IP and DNP3 (serial, Ethernet UDP, or Ethernet TCP) with built-in secure communications.

- DNP3 Master or DNP3 Outstation operation in ControlLogix & CompactLogix Controllers
- DNP3 Outstation for Micro M850 Controller
- Direct-To-Tag mapping to Logix
- Supports 100,000 events per event group type
- Supports DNP3 Secure Authentication
- Supports Report-by-Exception (unsolicited responses)
- Formats complex DNP3 variants to Logix UDTs
- Easy implementation of all DNP3 Command functions

Overview

The DNP3 Router is able to transfer data from various DNP3 devices to a maximum of three Logix controllers. The module operates in one of three modes, simplifying the configuration for all applications.

Mode	Description	Message Initiator
Reactive Tag	The DNP3 Router will convert DNP3 messages to Logix controller tag reads or tag writes.	Remote Device
Scheduled Tag	The DNP3 Router transfers data between a DNP3 device and a number of Logix tags, using a preconfigured scheduled. No Logix or remote device configuration is required.	DNP3 Router
Unscheduled	The DNP3 Router transfers messages received from a Logix Message Instruction.	Logix (Msg)

The DNP3 Router is configured using the Aparian Slate application. This program can be downloaded from www.aparian.com free of charge. Slate offers various configuration methods, including a controller tag browser.

The module can operate in both a Logix "owned" and standalone mode. With a Logix connection the input and output assemblies will provide additional diagnostics information which will be available in the Logix controller environment.

The DNP3 Router allows the user to integrate DNP3 devices into a Logix system with minimal effort. No copying or mapping of data in the Logix controller is required as the DNP3 Router writes directly into Logix tags.

The DNP3 Router also provides DNP3 Secure Authentication 5 which enables the user to connect DNP3 devices to a Logix platform securely. The module also provides a range of statistics and traffic analyser to help fault find any problems.

The DNP3 Router supports DNP3 on three ports which can be configured from the Slate environment; Serial, Ethernet TCP, or Ethernet UDP.

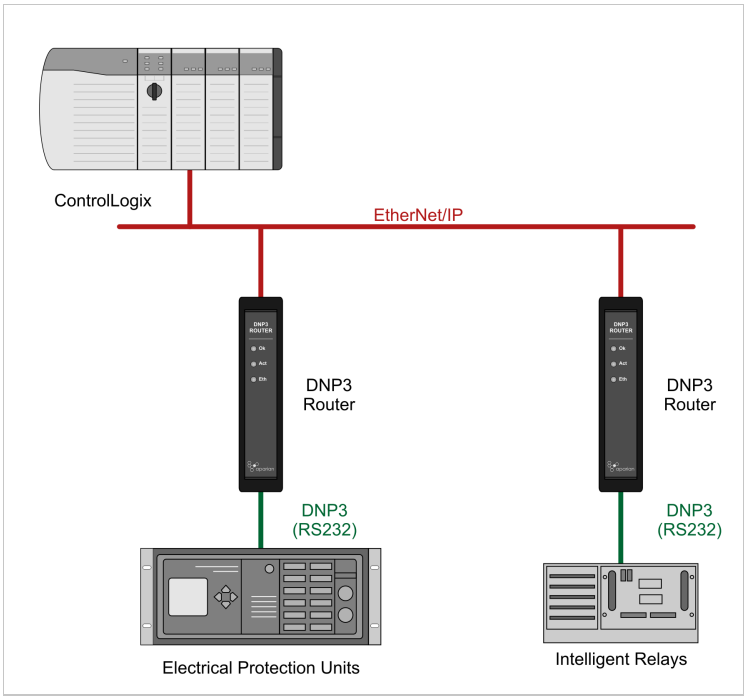
Previously complicated data mapping is made easy by precompiled UDTs which converts the various DNP3 data formats into sensible data in the Logix environment.

The module uses isolated RS232 for DNP3 serial communication providing better noise immunity. The RS232 port also uses a terminal block for convenient installation.

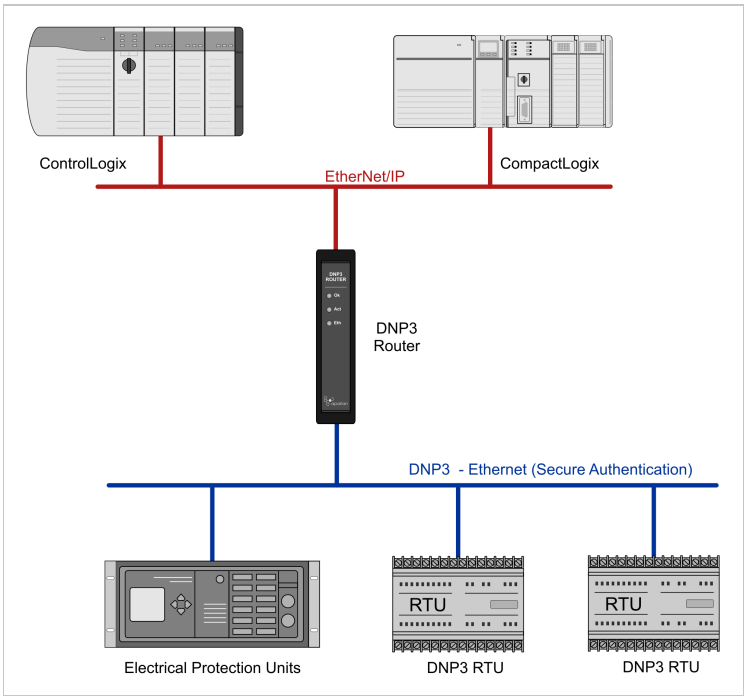
A built-in webserver provides detailed diagnostics of system configuration and operation, including the display of received DNP3 operation and communication statistics, without the need for any additional software.

Application

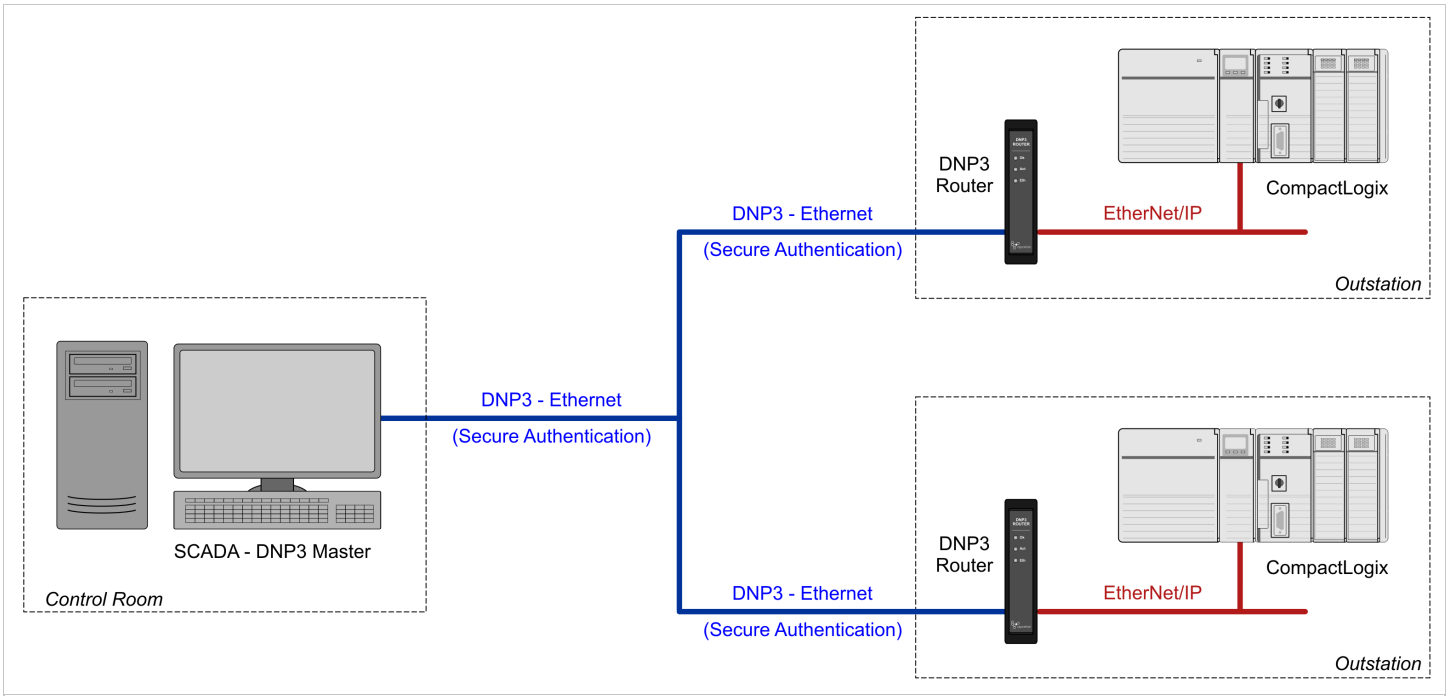
Example of a typical network setup in Scheduled/Unscheduled Tag Mode:



Typical network setup with Secure Authentication:



Example of a typical network in Reactive Tag Mode:



Specification

Electrical

Specification	Rating
Power requirements	Input: 10 – 28V DC, (70 mA @ 24 VDC)
Power consumption	1.7 W
Connector	3-way terminal
Conductors	24 – 18 AWG
Enclosure rating	IP20, NEMA/UL Open Type
Temperature	-20 – 70 °C
Earth connection	Yes, terminal based
Emissions	IEC61000-6-4
ESD Immunity	EN 61000-4-2
Radiated RF Immunity	IEC 61000-4-3
EFT/B Immunity	EFT: IEC 61000-4-4
Surge Immunity	Surge: IEC 61000-4-5
Conducted RF Immunity	IEC 61000-4-6

Ethernet

Specification	Rating
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP connections	Max 20
TCP connections	Max 20
CIP connections	Max 10
Communication rate	10/100Mbps
Duplex mode	Full/Half
Auto-MDIX support	Yes

Serial Port (RS232)

Specification	Rating
Connector	4-way terminal
Conductor	24 – 18 AWG
Isolation voltage	2.5 kV
BAUD	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Parity	None, Even, Odd

DNP3

Specification	Rating
Reactive Tag Mode	Max 30 mapping items
Scheduled Tag mode	Max 30 mapping items
	Read Write Select/Operate

Application Functions Supported	Direct-Operate Direct-Operate-No-Response Confirm (only in Reactive Mode) Immediate Freeze (only in Reactive Mode) Immediate Freeze No Response (only in Reactive Mode) Immediate Freeze and Clear (only in Reactive Mode) Immediate Freeze and Clear No Response (only in Reactive Mode) Cold Restart (only in Reactive Mode) Enable / Disable Unsolicited Messages (only in Reactive Mode) Delay Measure (only in Reactive Mode) Record Current Time (only in Reactive Mode) Unsolicited Response (only in Reactive Mode) Authentication Request Authentication Response
Maximum DNP3 objects per request	30
Maximum DNP3 request size per mapped item in Reactive Tag Mode	1000 bytes
Maximum DNP3 request size per mapped item inScheduled Tag Mode	230 bytes
Maximum Logix Controller support	3
Unsolicited Response support	Yes
Unsolicited Response support	Yes
Maximum event buffer per DNP3 group	100,000 (total of 900,000)
Number of Commands per Request	1
Event Read Interval	10ms

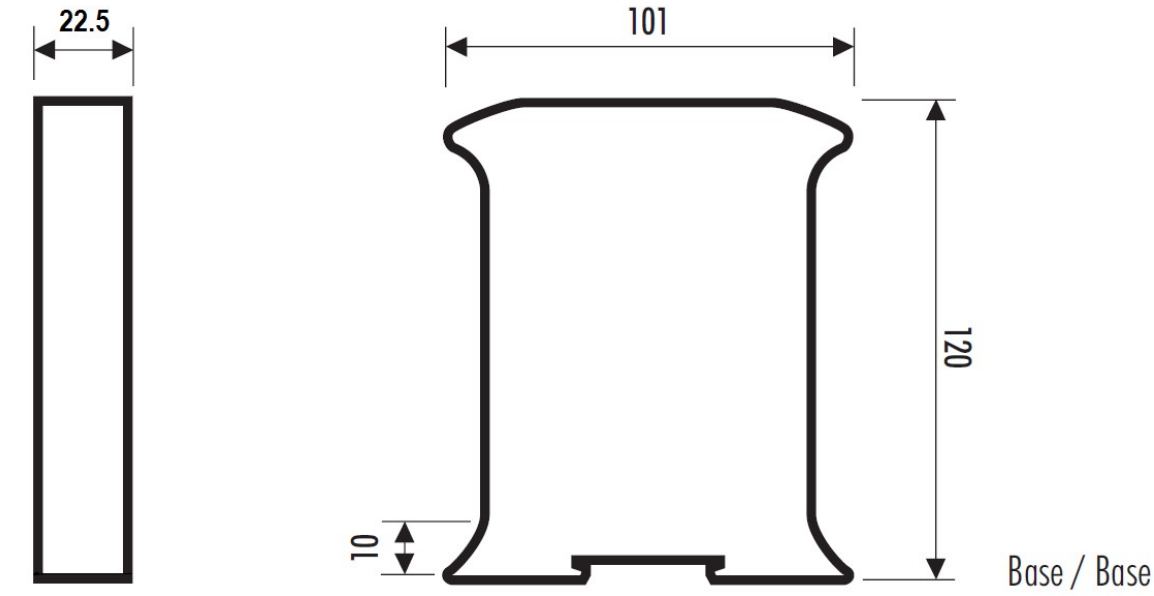
DNP3 Secure Authentication

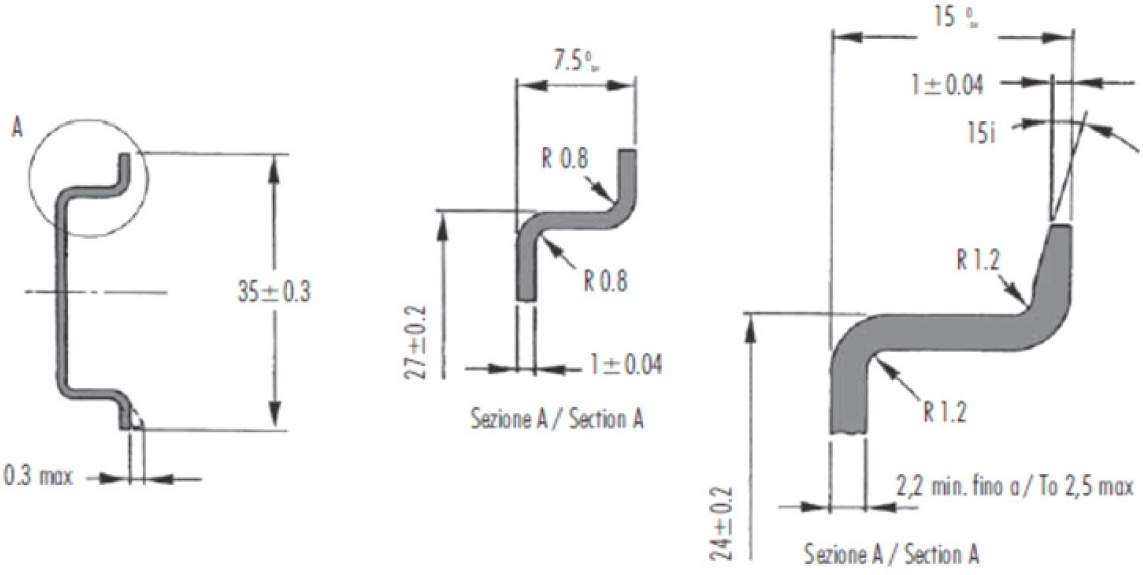
Specification	**Rating**
Key Change Method Supported	Pre-shared
MAC Algorithms Supported	HMAC SHA-1 encryption (4 octets – serial) – for legacy support HMAC SHA-1 encryption (8 octets – serial) HMAC SHA-1 encryption (10 octets – networked) HMAC SHA-256 encryption (8 octets – serial) HMAC SHA-256 encryption (16 octets – networked) AES-GMAC (12 octets)
Key Wrap Algorithms Supported	AES-128 Key Wrap AES-256 Key Wrap
Aggressive Mode Supported	Yes

Certifications

Specification	Rating
CE Mark	
RCM	
UL Listed FILE: E494895	 CLASS 1, DIV 2, GROUPS A, B, C, D
ODVA Conformance	
RoHS2 Compliant	

Dimensions





Downloads

Documents

DNP3 Router Quick Start Guide 1.0	Size : 342.17 KB	Type : PDF	Download
DNP3 Router User Manual 1.17	Size : 6.34 MB	Type : PDF	Download
DNP3 Brochure 1.3	Size : 1.43 MB	Type : PDF	Download
DNP3 Router Datasheet 1.9	Size : 841.87 KB	Type : PDF	Download
App Note - Logix DNP3 Outstation Setup 1.0	Size : 2.25 MB	Type : PDF	Download
App Note - Micro800 DNP3 Outstation Setup 1.2	Size : 1.96 MB	Type : PDF	Download

Examples

DNP3 Outstation Logix Example 4.0	Size : 6.02 MB	Type : ZIP	Download
DNP3 Master Logix Example 1.0	Size : 4.93 MB	Type : ZIP	Download
DNP3 Outstation Micro800 Example 1.0	Size : 1.45 MB	Type : ZIP	Download
DNP3 Unscheduled Logix Example 1.0	Size : 297.04 KB	Type : ACD	Download
DNP3 Remote Key Change Example 1.0	Size : 298.06 KB	Type : ACD	Download

EDS Files

DNP3 Router EDS File 1.3	Size : 3.62 KB	Type : EDS	Download

Firmware

DNP3 Router Firmware 1.020	Size : 349.27 KB	Type : AFB	Download
DNP3 Firmware Release Notes 1.020	Size : 645.15 KB	Type : PDF	Download

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