DATASHEET

CANopen Router
A-CANOR/B

The A-CANOR/B CANopen® Router/B provides intelligent data routing between either EtherNet/IP™, Modbus® RTU or Modbus TCP/IP® and the CANopen bus network. This allows the user to easily integrate CANopen devices into a Rockwell® Logix platform (e.g. ControlLogix® or CompactLogix™) or any Modbus device.

The A-CANOR/B can be configured to be either a CANopen Master or Slave allowing the user to not only integrate CANopen devices into a Logix or Modbus system, but to also allow the user to use Logix, Modbus, or EtherNet/IP devices in an existing CANopen network (by using the CANopen Router B in Slave mode). In a Logix system the module can use Direct-To-Tag technology allowing CANopen devices to exchange data with a Logix controller without the need to write any ladder or application code in Studio 5000.

The module provides a range of statistics to simplify the diagnostic process as well as a CANopen packet capture for remote diagnosis. A built-in webserver provides detailed diagnostics of system configuration and operation, including the display of CANopen operation and communication statistics, without the need for any additional software.

Features

- CANopen Master or Slave.
- The router can be configured as an EtherNet/IP Target or Originator**,** Modbus Master or Slave, to read/write data from a CANopen network.
- EtherNet/IP Class 1 connection for Target and Originator as well as Explicit Messaging.
- Modbus RTU (RS-232 and RS-485) or Modbus TCP/IP.
- Support for up to 124 CANopen Slaves (when in Master mode).
- CANopen Slave mode can emulate up to 128 PDOs with various CANopen node addresses.
- Support for up to 32 PDOs (receive and transmit) per CANopen Slave.
- Support for mapping of 128 SDOs with any type of operating interface.
- Time synchronization of the CANopen network.
- Direct-To-Tag technology for Logix controllers.
- Advanced diagnostics including packet capture and web server.
- Dual Ethernet ports which support DLR (Device Level Ring).
- NTP (Network Time Protocol) for external time synchronization.
- Master Mode supports NMT message to initialize network.
- Supports CANopen LSS Node and Bit Rate assignment.
- Supports CiA 443 Bootloader Auto-enable.
- Supports all error and emergency (EMCY) messages and handling.
- Supports all CANopen Baud rates.

Configuration

- The Slate Configuration Utility software is used for configuration and troubleshooting of the module. The stand-alone configuration utility allows users to define the setup and configuration of the CANopen Router/B module, connections with controllers and devices.
- The configuration utility can be downloaded from www.prosoft-technology.com

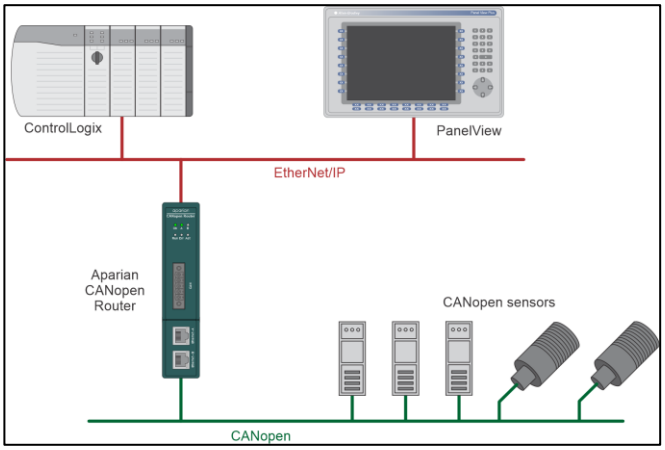

Figure 1 - CANopen Router with a Logix Controller

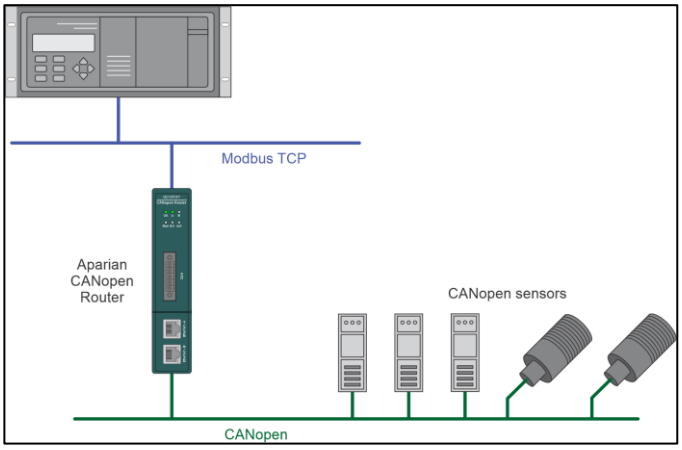

Figure 2 - CANopen Slaves to a Modbus TCP/IP Client

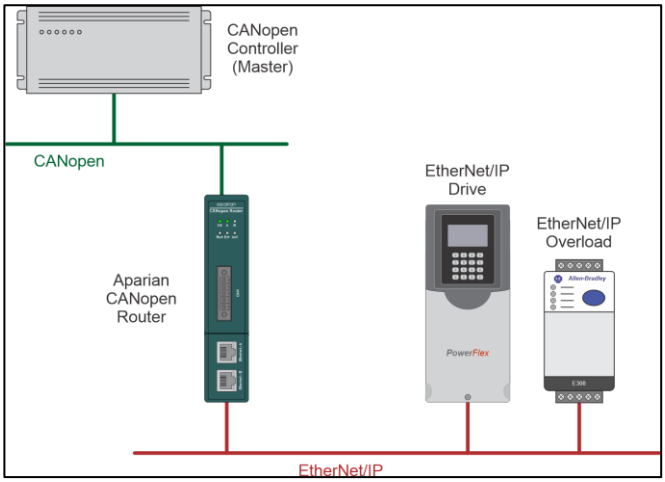

Figure 3 – CANopen Router as an EtherNet/IP Originator

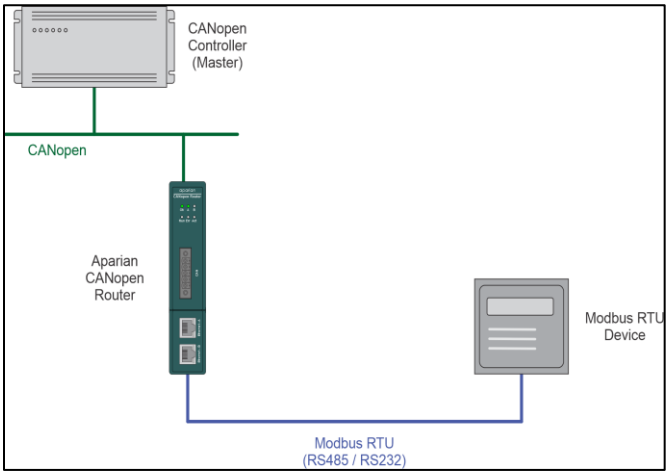

Figure 4 – Modbus Device acting as a CANopen Slave via the CANopen Router

A-CANOR/B configured as a CANopen master can connect to a maximum of 124 CANopen slave devices. The process data objects (PDOs) from each slave device can be mapped to a Modbus master, Modbus slave, EtherNet/IP target or an EtherNet/IP originator.

A-CANOR/B configured as a CANopen slave can emulate up to 128 PDOs per from various node addresses.

A-CANOR/B configured as a EtherNet/IP target an use one of two methods to read/write data from an existing CANopen network:

- **Direct-To-Tag technology**: This allows the CANopen Master or Slaves to exchange data with a Logix controller without the need to write any ladder or application code in Studio 5000. The CANopen data is directly read from, or written to, Logix tags.
- **EtherNet/IP Class 1 connection**: A remote EtherNet/IP device (e.g. a Logix controller) establishes a number of Class 1 connections to the module. CANopen data can be mapped into two separate input and output class 1 cyclic connections to the Logix controller (allowing up to 1KB input and 1KB output to be exchanged at the requested packet interval – RPI).

A-CANOR/B configured as a EtherNet/IP originator can use the following methods to read/write data from an existing CANopen network:

- **EtherNet/IP Explicit Messaging**: This allows the CANopen Master or Slaves to exchange data with up to 5 EtherNet/IP devices. The module can use either Class 3 or Unconnected Messaging (UCMM) to Get and Set data in the remote EtherNet/IP devices.
- **EtherNet/IP Class 1 connection**: CANopen data (from either CANopen Master or Slaves) can be mapped to a max of 5 EtherNet/IP devices using input and output class 1 cyclic connections. This will allow the CANopen Router/B to “own” the EtherNet/IP target device and exchange CANopen data using the EtherNet/IP device’s input and output assemblies.

A-CANOR/B can be configured as a Modbus master to read/write data from any CANopen master or slave devices. The data can then be exchanged with other Modbus master or slave devices.

A-CANOR/B can be configured as a Modbus slave to read/write data from any CANopen master or slave devices. The data can then be accessed by other Modbus master devices.

Specifications

Ethernet

Specification	Description
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP Connections	200 max.
TCP Connections	200 max.
CIP Connections	15 max.
Communication Rate	10/100 Mbps
Duplex Mode	Full / Half
Auto-MDIX Support	Yes
Embedded Switch	Yes, 2x Ethernet ports
Device Level Ring (DLR)	Yes
Network Time Protocol	Yes

Serial Port (RS-232)

Specification	Description
Connector	9-way terminal (shared with RS-485)
Conductor	24 to 18 AWG
Electrical Isolation	1000 VDC
Supported Baud Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Parity	Even, Odd, None
Data Bits	8
Stop Bits	1

Serial Port (RS-485)

Specification	Description
Connector	9-way terminal (shared with RS-485)
Conductor	24 to 18 AWG
Electrical Isolation	1500 Vrms for 1 minute
Supported Baud Rates	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Parity	Even, Odd, None
Data Bits	8
Stop Bits	1

CANopen Network

Specification	Description
Connector	5-way terminal, 5.08 mm pitch.
Modes	Master, Slave
Supported Baud Rates	10k, 20k, 50k, 125k, 250k, 500k, 800k,1M
CANopen Terminator	120 Ω (Software enabled)

CANopen Master

Specification	Description
CANopen Slave Count	124
PDO Count per Device	32
SDO Mapping Count	128
CANopen Slave Auto Parameterize	Yes
CiA 443 Bootloader Auto-enable Support	Yes
NMT Messages	Operational Control (e.g. Stopped, Pre-operational, Operational), SYNC, TIME, EMCY
Layer Setting Services (LSS)	Node and BitRate assignment supported
Implementation	CiA 301 v4.2.0

CANopen Slave

Specification	Description
PDO Emulation Count	125
Emulated Devices Supported	125
MPDO Supported	Yes

EtherNet/IP Target

Specification	Description
Class 1 Cyclic Connection Count	4
Logix Direct-to-Tag Supported	Yes

EtherNet/IP Originator

Specification	Description
Class 1 Cyclic Connections Supported	Yes
Class 3 / UCMM Connections Supported	Yes
Class 1 Connection Count	5
Class 3 / UCMM Target Device Count	5
Class 3 / UCMM Mapping Count	50

Modbus

Specification	Description
Modes Supported	Modbus TCP/IP, Modbus RTU (RS-232, RS-485)
Modbus RS-485 Termination	125 Ω (Software enabled)
Max. Slave devices (Client/Master only)	20
Modbus Mappings (Client/Master only)	100 max.
Mapping Ranges	Holding Register: 0 to 65535 Input Register: 0 to 65535 Input Status: 0 to 65535 Coil Status: 0 to 65535
Base Offset	Modbus (Base 0); PLC (Base 1)
Configurable Modbus TCP Port	Yes
Data Reformatting Supported	BB AA BB AA DD CC CC DD AA BB DD CC BB AA

Hardware

Specification	Description
Power Supply	Input: 10 to 32 VDC, (70 mA @ 24VDC)
Power Consumption	2.2 W max.
Dimensions (H x W x D)	148.0 x 34.0 x 116.0 mm
Connector	3-way terminal
Conductors	24 to 18 AWG
Enclosure Rating	IP20, NEMA/UL Open Type
Temperature	-20 to 70 °C
Earth Connection	Yes, terminal based
Emissions	IEC 61000-6-4
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
PDO Emulation Count	125
Emulated Devices Supported	125
MPDO Supported	Yes

Agency Approvals & Certifications

Please visit our website: www.prosoft-technology.com

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To order this product, please use the following:

CANopen Router

A-CANOR/B

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft Technology distributors near you, go to: www.prosoft-technology.com and select *Where to Buy* from the menu.