

# DATASHEET

## CANopen Router A-CANOR/B

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

The module 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 also 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.

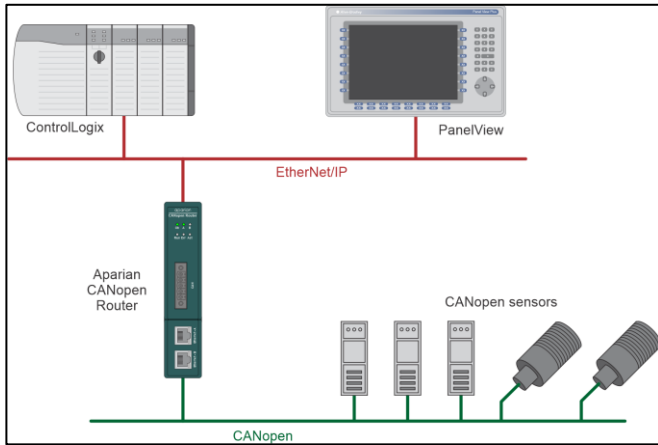


### Features

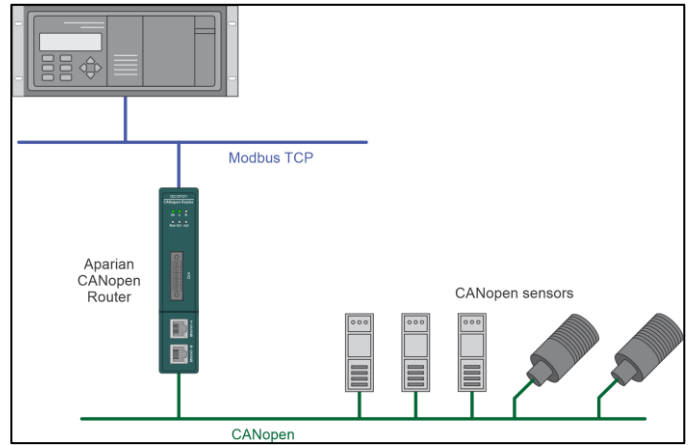
- ◆ CANopen Master or Slave.
- ◆ The router can be configured as an EtherNet/IP Target or Originator, Modbus Master or Slave, to read/write data from a CANopen network.
- ◆ EtherNet/IP, Modbus RTU (RS-232 and RS-485) or Modbus TCP/IP.
- ◆ Support for up to 124 CANopen Slaves (when in Master mode).
- ◆ 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 supports 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.

### Configuration

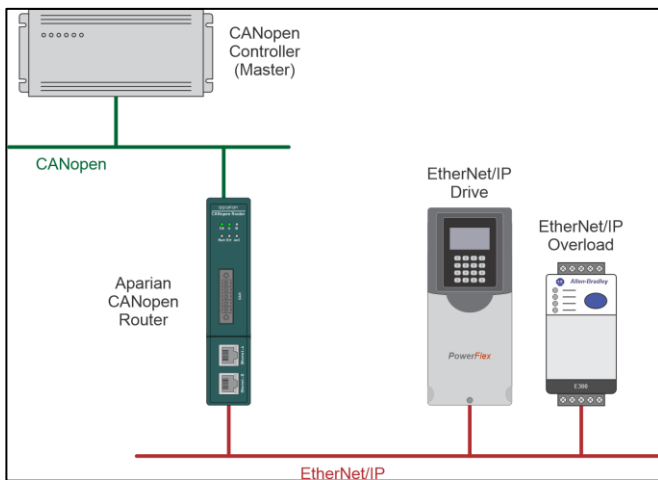
- ◆ The Slate Configuration Utility software is used for configuration and troubleshooting of the module. The stand-alone configuration utility allows users to define the setup and configuration of the CANopen Router/B module, connections with controllers and devices.
- ◆ The configuration utility can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



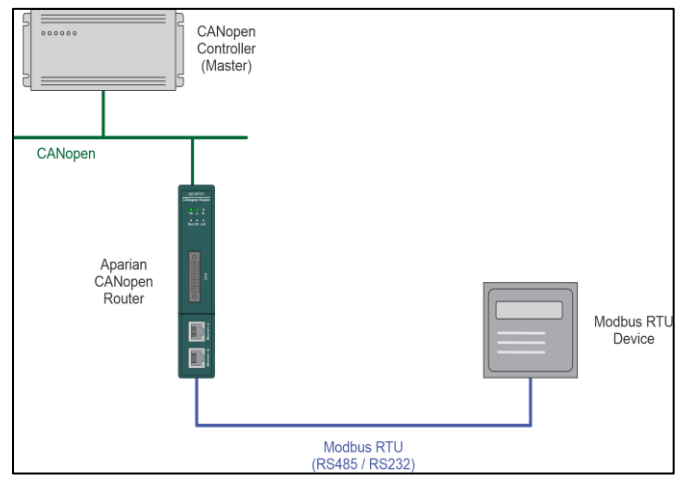
**Figure 1 - CANopen Router with a Logix Controller**



**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 an EtherNet/IP target can 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 an 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 $\Omega$ (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) Implementation	Node and BitRate assignment supported CiA 301 v4.2.0



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## 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 $\Omega$ (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](http://www.prosoft-technology.com)



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## CANopen Router

A-CANOR/B

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