Industrial Protocol Converter

USR-PX511

Introduction

The USR-PX series are the latest industrial protocol converters for automation applications lunched by PUSR. With simple parameter configuration, these devices enable efficient conversion between major industrial protocols including EtherCAT, PROFINET, CANopen, and Modbus and will continue to expand, bridging industrial communication between different protocols.

The USR-PX511 model in this series is a **CANopen to Modbus** industrial field bus protocol converter. On the CANopen side, it acts as a CANopen Slave device, featuring 1 CAN interface, 1 RS485 interface, and 1 standard 10/100M Ethernet interface. It easily integrates Modbus slave devices from the industrial field into CANopen master devices.

Product Features

■ Reliability & Stability

- Aluminum casing with IP40 protection
- Industrial-grade design for extreme temperatures (-40°C to +85°C)
- Wide-voltage input (DC 9-36V) with reverse polarity protection
- EMC Level 3 protection, with full isolation for all the power/RS485/CAN/Ethernet interface
- DIN-rail 35mm mounting

■ Rich Interface

- 1 standard CAN port for connecting to CANopen master devices
- 1 standard Ethernet port for data communication with Modbus TCP protocol slaves
- 1 Type-C interface for debugging
- 1 optically isolated RS485 serial port

■ Powerful Functionality

- Configurable IP address, port, slave ID, and register information
- Supports CANopen Slave to Modbus RTU/TCP Master conversion
- Supports up to 1400 input/output bytes, with support for 16 slots
- Supports standard CAN 2.0 protocol
- Supports 128 TPDO groups and 128 RPDO groups
- Up to 16 mapping variables can be added per PDO group
- Supports CAN baud rates from 5kbps to 1Mbps, with user-defined baud rate support
- PC-based parameter configuration software
- Supports network AT command configuration
- Supports firmware upgrades via PC software for easier updates
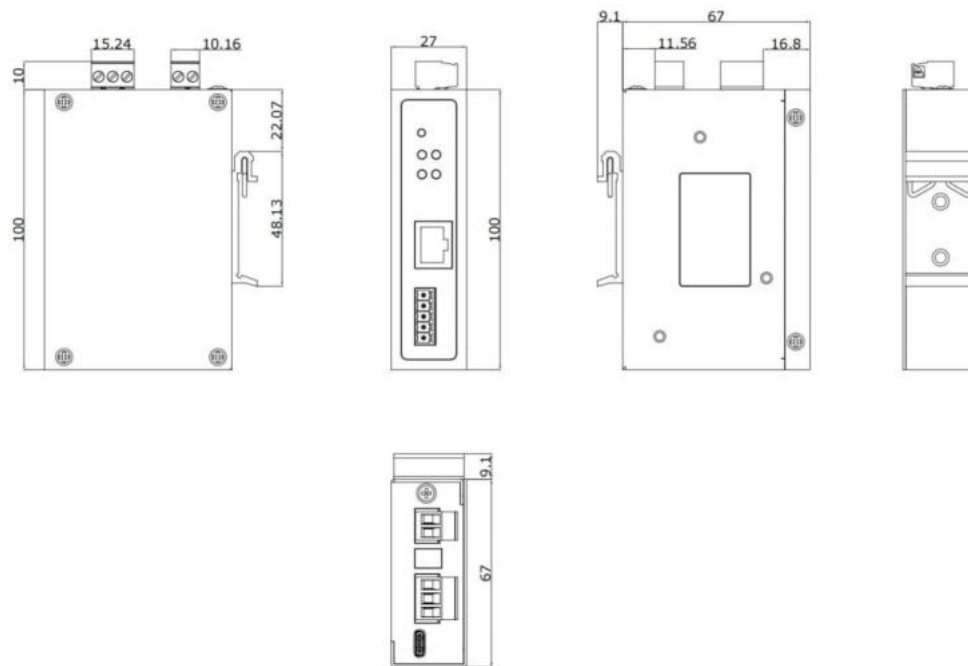
Dimensions

Unit: mm

Figure 1   **Dimension of USR-PX511**

Application

CANopen (PX511)

CANopen Slave to Modbus TCP/RTU Master

CANopen Master   PX511   Modbus TCP slave

EDS file
Export and apply automatically generated EDS files

Customizable Baud Rates
Wide range with arbitration domain baud rates: 5Kbps - 1Mbps

128 PDO Groups
Supports up to 16 mapped variables per transmit/receive group

Modbus TCP/RTU Master
Supports up to 32 RTU slaves or 8 TCP clients simultaneously

Specifications

Catalog	Parameters	Value
Power Supply	Power Input	9-36V DC, 12V/1A is recommended
	Working Current	Idle: 43.97mA/12V (avg), 45.76mA/12V (max); Full load: 46.26mA/12V (avg), 48.35mA/12V (max)
	Connector	5.08×2P pluggable terminal block with anti-reverse and screw lock
RS485 Interface	Connector	3.81×3P pluggable terminal block with screw lock
	Pin	A (RS485 A), B (RS485 B), G (GND)
	Baud rate	600~230.4K bps
	Data bits	8
	Stop bit	1, 2
	Parity bit	None, Odd, Even
Ethernet Port	Ethernet	1× RJ45 port (10/100Mbps, auto MDI/MDIX), for parameters configuration
	Default IP	192.168.0.7
	Gateway IP	192.168.0.1
CAN	Connector	5.08×2P pluggable terminal block
	Pin	H: CAN_H signal L: CAN_L signal GND: CAN ground signal
	Baud rate	5kbps ~ 1000kbps, supports custom baud rates
	Terminal register	Built-in 2 x 120Ω terminal resistor, One DIP switch to ON: one 120Ω resistor in parallel both DIP switches to ON: connects two 120Ω resistors in parallel
Other Interface	Indicators	PWR、WORK、485、CAN
	Reload Button	Press for 3-15s to restore factory settings
	Type-C	Debugging interface for troubleshooting
Physical Parameters	EMC Protection	IEC 61000-4-2(ESD): 6kV contact, 8kV air IEC 61000-4-5(Surge): 2kV common mode, 1kV differential mode for power; 2kV for Ethernet/RS485 IEC 61000-4-4(EFT): 2kV for power, 1kV for Ethernet/RS485
	Isolation	Isolation for both serial, Ethernet, CAN, and power
	Dimension	110×27×76.1mm
	Installation	DIN rail mounting, aluminum housing
	Operating Temperature	-40℃ to +85℃
	Storage Temperature	-40℃ to +105℃ (non-condensing)
	Operating Humidity	5%–95% (non-condensing)
Software	Protocol	CANopen slave to Modbus RTU/TCP master
	CANopen protocol	Supports up to 128 groups of RPDO and TPDO, with each group supporting up to 16 variables at most
	Modbus protocol	When works as Modbus RTU master, it supports up to 255 ModbusRTU slave stations, When works as Modbus TCP master, it acts as a TCP client, and supports only one TCP slave station connection.

	Setup	PX Tool

Ordering Guide

Model	Protocol	Interface
USR-PX520	EtherCAT slave to Modbus RTU/TCP master	2 * EtherCAT, 1 * RJ45, 1 * RS485
USR-PX530	Profinet slave to Modbus RTU/TCP master	2 * Profinet, 1 * RJ45, 1 * RS485
USR-PX511	**CANopen slave to Modbus RTU/TCP master**	**1 * CAN(FD), 1 * RJ45, 1 * RS485**
USR-PX521*	EtherCAT slave to Modbus RTU/TCP master EtherCAT slave to CANopen master	2 * EtherCAT, 1 * RJ45, 1 * RS485, 1 * CAN(FD)
USR-PX531*	Profinet slave to Modbus RTU/TCP master Profinet slave to CANopen master	2 * Profinet, 1 * RJ45, 1 * RS485, 1 * CAN(FD)

*: In processing

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