The PX-TCP2 Modbus TCP Bus Coupler server allows connection of up to 64 terminals and communicates in a Modbus TCP network using high-level Modbus commands and supports 512 bytes input data and 512 bytes output data. The PX-TCP2 consists of two RJ45 Ethernet 10/100 Base T ports for connection to a Modbus client. Use with the Protos X™ I/O System.

**PX-TCP2 – Modbus TCP Bus Coupler with 2 RJ45 Ports**

**OVERVIEW**

- **Bus Coupler Power**
  - 24VDC Power

- **Terminal Bus Power**
  - Terminal Supply Power
  - 24VAC Power
  - 24VDC Power

**PX-TCP2 Ethernet Connection**

- Requires cable PX-USR-232, with a USB 2.0 type A connector for the PC and a 4-pin custom micro connector for the bus coupler. Works with PX-CFGSW software.

**LED Status**

- **Green Power LED (left): Bus Coupler Power**
  - Off: No Bus Coupler Power
  - On: Bus Coupler Power

- **Green Power LED (right): Terminal Bus**
  - Off: No Terminal Bus Power
  - On: Terminal Bus Power

- **Green Ethernet LED: COM**
  - On/Flashing: Receiving Data
  - No data being received

- **Red Ethernet LED: ERROR**
  - Flashing: waiting for IP address if set to DHCP or BootP
  - No Error

- **Green Ethernet LED: WDG**
  - Watchdog is Active

- **Green LED: I/O Bus Data Act (On or Flashing)**
  - No I/O Bus Activity

- **Red LED: I/O ERR**
  - No I/O Bus Error

**Configuration Port**

- Requires cable PX-USR-232, with a USB 2.0 type A connector for the PC and a 4-pin custom micro connector for the bus coupler. Works with PX-CFGSW software.

- **IP Address Setting**
  - When setting the IP Address the first three octets of the address are set using PX-CFGSW software. The fourth octet is set using the dipswitches. See PX-USER-M for full details.

**IP Address**

- 10 BASE-T/100 BASE-TX

**PARTS LIST**

- **Buss Terminal**
  - 8-pin RJ45 Connector

**WIRING DIAGRAM**

- **Cable**
  - Cat5e cable recommended. See PX-USER-M manual for complete details.

- **LED Status**
  - Green LINK LED: ON = Connection Good
  - Flashing = Comm Active
  - Yellow ACT LED: ON = 100 Mbaud
  - OFF = 10 Mbaud

**PX-TCP2 I/O Bus Specifications**

- **Supply Power for I/O Bus**: 24VDC (-15% to +20%)
- **Input Current from Power Supply**: 70mA + (total I/O bus current) / 4
- **Recommended Fuse**: 5A Max.
- **I/O Bus Current Supply**: 1.5A Max
- **Number of Bus Terminals Supported**: 64 per assembly (based on power budget)
- **Number of Discrete Inputs/Outputs**: 512 Inputs and 512 Outputs
- **Number of Analog Inputs/Outputs**: 512 Input bytes and 512 Output bytes
- **Maximum Number of Data Bytes**: 512 Input bytes and 512 Output bytes

**PX-TCP2 Terminal Power Bus Specifications**

- **Supply Power for Terminal Bus**: 24VAC/VDC
- **Maximum Current**
  - 10A
- **Number of Power Contacts**: 3 (2+4 VAC/VDC, 0V PE)

**Configuration Port**

- Receiving Data: No data being received
- On/Flashing:
  - DHCP or BootP.
  - IP address if set to DHCP or BootP.
- ON No Bus Coupler Power
- ON No Terminal Bus Power
- Terminal Bus Power
- Receiving Data: No data being received
- On/Flashing:
  - DHCP or BootP.
  - IP address if set to DHCP or BootP.
- ON No Bus Coupler Power
- ON No Terminal Bus Power
- Terminal Bus Power

**Protocol**

- Modbus TCP

**Data Transfer Rate**

- 10/100 Megabit

**Maximum Cable Length**

- 100m between Master and Coupler to Coupler

**Connection Type**

- Ethernet, 2 x RJ45 (2 Channel Switch)

**Recommended Cable**

- Shielded, Twisted Pair, Cat5e

**Maximum Cable Length**

- 100m between Master and Coupler to Coupler

**Maximum Current**

- 10A

**Supply Power for Terminal Bus**

- 24VAC/VDC

**Number of Analog Inputs/Outputs**

- 128 total

**Number of Discrete Inputs/Outputs**

- 512 Inputs and 512 Outputs

**Supported Bus**

- PX-CFGSW software

**Configuration**

- Dip switches and PX-CFGSW software

**Power In**

- 24VAC 0V

**Terminal Bus Power**

- 24VDC Power

**Bus Coupler Power**

- 24VDC Power

**Environment**

- **Temperature**: -25°C to 85°C
- **Humidity**: 5% to 95%, non-condensing

**Agency Approvals**

- UL File No. E157382, CE

**Dimensions**

- 51 x 100 x 66 mm (2.01 x 3.94 x 2.61 in)

**Weight**

- 170g

**Protection Class**

- IP20

**Overvoltage Category**

- II

**Mounting/Orientation**

- 35mm DIN rail/None

**Environment**

- **Air**
  - No corrosive gases permitted
- **Relative Humidity**: 5% to 95%, non-condensing
- **Storage Temp**: 0°C to 60°C

**Recommended Cable**

- Shielded, Twisted Pair, Cat5e

**Connection Type**

- Ethernet, 2 x RJ45 (2 Channel Switch)

**Maximum Cable Length**

- 100m between Master and Coupler to Coupler

**Dip switches**

- Used to select the type of address assignment. If both DHCP and BootP are set, assignment is by DIP Switches

**Configuration Port**

- Requires cable PX-USR-232, with a USB 2.0 type A connector for the PC and a 4-pin custom micro connector for the bus coupler. Works with PX-CFGSW software.

**IP Address**

- Setting the IP Address the first three octets of the address are set using PX-CFGSW software. The fourth octet is set using the dipswitches. See PX-USER-M for full details.

**Configuration Port**

- Requires cable PX-USR-232, with a USB 2.0 type A connector for the PC and a 4-pin custom micro connector for the bus coupler. Works with PX-CFGSW software.

**IP Address**

- Setting the IP Address the first three octets of the address are set using PX-CFGSW software. The fourth octet is set using the dipswitches. See PX-USER-M for full details.

**Configuration Port**

- Requires cable PX-USR-232, with a USB 2.0 type A connector for the PC and a 4-pin custom micro connector for the bus coupler. Works with PX-CFGSW software.

**IP Address**

- Setting the IP Address the first three octets of the address are set using PX-CFGSW software. The fourth octet is set using the dipswitches. See PX-USER-M for full details.

**Configuration Port**

- Requires cable PX-USR-232, with a USB 2.0 type A connector for the PC and a 4-pin custom micro connector for the bus coupler. Works with PX-CFGSW software.

**IP Address**

- Setting the IP Address the first three octets of the address are set using PX-CFGSW software. The fourth octet is set using the dipswitches. See PX-USER-M for full details.
from an external supply. The PE Bus is available for terminals of 24VAC or 24VDC must be connected to the bus coupler. To add a bus terminal, insert unit onto right side of bus coupler using the tongue and groove at the top and bottom of the unit, pressing gently until it snaps onto the DIN rail. A proper connection cannot be made by sliding the units together on the DIN rail. When correctly installed, no significant gap can be seen between the attached units. Bus connection is made through the six slide contacts located on the upper right side of the units. Add up to 64 bus terminals per bus coupler, including a bus end terminal.

IMPORTANT: For complete assembly instructions and compatibility between terminals see the PX-USER-M manual available for free download at www.automationdirect.com.

Insert unit using tongue and groove molded guide and press gently until it becomes firmly seated on DIN rail.

Where applicable, rotate locking wheel to lock bus coupler.

**WIRING CONNECTION**

Wire connection is made through a spring clamp style terminal. This terminal is designed for a single-conductor solid or stranded wire. Wire connection is made by firmly pushing the screwdriver into the screwdriver slot, inserting the wire into the wire slot and removing the screwdriver, locking the wire into position.

**Wiring Specifications**

- **Connection Type**: Spring Clamp Terminal
- **Wire Gauge / Wire Cross Section**: 28-14 AWG / 0.08 - 2.5mm²
- **Screwdriver Width**: Use screwdriver width 2.5mm (0.10) such as our TW-6D-MSL-2
- **Wire Striping Length**: 9mm

**SAFETY**

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

**Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.**

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call Technical Support at 770-844-4200. This publication is based on information that was available at the time it was printed. At AutomationDirect.com® we constantly strive to improve our products and services, so we reserve the right to make changes to the products and/or publications at any time without notice and without any obligation. This publication may also discuss features that may not be available in certain revisions of the product.

**MODBUS FEATURES**

The PX-TCP2 Bus Coupler functions as a server in a Modbus TCP network. For complete details see the PX-USER-M manual.

**MOUNTING**

For system assembly, first attach a bus coupler by snapping onto 35mm DIN rail and securing into position using the DIN rail locking wheel located on the left side of the coupler. To add a bus terminal, insert unit onto right side of bus coupler using the tongue and groove at the top and bottom of the unit, pressing gently until it snaps onto the DIN rail. A proper connection cannot be made by sliding the units together on the DIN rail. When correctly installed, no significant gap can be seen between the attached units. Bus connection is made through the six slide contacts located on the upper right side of the units. Add up to 64 bus terminals per bus coupler, including a bus end terminal.

**REMOVAL**

A locking mechanism prevents individual units from being pulled off. For bus terminal removal, pull the orange DIN rail release tab firmly to unlatch the unit from the rail. If attached to another terminal unit, slide unit forward until released. For bus couplers, release the DIN rail locking wheel, then pull firmly on DIN rail release tab.

**HOT SWAP NOT PERMITTED**

Always remove power from the system before inserting or removing bus terminals or couplers as failure to do so could cause malfunction or damage to the terminals, couplers or other connected devices.