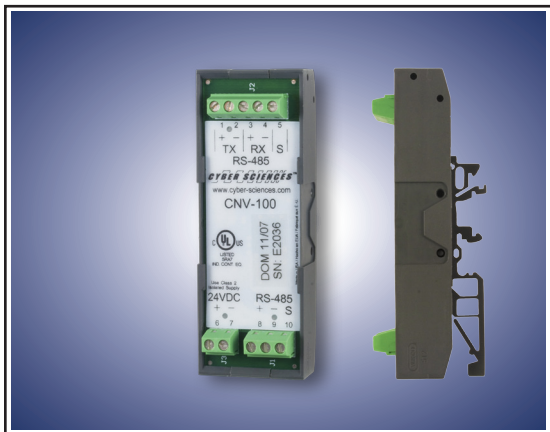


INSTRUCTION BULLETIN

CYBER SCIENCES RS-485 2-wire-to-4-wire Converter CNV-100



The CYBER SCIENCES CNV-100 converter can be used to connect 2-wire Modbus® devices to a 4-wire Modbus RS-485 network or alternatively connect 4-wire Modbus devices to a 2-wire network. Per the Modbus specification (Modbus over Serial Line), both 2-wire and 4-wire interfaces use RS-485 signal levels. The CNV-100 is also suitable for most other protocols that use the RS-485 electrical interface.

The CNV-100 RS-485 converter supports the following baud rates (half duplex):

- 9600 bps
- 19200 bps
- 38400 bps

No adjustment of the unit is required. Other network speeds are not supported.

The CNV-100 converter is designed for DIN-rail mounting. LEDs indicate the presence of 24 Vdc control power and serial data transfer in both directions (2-wire and 4-wire sides).

SAFETY PRECAUTIONS

Testing Note:

The CNV-100 converter has been tested with Square D PowerLogic meters, Masterpact breakers, Micrologic trip units, Sepam relays, and other devices from Schneider Electric. Though initially designed for devices using the Modbus protocol (Modbus RTU), it is compatible with most serial protocols using the RS-485 electrical interface, such as Jbus, Profibus, or BACnet (all over RS-485).

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Only qualified workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical practices. For example, in the USA, see NFPA 70E.
- Turn off all power supplying the equipment in which the device is to be installed before installing and wiring.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Beware of potential hazards, wear personal protective equipment, and carefully inspect the work area for tools and objects that may have been left inside the equipment.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.

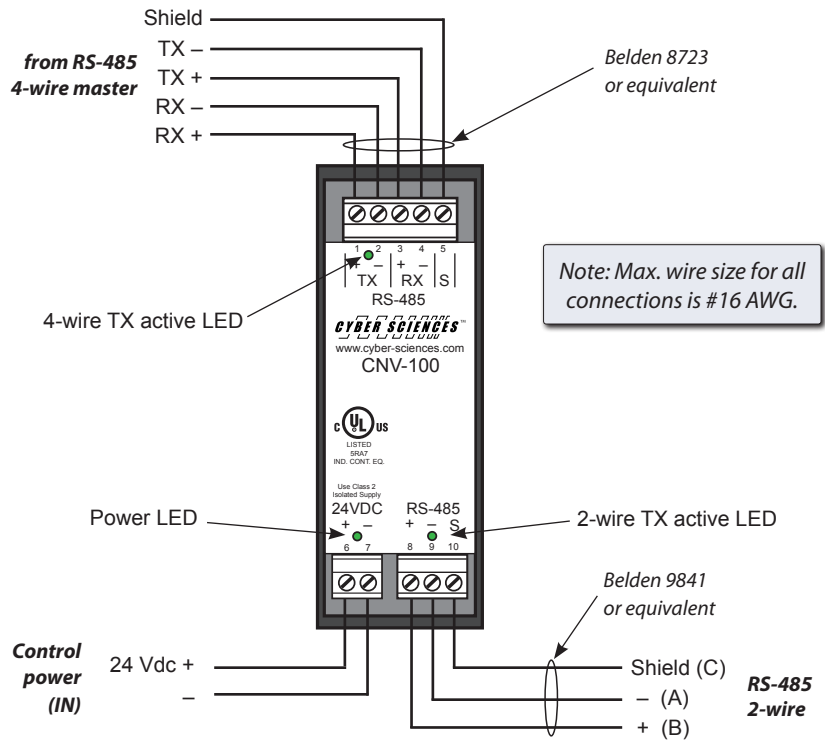
Failure to follow these instructions will result in death or serious injury.

WIRING

The CNV-100 converter's RS-485 4-wire connector (top) and control power and RS-485 2-wire connectors (bottom) are shown below. The CNV-100 can be applied on networks whether the master is on the 4-wire or 2-wire side. Connect the master TX to slave RX and master RX to slave TX pairs. (Plus to plus, minus to minus.)

Installing and Wiring the CNV-100

- 1) Mount the CNV-100 (DIN-rail).
- 2) Wire connections as shown
- 3) Apply 24Vdc power to the CNV-100. (Power LED should be on steady.)
- 4) Test: The 4-wire LED will be on (flash) when valid data from the 2-wire network is re-transmitted over the 4-wire network.
- 5) Test: Conversely, the 2-wire LED will flash when valid data from the 4-wire network is re-transmitted over the 2-wire network.



TECHNICAL SPECIFICATIONS

For More Information

Tech Note: Interoperability of RS-485 2-wire and 4-wire networks (TN-106)

SPECIFICATIONS	
Indicators	Three (3) green LEDs: Indicate control power and RS-485 serial data transfer in both directions (2-wire and 4-wire).
Data Rates	9600, 19200, or 38400 bps
Power Requirements	Approximately 50 mA at 24 Vdc (Class 2, Isolated Power Supply, 3kV isolation)
Isolation	No isolation is provided by this device. An external power supply should maintain a minimum of 3kV rms isolation.
Surge Suppression	Bidirectional over-voltage surge suppression (all RS-485 lines)
Wire Sizes	#26 through #16 AWG
Environmental	-20°C to +70°C ambient operating temperature. -40°C to +85°C storage temperature. Humidity 5-95% (non-condensing) at 40°C.
Mounting	Standard DIN-rail (EN 50022, 35 mm x 15 mm)
Dimensions	4.10 in. high, 1.50 in. wide, 1.50 in. deep (104 x 38 x 38 mm)
Weight	approximately 2 oz. (57 g)
Standards	UL-listed (UL 508), RoHS-compliant, lead-free



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Cyber Sciences, Inc. USA

