

Application Note – CAN BUS recommended cable

GENERAL RELEASE

All Unitronics CANbus products.

Cable Type

DeviceNet Thick Cable

- One twisted pair of data cables, individually shielded.
- One twisted pair of power cables, individually shielded.
- One drain wire.
- Overall braided shield.

Installation

The CANbus port of Unitronics controllers (and of most of other devices) is isolated, this means it has galvanic isolation from the controller's loop and needs to receive external power. The correct way to supply power is from one source, this way there cannot be a potential difference between different nodes and the network will operate properly.

The recommended cable to use for a CAN network is DeviceNet thick cable. This cable has two separate pairs, one for the data signal and one for power. Connect the 24VDC from one of the controllers to the CAN port then feed it via the DeviceNet thick cable to all of the other nodes. It is highly recommended to take the power from the unit which is as close as possible to the middle of the network. In the case of long cable runs or a high number of controllers it is recommended to use a separate power source, again as close as possible to the middle of the network.

Precautions

- DO NOT Use ordinary RS485 communication cables, they do not work.
- DO Make sure to connect the resistors, even in the laboratory over short distances.

Baud Rate

Practical cable length against baud rate

| | |
|---------|--------|
| 1Mb | 30 m |
| 800 kb | 50 m |
| 500 kb | 100 m |
| 250 kb | 250 m |
| 125 kb | 500 m |
| 62.5 kb | 1000 m |

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Connecting the EX-RC1 to the CANbus network

Connect the EX-RC1 adapter to an OPLC as shown below. The module communicates via Unitronics' proprietary UniCAN protocol. UniCAN can comprise up to 60 nodes, including PLCs and EX-RC1 remote I/O adapters.

The CANbus port is galvanically isolated.

CANbus Wiring

Network terminators: Place terminators at each end of the CANbus network.

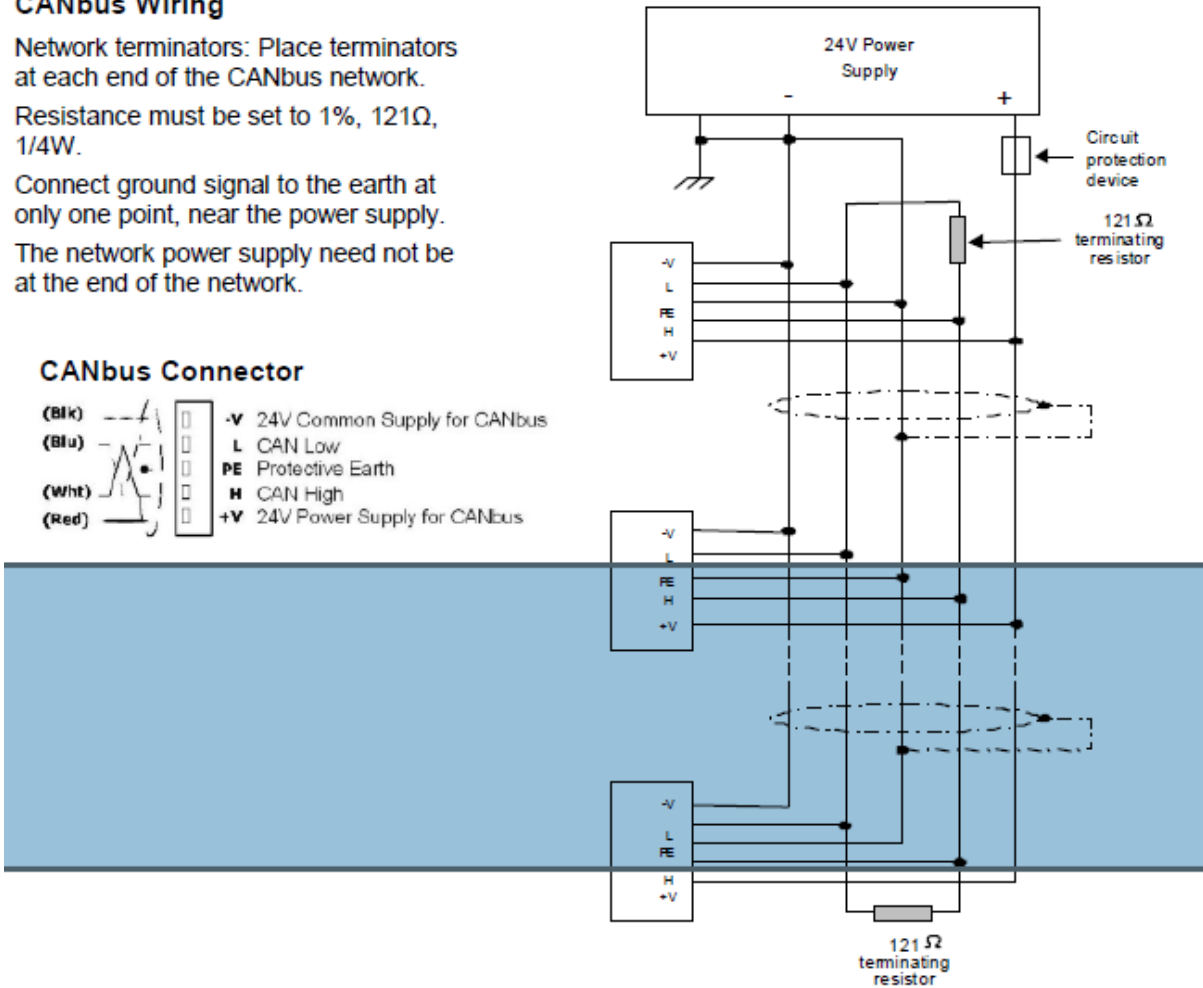
Resistance must be set to 1%, 121Ω, 1/4W.

Connect ground signal to the earth at only one point, near the power supply.

The network power supply need not be at the end of the network.

CANbus Connector

| | | | | |
|-------|-----|---|----|------------------------------|
| (Blk) | --- | □ | -V | 24V Common Supply for CANbus |
| (Blu) | --- | □ | L | CAN Low |
| (Wht) | --- | □ | PE | Protective Earth |
| (Red) | --- | □ | H | CAN High |
| | --- | □ | +V | 24V Power Supply for CANbus |



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