IMPORTANT INFORMATION: INSTALLING A DIGITAL NETWORK

Before leaving our facility, every CETCI gas detection system is configured, wired together and tested to ensure all devices work together properly. All sensors are calibrated. Sensors do not need to be re-calibrated following installation. **Allow 24 to 48 hours after equipment has been installed and powered up for the sensors to stabilize and produce accurate readings.** *If you take it upon yourself to make any adjustments to the equipment or calibrate the sensors because of perceived problems directly after power up and as a result create issues with the equipment, these are not considered "warranty" issues and this type of service is not considered "Start-up". This type of service is "Network" service and is a billable service by CETCI Service Department to rectify the problem.*

GUIDELINES TO ENSURE SUCCESSFUL INSTALLATION

The FCS uses digital communication to talk with the other digital devices (sensors/transmitters, peripheral devices) that are connected to it. This is achieved by using two communication wires, labeled A and B. It is important that the A wire of the first device is connected to the A wire of the next device and so on. Likewise, the B wire of the first device is connected to the B wire of the next device and so on in a daisy chain fashion.

IF YOUR ORDER HAS MORE THAN ONE CONTROLLER DO NOT MIX UP THE TRANSMITTERS AND OTHER DIGITAL DEVICES THAT BELONG TO EACH CONTROLLER. Each digital device has a Modbus ID number and has been configured to operate with a specific Controller. It is recommended to install the digital transmitters in their Modbus ID sequence from the first sequenced transmitter (normally Modbus ID 101) closest to the Controller it belongs with.

STEP 1 DETERMINE IF YOU REQUIRE ADDITIONAL POWER SUPPLIES

The FCS supplies 65 watts of power to the network. Depending on the size of the network and/or length of wire run, devices installed farther away from the FCA may require a remote power supply (RPS-24VDC) to make sure there is enough power to continue powering the devices. The best way to determine if there is enough power being supplied, is to measure the voltage between the 24V and GND connections for each device (when it is powered up). If the voltage of any device is less than 20V, a remote power supply should be added to the network right before the device that shows the voltage drop.

STEP 2 DETERMINE IF YOU REQUIRE A LNK-XT NETWORK EXTENDER

If the overall length of the wire run is more than 609 m / 2,000 ft, or if the area is electronically noisy, you will require an LNK-XT Network Extender to extend the range of the RS-485 network. The LNK-XT is a digital device just like the other gas detection system devices in this digital network and the remaining guidelines apply.

STEP 3 USE THE CORRECT WIRE

Use 4-conductor, 16 AWG stranded, shielded wire is required (Belden 5202FE 008500 or equivalent). DO NOT USE SOLID CORE WIRE. CETCI'S digital transmitters are powered by 24VDC. This means the low power wiring can be run along together with the communications wiring. A single cable with all four conductors inside it helps keep the wires tidy and makes installation easier.

Wire shielding must be connected together at each device and taped off so it cannot cause a short on the circuit board when the door is closed. The wiring shield should be connected to ground only at the controller and left taped and floating at the last device in the network.

STEP 4 USE A DAISY CHAIN WIRING CONFIGURATION ONLY

To ensure robust data communications, a daisy chain wiring configuration must be used. This means, four wires run from one end of the network to the other, through the same connections along the entire run. From one digital device to the next digital device, A goes to A; B goes to B; GND goes to GND; 24V goes to 24V. Each CETCI digital device has two RS-485 terminal blocks to make wiring easier. Use one terminal block for incoming wires and the other for outgoing wires. It does not matter which RS-485 terminal block is used for incoming or outgoing wires, just make sure the four incoming wires are wired to one terminal block and the four outgoing to the other terminal block. Do not mix up the individual wires or the two groups of four wires.

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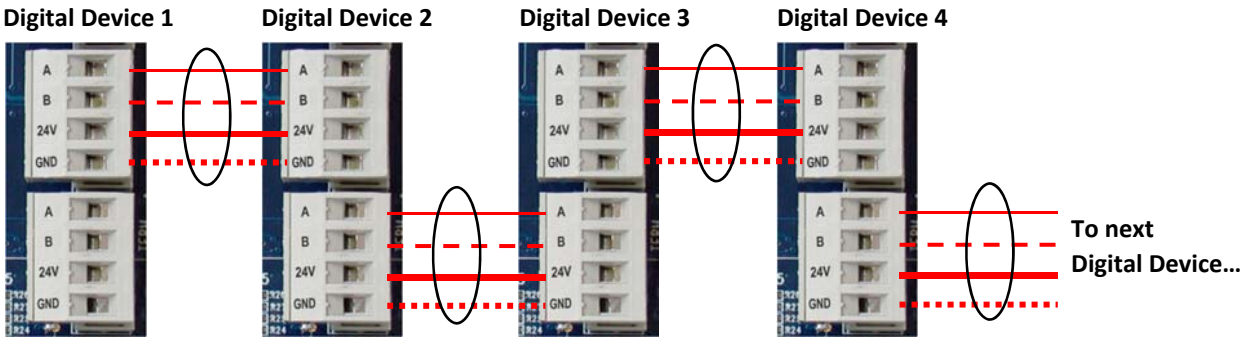
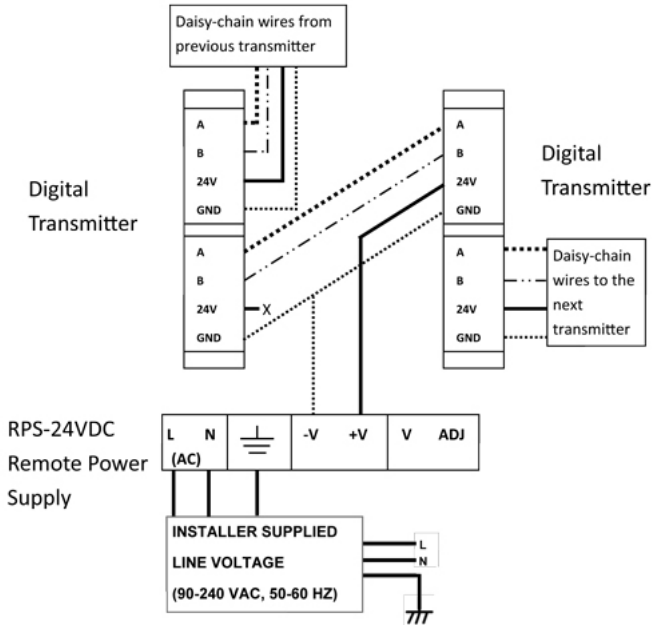


The Controller does not have to be placed at the beginning of the network. It is just another device and it can be connected anywhere along the network that makes sense, such as in a locked maintenance room or in an area that is frequently monitored. The Controller has the same RS-485 terminal blocks for incoming and outgoing wires in a daisy chain fashion as the digital transmitters. You can monitor the strength of the communications signal by measuring the voltage between a devices' A data line and GND or B data line and GND. The voltage should be between 2.1 and 2.7 VDC. If the voltage is something else, check the wiring configuration and the type of wire being used.

Do not use tee taps! Do not use star configurations! The only time there will be an interruption to this configuration is if additional power supplies are required. Wires coming into the power supply device will still be A, B and GND. However, the incoming 24V power wire will not be connected. Wires going out of the power supply will be A, B, GND and the 24V power from that power supply device.



STEP 4 AN END OF LINE JUMPER MUST BE INSTALLED AT BOTH ENDS OF THE NETWORK

The RS-485 bus (A+ and B- connectors) is essentially a transmission line that signal waves travel down. When they get to the last device, if it isn't terminated, they may reflect back and if of significant magnitude and polarity, can result in data corruption and possible damage to the circuitry. Therefore, the RS-485 bus must be terminated at the beginning and the end of the wire run so the signal waves are absorbed rather than reflected back. To terminate, you must place a 120 ohm resistor on the IN (or sometimes labelled EN) termination jumper position ON the TERM jumper bank on the FIRST DIGITAL DEVICE (which might not be the Controller) and the LAST DIGITAL DEVICE in the wire run. The termination resistor jumper on all other digital devices in the network should be in the disabled position. Every CETCI digital device has a termination resistor jumper. The factory default setting of the termination resistor on all digital devices disabled.

PLEASE CALL FOR ASSISTANCE: IF YOU DON'T KNOW – DON'T DO

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