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General Description

This document provides general installation guidelines for the communications module series listed above.

Detailed Installation Guides for specific models as well as technical specifications and additional documentation may be downloaded from the Technical Library in the Unitronics website:

<https://unitronicsplc.com/support-technical-library/>

Use these modules to add Ethernet, RS232/485 communication ports to compatible Unitronics controllers.

Alert Symbols and General Restrictions

When any of the following symbols appear, read the associated information carefully.

Symbol	Meaning	Description
	Danger	The identified danger causes physical and property damage.
	Warning	The identified danger could cause physical and property damage.
Caution	Caution	Use caution.

- Before using this product, the user must read and understand this document.
- All examples and diagrams are intended to aid understanding, and do not guarantee operation. Unitronics accepts no responsibility for actual use of this product based on these examples.
- Please dispose of this product according to local and national standards and regulations.
- Only qualified service personnel should open this device or carry out repairs.

	▪ Failure to comply with appropriate safety guidelines can cause severe injury or property damage.
	▪ Do not attempt to use this device with parameters that exceed permissible levels. ▪ To avoid damaging the system, do not connect/disconnect the device when power is on.

Environmental Considerations

	▪ Do not install in areas with: excessive or conductive dust, corrosive or flammable gas, moisture or rain, excessive heat, regular impact shocks or excessive vibration, in accordance with the standards given in the product's technical specification sheet.
	▪ Do not place in water or let water leak onto the unit.
	▪ Do not allow debris to fall inside the unit during installation.
	▪ Turn off power before making communications connections.
	▪ Do not touch live wires
	▪ Ventilation: 10mm space required between controller's top/bottom edges & enclosure walls.
	▪ Install at maximum distance from high-voltage cables and power equipment.
	▪ Unused pins should not be connected. Ignoring this directive may damage the device.
	▪ Double-check all wiring before turning on the power supply.

Installation Instructions

	▪ Before performing these actions, touch a grounded object to discharge any electrostatic charge.
	▪ Avoid touching the PCB board directly. Hold the PCB board by its connectors.
Caution	▪ Installing modules also requires you to remove and replace PCB boards already installed in the controller.
	▪ Make certain that the pins fit correctly into their matching receptacle.

UL Compliance

The following section is relevant to Unitronics' products that are listed with the UL.

The following models: V200-19-ET1, V200-19-ET2, V200-19-R4, V200-19-RS4, V200-19-RS4-X are UL listed for Hazardous Locations.

The following models: V200-19-ET1, V200-19-ET2, V200-19-R4, V200-19-RS4, V200-19-RS4-X are UL listed for Ordinary Location.

UL Ratings, Programmable Controllers for Use in Hazardous Locations,

Class I, Division 2, Groups A, B, C and D

These Release Notes relate to all Unitronics products that bear the UL symbols used to mark products that have been approved for use in hazardous locations, Class I, Division 2, Groups A, B, C and D.

Caution ■ This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D, or Non-hazardous locations only.



■ Input and output wiring must be in accordance with Class I, Division 2 wiring methods and in accordance with the authority having jurisdiction.



■ **WARNING—Explosion Hazard—**substitution of components may impair suitability for Class I, Division 2.

■ **WARNING – EXPLOSION HAZARD –** Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

■ **WARNING –** Exposure to some chemicals may degrade the sealing properties of material used in Relays.

■ This equipment must be installed using wiring methods as required for Class I, Division 2 as per the NEC and/or CEC.

Certification UL des automates programmables, pour une utilisation en environnement à risques, Class I, Division 2, Groupes A, B, C et D.

Cette note fait référence à tous les produits Unitronics portant le symbole UL - produits qui ont été certifiés pour une utilisation dans des endroits dangereux, Classe I, Division 2, Groupes A, B, C et D.

Attention ■ Cet équipement est adapté pour une utilisation en Classe I, Division 2, Groupes A, B, C et D, ou dans Non-dangereux endroits seulement.



■ Le câblage des entrées/sorties doit être en accord avec les méthodes de câblage selon la Classe I, Division 2 et en accord avec l'autorité compétente.



■ **AVERTISSEMENT: Risque d'Explosion –** Le remplacement de certains composants rend caduque la certification du produit selon la Classe I, Division 2.

■ **AVERTISSEMENT - DANGER D'EXPLOSION -** Ne connecter pas ou ne débranche pas l'équipement sans avoir préalablement coupé l'alimentation électrique ou la zone est reconnue pour être non dangereuse.

■ **AVERTISSEMENT -** L'exposition à certains produits chimiques peut dégrader les propriétés des matériaux utilisés pour l'étanchéité dans les relais.

■ Cet équipement doit être installé utilisant des méthodes de câblage suivant la norme Class I, Division 2 NEC et /ou CEC.

V2xx, V5xx Installation Instructions

- Turn power off before opening the controller.
- If the controller has an installed Snap-in I/O module, remove it. Instructions are given in 'Removing a Snap-in Module' in your Vision model's Installation Guide.
- If the controller does not comprise a Snap-in I/O Module, ensure that the I/O connector cap is in place.

Note that the V2xx is shown for representational purposes.

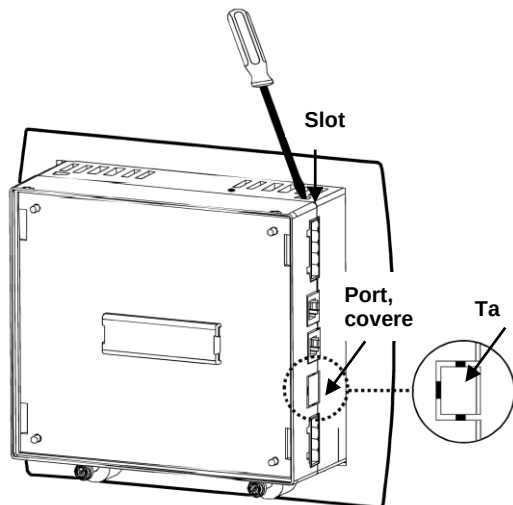


Figure 1.

Opening the Controller

1. Turn power off before opening the controller.
2. If the controller has an installed Snap-in I/O module, remove it. Instructions are given in 'Removing a Snap-in Module' in the Vision User Guide.
3. Open the OPLC by inserting a screwdriver into the slots located on the sides of the controller as shown, then carefully prying the cover off.
4. The port's location is covered by plastic. Remove the plastic covering using a razor cutter to cut through the tabs shown in Figure 1.
5. Locate the J1 and J3 connectors shown in Figure 2.
6. Install the module by placing the module's connectors onto the controller card as shown in Figure 3.
In order to avoid bending the connector pins, exercise appropriate caution. Make sure that the connection is secure.
7. Close the controller by snapping the plastic cover back in its place. If the card is placed correctly, the cover will snap on easily.
8. If required, reinstall the Snap-in Module.

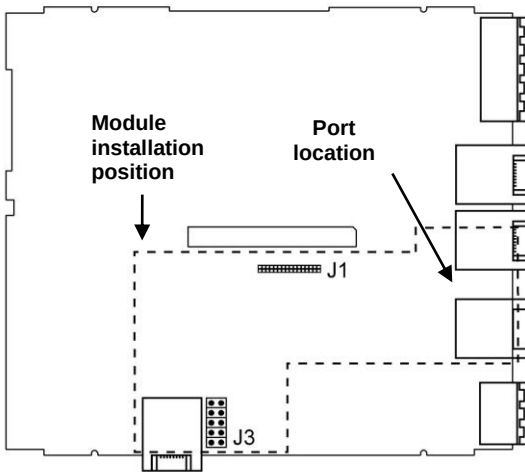


Figure 2. Controller, Main PCB Board

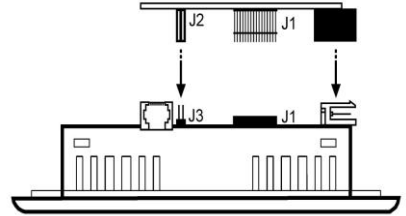


Figure 3. Installing the Module

V1040/V1210

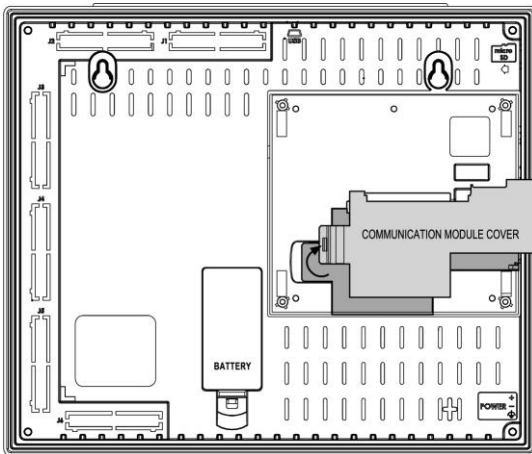


Figure 4. Communication Module Cover

Note

- Your card was supplied with a single screw, and you are installing it in a V1040/V1210, after pushing the module into place, screw it into the hole that is located near the port.

1. If the I/O connector cap is in place, remove it.
2. Open the communication module cover shown in Figure 4 .
3. The port's location, COM 3, is covered by plastic. Remove the plastic covering using a razor cutter to cut through the tabs shown in Figure 1.
4. Install the module by lining up the module's connectors with those in the controller, and push it into place. See Notes below.
5. Close the controller by snapping the plastic cover back in its place. If the card is placed correctly, the cover will snap on easily.
6. If required, reinstall the Snap-in Module. If there is no Snap-in Module, replace the I/O connector cap.

V200-19-ET2 Ethernet COM Port

The V200-19-ET2 Ethernet COM Port is a communication module that enables you to install an Ethernet COM port into compatible Vision controllers. The Ethernet port enables you to implement communications via TCP/IP such as MODBUS over TCP.

Software & Hardware compatibility

The V200-19-ET2 hardware is backward compatible with existing and new Vision series PLCs as listed in the table below.

The V200-19-ET2 is supported by the following (or higher) software versions:

Vision PLC	Hardware Compatibility	Minimum Operating System Software version	Minimum BOOT version	Minimum VisiLogic version
V230/V260/V280/V290/V530	✓	5.4.55 (Released 1/2015)	Not relevant	9.7.41
V560/V570	✓	3.3.0 (Released 11/2010)	2.2.04	9.0.0
V1040 and V1210	✓	3.3.0 (Released 11/2010)	2.2.04	9.0.0

Wiring



- Do not touch live wires.



- Unused pins should not be connected. Ignoring this directive may damage the device.
- Double-check all wiring before turning on the power supply.

Ethernet Wiring—General

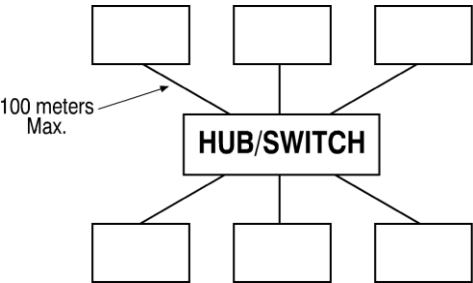
- Use CAT5 STP (shielded twisted pair) cable.
- Set up the network in accordance with the star configuration shown below.

RJ45 Connector Pin-out

Pin Number	Function	
1	T+ = Positive transmit signal	
2	T- = Negative transmit signal	
3	R+ = Positive receive signal	
6	R- = Negative receive signal	

Topology

Star topology is recommended.



Ethernet Connections

Controller to hub/switch connection				
Controller			Hub/Switch	
Pin #	Function		Pin #	Function
1	T+	→	1	T+
2	T-	→	2	T-
3	R+	←	3	R+
6	R-	←	6	R-

Controller to controller connection				
Controller			Controller	
Pin #	Function		Pin #	Function
1	T+	→	3	R+
2	T-	→	6	R-
3	R+	←	1	T+
6	R-	←	2	T-

V200-19-ET2 Technical Specifications	
Transmission speed	10/100Mbps
Network topology	Star, based on external hub/switch
Cable type	Category 5 STP (shielded twisted pair) is recommended; UTP (unshielded twisted pair) may also be used
Connector type	RJ45
Drop line length	Up to 100 meters, controller to hub/switch or controller to controller.

V200-19-RS4, V200-19-RS4-X RS485/232 COM Port

V200-19-RS4, V200-19-RS4-X are communication modules that enable you to install compatible Vision controllers with an additional COM port, COM 3. The port may be adapted to either the RS232 or the RS485 standard, via jumpers located on the modules and with the appropriate VisiLogic's Help file.

Note that the modules are identical except for isolation:

- V200-19-RS4 is **not** isolated
- V200-19-RS4-X is **is** isolated

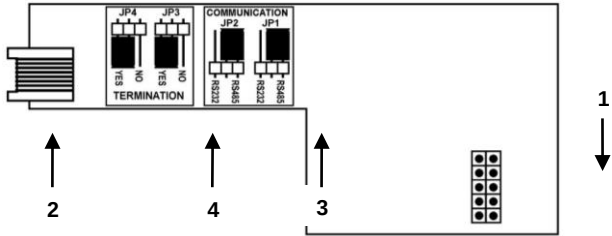
Installation instructions begin on page **Error! Bookmark not defined.**

For specific information on RS485/232 networking, refer to the controller's user guides and VisiLogic's Help file.

Component identification

1	J1 connector, plugs into PLC board
2	RJ11 connector *
3	RS485/232 jumpers
4	Termination jumpers

* Older versions of this module offered an RJ45 connector.

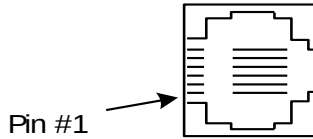


Module V200-19-RS4/V200-19-RS4-X

RS232

RS232 Connector Pin-out

Pin Number	Function
1	DTR signal
2	0V reference
3	TxD signal
4	RxD signal
5	0V reference
6	DSR signal



Note that standard programming cables do not provide connection points for pins 1 and 6.

In addition, note that when a port is adapted to RS485, Pin 1 (DTR) is used for signal A, and Pin 6 (DSR) signal is used for signal B as shown in the RS485 pinout.

RS485 Wiring

Note that when a port is set to RS485, you can switch between end devices using either RS232 and RS485 without changing jumper settings. To enable you to do this, do not use flow control signals DTR and DSR.



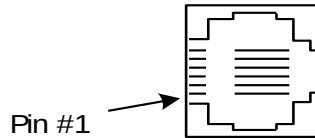
- Note that the V200-19-RS4 port is not isolated. If the controller is used with a non-isolated external device, avoid potential voltage that exceeds $\pm 10V$. To avoid damaging the system, all non-isolated device ports should relate to the same ground signal.

Caution

- Use shielded, twisted pair cables.
- Minimize the stub (drop) length leading from each device to the bus.
- Ideally, the main cable should be run in and out of the network device.
- Do not cross positive (A) and negative (B) signals.
Positive terminals must be wired to positive, and negative terminals to negative.

RS485 Connector Pin-out

Pin Number	Function
1	A signal (+)
2	(RS232 signal)
3	(RS232 signal)
4	(RS232 signal)
5	(RS232 signal)
6	B signal (-)

**RS485 Network Termination Settings**

The jumper settings shown below determine whether the controller can function as an end device in a RS485 network. Note that the factory default setting is ON. If the OPLC is not a network end device, set both jumpers to OFF.

RS232/RS485 Jumper Settings

The tables below show how to set a specific jumper to change the functionality of the port.

To open the controller and access the jumpers, refer to the installation instructions below.

RS232/RS485 Jumper Settings

To use as:	JP2	JP1
RS232	RS232	RS232
RS485*	RS485	RS485

RS485 Termination Settings

Termination	JP4	JP3
ON*	Yes	Yes
OFF	No	No

* Default factory setting.

Technical Specifications

Weight

V200-19-RS4	18g (0.63 oz)
V200-19-RS4-X	21g (0.74 oz)

Environmental

Operating temperature	0° to 50°C (32 to 122°F)
Storage temperature	-20° to 60°C (-4 to 140°F)
Relative Humidity (RH)	5% to 95% (non-condensing)

Isolation

V200-19-RS4	No
V200-19-RS4-X	Yes

RS232 Port Specifications

Voltage limits	±20V
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RS485 Port Specifications

Input Voltage	-7 to +12V differential max.
Cable type	Shielded twisted pair, in compliance with EIA RS485
Cable length	1200m maximum (4000 feet)
Baud rate	300– 115,200 bps
Nodes	Up to 32

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