UNITRONICS V130-33-T38 Micro-PLC+HMIs Rugged Programmable Logic Controllers User Guide

Contents

UNITRONICS V130-33-T38 Micro-PLC+HMIs Rugged Programmable Logic Controllers

General Description

The products listed above are micro-PLC+HMIs, rugged programmable logic controllers that comprise built-in operating panels. Detailed Installation Guides containing the I/O wiring diagrams for these models, technical specifications, and additional documentation are located in the Technical Library in the Unitronics website: **https://unitronicsplc.com/support-technical-library/**

Item	V130-T38 V130J-T38		V350-T38 V350J-T38		V430J-T38
On-board I/O	Model Dependent				
Screen	2.4″		3.5″ Color Touch		4.3″ Color Touch
Keypad	Yes		None		
Function Keys	None		Yes		
Com Port, Built-in					
RS232/485	Yes	Yes	Yes*	Yes*	Yes*
USB device, mini-B	None	None	Yes*	Yes*	Yes*
Com Ports, separate order, user-installed	The user may install a CANbus port (V100-17-CAN), and one of the following: • RS232/RS485 port (V100-17-RS4/V100-17-RS4X) • Ethernet (V100-17-ET2) • Profibus Slave (V100-17-PB1)				
* V430J/V350/V350J comprises both RS232/485 and USB ports; note that only **one** channel may be used at a time.					

Standard Kit Contents

Item	V130-T38 V130J-T38	V350-T38 V350J-T38	V430J-T38
Controller	Yes		
Terminal Blocks	Yes		
Battery (installed)	Yes		
Slides (2 sets of key labels)	None	Yes	None
Mounting Brackets	Yes (2 parts)		Yes (4 parts)
Rubber Seal	Yes		

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.

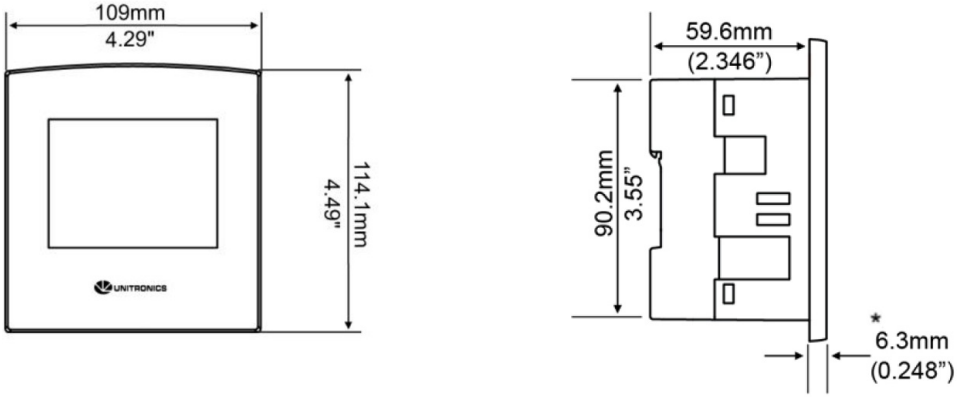
Environmental Considerations

- 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.
- Ventilation: 10mm space required between controller’s top/bottom edges & enclosure walls.
- Install at maximum distance from high-voltage cables and power equipment.

Mounting

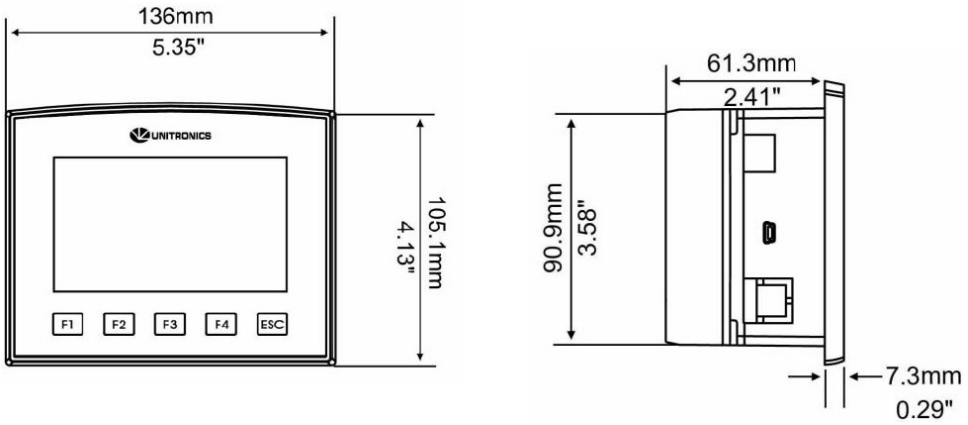
Note that figures are for illustrative purposes only.

Dimensions: V130/V350/V130J/V350J



- Note that for models V130/V350, the bezel width is up to 8.4 mm (0.33”).

Dimensions: V430J

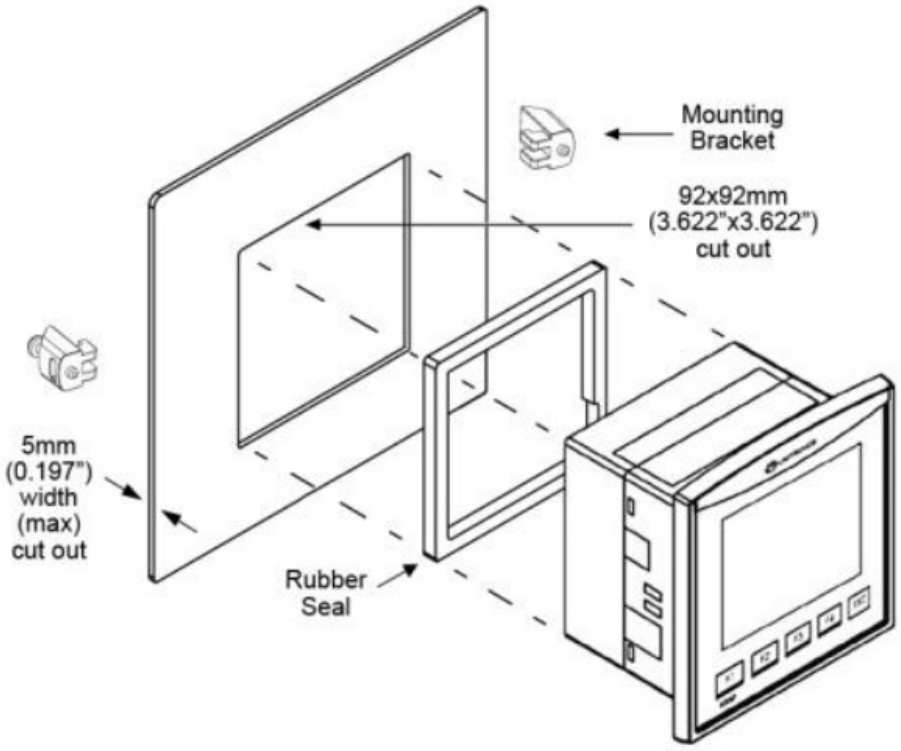


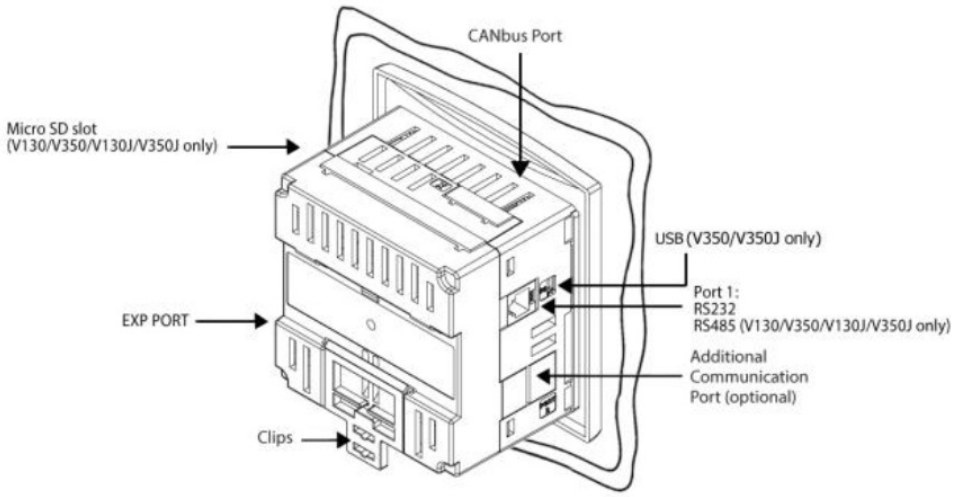
Model	Cut-out	View area
V130V130J	92×92 mm (3.622”x3.622”)	58×30.5mm (2.28″x1.2″)
V350/V350J	92×92 mm (3.622”x3.622”)	72×54.5mm (2.95″x2.14″)
V430J	122.5×91.5 mm (4.82”x3.6”)	96.4×55.2mm (3.79″x2.17″)

Panel Mounting
Before you begin, note that the mounting panel cannot be more than 5 mm thick.

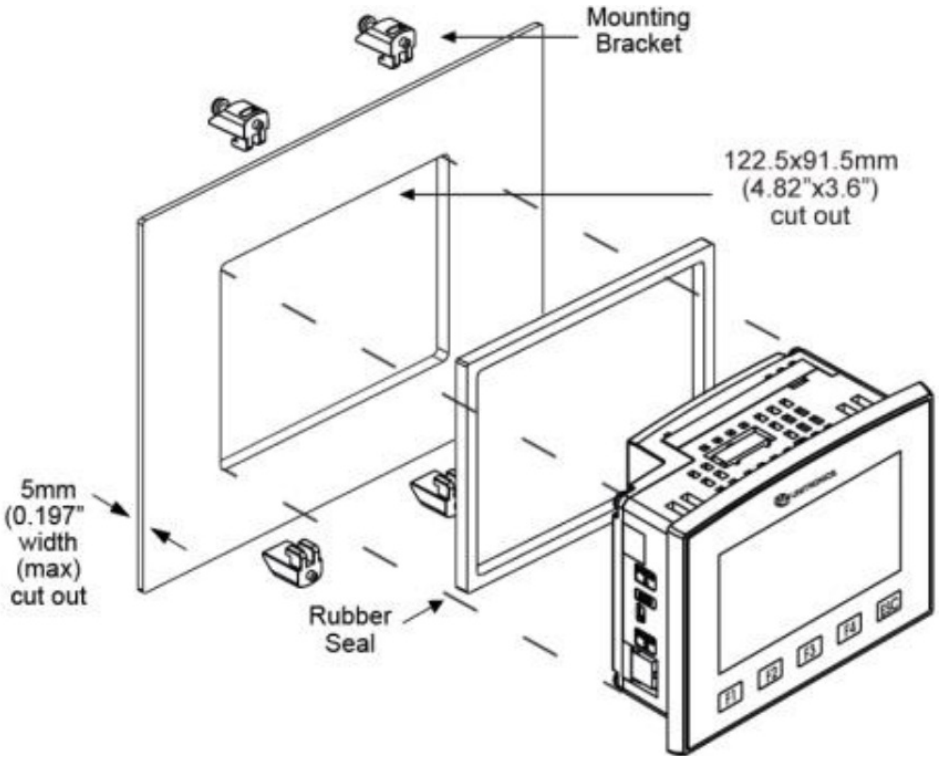
1. Make a panel cut-out of the appropriate size:
2. Slide the controller into the cut-out, ensuring that the rubber seal is in place.
3. Push the mounting brackets into their slots on the sides of the panel as shown in the figure below.
4. Tighten the bracket’s screws against the panel. Hold the bracket securely against the unit while tightening the screw.
5. When properly mounted, the controller is squarely situated in the panel cut-out as shown in the accompanying figures.

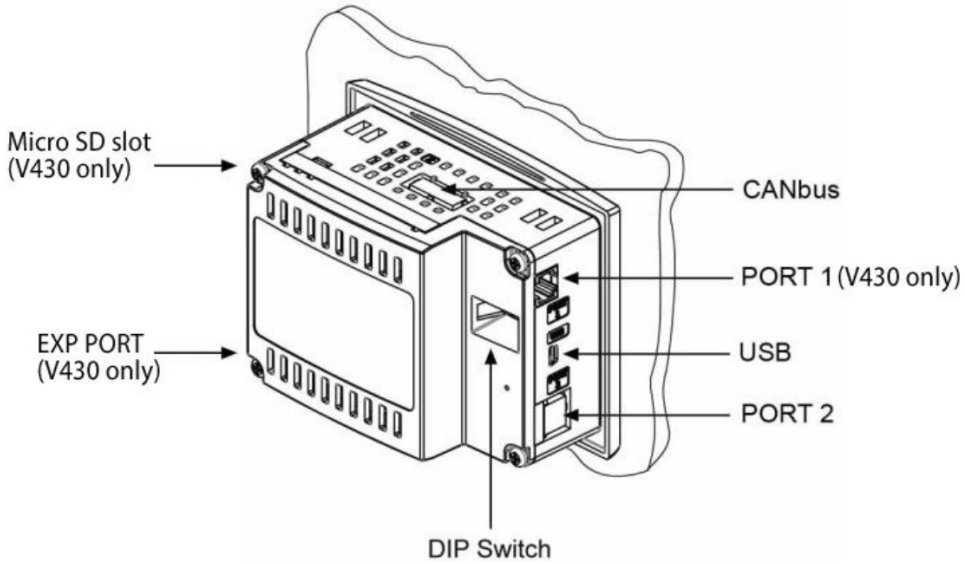
V130/V350/V130J/V350J


Mounting Bracket
92x92mm (3.622"x3.622") cut out
5mm (0.197") width (max) cut out
Rubber Seal


CANbus Port
Micro SD slot (V130/V350/V130J/V350J only)
USB (V350/V350J only)
Port 1: RS232 RS485 (V130/V350/V130J/V350J only)
EXP PORT
Additional Communication Port (optional)
Clips

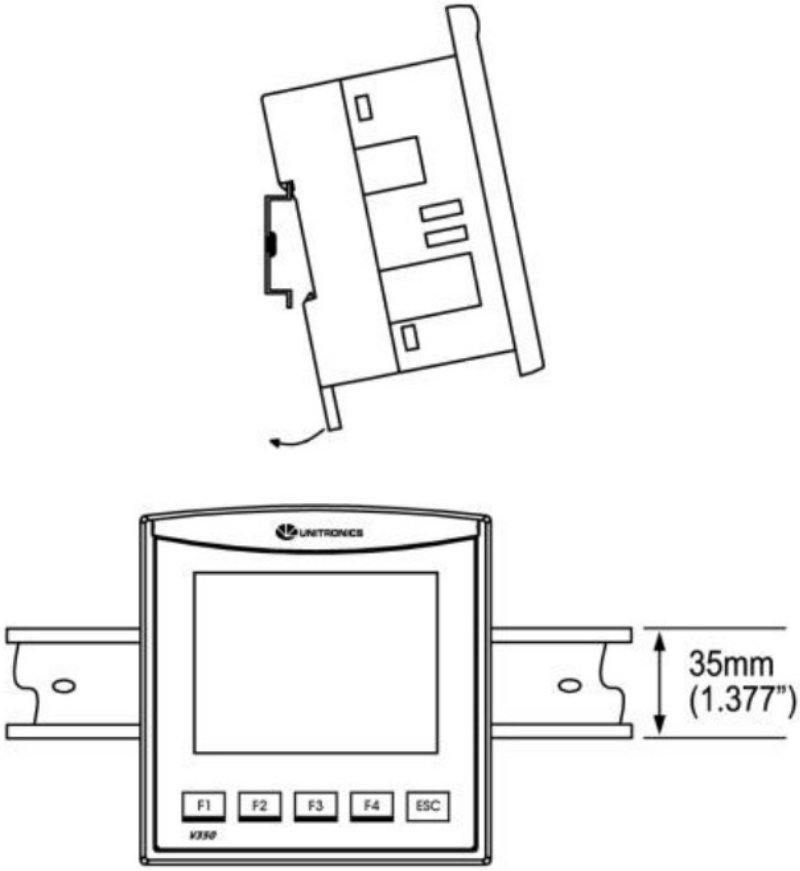
V430J





DIN-rail Mounting (V130/V350/V130J/V350J)

1. Snap the controller onto the DIN rail as shown in the figure to the right.



2. When properly mounted, the controller is squarely situated on the DIN-rail as shown in the figure to the right.

UL Compliance

The following section is relevant to Unitronics' products that are listed with the UL.
The following models: V130-33-R34, V130-J-R34, V130-T4-ZK1, V350-35-RA22, V350-J-RA22, V350-35-R34, V350-J-R34, V430-J-R34 are UL listed for Hazardous Locations.
The following models: V130-33-B1,V130-J-B1,V130-33-TA24,V130-J-TA24,V130-33-T38,V130-J-T38 V130-33-TR20,V130-J-TR20,V130-33-TR34,V130-J-TR34,V130-33-RA22,V130-J-RA 22, V130-33-TRA22,V130-J-TRA22,V130-33-T2,V130-J-T2,V130-33-TR6,V130-J-TR6,V130-33-R34, V350-35-B1, V130-T4-ZK1, V350-J-B1,V350-35-TA24,V350-J-TA24,V350-35-T38,V350-J-T38, V350-35-TR20,V350-J-TR20,V350-35-TR34,V350-J-TR34,V350-35-TRA22,V350-J-TRA22, V350-35-T2,V350-J-T2,V350-35-TR6,V350-J-TR6,V350-S-TA24,V350-JS-TA24,V350-35-RA22, V350-J-RA22,V350-35-R34, V430-J-B1,V430-J-TA24,V430-J-T38, V430-J-R34,V430-J-RH2, V430-J TR34,V430-J-RA22,V430-J-TRA22,V430-J-T2,V430-J-RH6 are UL listed for Ordinary Location.
For models from series V130, V130-J, V430, that include "T4" or "J4" in the Model name, Suitable for mounting on the flat surface of Type 4X enclosure.
For examples: V130-T4-R34, V130-J4-R34, V430-J4-T2

UL Ordinary Location

In order to meet the UL ordinary location standard, panel-mount this device on the flat surface of Type 1 or 4 X enclosures
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.

Panel-Mounting
For programmable controllers that can be mounted also on panel, in order to meet the UL Haz Loc standard, panel-mount this device on the flat surface of Type 1 or Type 4X enclosures.

Relay Output Resistance Ratings
The products listed below contain relay outputs:
Programmable controllers, Models: V430-J-R34, V130-33-R34,V130-J-R34 and V350-35-R34, V350-J-R34

- When these specific products are used in hazardous locations, they are rated at 3A res.
- Except for models V430-J-R34, V130-33-R34, V130-J-R34, V130-T4-ZK1 and V350-35-R34, V350-J-R34,when these specific products are used in non-hazardous environmental conditions, they are rated at 5A res, as given in the product's specifications.

Communication and Removable Memory Storage
When products comprise either USB communication port, SD card slot, or both, neither the SD card slot nor the USB port are intended to be permanently connected, while the USB port is intended for programming only.

Removing / Replacing the battery
When a product has been installed with a battery, do not remove or replace the battery unless the power has been switched off, or the area is known to be non-hazardous.
Please note that it is recommended to back up all data retained in RAM, in order to avoid losing data when changing the battery while the power is switched off. Date and time information will also need to be reset after the procedure.

Wiring

- Do not touch live wires.
- Install an external circuit breaker. Guard against short-circuiting in external wiring.
- Use appropriate circuit protection devices.
- Unused pins should not be connected. Ignoring this directive may damage the device.
- Double-check all wiring before turning on the power supply.

Caution

- To avoid damaging the wire, do not exceed a maximum torque of 0.5 N·m (5 kgf·cm).
- Do not use tin, solder, or any substance on stripped wire that might cause the wire strand to break.
- Install at maximum distance from high-voltage cables and power equipment.

Wiring Procedure
Use crimp terminals for Use crimp terminals for wiring;

- Controllers offering a terminal block with pitch of 5mm: 26-12 AWG wire (0.13 mm2 –3.31 mm2).
- Controllers offering a terminal block with pitch of 3.81mm: 26-16 AWG wire (0.13 mm2 – 1.31 mm2).

1. Strip the wire to a length of 7±0.5mm (0.270–0.300“).
2. Unscrew the terminal to its widest position before inserting a wire.
3. Insert the wire completely into the terminal to ensure a proper connection.
4. Tighten enough to keep the wire from pulling free.

- Input or output cables should not be run through the same multi-core cable or share the same wire.
- Allow for voltage drop and noise interference with I/O lines used over an extended distance. Use wire that is properly sized for the load.
- The controller and I/O signals must be connected to the same 0V signal.

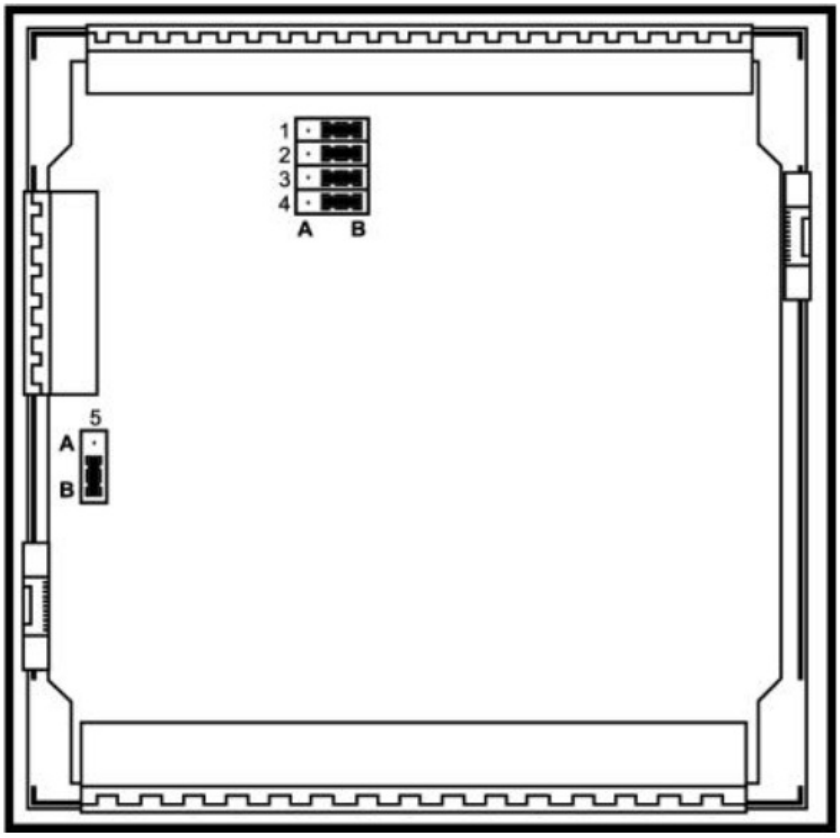
I/Os
V130/V350/V130J/V350J/V430J-T38 models comprise a total of 22 inputs and 16 transistor outputs.
Input functionality can be adapted as follows:
22 inputs may be used as digital inputs. They may be wired in a group via a single jumper as either npn or pnp.
According to jumper settings and appropriate wiring:

- Inputs 14 and 15 can function as either digital or analog inputs.
- Inputs 0 and 2 can function as, high-speed counters, as part of a shaft-encoder, or as normal digital inputs.
- Inputs 1 and 3 can function as either counter reset, as normal digital inputs, or as part of a shaft-encoder.

If inputs 0 and 2 are set as high-speed counters (without reset), inputs 1 and 3 can function as normal digital inputs.

Input Jumper Settings
The tables below show how to set a specific jumper to change input functionality. To access the I/O jumpers, you must open the controller according to the instructions beginning on page 11.

- Incompatible jumper settings and wiring connections may seriously damage the controller.



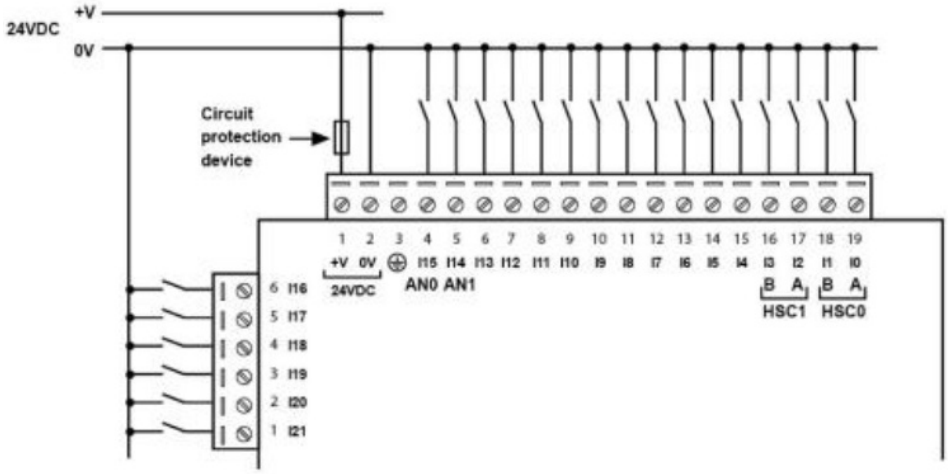
Digital Inputs 0-21: Set Type		
Set to	**JP5 (all Inputs)**	
npn (sink)	A	
pnp (source)*	B	
Inputs 14/15: Set as Digital or Analog		
Set to	**JP2(Input14)**	**JP1 (Input 15)**
Digital*	B	B
Analog	A	A
Analog Inputs AN0/AN1: Set Type		
Set to	**JP4 (AN0)**	**JP3 (AN1)**
Voltage	A	A
Current*	B	B

- Default settings

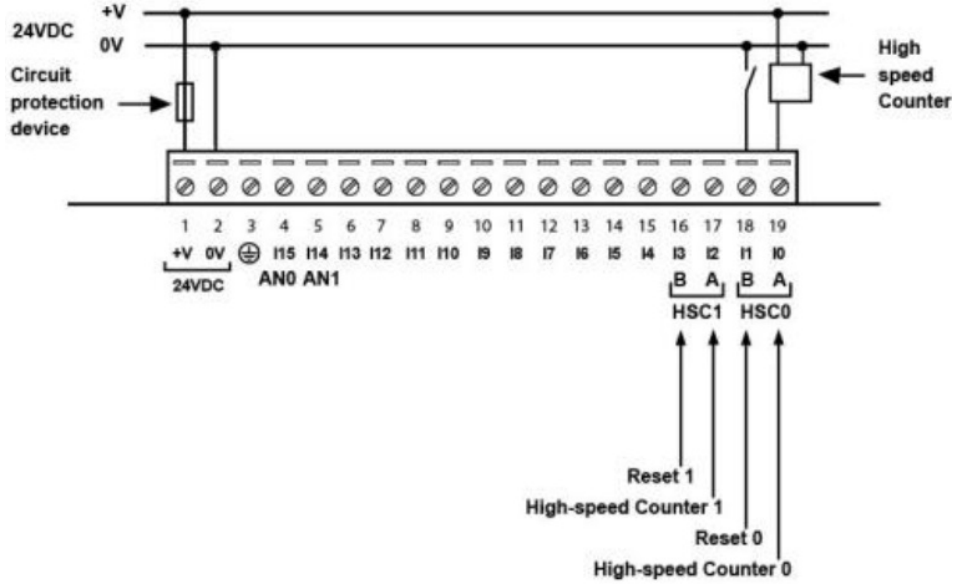
I/O Wiring

npn (sink) Input

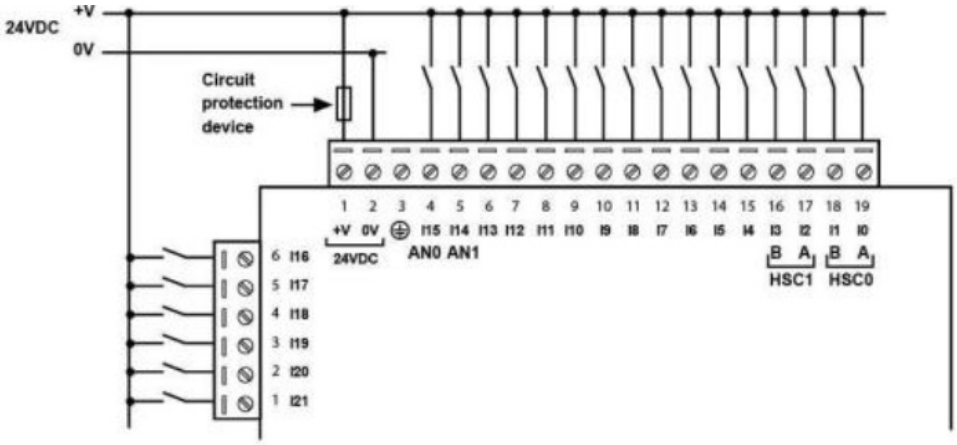
Input wiring



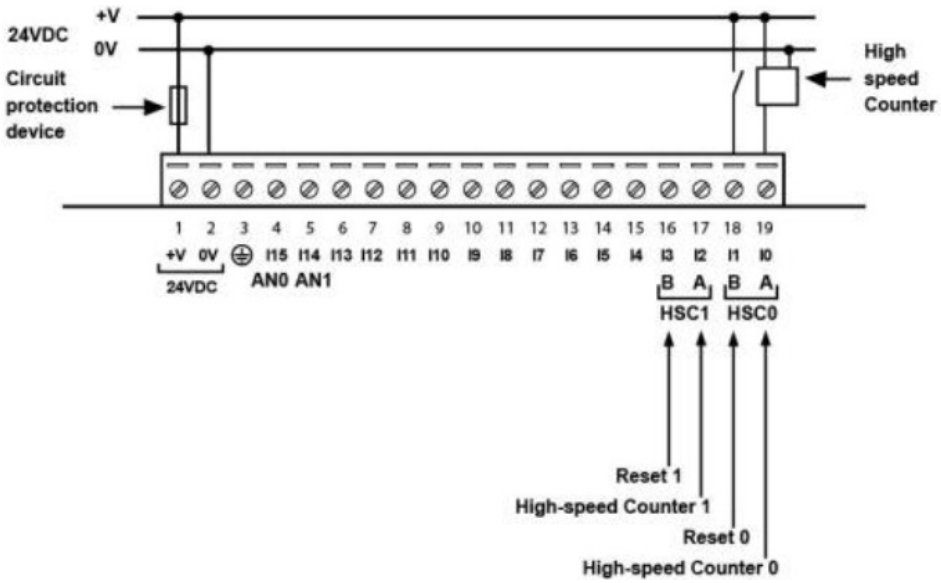
HSC input wiring



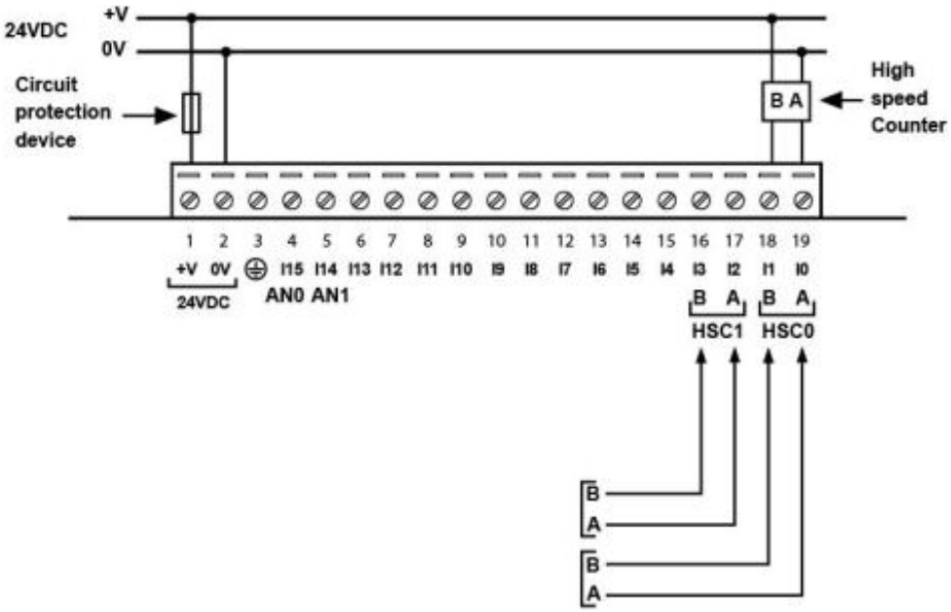
pnp (source) Input
Input wiring



HSC input wiring

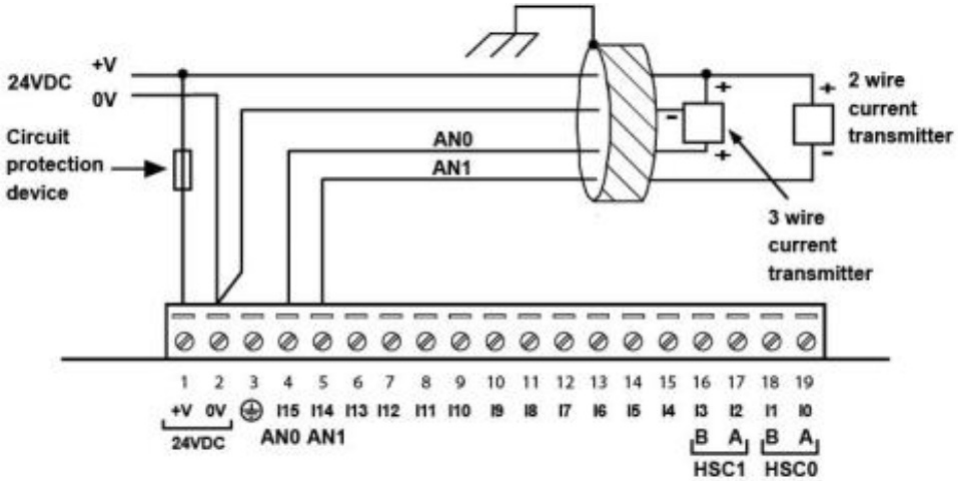


Shaft-encoder

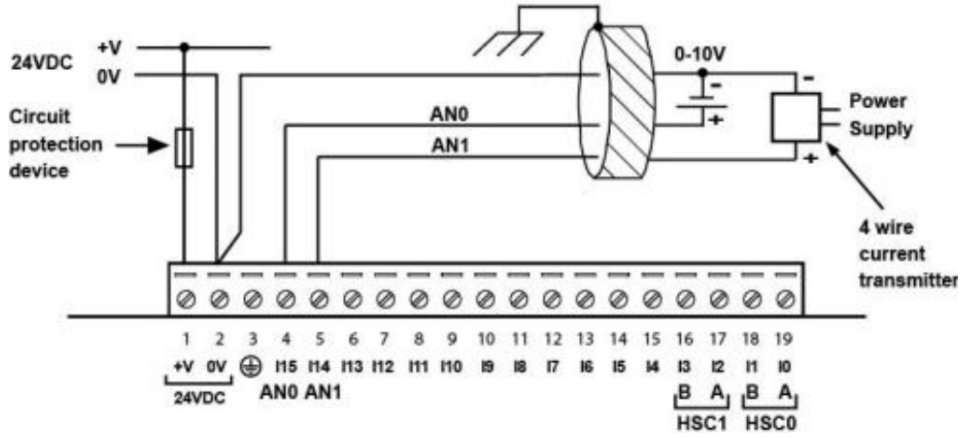


Analog Input

Analog input wiring, current (2/3-wire)

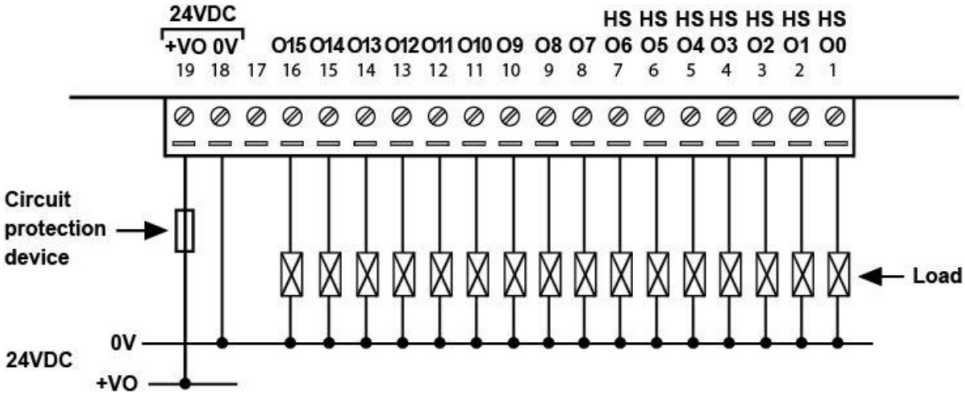


Analog input wiring, current (4-wire), voltage



- Shields should be connected at the signal's source.
- The 0V signal of the analog input must be connected to the controller's 0V.

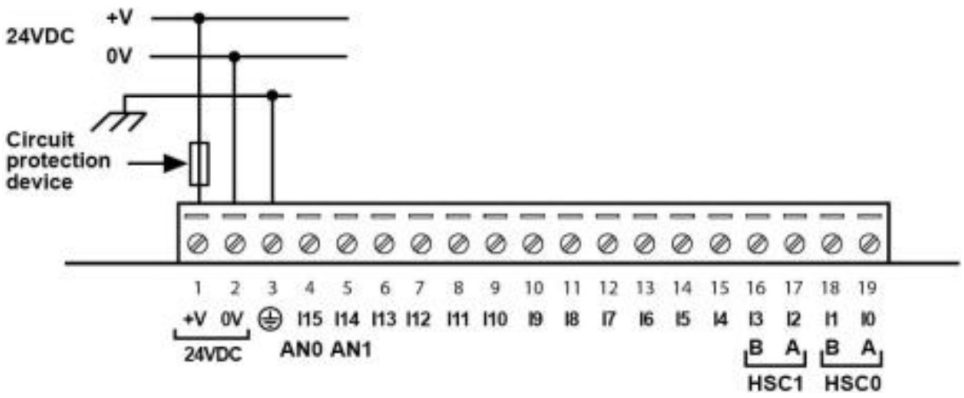
Transistor Outputs (pnp)



- Outputs 0 to 6 can be used as PWM outputs.

Power Supply
The controller requires an external 24VDC power supply.

- The power supply must include double insulation. Outputs must be rated as SELV/PELV/Class2/Limited Power.
- Use separate wires to connect the functional earth line (pin 3) and the 0V line (pin 2) to the system earth ground.
- Install an external circuit breaker. Guard against short-circuiting in external wiring.
- Double-check all wiring before turning on the power supply.
- Do not connect either the 'Neutral' or 'Line' signal of the 110/220VAC to device's 0V pin
- In the event of voltage fluctuations or non-conformity to voltage power supply specifications, connect the device to a regulated power supply.



Earthing the PLC+HMI
To maximize system performance, avoid electromagnetic interference by:

- Mounting the controller on a metal panel.
- Connect each common and ground connection directly to the earth ground of your system.
- For ground wiring uses the shortest and thickest possible wire.

Communication

- V130/ V130J

These models comprise a built-in RS232/RS485 serial port (Port 1)

- V430J /V350/V350J

These models comprise built-in ports: 1 USB and 1 RS232/RS485 (Port 1).
Note that physically connecting a PC to the controller via USB suspends RS232/RS485 communications via Port 1. When the PC is disconnected, RS232/RS485 resumes.

RS232/RS485 Port

- Turn off power before making communications connections.

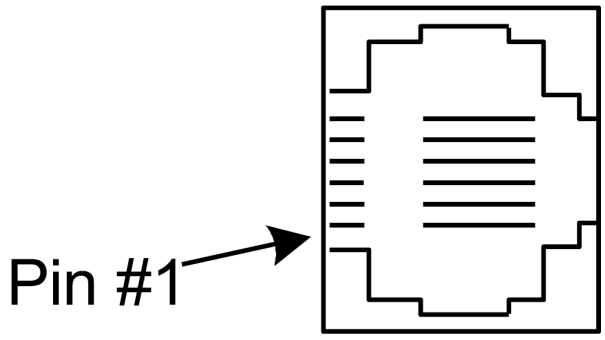
Caution

- Always use the appropriate port adapters.
- Signals are related to the controller's 0V; the same 0V is used by the power supply.
- The serial port is not isolated. If the controller is used with a non-isolated external device, avoid potential voltage that exceeds ± 10V.
- Use RS232 to download programs from a PC, and to communicate with serial devices and applications, such as SCADA.
- Use RS485 to create a multi-drop network containing up to 32 devices.

Pinouts
The pinouts below show the PLC port signals.

RS232	
Pin #	**Description**
1*	DTR signal
2	0V reference
3	TXD signal
4	RXD signal
5	0V reference
6*	DSR signal

RS485**		Controller Port
Pin #	**Description**	
1	A signal (+)	
2	(RS232 signal)	
3	(RS232 signal)	
4	(RS232 signal)	
5	(RS232 signal)	
6	B signal (-)	

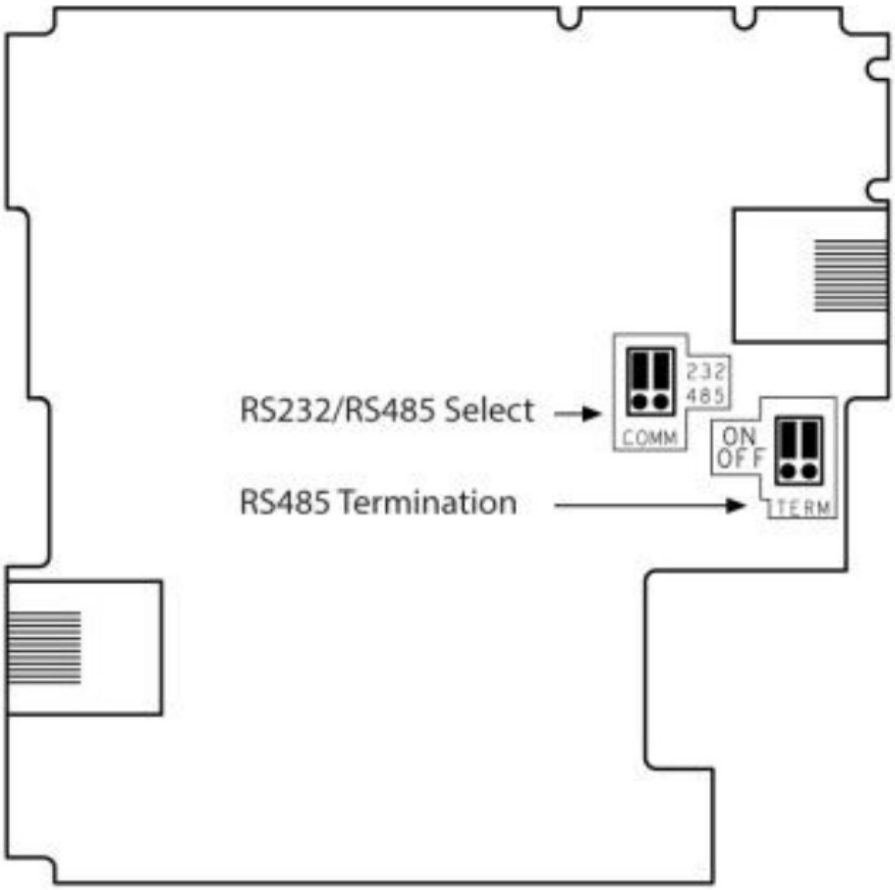


Pin #1

- Standard programming cables do not provide connection points for pins 1 and 6.
- 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.

Note that it is possible to establish a PC to PLC connection using RS232 even when the PLC is set to RS485 (this eliminates the need to open the controller to set jumpers).
To do so, remove the RS485 connector (pins 1 & 6) from the PLC and connect a standard RS232 programming cable.
Note that this is possible only if DTR and DSR signals of RS232 are not used (which is the standard case).

Setting RS232/RS485 Communication Parameters, V130/V350/V130J/V350J



This port may be set to either RS232 or RS485 via jumper. The accompanying figure shows the jumper factory default settings.
These jumpers may be used to:

- Set communications to RS485, by setting both COMM jumpers to ‘485’.
- Set RS485 termination, by setting both TERM jumpers to ‘OFF’.

To access the jumpers, you must open the controller according to the instructions on page 11.

Setting RS232/RS485 Communication Parameters, V430J
This port may be set to either RS232 or RS485 via DIP switches:
The table shows the DIP switches factory default settings. Use the table to adapt the settings.

	Switch Settings					
	1	2	3	4	5	6
RS232*	ON	OFF	OFF	ON	OFF	OFF
RS485	OFF	ON	ON	OFF	OFF	OFF
RS485 with termination**	OFF	ON	ON	OFF	ON	ON

- Default factory setting
- Causes the unit to function as an end unit in an RS485 network

USB Port
Caution

- The USB port is not isolated.
  Make sure that the PC and the controller are grounded to same potential.

The USB port may be used for programming, OS download, and PC access.

Opening the Controller

- 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.

1. Turn off the power supply, disconnect, and dismount the controller.
2. The back cover of the controller comprises 4 screws, located in the corners. Remove the screws, and pull off the back cover.

Changing I/O Settings
After opening the controller and exposing the I/O board, you can change the jumper settings according to the table shown above.

Changing Communication Settings (V130/V350/V130J/V350J Only)

1. To access the communication jumpers, hold the I/O PCB board by its top and bottom connectors and steadily pull the board off.
2. Locate the jumpers, and then change the settings as required, according to the jumpers' settings shown on page 10.

Closing the Controller

1. Gently replace the board. Make certain that the pins fit correctly into their matching receptacle. Do not force the board into place; doing so may damage the controller.
2. Replace the back cover of the controller and fasten the corner screws.

Note that you must replace the back cover securely before powering up the controller.

Order Information

Item		
V130-33-T38	PLC with Classic panel, Monochrome display 2.4″	
V130-J-T38	PLC with Flat panel, Monochrome display 2.4″	
V350-35-T38	PLC with Classic panel, Color touch display 3.5''	
V350-J-T38	PLC with Flat panel, Color touch display 3.5''	
V430-J-T38	PLC with Flat panel, Color touch display 4.3''	

You can find additional information, such as wiring diagrams, in the product's installation guide located in the Technical Library at **www.unitronics.com**.

Power Supply

Item	V130-T38 V130J-T38	V350-T38 V350J-T38	V430J-T38
Input voltage	24VDC		
Permissible range	20.4VDC to 28.8VDC with less than 10% ripple		
Max. current consumption	See Note 1		
npn inputs	180mA@24VDC	205mA@24VDC	205mA@24VDC
pnp inputs	115mA@24VDC	140mA@24VDC	140mA@24VDC

Notes:

1. To calculate the actual power consumption, subtract the current for each unused element from the maximum current consumption value according to the values below:

Backlight	Ethernet card
10mA	35mA
20mA	35mA

V130/J
V350/J/V430J

Digital Inputs
Number of inputs 22. See note 2
Input type See note 2
Galvanic isolation None
Nominal input voltage 24VDC
Input Voltage
24VDC 0-5VDC for Logic ‘0’
7-28.8VDC for Logic ‘1’
npn (sink) 17-28.8VDC for Logic ‘0’
0-5VDC for Logic ‘1’
Input Current 3.7mA@24VDC
Input impedance 3KΩ
Response Time 10ms typical, when used as normal digital input
Input Cable length
Normal digital Input Up to 100 meters
High Speed Input Up to 50 meters, shielded, see Frequency table below
High speed inputs Specifications below apply when wired as HSC/shaft-encoder. See Note 2
Frequency (max) See Note 3

Cable length (max.)	HSC	Shaft-encoder pnp	Shaft-encoder npn
10m	30kHz	20kHz	16kHz
25m	25kHz	12kHz	10kHz
50m	15kHz	7kHz	5kHz

Duty cycle 40-60%
Resolution 32-bit

Notes:
V130/V350/V130J/V350J/V430J-T38 models comprise a total of 22 inputs.

22 inputs may be used as digital inputs. They may be wired, in a group, and set to either npn or pnp via a single jumper. In addition, according to jumper settings and appropriate wiring:

- Inputs 14 and 15 can function as either digital or analog inputs.
- Inputs 0 and 2 can function as, high-speed counters, as part of a shaft-encoder, or as normal digital inputs.
- Inputs 1 and 3 can function as either counter reset, as part of a shaft-encoder, or as normal digital inputs.
- If inputs 0 and 2 are set as high-speed counters (without reset), inputs 1 and 3 can function as normal digital inputs.

pnp/npn maximum frequency is at 24VDC.

Analog Inputs

Number of inputs	2, according to wiring as described above in Note 2.	
Input type	Multi-range inputs: 0-10V, 0-20mA, 4-20mA	
Input range	0-20mA, 4-20mA	0-10VDC
Input impedance	243Ω	>150KΩ
Maximum input rating	25mA, 6V	15V
Galvanic isolation	None	
Conversion method	Successive approximatio n	
Resolution (except 4-20mA)	10-bit (1024 units)	
Resolution (at 4-20mA)	204 to 1023 (820 units)	
Conversion time	One configured input is updated per scan. See Note 4	
Precision	0.9%	
Status indication	Yes – if an analog input deviates above the permissible range, its value will be 1024.	

Notes:
For example, if 2 inputs are configured as analog, it takes 2 scans to update all analog values.

Digital Outputs
Number of outputs 16 transistor pnp (source)
Output type P-MOSFET (open drain)
Isolation None
Output current 0.5A maximum per output
(resistive load) 4A maximum total per common
Maximum frequency 50Hz (resistive load)
0.5Hz (inductive load)
PWM maximum frequency 0.5KHz (resistive load). See Note 4.
Short circuit protection Yes
Short circuit indication Via software
On voltage drop 0.5VDC maximum
Power supply for outputs
Operating voltage 20.4 to 28.8VDC

Nominal voltage 24VDC

Notes:
Outputs 0 to 6 can be used as PWM outputs.

Graphic Display Screen

Item	V130-T38 V130J-T38	V350-T38 V350J-T38	V430J-T38
LCD Type	STN, LCD display	TFT, LCD display	TFT, LCD display
Illumination backlight	White LED	White LED	White LED
Display resolution	128×64 pixels	320×240 pixels	480×272 pixels
Viewing area	2.4″	3.5″	4.3″
Colors	Monochrome	65,536 (16-bit)	65,536 (16-bit)
Screen Contrast	Via software (Store value to SI 7, values range: 0 to 100%)	Fixed	Fixed
Touchscreen	None	Resistive, analog	Resistive, analog
‘Touch’ indication	None	Via buzzer	Via buzzer
Screen brightness control	Via software (Store value to SI 9, 0 = Off, 1 = On)	Via software (Store value to SI 9, values range: 0 to 100%)	
Virtual Keypad	None	Displays virtual keyboard when the application requires data entry.	

Keypad

Item	V130-T38 V130J-T38	V350-T38 V350J-T38	V430J-T38
Number of keys	20 keys,including 10 user-labeled keys	5 programmable function keys	
Key type	Metal dome, sealed membrane switch		
Slides	Slides may be installed in the operating panel faceplate to custom-label the keys. Refer to V130 Keypad Slides.pdf. A complete set of blank slides is available by separate order	Slides may be installed in the operating panel faceplate to custom-label the keys. Refer to V350 Keypad Slides.pdf. Two sets of slides are supplied with the controller: one set of arrow keys, and one blank set.	None

Program

Item	V130-T38 V130J-T38	V350-T38 V350J-T38	V430J-T38
Memory size			
Application Logic	512KB	1MB	1MB
Images	128KB	6MB	12MB
Fonts	128KB	512KB	512KB

Operand type	Quantity		Symbol	Value
Item	**V130-T38 V130J-T38**	**V350-T38 V350J-T38 V430J-T38**		
Memory Bits	4096	8192	MB	Bit (coil)
Memory Integers	2048	4096	MI	16-bit signed/unsigned
Long Integers	256	512	ML	32-bit signed/unsigned
Double Word	64	256	DW	32-bit unsigned
Memory Floats	24	64	MF	32-bit signed/unsigned
Fast Bits	1024	1024	XB	Fast Bits (coil) – not retained
Fast Integers	512	512	XI	16 bit signed/unsigned (fast, not retained)
Fast Long Integers	256	256	XL	32 bit signed/unsigned (fast, not retained)
Fast Double Word	64	64	XDW	32 bit unsigned (fast, not retained)
Timers	192	384	T	Res. 10 ms; max 99h, 59 min, 59.99s
Counters	24	32	C	32-bit
Data Tables	120K dynamic data (recipe parameters, datalogs, etc.) 192K fixed data (read-only data, ingredient names, etc) Expandable via SD card. See Removable Memory below			
HMI displays	Up to 1024			
Program scan time	20µs per 1kb of typical application	15µs per 1kb of typical application		

Removable Memory

Micro SD card

Compatible with standard SD and SDHC; up to 32GB store data logs, Alarms, Trends, Data Tables, backup Ladder, HMI, and OS. See Note 6

Notes:

User must format via Unitronics SD tools utility.

Communication Ports

Port 1 1 channel, RS232/RS485 and USB device (V430/V350/V350J only). See Note 7
Galvanic isolation No
Baud rate 300 to 115200 bps
RS232
Input voltage ±20VDC absolute maximum
Cable length 15m maximum (50’)
RS485
Input voltage -7 to +12VDC differential maximum
Cable type Shielded twisted pair, in compliance with EIA 485
Cable length 1200m maximum (4000’)
Nodes Up to 32

USB device
(V430/V350/V350J only)

Port type Mini-B, See Note 9
Specification USB 2.0 complaint; full speed
Cable USB 2.0 complaint; up to 3m
Port 2 (optional) See Note 8
CANbus (optional) See Note 8

Notes:

- This model is supplied with a serial port: RS232/RS485 (Port 1). The standard is set to either RS232 or RS485 according to jumper settings. Refer to the product's Installation Guide.
- The user may order and install one or both of the following modules:
- An additional port (Port 2). Available port types: RS232/RS485 isolated/non-isolated, Ethernet
- A CANbus port

  Port module documentation is available on the Unitronics website.
- Note that physically connecting a PC to the controller via USB suspends RS232/RS485 communications via Port 1. When the PC is disconnected, RS232/RS485 resumes.

I/O Expansion
Additional I/Os may be added. Configurations vary according to module. Supports digital, high-speed, analog, weight and temperature measurement I/Os.
Local
Via I/O Expansion Port. Integrate up to 8 I/O Expansion Modules comprising up to 128 additional I/Os. Adapter required (P.N. EX-A2X).
Remote
Via CANbus port. Connect up to 60 adapters to a distance of 1000 meters from controller; and up to 8 I/O expansion modules to each adapter (up to a total of 512 I/Os). Adapter required (P.N. EX-RC1).

Miscellaneous

Clock (RTC) Real-time clock functions (date and time)
Battery back-up 7 years typical at 25°C, battery back-up for RTC and system data, including variable data
Battery replacement Yes. Coin-type 3V, lithium battery, CR2450

Dimensions

Item		V130-T38 V130J-T38	V350-T38 V350J-T38	V430J-T38
Size	Vxxx	109 x 114.1 x 68mm (4.29 x 4.49 x 2.67"). See Note 10	109 x 114.1 x 68mm (4.29 x 4.49 x 2.67"). See Note 10	
	Vxxx-J	109 x 114.1 x 66mm (4.92 x 4.49 x 2.59"). See Note 10	109 x 114.1 x 66mm (4.92 x 4.49 x 2.59"). See Note 10	136 x 105.1 x 61.3mm (5.35 x 4.13 x 2.41"). See Note 10
Weight		335g (11.81 oz)	355g (12.52 oz)	385g (13.58 oz)

Notes:
For exact dimensions, refer to the product's Installation Guide.

Environment
Operational temperature 0 to 50ºC (32 to 122ºF)
Storage temperature -20 to 60ºC (-4 to 140ºF)
Relative Humidity (RH) 10% to 95% (non-condensing)
Mounting method Panel mounted (IP65/66/NEMA4X)
DIN-rail mounted (IP20/NEMA1)
Operating Altitude 2000m (6562 ft)

Shock	IEC 60068-2-27, 15G, 11ms duration
Vibration	IEC 60068-2-6, 5Hz to 8.4Hz, 3.5mm constant amplitude, 8.4Hz to 150Hz, 1G acceleration.

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Documents / Resources

	UNITRONICS V130-33-T38 Micro-PLC+HMIs Rugged Programmable Logic Controllers [pdf] User Guide V130-33-T38, Micro-PLC HMIs Rugged Programmable Logic Controllers, Programmable Logic Controllers, Micro-PLC HMIs, Logic Controllers, Controllers

References

- Home - Unitronics
- Home - Unitronics
- Technical library- about PLC Controllers, HMI panels, automation & control

Manuals+,