VISION350™

Advanced PLC integrated with a 3.5" color touchscreen. Includes an onboard I/O configuration; expand up to 512 I/Os

Features:

HMI

- 1024 user-designed screens
- 250 images per application
- HMI graphs - color-code Trends
- Built-in alarm screens
- Text String Library - easy localization
- Memory and communication monitoring via HMI - No PC needed

PLC

- I/O options include high-speed, temperature & weight measurement
- Auto-tune PID, up to 24 independent loops
- Recipe programs and datalogging via Data Tables
- Micro SD card - log, backup, clone & more
- Date & Time-based control

Communication

- TCP/IP via Ethernet
- Web server: Use built-in HTML pages, or design complex pages to view and edit PLC data via the Internet
- Send e-mail function
- SMS messaging
- GPRS/GSM
- Remote Access utilities
- MODBUS protocol support
- CANbus: CANopen, UniCAN, SAE J1939 and more
- DF1 Slave
- SNMP Agent V1
- FB Protocol Utility: enables serial or TCP/IP communications with 3rd-party device; barcode readers, frequency converters, etc
- Ports: supplied with 1 RS232/RS485; 2 ports may be added: 1 Serial/Ethernet/Profibus and 1 CANbus

V350-J
Flat Panel

V350
Classic Panel

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spectra

> There were significant cost savings using the Unitronics PLC.

Justin Butler,
Senior Electrical Engineer at Energy Plant Solutions

CE/UL

V350

V350-S-TA24
V350-JS-TA24

Article Number	Classic Panel	V350-35-B1	V350-35-TR20	V350-35-R34	V350-35-TR34	V350-35-TR6	V350-35-RA22	V350-35-TRA22	V350-35-T2	V350-35-T38	V350-35-TA24
	Flat Panel	V350-J-B1	V350-J-TR20	V350-J-R34	V350-J-TR34	V350-J-TR6	V350-J-RA22	V350-J-TRA22	V350-J-T2	V350-J-T38	V350-J-TA24
		No onboard I/Os	**10** Digital **2** D/A Inputs[1] **6** Relay Outputs **2** High-speed Transistor Outputs	**20** Digital **2** D/A Inputs[1] **12** Relay Outputs	**20** Digital **2** D/A Inputs[1] **8** Relay **4** High speed Transistor Outputs	**6** Digital, **2** D/A **4** Analog Inputs[1] **6** Relay Outputs **2** High-speed Transistor Outputs	**8** Digital, **2** D/A **2** PT100/TC/ Digital[1] Inputs **8** Relay **2** Analog Outputs	**8** Digital, **2** D/A **2** PT100/TC/ Digital[1] Inputs **4** Relay, **2** Analog **4** High-speed Transistor Outputs	**10** Digital **2** D/A Inputs[1] **12** Transistor Outputs	**20** Digital **2** D/A Inputs[1] **16** Transistor Outputs	**8** Digital **2** D/A, **2** PT100/ TC/Digital[1] Inputs **10** Transistor **2** Analog Outputs
Inputs		None									
Digital pnp/npn			**12**	**22**	**22**	**8**	**12**	**12**	**12**	**22**	**12**
HSC/Shaft-Encoder/ Max. Freq. Measurer[2&3]			**3** 200kHz[4] 32-bit	**3** 30kHz 32-bit	**3** 200kHz[4] 32-bit	**1** 200kHz[4] 32-bit	**1** 30kHz 32-bit	**1** 200kHz[4] 32-bit	**3** 30kHz 32-bit	**2** 30kHz 32-bit	**1** 30kHz 32-bit
Analog			**2** 10-bit, 0-10V 0-20mA 4-20mA	**2** 10-bit, 0-10V 0-20mA 4-20mA	**2** 10-bit,0-10V 0-20mA 4-20mA	**2** 10-bit, 0-10V 0-20mA, 4-20mA **and** **4** 10-bit, 0-20mA 4-20mA	**2** 14-bit 0-10V, 0-20mA 4-20mA **and** **2** PT100/TC	**2** (2 modes) Normal: 14-bit Fast: 12-bit 0-10V, 0-20mA 4-20mA **and** **2** PT100/TC	**2** 10-bit 0-10V 0-20mA 4-20mA	**2** 10-bit 0-10V, 0-20mA 4-20mA	**2** (2 modes) Normal:14-bit Fast: 12-bit 0-10V, 0-20mA, 4-20mA **and** **2** PT100/TC
Temperature Measurement			None	None	None	None			None	None	
Outputs		None									
Digital			**6** relay	**12** relay	**8** relay	**6** relay	**8** relay	**4** relay	**12** pnp	**16** pnp	**10** pnp
High-Speed Outputs/PWM			**2** npn (2 PTO) 200kHz max	None	**4** npn (3 PTO) 200kHz max	**2** npn (2 PTO) 200kHz max	None	**2** npn (2 PTO) 200kHz max	**7** 0.5kHz	**7** 0.5kHz	**5** 0.5kHz
Analog			None	None	None	None	**2** 12-bit 0-10V, 4-20mA	**2** 12-bit 0-10V, 4-20mA	None	None	**2** 12-bit 0-10V, 4-20mA
I/O Expansion		Local or Remote I/Os may be added via expansion port or via CANbus									
Program											
Application Memory		Application Logic: 1MB • Images: 6MB • Fonts: 512K									
Scan Time		15µ sec per 1K of typical application									
Memory Operands		8192 coils, 4096 registers, 512 long integers (32-bit), 256 double words (32-bit unsigned), 64 floats, 384 timers (32-bit), 32 counters Additional non-retainable operands: 1024 X-bits, 512 X-integers, 256 X-long integers, 64 X-double words									
Data Tables		120K dynamic RAM data (recipe parameters, datalogs, etc.), up to 256K fixed data									
SD Card (Micro)		Store datalogs, Alarm History, Data Tables, Trend data, export to Excel • Back up Ladder, HMI & OS, clone PLCs									
Enhanced Features		Trends: graph any value and display on HMI • String Library: instantly switch HMI language									
Operator Panel											
Type & Colors		TFT LCD • 65,536 colors, 16-bit resolution • Brightness- Adjustable via touchscreen or software									
Display		Resolution: 320 x 240 pixels (QVGA) • Size: 3.5”									
Touchscreen		Resistive, Analog									
Keys		5 programmable keys. Labeling options- function keys, arrows, or customized									
General											
Power Supply		24VDC, except for V350-35-B1, which is 12/24VDC									
Battery		7 years typical at 25°C, battery back-up for all memory sections and RTC									
Clock		Real-time clock functions (date and time)									
Environment		IP66/IP65/NEMA4X (when panel mounted)									
Standard		CE, UL Many of our products are also UL Class 1 Div 2 and GOST certified - please contact Unitronics									

Vision™ OPLC™

V130-33-B1/V130-J-B1 Art. No. 119695 / 130988
V350-35-B1/V350-J-B1 Art. No. 118570 / 130501
V430-J-B1 Art. No. 142948
Technical Specifications

Order Information

Item	
V130-33-B1	PLC with Classic panel, Monochrome display 2.4"
V130-J-B1	PLC with Flat panel, Monochrome display 2.4"
V350-35-B1	PLC with Classic panel, Color touch display 3.5''
V350-J-B1	PLC with Flat panel, Color touch display 3.5''
V430-J-B1	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-B1 V130J-B1	V350-B1 V350J-B1	V430J-B1
Input voltage	12VDC or 24VDC		
Permissible range	10.2VDC to 28.8VDC with less than 10% ripple		
Max. current consumption	See Note 1		
npn inputs	200mA@24VDC	220mA@24VDC	220mA@24VDC
pnp inputs	100mA@24VDC	110mA@24VDC	110mA@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:

	Input voltage	Backlight	Ethernet card
V130/J	12V	20mA	70mA
V350/J/V430J		40mA	70mA
V130/J	24V	10mA	35mA
V350/J/V430J		20mA	35mA

Graphic Display Screen

Item	V130-B1 V130J-B1	V350-B1 V350J-B1	V430J-B1
LCD Type	STN, LCD display	TFT, LCD display	TFT, LCD display
Illumination backlight	White LED	White LED	White LED
Display resolution	128x64 pixels	320x240 pixels	480x272 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-B1 V130J-B1	V350-B1 V350J-B1	V430J-B1
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-B1 V130J-B1	V350-B1 V350J-B1	V430J-B1
Memory size			
Application Logic	512KB	512KB	512KB
Images	256KB	6MB	12MB
Fonts	128KB	1MB	1MB

Operand type	Quantity		Symbol	Value
Item	**V130-B1 V130J-B1**	**V350-B1 V350J-B1 V430J-B1**		
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 datalogs, Alarms, Trends, Data Tables, backup Ladder, HMI, and OS. See Note 2

Notes:

2. User must format via Unitronics SD tools utility.

Communication Ports

Port 1	1 channel, RS232/RS485 and USB device (V430 only). See Note 3
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 only)**	
Port type	Mini-B, See Note 5
Specification	USB 2.0 complaint; full speed
Cable	USB 2.0 complaint; up to 3m
Port 2 (optional)	See Note 4
CANbus (optional)	See Note 4

Notes:

3. 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.
4. 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.
5. 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-B1 V130J-B1	V350-B1 V350J-B1	V430J-B1
Size	Vxxx	109 x 114.1 x 68mm (4.29 x 4.49 x 2.67”). See Note 6	109 x 114.1 x 68mm (4.29 x 4.49 x 2.67”). See Note 6	
	Vxxx-J	109 x 114.1 x 66mm (4.92 x 4.49 x 2.59”). See Note 6	109 x 114.1 x 66mm (4.92 x 4.49 x 2.59”). See Note 6	136 x 105.1 x 61.3mm (5.35 x 4.13 x 2.41”). See Note 6
Weight		255g (9 oz)	270g (9.5 oz)	300g (10.5 oz)

Notes:

6. 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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