

VISION 130™

Palm-size, powerful PLC with built-in, black & white LCD 3.5" graphic display, keypad, & onboard I/O configuration, expand up to 256 I/Os

Features:

HMI

- 1024 user-designed screens
- 400 images per application
- HMI graphs & 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, 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



V130-J
Flat Panel



V130
Classic Panel

“The perfect solution for our need, the Vision130™ is easy to program, user-friendly and backed up with responsive tech support.”



Michael Lamore,
President of Barrier1

| | | V130 | | | | | | | | | |
|--|---------------|---|---|---|---|--|--|--|--|--|---|
| Article Number | Classic Panel | V130-33-B1 | V130-33-TR20 | V130-33-R34 | V130-33-TR34 | V130-33-TR6 | V130-33-RA22 | V130-33-TRA22 | V130-33-T2 | V130-33-T38 | V130-33-TA24 |
| | Flat Panel | V130-J-B1 | V130-J-TR20 | V130-J-R34 | V130-J-TR34 | V130-J-TR6 | V130-J-RA22 | V130-J-TRA22 | V130-J-T2 | V130-J-T38 | V130-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 | | | | | | | | | | | |
| 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 | | None | 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 | 2 (2 modes) Normal: 14-bit Fast: 12-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 (2 modes) Normal: 14-bit Fast: 12-bit 0-10V, 0-20mA, 4-20mA and 2 PT100/TC |
| Temperature Measurement | | | None | None | None | None | and 2 PT100/TC | and 2 PT100/TC | None | None | |
| Outputs | | | | | | | | | | | |
| Digital | | | 6 relay | 12 relay | 8 relay | 6 relay | 8 relay | 4 relay | 12 pnp | 16 pnp | 10 pnp |
| High-Speed Outputs/PWM | | None | 2 npn (2 PTO) 200kHz max | None | 4 npn (3 PTO) 200kHz max | 2 npn (2 PTO) 200kHz max | None | 4 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 Logic: 512K • Images: 256K • Fonts: 128K | | | | | | | | | |
| Application Memory | | Application Logic: 512K • Images: 256K • Fonts: 128K | | | | | | | | | |
| Scan Time | | 20µ sec per 1K of typical application | | | | | | | | | |
| Memory Operands | | 4096 coils, 2048 registers, 256 long integers (32-bit), 64 double words (32-bit unsigned), 24 floats, 192 timers (32-bit), 24 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 • Built-in Alarm management system • String Library: instantly switch HMI language | | | | | | | | | |
| Operator Panel | | Graphic STN LCD, white LED backlight | | | | | | | | | |
| Type | | Graphic STN LCD, white LED backlight | | | | | | | | | |
| Display | | Resolution: 128 x 64 pixels • Size: 2.4" | | | | | | | | | |
| Keys | | 20, including 10 user labeled keys (slide kit sold separately) | | | | | | | | | |
| General | | 24VDC, except for V130-33-B1, which is 12/24VDC | | | | | | | | | |
| Power Supply | | 24VDC, except for V130-33-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 | | | | | | | | | |

¹ In these models certain inputs are adaptable, and can function as either digital, analog, and in certain models also as thermocouple or PT100. Using adaptable inputs reduces the amount of free digital inputs. For example, V130-33-RA22 offers 12 digital inputs. Implementing 2 TC inputs requires 4 digital inputs, leaving 8 free.

² Certain inputs can function as high-speed counters, shaft-encoder inputs, or normal digital inputs.

³ This specification depends on cable length.

⁴ This specification depends upon driver type.

Vision™ OPLC™

V130-33-R34/V130-J-R34 Art. No. 117829
V350-35-R34/V350-J-R34 Art. No. 130989
V430-J-R34 Art. No. 142956
Technical Specifications

Order Information

Item

| | |
|-------------|--|
| V130-33-R34 | PLC with Classic panel, Monochrome display 2.4" Art. No. 117829 |
| V130-J-R34 | PLC with Flat panel, Monochrome display 2.4" Art. No. 130989 |
| V350-35-R34 | PLC with Classic panel, Color touch display 3.5" Art. No. 117964 |
| V350-J-R34 | PLC with Flat panel, Color touch display 3.5" Art. No. 130503 |
| V430-J-R34 | PLC with Flat panel, Color touch display 4.3" Art. No. 142956 |

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-R34 V130J-R34 | V350-R34 V350J-R34 | V430J-R34 |
|--------------------------|--|-----------------------|-------------|
| Input voltage | 24VDC | | |
| Permissible range | 20.4VDC to 28.8VDC with less than 10% ripple | | |
| Max. current consumption | See Note 1 | | |
| npn inputs | 245mA@24VDC | 275mA@24VDC | 275mA@24VDC |
| pnp inputs | 170mA@24VDC | 200mA@24VDC | 200mA@24VDC |

Notes:

- 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 | Relay Outputs (per output) |
|--------------|-----------|---------------|----------------------------|
| V130/J | 10mA | 35mA | 5mA |
| V350/J/V430J | 20mA | 35mA | 5mA |

Digital Inputs

| | |
|-----------------------|--|
| Number of inputs | 22. See note 2 |
| Input type | See note 2 |
| Galvanic isolation | None |
| Nominal input voltage | 24VDC |
| Input Voltage | |
| pnp (source) | 0-5 VDC for Logic '0' 17-28.8 VDC for Logic '1' |
| npn (sink) | 17-28.8 VDC for Logic '0' 0-5 VDC for Logic '1' |
| Input Current | 3.7mA@24VDC |
| Input impedance | 6.5KΩ |
| 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:

2. This model comprises a total of 22 inputs. Input functionality can be adapted as follows:
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, 2, and 4 can function as high-speed counters, as part of a shaft-encoder, or as normal digital inputs.
- Inputs 1, 3, and 5 can function as either counter reset, as part of a shaft-encoder, or as normal digital inputs.
- If inputs 0, 2 and 4 are set as high-speed counters (without reset), inputs 1, 3 and 5 can function as normal digital inputs.

3. 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 approximation | |
| 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:

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

Relay Outputs

| | |
|--------------------|--|
| Number of outputs | 12 relay (in 3 groups). See Note 5 |
| Output type | SPST-NO (Form A) |
| Galvanic isolation | By relay |
| Type of relay | Tyco PCN-124D3MHZ or compatible |
| Output current | 3A maximum per output |
| (resistive load) | 8A maximum total per common |
| Rated voltage | 250VAC/30VDC |
| Minimum load | 1mA, 5VDC |
| Life expectancy | 100k operations at maximum load |
| Response time | 10ms (typical) |
| Contact protection | External precautions required (see Increasing Contact Life Span in the product's Installation Guide) |

Notes:

- 5. Outputs 0, 1, 2, and 3 share a common signal.
- Outputs 4, 5, 6, and 7 share a common signal.
- Outputs 8, 9, 10, and 11 share a common signal.

Graphic Display Screen

| Item | V130-R34 V130J-R34 | V350-R34 V350J-R34 | V430J-R34 |
|---------------------------|---|---|-------------------|
| 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-R34 V130J-R34 | V350-R34 V350J-R34 | V430J-R34 |
|----------------|---|--|-----------|
| 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 <i>V130 Keypad Slides.pdf</i> . 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 <i>V350 Keypad Slides.pdf</i> . Two sets of slides are supplied with the controller: one set of arrow keys, and one blank set. | None |

Program

| Item | V130-R34 | V350-R34 | V430J-R34 | |
|--------------------|--|---|-----------|--|
| | V130J-R34 | V350J-R34 | | |
| Memory size | | | | |
| Application Logic | 512KB | 512KB | | 512KB |
| Images | 256KB | 6MB | | 12MB |
| Fonts | 128KB | 1MB | | 1MB |
| Operand type | | | | |
| | Quantity | | Symbol | Value |
| Item | V130-R34 | V350-R34 | | |
| | V130J-R34 | V350J-R34 | V430J-R34 | |
| 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 6

Notes:

6. User must format via Unitronics SD tools utility.

Communication Ports

| | |
|------------------------|---|
| Port 1 | 1 channel, RS232/RS485 and USB device (V430 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 only) | |
| Port type | Mini-B, See Note 9 |
| Specification | USB 2.0 compliant; full speed |
| Cable | USB 2.0 compliant; up to 3m |
| Port 2 (optional) | See Note 8 |
| CANbus (optional) | See Note 8 |

Notes:

7. 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.
8. 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 portPort module documentation is available on the Unitronics website.
9. 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-R34 | V350-R34 | V430J-R34 |
|--------|--------|---|---|---|
| | | V130J-R34 | V350J-R34 | |
| 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 | | 227g (8 oz) | 245g (8.64 oz) | 275g (9.7 oz) |

Notes:

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

Environment

| | |
|-------------------------|--|
| Operational temperature | 0 to 50°C (32 to 122°F) |
| Storage temperature | -20 to 60°C (-4 to 140°F) |
| 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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