

# Vision™ OPLC™

## V130-33-R34/V130-J-R34 V350-35-R34/V350-J-R34 V430-J-R34 Technical Specifications

### Order Information

#### Item

|             |  |
|-------------|--|
| V130-33-R34 | PLC with Classic panel, Monochrome display 2.4"  |
| V130-J-R34  | PLC with Flat panel, Monochrome display 2.4"     |
| V350-35-R34 | PLC with Classic panel, Color touch display 3.5" |
| V350-J-R34  | PLC with Flat panel, Color touch display 3.5"    |
| V430-J-R34  | PLC with Flat panel, Color touch display 4.3"    |

### Power Supply

| Item                     | V130-R34<br>V130J-R34                        | V350-R34<br>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:

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 | 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'<br>17-28.8 VDC for Logic '1'   |
| npn (sink)            | 17-28.8 VDC for Logic '0'<br>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:**

- 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.
- 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:**

- 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<br>V130J-R34   | V350-R34<br>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<br>(Store value to SI 7,<br>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<br>(Store value to SI 9,<br>0 = Off, 1 = On)         | Via software<br>(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<br>V130J-R34   | V350-R34<br>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      |

| <b>Program</b>     |  |   |                  |  |
|--------------------|--|---|------------------|--|
| <b>Item</b>        | <b>V130-R34<br/>V130J-R34</b>  | <b>V350-R34<br/>V350J-R34</b>               | <b>V430J-R34</b> |  |
| Memory size        |  |   |                  |  |
| Application Logic  | 512KB  | 512KB                                       |                  | 512KB  |
| Images             | 256KB  | 6MB   |                  | 12MB   |
| Fonts              | 128KB  | 1MB   |                  | 1MB  |
| Operand type       | Quantity   |   | Symbol           | Value  |
| <b>Item</b>        | <b>V130-R34<br/>V130J-R34</b>  | <b>V350-R34<br/>V350J-R34<br/>V430J-R34</b> |                  |  |
| 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<br>(fast, not retained) |
| Fast Long Integers | 256  | 256   | XL               | 32 bit signed/unsigned<br>(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.)<br>192K fixed data (read-only data, ingredient names, etc)<br>Expandable via SD card. See Removable Memory below |   |                  |  |
| HMI displays       | Up to 1024   |   |                  |  |
| Program scan time  | 20µs per 1kb<br>of typical<br>application  | 15µs per 1kb<br>of typical<br>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.

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## 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 ( <b>V430 only</b> ) |   |
| 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:

- 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.

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## I/O Expansion

|        |   |
|--------|---|
|        | Additional I/Os may be added. Configurations vary according to module.<br>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). |

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## 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  |

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## Dimensions

| Item   |        | V130-R34  | V350-R34  | V430J-R34   |
|--------|--------|---|---|---|
|        |        | V130J-R34   | V350J-R34   |   |
| Size   | Vxxx   | 109 x 114.1 x 68mm<br>(4.29 x 4.49 x 2.67").<br>See Note 10 | 109 x 114.1 x 68mm<br>(4.29 x 4.49 x 2.67").<br>See Note 10 |   |
|        | Vxxx-J | 109 x 114.1 x 66mm<br>(4.92 x 4.49 x 2.59").<br>See Note 10 | 109 x 114.1 x 66mm<br>(4.92 x 4.49 x 2.59").<br>See Note 10 | 136 x 105.1 x 61.3mm<br>(5.35 x 4.13 x 2.41").<br>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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DOC13037-A6 01/15