Vision™ OPLC™

V350-35-R34
Technical Specifications

This guide provides specifications for Unitronics' model V350-35-R34. General features include: 22 pnp/npn Digital, including 2 Analog, 3 HSC/Shaft-encoder Inputs, 12 Relay Outputs, I/O Expansion Port, built-in RS232/RS485. Available by separate order: Ethernet, additional RS232/RS485, CANbus.

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

Technical Specifications

Power Supply

Input voltage	24VDC
Permissible range	20.4VDC to 28.8VDC with less than 10% ripple
Max. current consumption	See Note 1
npn inputs	255mA@24VDC
pnp inputs	180mA@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)
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)	0-5VDC for Logic '0' 17-28.8VDC for Logic '1'
npn (sink)	17-28.8VDC for Logic '0' 0-5VDC for Logic '1'
Input current	3.7mA@24VDC
Input impedance	6.5KΩ
Response time	10mSec typical, when used as normal digital inputs
Input cable length	Up to 100 meters, unshielded
High speed inputs	Specifications below apply when wired as HSC / shaft-encoder. See Note 2
Resolution	32-bit
Frequency	10kHz maximum
Minimum pulse width	40µs

Notes:

2. This model comprises a total of 22 inputs. Input functionality can be adapted as follows:
   All 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.

Digital Outputs

Number of outputs	12 relay (in 3 groups). See Note 3
Output type	SPST-NO (Form A)
Isolation	By relay
Type of relay	Tyco PCN-124D3MHZ or compatible
Output current	3A maximum (resistive load)
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:

3. 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.

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	15 V
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	Synchronized to cycle time	
Precision	0.9%	
Status indication	Yes – if an analog input deviates above the permissible range, its value will be 1024.	

Graphic Display Screen

LCD Type	TFT, LCD display
Illumination backlight	White LED, software-controlled
Display resolution	320 x 240 pixels
Viewing area	3.5"
Colors	256
Touchscreen	Resistive, analog
'Touch' indication	Via buzzer
Screen brightness	Via software (Store value to SI 9).
Keypad	Displays virtual keyboard when the application requires data entry.

Keys

Number of 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 V350 Keypad Slides.pdf. Two sets of slides are supplied with the controller: one set of arrow keys, and one blank set.

Program

Memory size: Application Logic – 1Mb, Images – 3Mb, Fonts – 512 Kb

Operand type	Quantity	Symbol	Value
Memory Bits	8192	MB	Bit (coil)
Memory Integers	4096	MI	16-bit signed/unsigned
Long Integers	512	ML	32-bit signed/unsigned
Double Word	256	DW	32-bit unsigned
Memory Floats	64	MF	32-bit signed/unsigned
Timers	384	T	32-bit
Counters	32	C	16-bit

Data Tables	120K dynamic data (recipe parameters, datalogs, etc.), 192K fixed data (read-only data, ingredient names, etc)
HMI displays	Up to 1024
Program scan time	15µS per 1kb of typical application

Communication Ports

Port 1	1 channel, RS232/RS485. See Note 4
Galvanic isolation	No
Baud rate	300 to 115200 bps
RS232	
Input voltage	±20VDC absolute maximum
Cable length	15m maximum (50 feet)
RS485	
Input voltage	-7 to +12VDC differential maximum
Cable type	Shielded twisted pair, in compliance with EIA 485
Cable length	1200m maximum (4000 feet)
Nodes	Up to 32
Port 2 (optional)	See Note 5
CANbus (optional)	See Note 5

Notes:

4. 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.
5. 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.

I/O Expansion Port

Expansion modules	Via adapter, use up to 8 I/O Expansion Modules comprising up to 128 additional I/Os. Number of I/Os and types vary according to module.

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

Size	109 x 114.1 x 68mm (4.29 x 4.49 x 2.67"). See Note 6
Weight	227g (8 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/NEMA4X) DIN-rail mounted (IP20/NEMA1)

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