Vision™ OPLC™

V130-33-T2/V130-J-T2 Technical Specifications

The Unitronics V130-33-T2/V130-J-T2 offers the following onboard I/Os:

- 12 Digital Inputs, configurable via wiring to include 2 Analog and 3 HSC/Shaft-encoder Inputs
- 12 Transistor Outputs

I/O configurations can be expanded to include up to 256 I/Os via Expansion Modules.
Available by separate order: Ethernet, additional RS232/RS485, CANbus,Profibus Slave.

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	210mA@24VDC
pnp inputs	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:

Backlight	Ethernet card
10mA	35mA

Digital Inputs

Number of inputs	12. 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	8mA@24VDC
Input impedance	3KΩ
Response time	10ms typical, when used as normal digital inputs
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
10m	30kHz	20kHz
25m	30kHz	13kHz
50m	25kHz	9kHz

Duty cycle	40-60%
Resolution	32-bit

Notes:

2. This model comprises a total of 12 inputs. Input functionality can be adapted as follows:
   12 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 10 and 11 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, 4 are set as high-speed counters (without reset), inputs 1, 3, 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	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	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.

Digital Outputs

Number of outputs	12 transistor pnp (source)
Output type	P-MOSFET (open drain)
Isolation	None
Output current (resistive load)	0.5A maximum per output 3A maximum total per common
Maximum frequency	50Hz (resistive load) 0.5Hz (inductive load)
PWM maximum frequency	0.5KHz (resistive load). See Note 5
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:

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

Graphic Display Screen

LCD Type	STN, LCD display
Illumination backlight	White LED, software-controlled
Display resolution	128x64 pixels
Viewing area	2.4"
Screen contrast	Via software (Store value to SI 7). Refer to VisiLogic Help topic *Setting LCD Contrast*.

Keypad

Number of keys	20 keys, including 10 user-labeled keys
Key type	Metal dome, sealed membrane switch
Slides	Slides may be installed in the operating panel faceplate to custom-label the keys and logo picture. A complete set of blank slides is available by separate order. Refer to *V130 Keypad Slides.pdf*

Program

Memory size	Application Logic – 512kb, Images – 256 kb, Fonts – 128 kb		
Operand type	Quantity	Symbol	Value
Memory Bits	4096	MB	Bit (coil)
Memory Integers	2048	MI	16-bit signed/unsigned
Long Integers	256	ML	32-bit signed/unsigned
Double Word	64	DW	32-bit unsigned
Memory Floats	24	MF	32-bit signed/unsigned
Fast Bits	1023	XB	Fast Bits (coil) – not retained
Fast Integers	512	XI	16 bit signed/unsigned (fast, not retained)
Fast Long Integers	256	XL	32 bit signed/unsigned (fast, not retained)
Fast Double Word	64	XDW	32 bit unsigned (fast, not retained)
Timers	192	T	Res. 10 ms; max 99h, 59 min, 59.99 s
Counters	24	C	16-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

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. 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
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 port
   Port module documentation is available on the Unitronics website.

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. 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

Size	V130	109 x 114.1 x 68mm (4.29 x 4.49 x 2.67"). See Note 9
	V130-J	109 x 114.1 x 66mm (4.29 x 4.49 x 2.67"). See Note 9
Weight		211g (7.44 oz)

Notes:

9. 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)