

# JAZZ™ PLC+HMI

## Technical Specifications

### JZ20-UA24

### JZ20-J-UA24

### JZ20-UN20

### JZ20-J-UN20

- 9 Digital Inputs including one HSC, 2 Analog/Digital inputs, 2 Analog Inputs, 2 PT100/TC, 5 Relay Outputs, 2 Transistor Outputs, 2 Analog Outputs
- 9 Digital Inputs including one HSC, 2 Analog/Digital Inputs, 1 Analog Input, 1 PT100/TC, 5 Relay Outputs, 2 Transistor Outputs

This guide provides specifications for Unitronics' Micro-PLC+HMI™ JZ20-UA24/JZ20-J-UA24, JZ20-UN20/JZ20-J-UN20.

You can find additional documentation in the Technical Library at [www.unitronicsPLC.com](http://www.unitronicsPLC.com).

#### Power supply

Input voltage	24VDC	
Permissible range	20.4VDC to 28.8VDC with less than 10% ripple	
Current Consumption	See Note 1	
	JZ20-UA24	JZ20-UN20
	JZ20-J-UA24	JZ20-J-UN20
Max. current consumption	230mA@24VDC	185mA@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:

	Per relay output	LCD backlight	Per Analog Output, (JZ20-UA24/JZ20-J-UA24 only)
Max. current per element	5.5mA@24VDC	35mA@24VDC	23mA

#### Digital Inputs

Number of inputs	11 (Two groups) – see Note 2 & 3	
Input type	pnp (source) or npn (sink)	
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'	
	I0-I8	I9-I10
Input current	3.7mA@24VDC	1.2mA@24VDC
Response time	10mSec typical	20mSec typical
Input cable length	Up to 100 meters, unshielded	
High speed inputs	Specifications below apply when wired as H.S.C. See Note 4.	
Resolution	16-bit	
Frequency	5kHz maximum	
Minimum pulse width	80µs	

**Notes:**

2. JZ20-UN20/ JZ20-J-UN20 and JZ20-UA24/ JZ20-J-UA24 comprise I0-I8; these inputs are arranged in a single group. Via wiring, the entire group may be set to either pnp or npn.
3. JZ20-UN20/ JZ20-J-UN20 and JZ20-UA24/ JZ20-J-UA24 comprise I9 & I10. These may be wired as either digital or analog inputs, as shown in the JZ20-UA24/ JZ20-J-UA24 and JZ20-UN20/ JZ20-J-UN20 Installation guides. I9 & I10 may be wired as npn, pnp, or 0-10V analog inputs. one input may be wired as pnp, while the other is wired as analog. If one input is wired as npn, the other may not be wired as analog.
4. I0 can function as either a high-speed counter or as a normal digital input. When used as a normal digital input, normal input specifications apply.

**Digital Outputs**

## Relay

Number of Outputs	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 for 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)

## Transistor

Number of Outputs	2 pnp (source) – see Note 5
Output type	P-MOSFET (open drain)
Galvanic isolation	None
Output current (resistive load)	0.5A maximum per output 1A maximum total for common
Maximum frequency	50Hz (resistive load) 2Hz (inductive load)
PWM frequency	1.57Hz, 8 bit duty cycle resolution
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 05-06 can function as a PWM output, or as a normal digital output.

**Analog Inputs**

	JZ20-UA24 / JZ20-J-UA24		JZ20-UN20 / JZ20-J-UN20	
	AN2 and AN3	AN4 and AN5	AN1	AN2 and AN3
Number of inputs	4		3	
Input range	0-20mA, 4-20mA	0-10VDC	0-20mA, 4-20mA	0-10VDC

Input impedance	154Ω	20KΩ	154Ω	20KΩ
Maximum input rating	30mA	28.8V	30mA	28.8V
Galvanic isolation	None			
Conversion method	Successive approximation			
Resolution (except 4-20mA)	10-bit (0 to 1023) or 12-bit (0-4095) - via software			
Resolution (at 4-20mA)	204 to 1023 (820 units) or 819 to 4095 (3277 units) - via software			
Conversion time	20mSec per channel, Synchronized to cycle time			
Accuracy	± 3%			
Status indication	Yes – if an analog input deviates above the permissible range, its value will be 1024/4096 (depends on the selected resolution).			
Input cable length	Up to 30 meters, shielded twisted pair			

**RTD Inputs**

Number of inputs	JZ20-UA24 / JZ20-J- UA24	JZ20-UN20 / JZ20-J-UN20
	2	1
RTD Type	PT100	
Input range	-200 to 600°C/-328 to 1100°F. 1 to 320Ω. See Note 6	
Galvanic isolation	None	
Conversion method	Voltage to frequency	
Resolution	0.1°C/0.1°F - See Note 7	
Conversion time	300mS minimum per channel, depending on software filter type	
Input impedance	>10MΩ	
Auxillary current	150μA typical	
Accuracy	±0.44%	
Status indication	Yes. See Note 8	

**Notes:**

- The device can also measure resistance within the range of 1-320Ω at a resolution of 0.1Ω.
- The input analog value represents the temperature value as follows:  
Analog Value: 260                      Actual measured temperature: 26.0°C
- The analog value can indicate faults as shown below:

<b>Value</b>	<b>Possible Cause</b>
32767	Sensor is not connected to input, or value exceeds permissible range
-32767	Sensor is short-circuited

**Thermocouple Inputs**

Number of inputs	JZ20- UA24/ JZ20-J-UA24	JZ20-UN20 / JZ20-J-UN20
	2	1
Input range	See Note 9	
Isolation	None	
Conversion method	Voltage to frequency	
Resolution	0.1°C/ 0.1°F maximum. See Note 10	
Conversion time	100mS minimum per channel, depending on software filter type	
Input impedance	>10MΩ	
Cold junction compensation	Local, automatic	
Cold junction compensation error	±1.8°C / ±3.24°F maximum	
Absolute maximum rating	±0.6VDC	
Accuracy	±0.44%	

Warm-up time	½ hour typically, $\pm 1^{\circ}\text{C}/\pm 1.8^{\circ}\text{F}$ repeatability
Status indication	Yes. See Note 11

**Notes:**

9. The device can also measure voltage within the range of -5 to 56mV, at a resolution of 0.01mV. The device can also measure raw value frequency at a resolution of 14-bits (16384). Input ranges are shown in the following table:

Type	Temp. Range	Type	Temp. Range
mV	-5 to 56mV	N	-200 to 1300°C (-328 to 3214°F)
B	200 to 1820°C (300 to 3276°F)	R	0 to 1768°C (32 to 3214°F)
E	-200 to 750°C (-328 to 1382°F)	S	0 to 1768°C (32 to 3214°F)
J	-200 to 760°C (-328 to 1400°F)	T	-200 to 400°C (-328 to 752°F)
K	-200 to 1250°C (-328 to 2282°F)		

10. The input analog value represents the temperature value as follows:  
 Analog Value: 260                      Actual measured temperature: 26.0°C
11. The analog value can indicate faults as shown below:

<u>Value</u>	<u>Possible Cause</u>
32767	Sensor is not connected to input, or value exceeds the maximum value
-32767	Sensor value is under the minimum value

**Analog Outputs**

(JZ20-UA24 / JZ20- J-UA24 only)

Number of Outputs	2
Output range	$\pm 10\text{V}$ , 4-20mA
Resolution	12-bit sign(8192 units) for $\pm 10\text{V}$ 12-bit (4096 units) for 4-20mA
Conversion time	Synchronized to scan time.
Load impedance	1k $\Omega$ minimum—voltage 500 $\Omega$ maximum—current
Galvanic isolation	None
Accuracy	$\pm 0.3\%$

**Display**

Type	STN LCD
Illumination backlight	LED, yellow-green, software controlled (LCD backlight; enables the display to be viewed in the dark)
Display size	2 lines, 16 characters long
Character size	5x8 matrix, 2.95x5.55mm

**Keyboard**

Number of keys	16 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. An extra logo slide is included. A complete set of blank slides is available by separate order.

**Program**

Ladder code memory	48K (virtual)
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Execution time	1.5 µSec for bit operations (typical)
Memory bits (coils)	256
Memory integers (registers), 16 bit	256
Timers	64
HMI displays	60 user-designed displays available
HMI variables	64 HMI variables are available to conditionally display text and data. List variables add up to 1.5K's worth of HMI capacity.

**Communication**

GSM-support	Via a built-in USB port or - Add-On module. See Note 12-15 SMS messages to/from 6 phone GSM numbers, up to 1K of user-designed messages. Supports Remote Access.
MODBUS	Supports MODBUS protocol, Master-Slave
Baud rate	According to add-on port module

**USB**

Port type	Mini-B
Galvanic isolation	No
Specification	USB 2.0 compliant; full speed
Baud rate range	300 to 115200 bps
Cable	USB 2.0 compliant; up to 3m

**Notes:**

12. The JZ20 built-in USB port may be used for programming. Add-on Modules are available by separate order for communication and cloning. Note that the USB port and an Add-on module cannot be physically connected at the same time.
13. Add-on module JZ-PRG, with 6-wires communication cable (supplied in PRG kit – see the JZ-PRG Installation Guide) can be used:
  - for programming
  - to connect a modem
14. Add-on module JZ-RS4 (RS232/485), with a standard 4-wire communication cable can be used:
  - for programming
  - to communicate with other devices (including modems/GSM)
  - for RS485 networking.
15. Add-on module MJ20-ET1 enables communication over 100 Mbit/s TCP/IP network:
  - Programming/data exchange with Unitronics software;
  - Data exchange via MODBUS TCP as Master or Slave.

**Miscellaneous**

Clock (RTC)	Real-time clock functions (date and time).
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**Environmental**

Operating 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/NEMA4X) DIN-rail mounted (IP20/NEMA1)

**Dimensions**

Size	147.5X117X46.6mm (5.807" X 4.606" X 1.835"). See Note 16	
Weight	JZ20-UA24	JZ20 -UN20
	JZ20-J-UA24	JZ20-J-UN20
	296 g (10.4 oz)	294 g (10.3 oz)

**Notes:**

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

**Mounting**

Panel mounting	Insert into cut-out: 117 x 89mm (WxH) 4.606"x 3.504"
DIN-rail mounting	Snap unit onto the DIN rail

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