

## Technical data [note]

Features at 25°C env. temp.	Description			
Total configurability	From keypad or serial communications the user selects: input type, type/functionality and display mode of the alarms			
IN1 input for signal ranges see "Ordering codes"	Common characteristics	A/D converter with 50,000 points Update measurement time: 0.2 s Sampling time: 0.5 s Input shift: - 60...+ 60 digit Input filter: 1...30 s (OFF= 0)		
	Accuracy	0.25% ±1 digit (T/C and RTD) 0.1% ±1 digit (mA and mV)	Between 100...240 Vac the error is minimal	
	Resistance thermometer (for DT: R1+R2 must be <320Ω)	Pt100Ω at 0°C (IEC 751) °C/°F selectable	2 or 3 wires connection Burnout (with any combination)	Line: 20Ω max. (3 wires) Thermal drift 0.35°C/10°C env. T. 0.35°C/10Ω line resist.
	Thermocouple	L, J, T, K, S, R, B, N, E, W3, W5 (IEC 584) °C/°F selectable	Internal cold junction compensation with NTC Error 1°C/20°C ±0.5°C Burnout	Line: 150Ω max. Thermal drift <2µV/°C env. T. <5µV/10Ω line resist.
	DC input current (with 2.5Ω ext. shunt)	0/4...20mA, Rj >10MΩ	Engineering units, floating decimal point, configurable Low Range -9999...32000 High Range -9999...32000 100 digits minimum	Input drift: <0.1%/20°C env. T. <5µV/10Ω line resist.
	DC input voltage	0/10...50mV, Rj >10MΩ		
	IN2 secondary input (opt.)	DC input current 0/4...20mA Rj = 30Ω	Accuracy: 0.1% update measurement time: 0.7 s sampling time: 1.5s	
DC input voltage	0/1...5V, 1... 10V Rj > 300kΩ			
Digital inputs 3 logic not isolated logic inputs	Closing an external contact is possible to	Lock the keypad, lock the output, acknowledge alarms, reset min./max. stored values, hold the measure, Hold/sustain display of positive/negative peaks, force the display of a different variable		
OP1 output (opt.)	SPDT relay, 2A/250Vac (4A/120Vac) for resistive load			
OP2 output (opt.)	SPST relay N.O., 2A/250Vac (4A/120Vac) for resistive load			
OP3 output (opt.)	SPST relay N.O., 2A/250Vac (4A/120Vac) for resistive load			
OP4 output (opt.)	SSR drive not isolated: 0/5Vdc, ± 10%, 30mA max. SPST relay N.O., 2A/250Vac (4A/120Vac) for resistive load			
OP5 (opt.) analogue output	To retransmit: IN1	Galvanic isolation: 500Vac/1min Resolution: 12 bit	In current: 0/4...20mA, 750Ω/15V max.	
	IN2 Conditioned measure	Accuracy: 0.1%		
AL1 - AL2 - AL3 - AL4 alarms	Hysteresis	0.1...10.0%		
	Action	Active high	Changing rate threshold 0.1...5.0 digit/s	
		Active low	Action type	Deviation threshold ± range Band threshold 0...range Absolute threshold whole range
			Special functions	Sensor break Acknowledge (latching), activation inhibit (blocking), OR function, ISA-A acknowledge sequence
Serial comms. (opt.)	RS485 isolated, Modbus/Jbus protocol, 1200, 2400, 4800, 9600 bit/s, 3 wires			
Auxiliary power supply	+24Vdc ±20%, 30 mA max. for external transmitter supply			
Operational safety	Measure input	Detection of out of range, short circuit or sensor break with automatic activation of the safety strategies and alerts on display		
	Parameters	A non volatile memory stores for unlimited time all the configuration and parameter values		
	Access protection	Password to access the configuration and parameters data, keypad lock, outputs lock		
General characteristics	Power supply (PTC protected)	100...240Vac (-15...+10%) 50/60Hz or 24Vac (-25...+15%) 50/60Hz and 24Vdc (-15...+25%)	Power consumption 4W max.	
	Safety	Compliance EN61010-1 (IEC 1010-1), installation class 2 (2.5kV), pollution class 2, class II instrument		
	Electromagnetic compatibility	Compliance to the CE standards for industrial system and equipment		
	UL and cUL approval	File E176452		
	Protection EN60529 (IEC529)	IP65 front panel		
Dimensions	1/8 DIN - 96 x 48, depth 110 mm, weight 250g approx.			

### Measure conditioning

Primary input IN1 can be conditioned by the secondary input IN2, the result is the conditioned input (C<sub>in</sub>). The possible conditioning operations are:

Id	Description
In1	Cin = IN1
In2	Cin = IN2
Sum	Cin = IN1 + IN2
Sub	Cin = IN1 - IN2
Avg	Cin = (IN1 + IN2)/2
Hi	Cin = MAX (IN1, IN2)
Lo	Cin = Min (IN1, IN2)
MUL	Cin = IN1 * IN2
Div	Cin = IN1/IN2

### Default display variable

When the J3 instrument is set in manual forced display mode (field **M** of order code set at value 5), the user can define the variable that must be displayed as default. Valid values are:

Id	Description
In1	Input 1
In2	Input 2
C <sub>in</sub>	Conditioned input
Lo	Minimum stored value
Hi	Maximum stored value
Unit	Selected engineering unit

### Other functions

- **Keypad lock/unlock** function: to avoid incorrect operator actions
- **Outputs lock/unlock** function: at any moment it is possible set the outputs to OFF, but not the process variable display, without switching-off the power supply.
- **Max./min. display** function: at any time the operator can display the max./min. value stored in the instrument using the keys (max. value). (min value).
- **Peaks and Valleys display** function: the instrument has the capability to display the maximum and the minimum values read, in 2 different modes activated through the digital inputs.

- **Positive/Negative peak hold display**, when the operator activates the digital input, the instrument shows the minimum or the maximum value read. The displayed number changes in case of a reading lower/higher than the stored values.
- **Positive/Negative peak sustained display**, when the operator activates the digital input, all the times the instrument reads a min./max. value, points out it on the display for a programmable period of time (HL dt). At the end of the programmed time, the display returns at the normal operation.

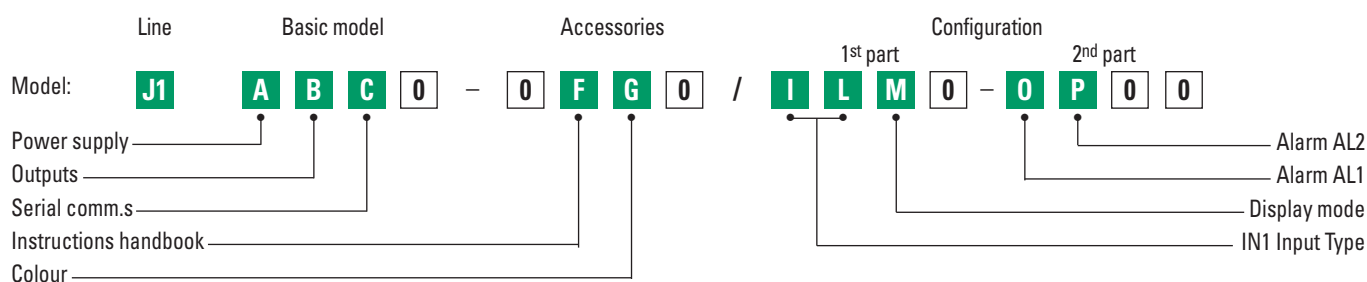
**Note:** The **Features** written in **green** are available only for the J3 model.

## "ISA A" Alarm acknowledge sequence

The alarm intervention activates both the visual alarm (the alarm LED on the display) and the audible alarm (the OP output used to activate for example a buzzer or a siren). When the operator acknowledges the alarm, the status of the two alarms differs if the alarm condition has been removed or not. In the table that follows the visual and audible alarm status are pointed out for each condition.

Status	Status changes				Visual alarm (alarm LED)	Audible alarm (OP output)
	Input variable		Reset (ACK)			
	Normal condition	Alarm condition	Reset not done	Reset done		
No alarm active	No status changes	Go to status: <b>Alarm not acknowledged</b>			OFF	OFF
Alarm not acknowledged			No status changes	Go to status: <b>Acknowledged alarm</b>	Flashing	Active
Acknowledged alarm	Go to status: <b>No alarm active</b>	No status changes			Steady ON	OFF

## J1 Line ordering codes



<b>Power supply</b>	<b>A</b>
100...240Vac (-15...+10%)	3
24Vac (-25...+12%) or 24Vdc (-15...+25%)	5
<b>OP1 - OP2 outputs</b>	<b>B</b>
None	0
Relay - Relay	7
<b>Serial communications</b>	<b>C</b>
Not fitted	0
RS 485 Modbus/Jbus SLAVE	5
<b>Instruction handbook</b>	<b>F</b>
Italian-English (std)	0
French-English	1
German-English	2
Spanish-English	3
<b>Front case colour</b>	<b>G</b>
Dark (std)	0
Beige	1

IN1 Input type	Range scale	I	L
RTD Pt100 IEC751	-99.9...300.0 °C	-99.9...572.0 °F	0 0
RTD Pt100 IEC751	-200...600 °C	-328...1112 °F	0 1
TC L Fe-Const DIN43710	0...600 °C	32...1112 °F	0 2
TC J Fe-Cu45% Ni IEC584	0...600 °C	32...1112 °F	0 3
TC T Cu-CuNi	-200...400 °C	-328...752 °F	0 4
TC K Chromel -Alumel IEC584	0...1200 °C	32...2192 °F	0 5
TC S Pt10%Rh-Pt IEC584	0...1600 °C	32...2912 °F	0 6
TC R Pt13%Rh-Pt IEC584	0...1600 °C	32...2912 °F	0 7
TC B Pt30%Rh-Pt Pt6%Rh IEC584	0...1800 °C	32...3272 °F	0 8
TC N Nichrosil-Nisil IEC584	0...1200 °C	32...2192 °F	0 9
TC E Ni10%CR-CuNi IEC584	0...600 °C	32...1112 °F	1 0
TC NI-NiMo 18%	0...1100 °C	32...2012 °F	1 1
TC W3%Re-W25%Re	0...2000 °C	32...3632 °F	1 2
TC W5%Re-W26%Re	0...2000 °C	32...3632 °F	1 3
0...50mV linear	Engineering units		1 4
10...50mV linear	Engineering units		1 5
mV "Custom" scale	On request		1 6

Display mode	M
Green	0
Red	1
Red when alarm 1 (AL1) active	2

AL1 - AL2 - AL3 - AL4 alarm type and function	O	P
Disabled	0	
Sensor break alarm	1	
Absolute		
active high	2	
active low	3	
Deviation		
active high	4	
active low	5	
Band		
active out	6	
active in	7	
Rate alarm (AL1 only)	8	-

**If not differently specified the indicator will be supplied with standard version**  
**Model: J1 3000-0000**