

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 DC input voltage: 0/1...5V, 1...10V, Rj >300kΩ Accuracy: 0.1% update measurement time: 0.7 s sampling time: 1.5s | |
| 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 | 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_{in}). 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 _{in} | 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 dE₁). At the end of the programmed time, the display returns at the normal operation.

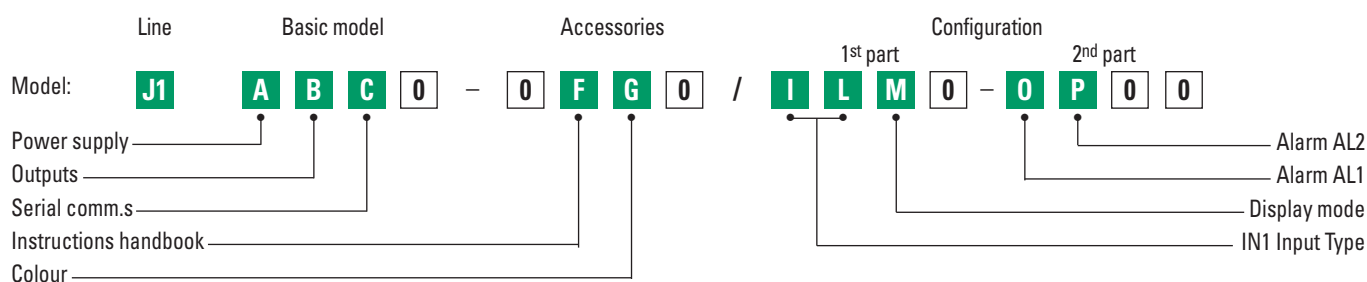
Note: The **Features** written in **green** are available only for the J3 model.

"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: Alarm not acknowledged | | | OFF | OFF |
| Alarm not acknowledged | | | No status changes | Go to status: Acknowledged alarm | Flashing | Active |
| Acknowledged alarm | Go to status: No alarm active | No status changes | | | Steady ON | OFF |

J1 Line ordering codes



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