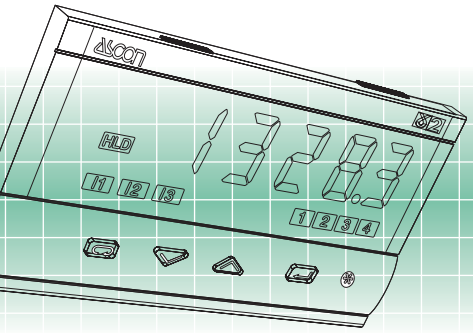
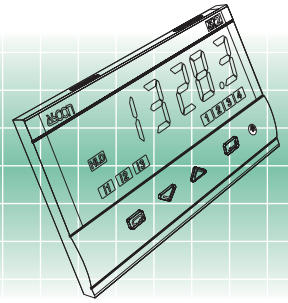
δ2 SERIES

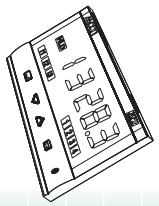
5 Digits Configurable Display Color Indicator 1/8 DIN - 96 x 48 mm gamma**due**® Series J1/J3 lines

Common features

- 5 Digits Green/Red configurable display
- Up to 2 inputs
- RS485 Modbus serial communications protocol
- 3 Digital inputs
- Up to 4 relay alarms with ISA A sequence
- Analogue retransmission
- Input 1 conditioned by input 2
- Different kinds of visualization
- Peak/Valley functions
- Alarm acknowledge dedicated key







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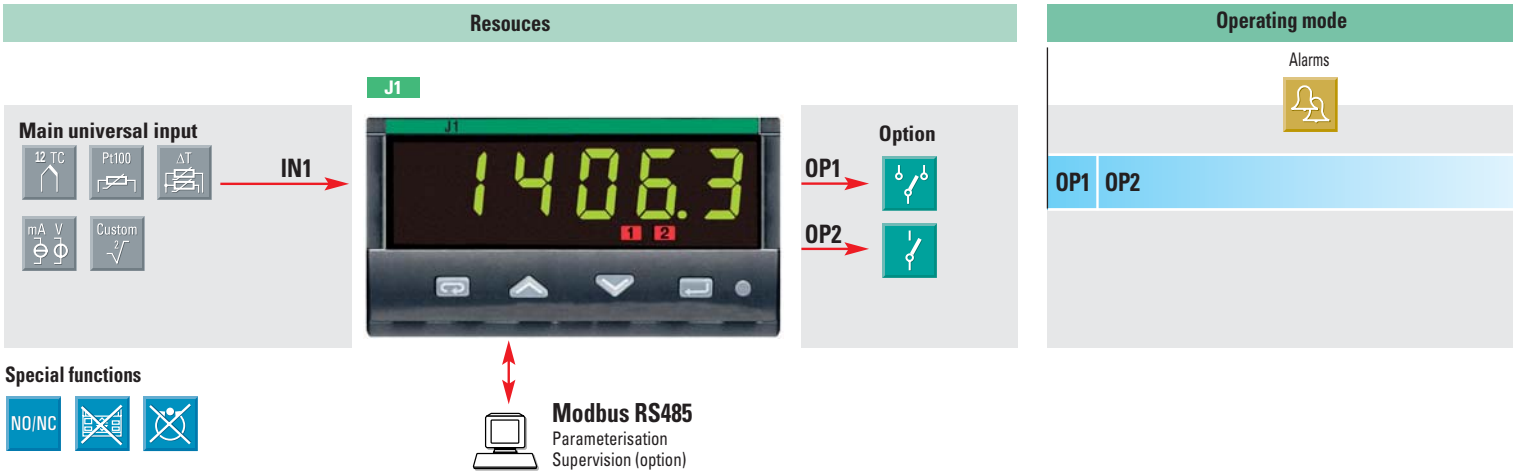
ISO 9001 Certified

gammadue®

the right solution to your needs

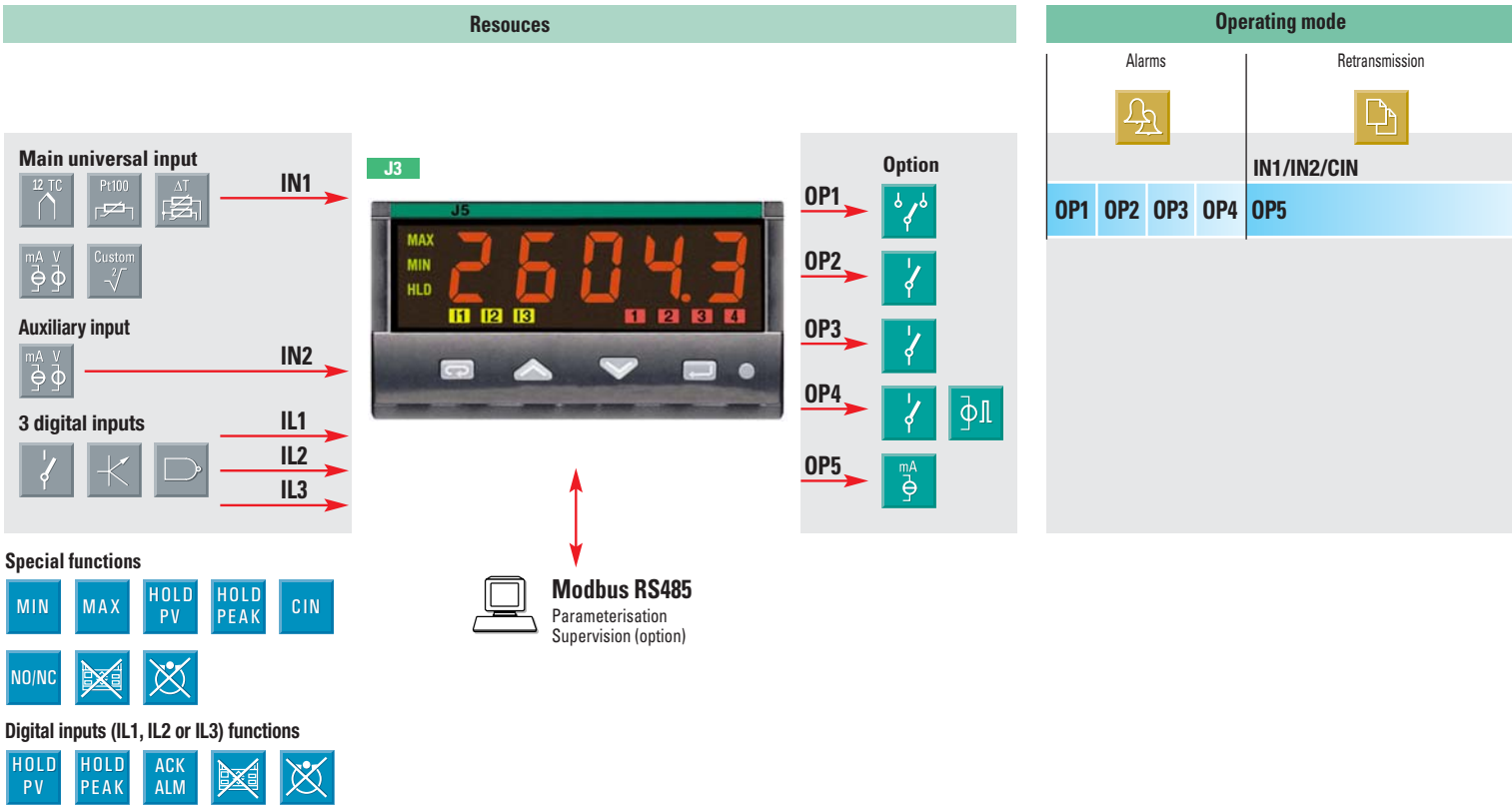
J1 Line

2 alarms indicator 96x48mm 1/8 DIN with:
double colour 5 digits display, up to 2 relay alarms and RS485 Modbus/Jbus serial communcations



J3 Line

2 inputs indicator 96x48mm 1/8 DIN with:
double colour 5 digits display, 3 digital inputs, IN1 conditioned by IN2, up to 4 relay alarms with ISA A acknowledge sequence, RS485 Modbus/Jbus serial communcations and retransmission output



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 IN2 Conditioned measure	Galvanic isolation: 500Vac/1min Resolution: 12 bit Accuracy: 0.1%	In current: 0/4…20mA, 750Ω/15V max.	
AL1 - AL2 - AL3 - AL4 alarms	Hysteresis	0.1…10.0%		
	Action: Active high / Active low	Action type	Changing rate threshold	0.1...5.0 digit/s
			Deviation threshold	± range
			Band threshold	0…range
			Absolute threshold	whole range
	Action: 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
Sun	Cin = IN1 + IN2
Sub	Cin = IN1 - IN2
Avg	Cin = (IN1 + IN2)/2
H iG	Cin = MAX (IN1, IN2)
LoU	Cin = Min (IN1, IN2)
nuL	Cin = IN1 * IN2
rt io	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
In 1	Input 1
In2	Input 2
C in	Conditioned input
Lo	Minimum stored value
Hi	Maximum stored value
Un it	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 dtM). 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 acnowledged**			OFF	OFF
Alarm not acnowledged			No status changes	Go to status: **Acnowledged alarm**	Flashing	Active
Acnowledged alarm	Go to status: **No alarm active**	No status changes			Steady ON	OFF

J1 Line ordering codes

Line | Basic model | Accessories | Configuration (1st part / 2nd part)

Model: **J1** **A** **B** **C** 0 – 0 **F** **G** 0 / **I** **L** **M** 0 – **O** **P** 0 0

- Power supply
- Outputs
- Serial comm.s
- Instructions handbook
- Colour
- Alarm AL2
- Alarm AL1
- Display mode
- IN1 Input Type

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

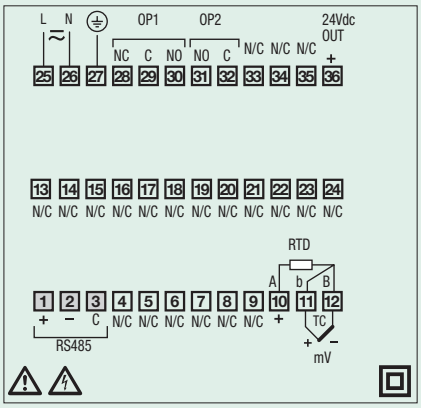
Display mode	M
Green	0
Red	1
Red when alarm 1 (AL1) active	2

AL1 - AL2 - AL3 - AL4 alarm type and function		O 1	P 2
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	-

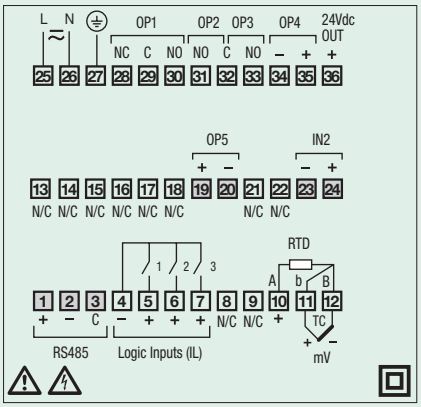
If not differently specified the indicator will be supplied with standard version
Model: J1 3000-0000

Electrical wirings

J1 Line



J3 Line



J3 Line ordering codes

	Line	Basic model					Accessories					Configuration 1st part					Configuration 2nd part			
Model:	J3	A	B	C	D	–	0	F	G	0	/	I	L	M	N	–	O	P	Q	R

- Power supply
- Outputs
- Serial comm.s
- Options
- Instructions handbook
- Colour
- Alarm AL4
- Alarm AL3
- Alarm AL2
- Alarm AL1
- Peaks Hold
- Display mode
- IN1 Input Type

Power supply	A
100...240Vac (-15...+10%)	3
24Vac (-25...+12%) or 24Vdc (-15...+25%)	5

OP1 - OP2 - OP3 - OP4 outputs	B
None	0
Relay - Relay - Relay - SSR Drive	1
Relay - Relay - / - /	7
Relay - Relay - Relay - Relay	9

Serial communications	C
Not fitted	0
RS 485 Modbus/Jbus SLAVE	5

Options	D
None	0
Analogue output for signal retransmission	1
Second port IN2	2
Analogue output for signal retransmission + Second port IN2	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
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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
Red when at least one alarm is active (OR function)	3
Alternate between IN1, IN2 and CIN value	4
Manual forced display of IN1, IN2, CIN, Lo or Hi value	5

Hold of the peak values	N
Disabled	0
Shows the max. value (HI peak) for a programmable period of time	1
Shows the min. value (LO peak) for a programmable period of time	2

AL1 - AL2 - AL3 - AL4 alarm type and function		O P Q R 1 2 3 4
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: J3 3000-0000

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