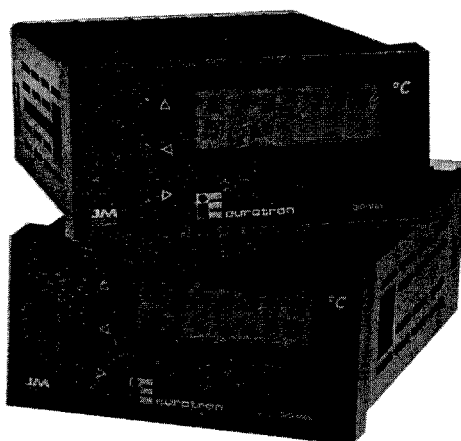


Configurable Indicator - Transmitter



DigiMax II

INSTRUCTION MANUAL
MM850287 ed. 1



Eurotron Italiana S.r.l.
Milano - Italy

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1 • IDENTIFICATION OF MODEL

Thank you for having chosen an EUROTHERM indicator-transmitter

The instruments of the JM/JT series belong the last generation of microprocessor based indicators.

They can be fitted with 2 or 4 alarms and with serial communication to be inserted in a distributed control network. The operating mode can be configured, according to the required application.

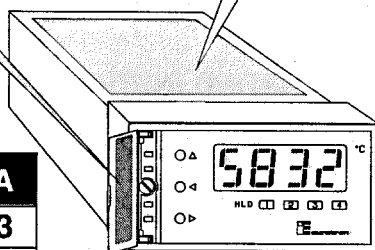
1.1 Model code

Model code

JM
JT - **A B C D** /

Configuration code

Beginning and end
of scale values



OPTIONS	Power supply	A
	100 ...240V 50 Hz	3
	16 ...28V 50 Hz and 20...30 Vdc	5
	Serial communication	B
	None	0
	20mA C.L. Std Ascon protocol	1
	20mA C.L. Modbus/Jbus protocol	2
	Retransmission of measurement	C
	None	0
	4...20 mA	1
	0...10 V	2
	Alarms	D
	Without	0
	2 alarms	2
	4 alarms (only for JM models)	4

1 • IDENTIFICATION OF MODEL

1.2 Configuration code

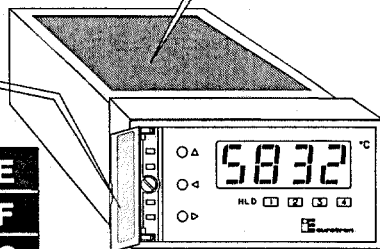
Configuration code

EFGH-ILM /

Beginning and end of scale

N O

Model code



1 st block	Input measurement "X"	E
	Alarm Y1	F
	Alarm Y2	G
		H

2 nd block	Only for JM models	Alarm Y3	I
		Alarm Y4	L
	Only for JT models	Power supply for transducers	M

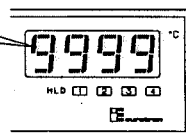
Beginning and end of scale (only for mA and Volt inputs)	N
	O

The instrument is usually configured in factory.



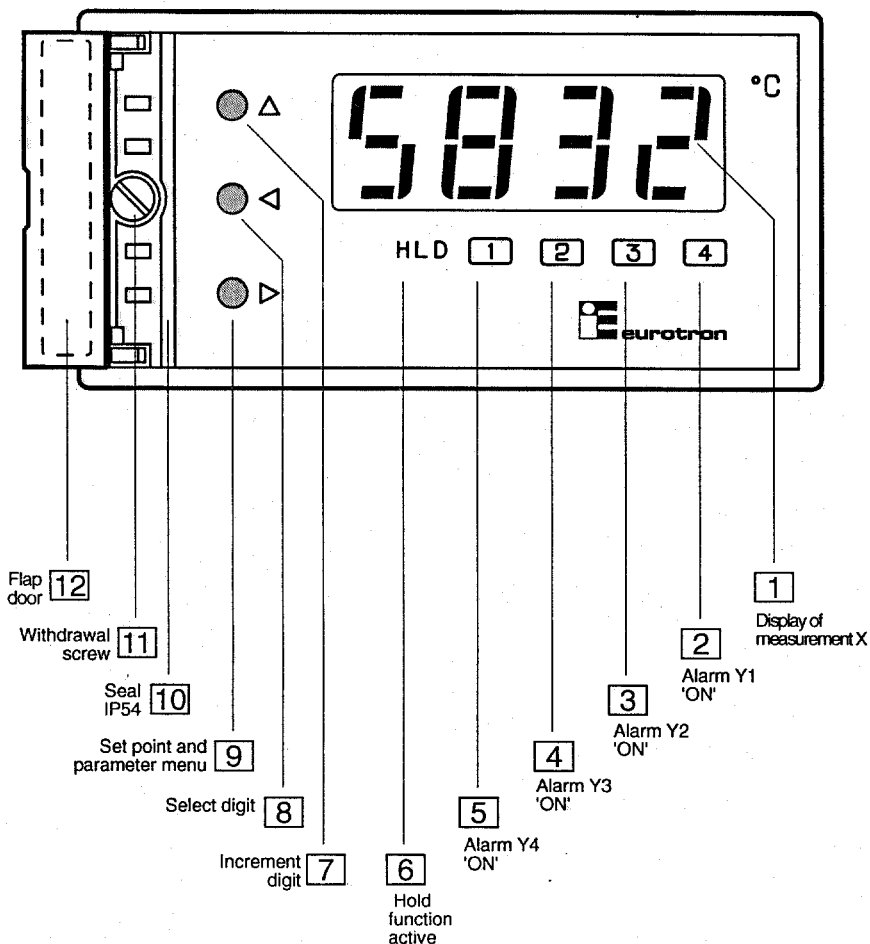
If at power-up appears

the indicator **IS NOT CONFIGURED**



To configure the indicator follow the instructions for configuration from the enclosed leaflet

2 • FUNCTION OF KEYS AND DISPLAYS



DISPLAY

1 - Measurement X (green)

Normally: displays the input value expressed in engineering units

14 5832

If above the end of scale **8888**
If below the beginning of scale **8888**

- During programming: displays alternatively the mnemonic codes and the data values
- During configuration: displays alternatively the 1st and 2nd block of the configuration code

2 • FUNCTION OF KEYS AND DISPLAYS




ALARM LEDS

2 - Alarm 1	<ul style="list-style-type: none"> The red led (for each alarm) <ul style="list-style-type: none"> - flashes to signal the alarm state - is lit when the alarm has been acknowledged and the alarm state is ON again (for ISAA configuration only)
1	
3 - Alarm 2	
2	
4 - Alarm 3	
3	
5 - Alarm 4	
4	

HOLD LED

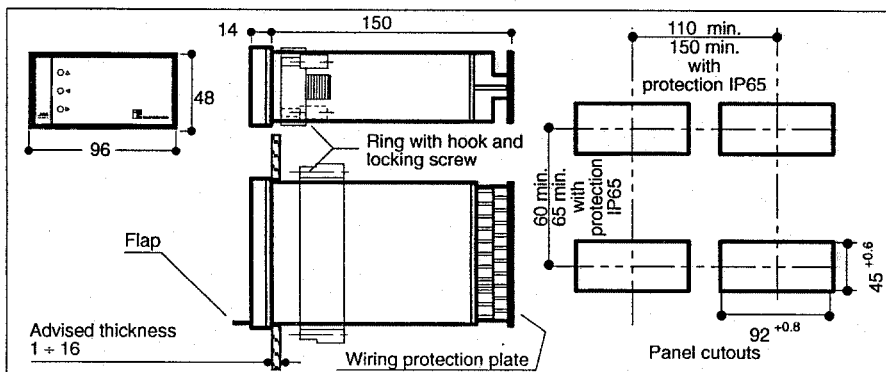
6 - HLD Function	Lit when the function "Peak" or "Valley" capture or the "Freeze" of the last measurement is activated
HLD	

KEYS

7 - Increment digit	Increments the value of the flashing digit from 0...9	Keys for modifying the numeric values of all data (see enclosed leaflet)
		
8 - Select digit	Selects the digit to be modified	
		
9 - Menu	To display or modify the alarm Set points	
	To scroll the parameters to be programmed and to enter values	

3 • DIMENSIONS, INSTALLATION

3.1 - Overall dimensions (in compliance with DIN 43700)

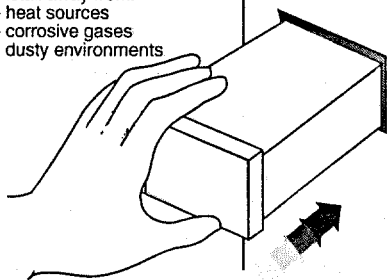


3.2 • Mounting

A • Panel fitting

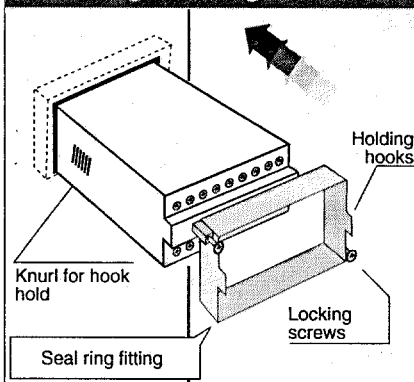
Install away from:

- heat sources
- corrosive gases
- dusty environments

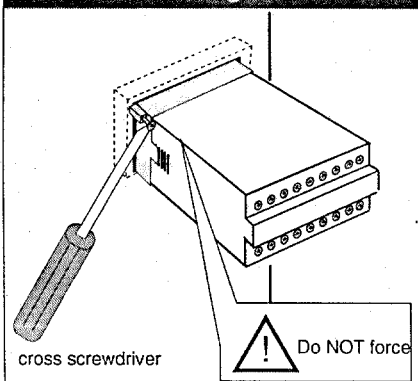


AMBIENT:
Temperature: 0 + 50 °C
Humidity: 30 ... 85 RH%

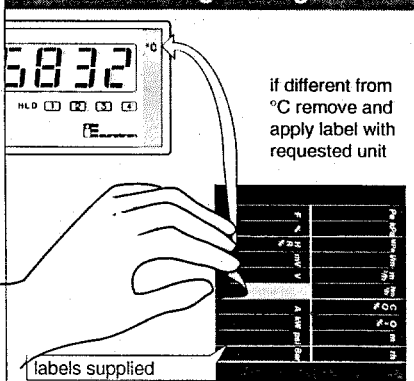
B • Fixing with ring



C • Screw locking



D • Label for engineering units



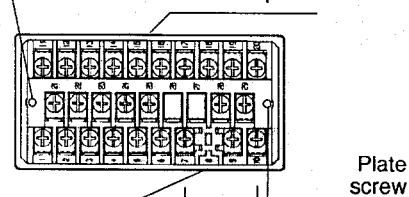
3 • DIMENSIONS, INSTALLATION

A • Terminal board

screw terminals M3.5

Plate pin

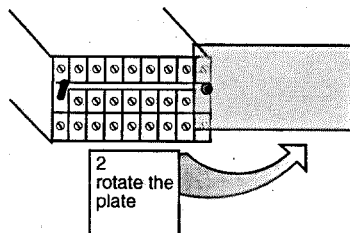
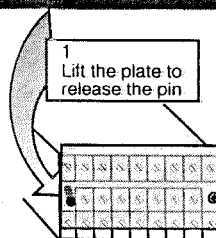
Wiring
protection
plate



Reference
junction
thermometer

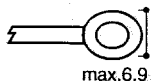
3 golded
terminals for
input signal

B • Release screw terminals

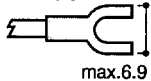


C • Effecting connections

With eyelet
terminals



With fork
terminals



With tinned wire



Preferential

Cable
section

wires
N°

2

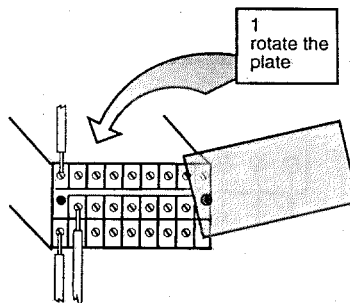
1

2

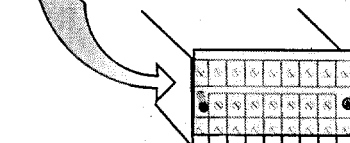
0.25 + 2.5
AWG
22 + 14



D • Protecting the terminal board



2
Press the plate to plug
in the pin



4 • ELECTRICAL CONNECTIONS

Although this controller is designed to resist the heaviest disturbances encountered in industrial environments (level IV of standard (IEC 801-4), you are advised to keep to the following precautions:

Precautions

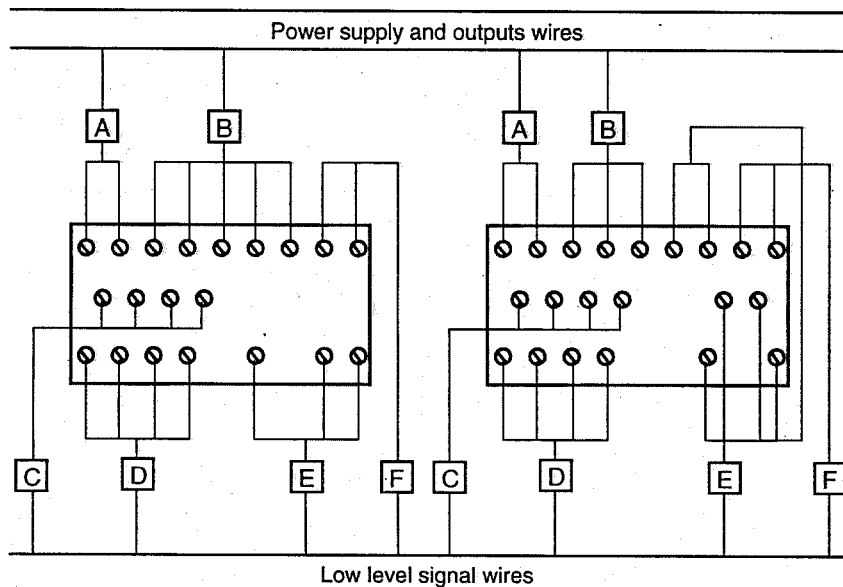


Single out supply line from others power lines

Keep away from electromagnetic contactors and motors

Keep away from SCR power units, especially if with phase control

Advised wiring



Power supply **A**

Relay alarms **B**

Logic inputs **C**

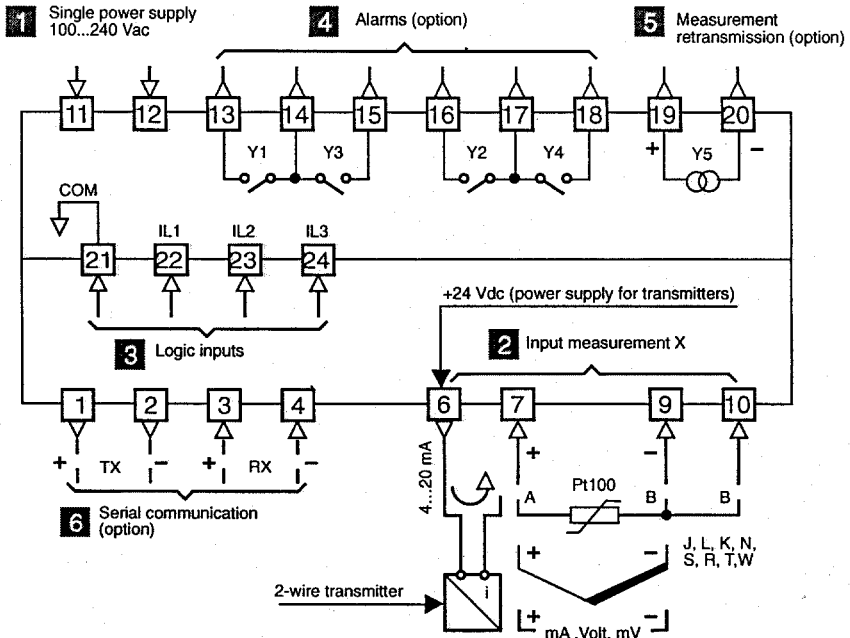
Serial communication **D**

Measurement input **E**

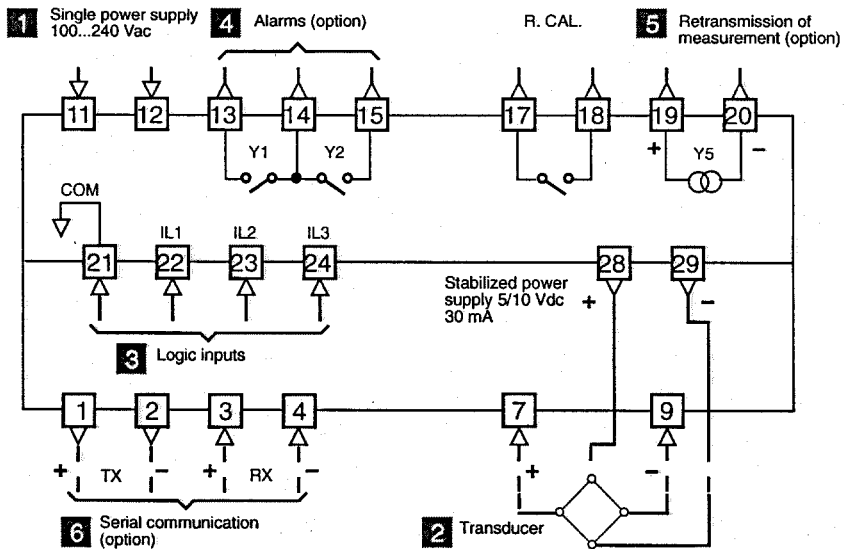
Measurement retransmission **F**

4 • ELECTRICAL CONNECTIONS

Wiring diagram for JM models



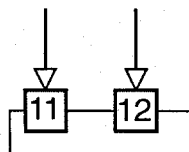
Wiring diagram for JT models - (for transducers)



4 • ELECTRICAL CONNECTIONS

1 • Single power supply

Power supply



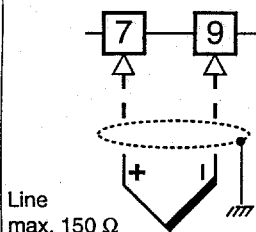
"Switching" type

- Standard: 85...264Vac, 50 Hz
- Low voltage: 18...28Vac, 50 Hz
20...30Vdc

Power: 4VA

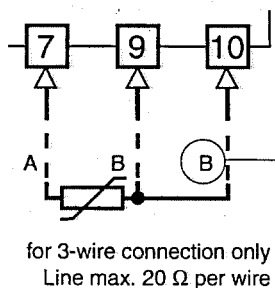
2.1 • Input of measurement "X" for JM models - Universal

A - For THERMOCOUPLES



- Observe polarity
- For extension, use a compensation cable suitable for the thermocouple used
- The eventual shield must be well earthed at only one end

B - For RTD Pt100

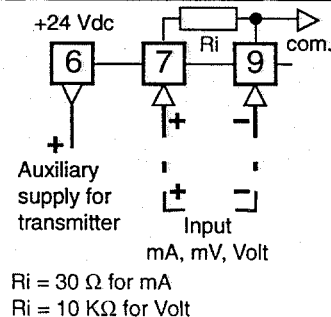


- For 3-wire connection, use cables of the same section (min. 1mm²)
- For 2-wire connection, use cables of adequate section (min. 1,5mm²)

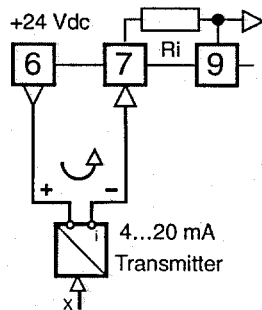
Note:

with a 15 m. probe to controller distance and a 1.5 mm² section cable, the error is about 1 °C.

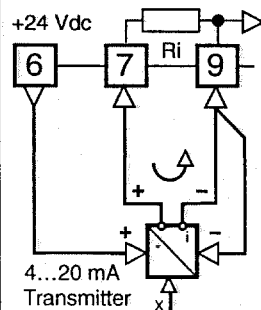
C • For, mA dc, V dc



For 2-WIRE TRANSMITTER

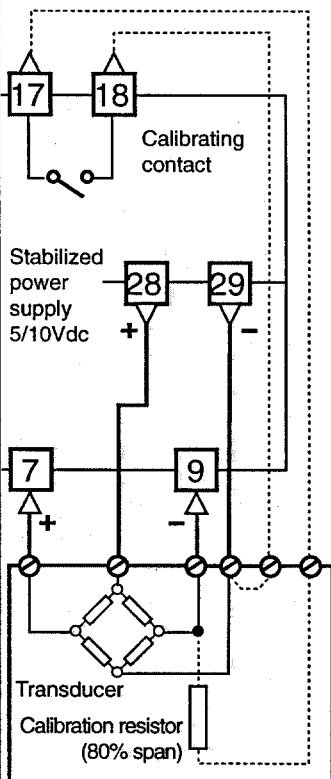


3 or 4-WIRE TRANSMITTER



4 • ELECTRICAL CONNECTIONS

2.2 • Input for JT models for transducers

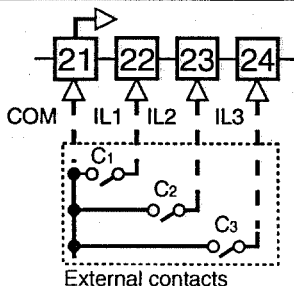


- Power supply for bridge:
28 (+) **29** (—) stabilized 5Vdc
 or 10 Vdc $\pm 5\%$
 (programmable from keyboard
 max. current 30 mA)
- Input: **7** (+) **9** (—)
 0...60 mV or 0...300 mV
 (selectable in configuration)

Note:

The calibrating contact makes easy and fast the "span" calibration

3 • Logic inputs



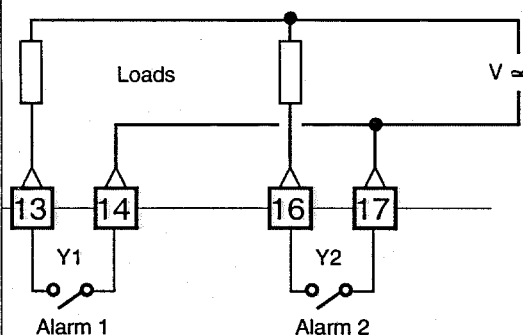
The permanent closing of the external contacts C1, C2, C3 allows:

- To freeze the measurement (C1)
- To store a peak (C2)
- To acknowledge alarms (C3)
 (Only for ISA alarm, C3 has to be closed for at least 2 sec)

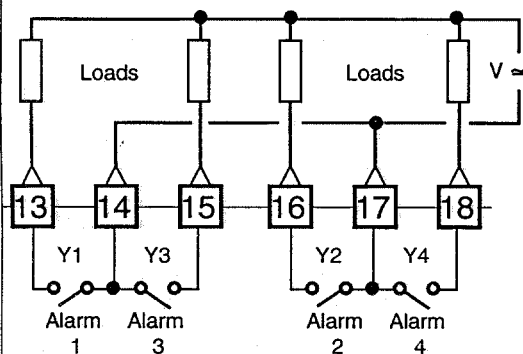
4 • ELECTRICAL CONNECTIONS

4 • Contact alarm outputs (options)

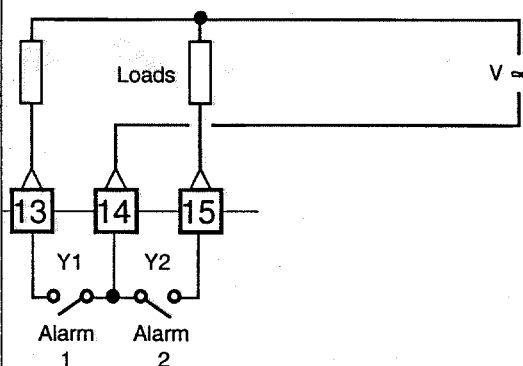
A • JM models, with 2 alarms



B • JM models, with 4 alarms



C • JT models, with 2 alarms



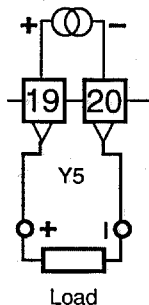
2 or 4 contacts, rated 5A/250Vac for resistive loads (switchings 2×10^5 min. at 5A/250Vac) For the choice of type and operating mode see page 15



In case of power cutoff, the relays are deenergized and therefore the contacts are open

4 • ELECTRICAL CONNECTIONS

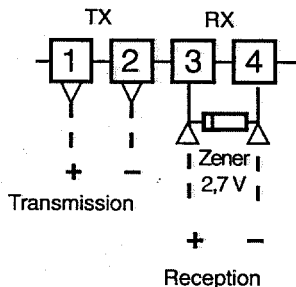
5 • Retransmission of measurement, output Y5 (option)



It is galvanically isolated:

4..20 mA, max. 10Vdc, load 500Ω max.
or
0..10Vdc, max 20 mA, load 500Ω min.

6 • Serial communication (option)



Note
Zener 2,7 V Only for 20mA C.L.

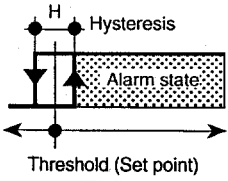
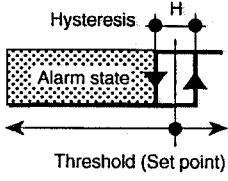
Interface 20 mA C.L. passive
and galvanically isolated


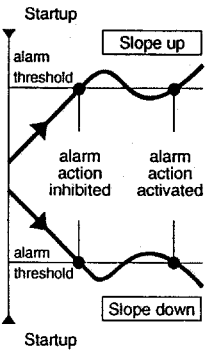

**See Instruction Manual
"SUPPLEMENT SERIAL
COMMUNICATION
supplied separately**


5 • ALARMS

1 • SELECTING THE OPERATING MODE

In order to define the alarm operating mode select for each alarm:
See leaflet: 7 • Programming instructions

In configuration phase (See configuration code, indexes G-H-I-L)	
1° TYPE OF ALARM	2° ALARM ACTION MODE
Disabled	Activated above the threshold 
Normal	
With ISA A sequence and acknowledgement	Activated below the threshold 

In programming phase (See alarm configuration, indexes from 0 to 7)		
3° ALARM INHIBITION MODE AT STARTUP	4° STATE OF CONTACT	5° SAFETY STATE IN CASE OF INPUT FAILURE
Disabled	NO In alarm state closes 	NON-Alarm state
Enabled		
	NC In alarm state opens 	Alarm state

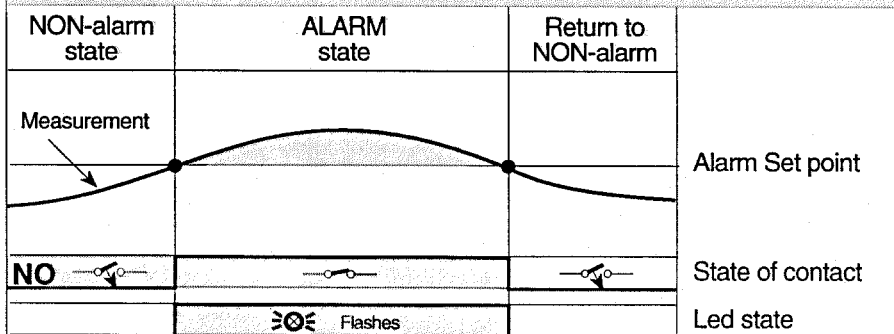
Note: 3°-4°-5° with the end  are preset in factory (default) with the configuration index 7

5 • ALARMS

2 • OPERATION

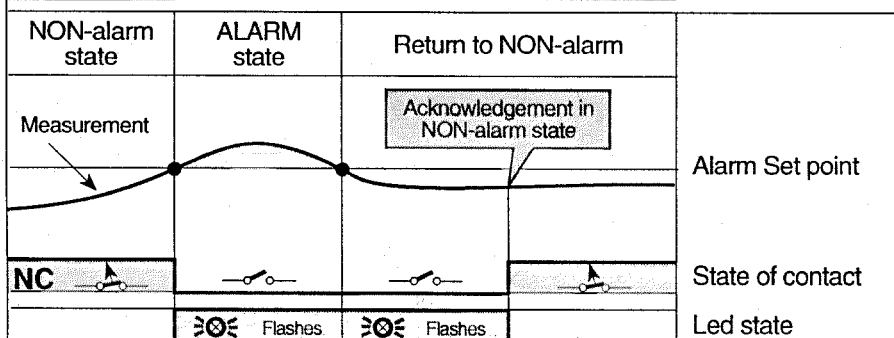
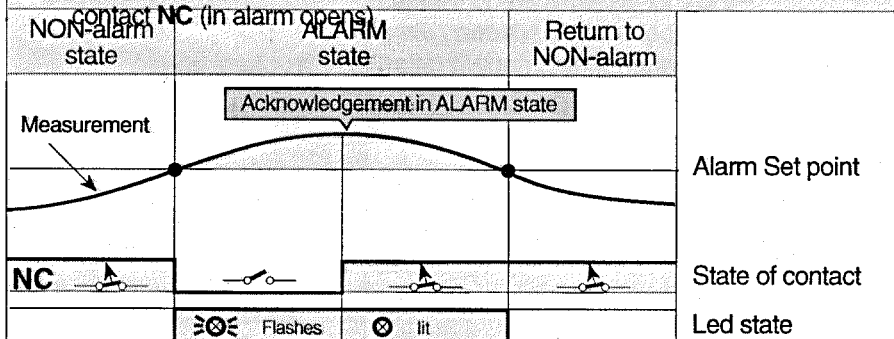
A • Normal type

Example with normal type alarm, activate high and state of contact **NO** (in alarm closes)




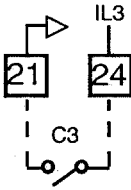



B • -With ISA A sequence

Example with alarm with ISAA sequence, activate high and state of contact **NC** (in alarm opens)



5 • ALARMS

3 • ALARM ACKNOWLEDGEMENT (for ISA A only)

Acknowledgement mode	Moment of acknowledgement	LED	
		In alarm	Alarm acknowledged
Pressing the key 			
<p>Closing C3 or at least for 2 sec.</p> 	Measurement is again in alarm state	 Flashes	 Lit (see Note)
	Measurement is come back to NON-Alarm state		 Switched off



In case of mains cutoff, relay is deenergized and the relative contact is open

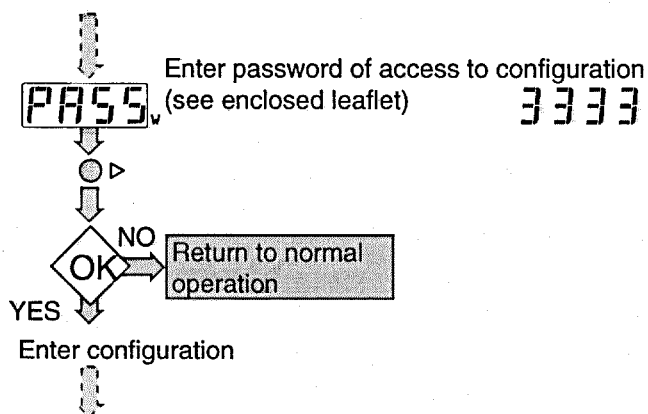
Note:

Switched off when Measurement return to NON-alarm state

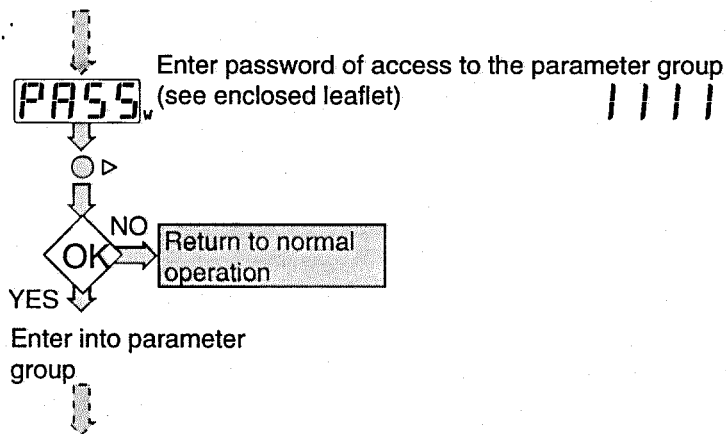
6 • ACCESS CODE

In order to protect the configuration or some important parameters against inadvertent alterations or tampering, during programming it is necessary to enter password.

6.1 Password of access to configuration 3333



6.2 Password of access to the parameter group 1111



12 • TECHNICAL DATA

Input measurement (configurable)	Common features	A/D Converter: 50.000 points		
		Measurement sampling time 62 msec.		
		Time constant of measurement filter: 0 ...30 sec		
		Input shift: -50 ... +50 digit		
	Type	RTD: Pt100Ω , (IEC 751), line 20Ω max. (3-wires)		
		Thermocouples J-K-N-S-R-T-W (IEC 584), L (DIN 43710), line 150Ω max		
		mA dc	4..20mA, 0..20mA, Ri 30Ω with or without \sqrt{f}	With configurable scale engineering units
		mV dc V dc	0..60mV, 0..300mV, Ri 10MΩ	
			0..1Vdc, 0..10Vdc, Ri 10KΩ with or without \sqrt{f}	
			0..60mV, 0..300mV, Ri 10MΩ (JT models only) Zero: within±10% of the measurement range End of scale: at 80% of scale span	
Accuracy (at 25°C amb.)	0.2% ±1 digit	for input for RTD or thermocouples		
	0.1% ±1 digit	for input in current or voltage		
Auxiliary power supplies	24 Vdc ± 10%, 20 mA max		for 2-wire or 3 or 4-wire transmitters	
	5 or 10Vdc ±5% selectable, 30 mA max.		for bridge transducers (JT models only)	
Auxiliary inputs	3 logic		to freeze the measurement, store a peak, acknowledge alarms	
Alarms Y1 - Y2 - Y3 - Y4 configurable (for every alarm)	Relay output		1 contact, 5A/250 Vac max.	
	Signalling		Red led, flashing in alarm state, lit after acknowledgement (if configured with ISA A sequence only)	
	Set point:		settable within the scale	
	Hysteresis:		0.1 ... 10.0 % scale span	
	Action delay		0 ... 100 sec.	
	Type:	Disabled, normal, with ISA A sequence	In configuration (indexes G-H-I-L)	
	Action mode:	Active above or below the threshold		
	Contact state	NO closes in alarm state NC opens in alarm state	In programming (see instructions separately)	
	Security in case of anomaly	ALARM state NO alarm state		
	Alarm inhibition at startup:	Disabled or enabled operation		
	Hold function		Stores a max. or min. peak or freezes the last measurement effected (see operative instructions)	

12 • TECHNICAL DATA

Retransmission of meas. output Y5 (option)	Current output:	4..20mA (500Ω max, 10Vdc max)	galvanically isolated
	Voltage output:	0..10Vdc (500Ω min, 20mA max)	
Serial communication (option)	Passive and galvanically isolated interface 20 mA C. L. For other data see manual "Supplement Serial Communication"		
Protections:	Access to parameters	by password	
	Access to Set point	3 levels modification, indication only, no access	
	Immunity to disturbances:	level IV, standard IEC 801-4	
	Storing data	in non-volatile memory for unlimited time	
Single power supply	Standard model	100..240V, 50Hz, -15% + 10% 250 Vac max.	
	Low voltage model	24V, 50Hz, -15% + 10% or 24Vdc ± 15%	
General features	Isolation group	C according to VDE 0110	
	Climatic group	KWF according to DIN 40040	
	Ambient	temperature 0..50°C, humidity 35..85HR%	
	Protection	Front: IP54 standard (IP65 with Kit F10-170-2A101) Case: IP30, terminal board IP20	
	Material	Self-extinguishing 94V1	
	Weight	about 480 gr.	
	Dimensions	48x96, depth 150 mm., according to DIN 43700	

NOTE

NOTE

GUARANTEE

The equipment is guaranteed free from manufacturing defects for 1 year after installation, for a maximum of 18 month after delivery.

Faults caused by use other than that described in operating instructions are excluded from the guarantee.

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