DIGITAL PANEL METERS

programmable ±10 000 points

DGN 10

User handbook

Valid for instruments with version 01.XX

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1. INTRODUCTION

The **DGN 10** is a high accuracy digital panel meter. It is equipped on front face with a four 14 mm high red digits display, whose brightness suits applications in industrial control rooms perfectly.
It allows the display, the control and the transmission of data from any measurable magnitudes.

AVAILABLE OPTIONS: ***(specify on order)***

Insulated analog output: A
Active current output, or voltage.
Programmable scale ratio with enlarging effect.

Relay output: R
2 relays: mode setpoint or window.
Recording of the alarms.
Time delay and hysteresis adjustable on each setpoint.
Alarm messages.

CODING:
- Type: DGN 10
- Output options:
  A : Analog (A1 or A3: specify)
  R : 2 relays
  These options can be combined simultaneously.

Order example:
For a digital panel meter with 1 active current analog output and 2 relays, request reference DGN 10 A1R.

Features of the inputs

Types of INPUTS	Measure range adjustable from:		Permanent overload	Intrinsic error	*Input impedance*
mA♣	-2 to +22mA		±100mA	< ±0.1% of the MR	Max. drop 0.9V
mV♠♣	-10 to +110mV		±1V		≥ 1MΩ
V♣	-0.1 to +1.1 V		±50V		
	-1 to +11V				
	-30 to +330V		±600V		
Thermocouples ♠ Standard IEC 581	°C	°F	-	♦(2) < ±0.1% of the MR	≥ 1 MΩ
J	-160/1200	-256/2192			
K	-270/1370	-454/2498			
B	200/1820	392/3308			
R	-50/1770	-58/3218			
S	-50/1770	-58/3218			
T	-270/410	-454/770			
E	-120/1000	-184/1832			
N	0/1300	-32/2372			
L	-150/910	-238/1670			
W	1000/2300	1832/4172			
W3	0/2480	32/4496			
WRE5	0/2300	32/4172			
Sensor Pt100Ω (1)♠ 3 wire, Standard IEC 751 (DIN 43760)	°C -200/850	°F -328/1562	-	< ±0.1% of the MR	Current 250μA
Sensor Ni 100 3 wire (1)♠	-60/260	-76/500	-		
Resistive sensors	Calibers 0-440 Ω and 0-2.2 kΩ ♣ (0-8.8 kΩ optional)			< ±0.1% of the MR (0.5% for 0-2KΩ)	-
Potentiometer	from 100Ω to 10 kΩ ♣				
Supply for 2 or 3-wire sensor	24 VDC ±15% with protection from short-circuits. 25 mA max.				
Special linearisation programming up to 20 points	On input: mV, V, mA. Resistive sensors and potentiometer				

(1) Line resistance <25Ω
(2) Or 30 µV typical (60µV Max.)
♦ CJC efficiency: ±0.03°C/°C ±0.5°C
from -5°C to +55°C
MR Measure range

♣ Cut off : the display and the output remain at down scale for an input signal < value of the cut off, programmable from 0% to 100% of the input range.

♠ A 12 µA pulsed current allows the detection of line or sensor rupture

Thermic drift <150ppm /°C

Features of the outputs

Code	Types of OUTPUTS		Features
A1	1 insulated analog output	active current	Current: direct or reversed 0-20mA Load impedance ≤ Lr 600Ω
A3		or voltage	Voltage: direct or reversed 0-10V Load impedance ≥ Lr 500kΩ
R	2 inverting relays		2 setpoints per relay configurable on the whole MR. Hysteresis programmable from 0 to 100%. Time delay programmable from 0 to 25 sec. (8A/250 VAC on resistive load)

General features

Galvanic partition:
2.5 kV eff. - 50 Hz - 1 min between supply, inputs, outputs

Power supply:

Max. operating range	Power draw
20 to 270 VAC - 50/60/400 Hz and 20 to 300 VDC	3 W max. 5.5 VA max.

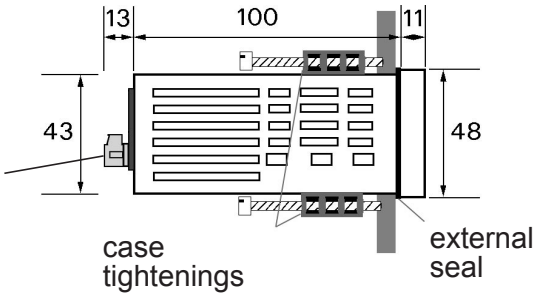
- Standard sampling time: 100 ms
- Common mode rejection rate: 130 dB
  Serial mode rejection rate: 40 dB 50/60 Hz
- Zero drift compensation and self-calibration
- **Conform** with standards IEC 61000-6-4 on rejections and IEC 61000-6-2 immunity (in industrial environment) IEC 61000-4-2 level 3, IEC 61000-4-3 level 3, IEC 61000-4-4 level 4, IEC 61000-4-6 level 3.
  CE marking according to the directive EMC 89-336.

2. SPACE REQUIREMENTS

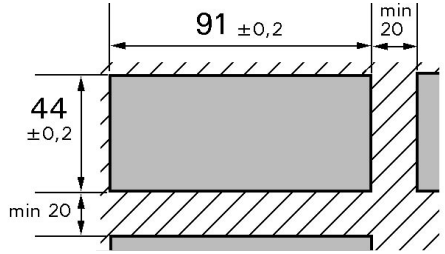
Case dimensions: (with terminals)
96 x 48 x 124 mm

Mounting panel
max. thickness: 30

terminals



Panel mounting
cut out 44 x 91 mm



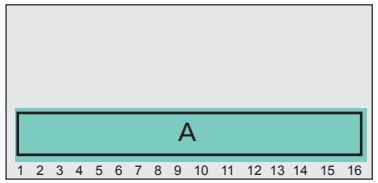
Protection :
Front face: IP 65
Housing: IP20
Terminals: IP 20

Housing:
Self-extinguishing case of black UL 94 V0 ABS.

Plug off connectors on rear face for screwed connectings (2.5mm², flexible or rigid)

Display: ±10 000 points (14 mm)
Electroluminescent red (green optional)
2 alarm leds

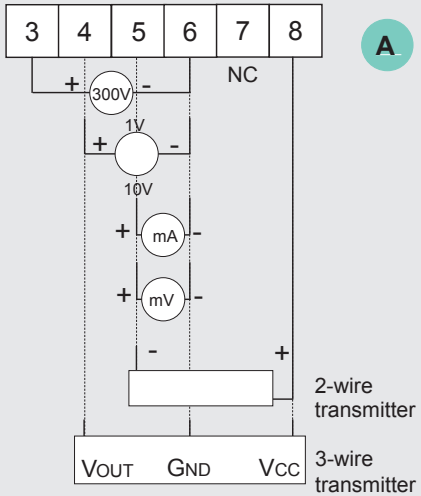
3. CONNECTINGS



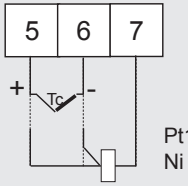
Location of the terminals
(view of case rear side)

INPUTS

PROCESS

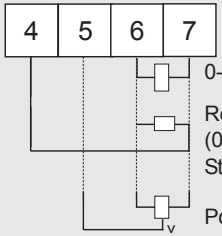


TEMPERATURE



Pt100 3 wire
Ni 100 3 wire

RESISTANCE and POTENTIOMETER

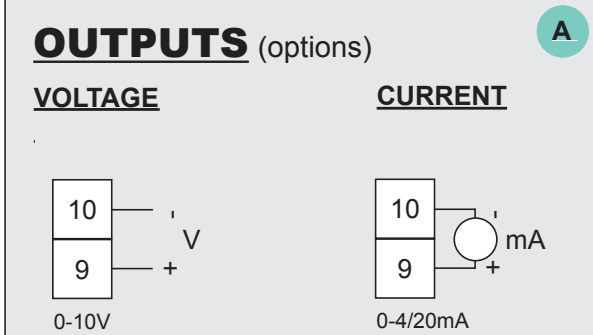


0-440Ω resistance

Resistance >440Ω up to 2kΩ
(0-8kΩ optional)
Strap 4 and 7 on terminal

Potentiometer

OUTPUTS (options)



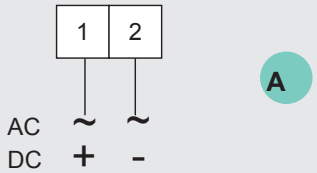
VOLTAGE

0-10V

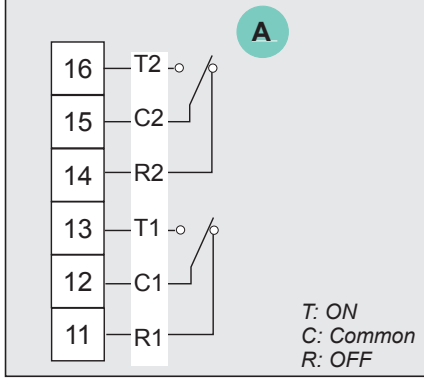
CURRENT

0-4/20mA

POWER SUPPLY



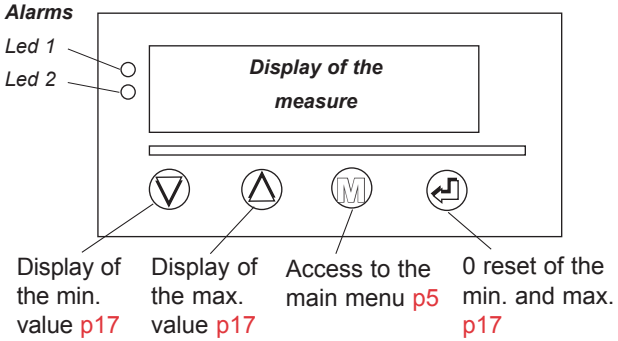
2 RELAYS:



4. PROGRAMMING

4.1 Communication with the instrument

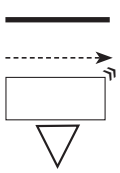
Several functions can be accessed directly on front face:



Further functions can be accessed by pressing several keys simultaneously:

- ▲ + ▼ Setting of the display down scale; (see p17)
- ↵ + M Setting of the display full scale; (see p17)
- ▼ + M Visualisation of the direct measure (voir p18)
- ▲ + M Visualisation and setting of the alarm setpoints; (see p18)

Reading convention:



Move through the main menu
Revert to previous menu
Blinking display: awaiting validation or setting
Alternating information display

Entering of a parameter:

6888 First start by increasing or decreasing the 1st digit and the sign: from -9 to +9. ▲ and ▼

6588 the 2nd from 0 to 9.

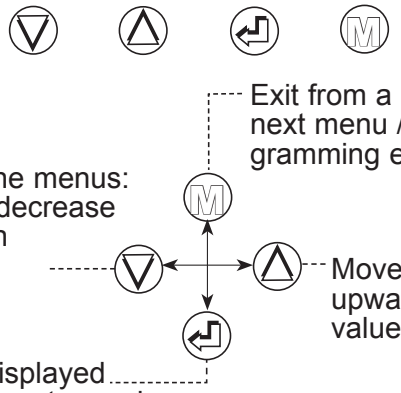
6528 the 3rd from 0 to 9.

6520 the 4th from 0 to 9.

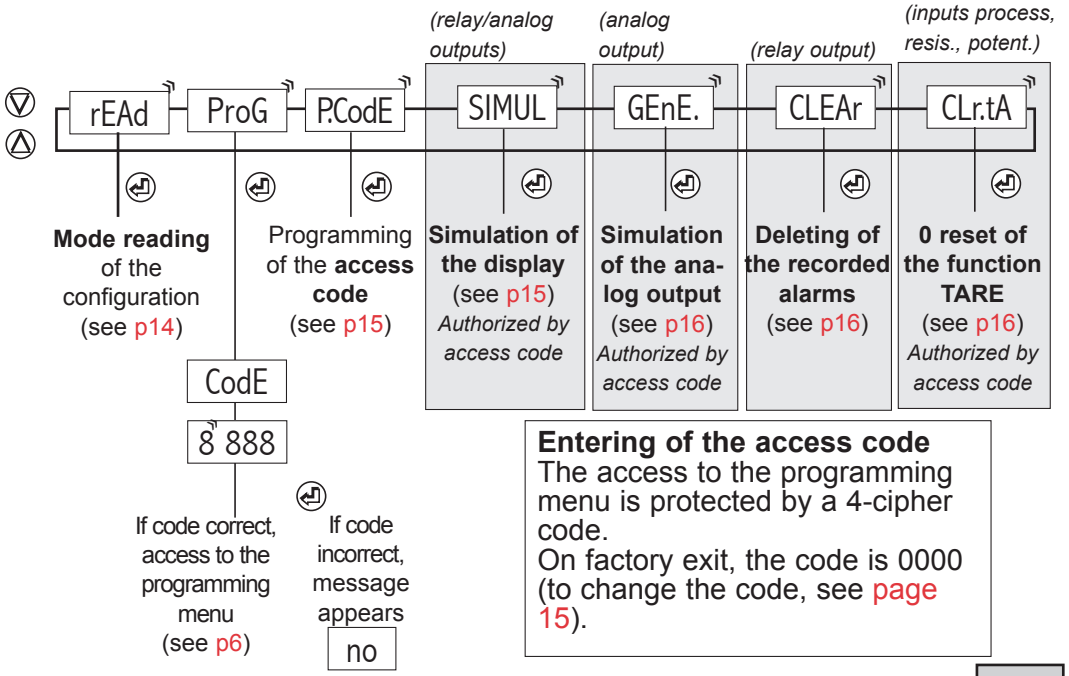
Between each entering, validate the cipher with key ↵

4.2 Orientation through the programming

The dialogue is ensured by 4 keys located on the front face.



Note: In mode programming, the istrument will automatically revert to the measure with the former configuration if no key is pressed during 1min.



Entering of the access code
The access to the programming menu is protected by a 4-cipher code.
On factory exit, the code is 0000 (to change the code, see page 15).

4.4 Programming menu *(according to options)*

InPut	Access to the programming of the input	p6
diSPL.	Access to the programming of the display factor	p8
AnA.	Access to the programming of the analog output *(option analog output)*	p8
rELAY	Access to the programming of the relays *(option sortie relay output)*	p9
SECU	Access to the programming of the outputs, the relays in case of error self-diagnosis and/or sensor rupture, and access to disconnecting the sensor rupture *(option analog or relay output)*	p9
Pr.diS	Access to the programming of the display	p10
SAvE	Access to the programming exit menu with or without saving of the configuration	p10

Note:

⇒ In mode programming, the instrument will automatically revert to measure with the former configuration if no key is pressed during 1min.

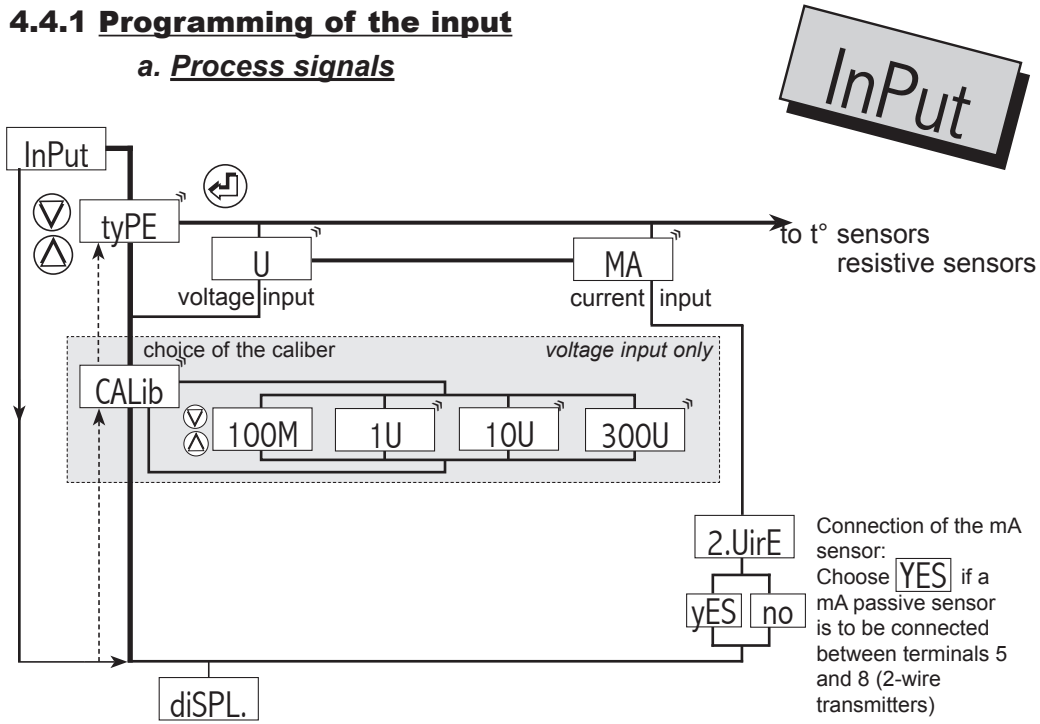
Note:
Press (M) to go on to next menu

(▽)(△) Move through the menus / choice

(M) Menu exit / access	(△) Upwards move / increase
(▽) Downwards move / decrease	(↵) Validation / vertical move

4.4.1 Programming of the input

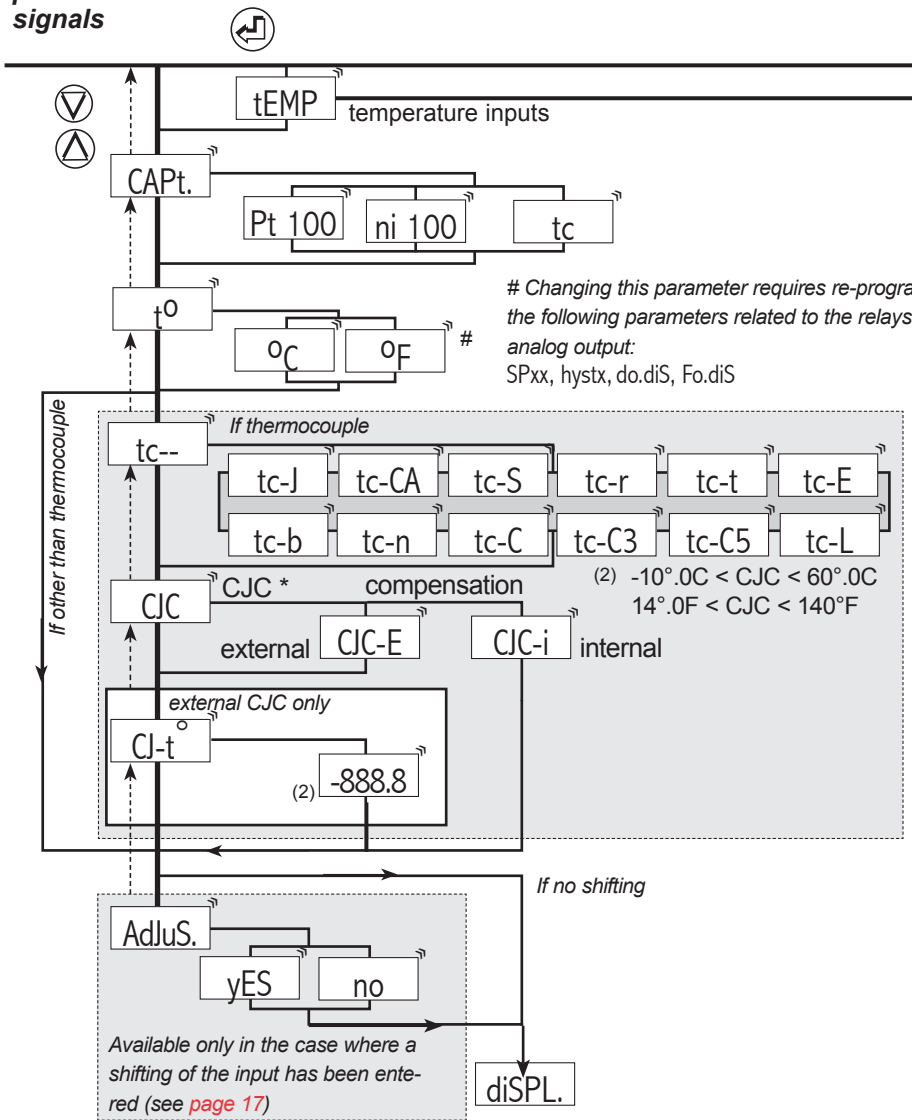
a. Process signals



b. Temperature signals

InPut

process signals



Note:
Press (M) to go to menu diSPL.

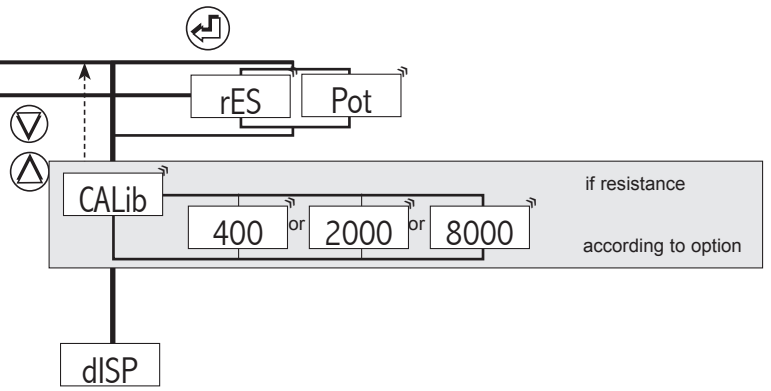
(▽) (△) Move through the menus / choice

* cold junction compensation, except thermocouple B which is only in CSF-E (external CJC)

c. Resistive sensors

InPut

temperature signals
process signals



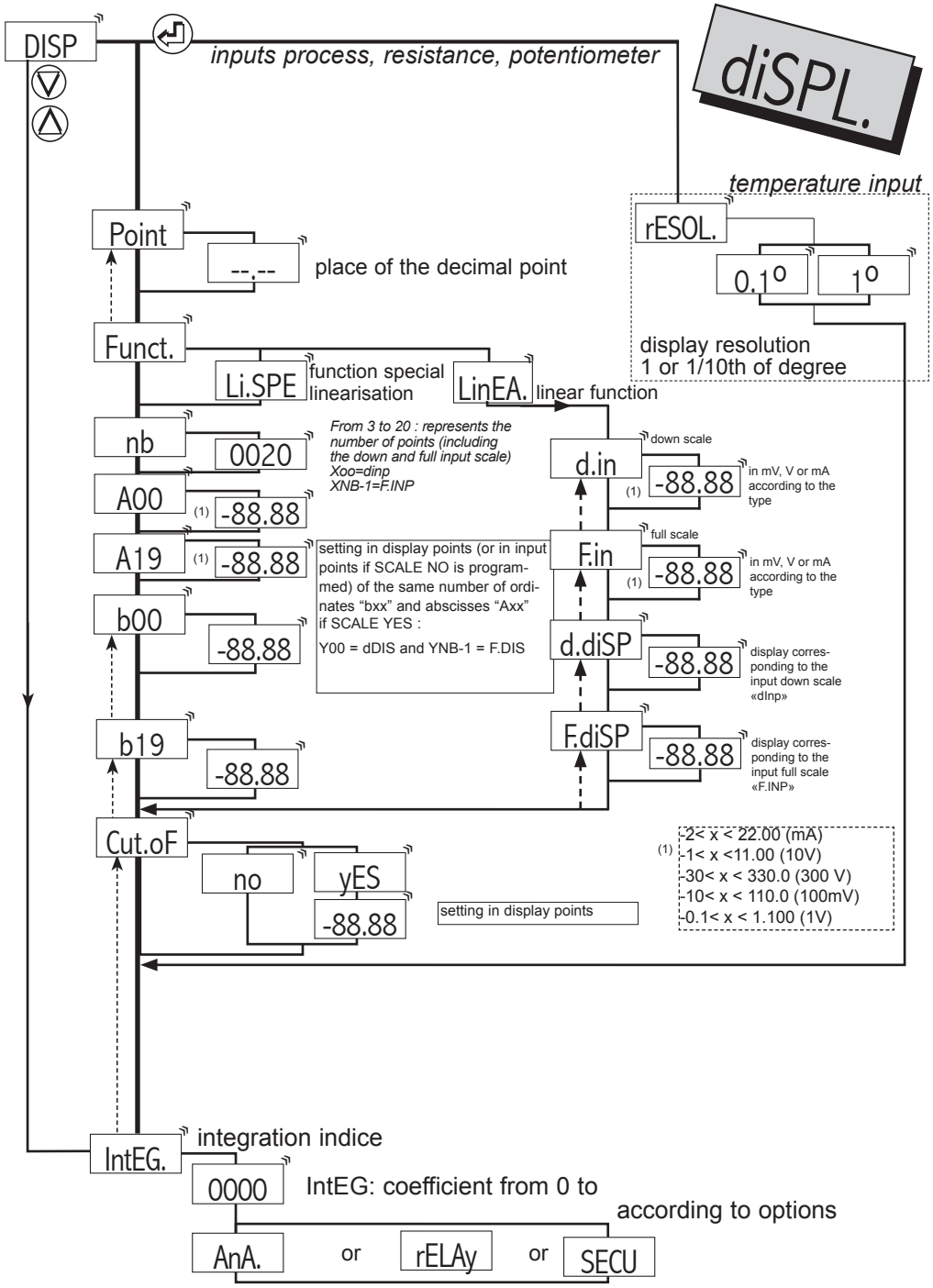
See also the features of the inputs p10

Note:
Press (M) to go on to next menu

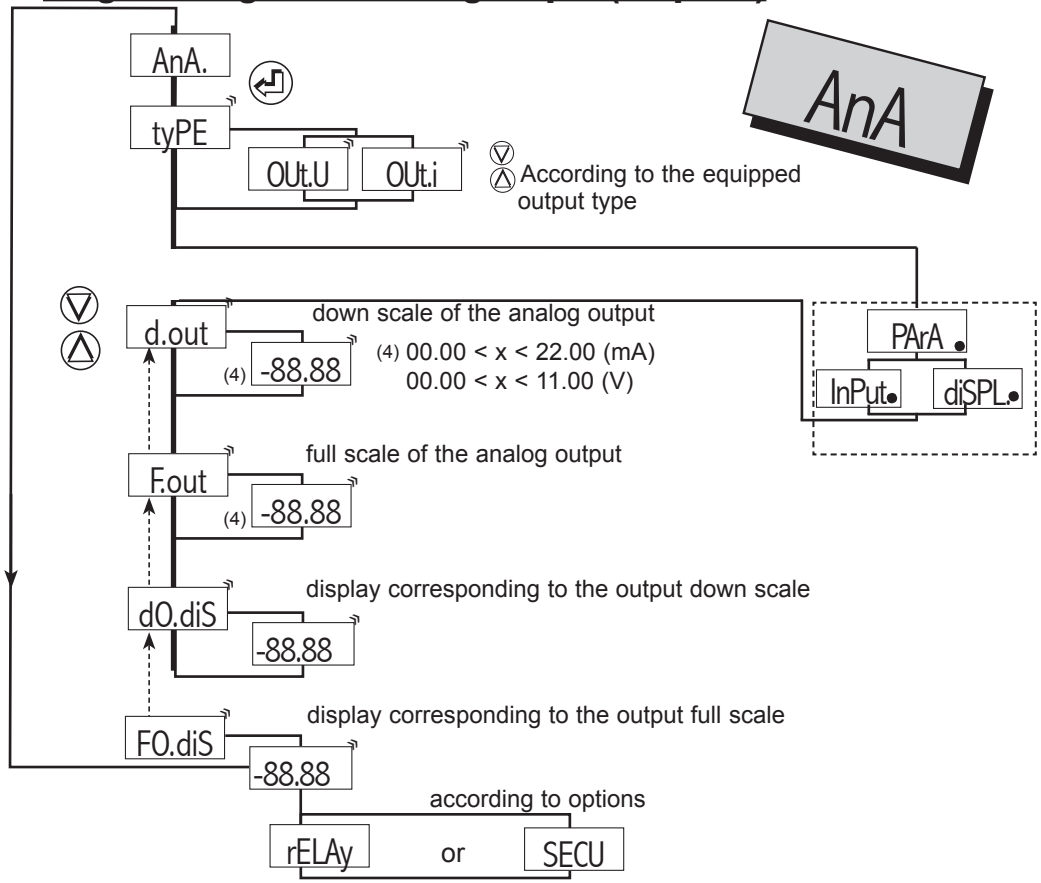
(▽) (△) Move through the menus / choice

(M) Menu exit / access	(△) Upwards move / increase
(▽) Downwards move / decrease	Validation / vertical move

4.4.2 Programming of the display factor



4.4.3 Programming of the analog output (if option)



See also the features of the outputs p11

You can choose to assign the analog output to the input measure (PArA InPut) or to the displayed measure (PArA diSPL.).
Eg.: with PArA diSPL

d.out = 4 mA F.out = 20.00mA dO.diS = 20.0° FO.diS = 100.0°

- When the transmitter indicates 20°C the value of the analog output will be 4 mA
- When the transmitter indicates 100°C the value of the analog output will be 20 mA

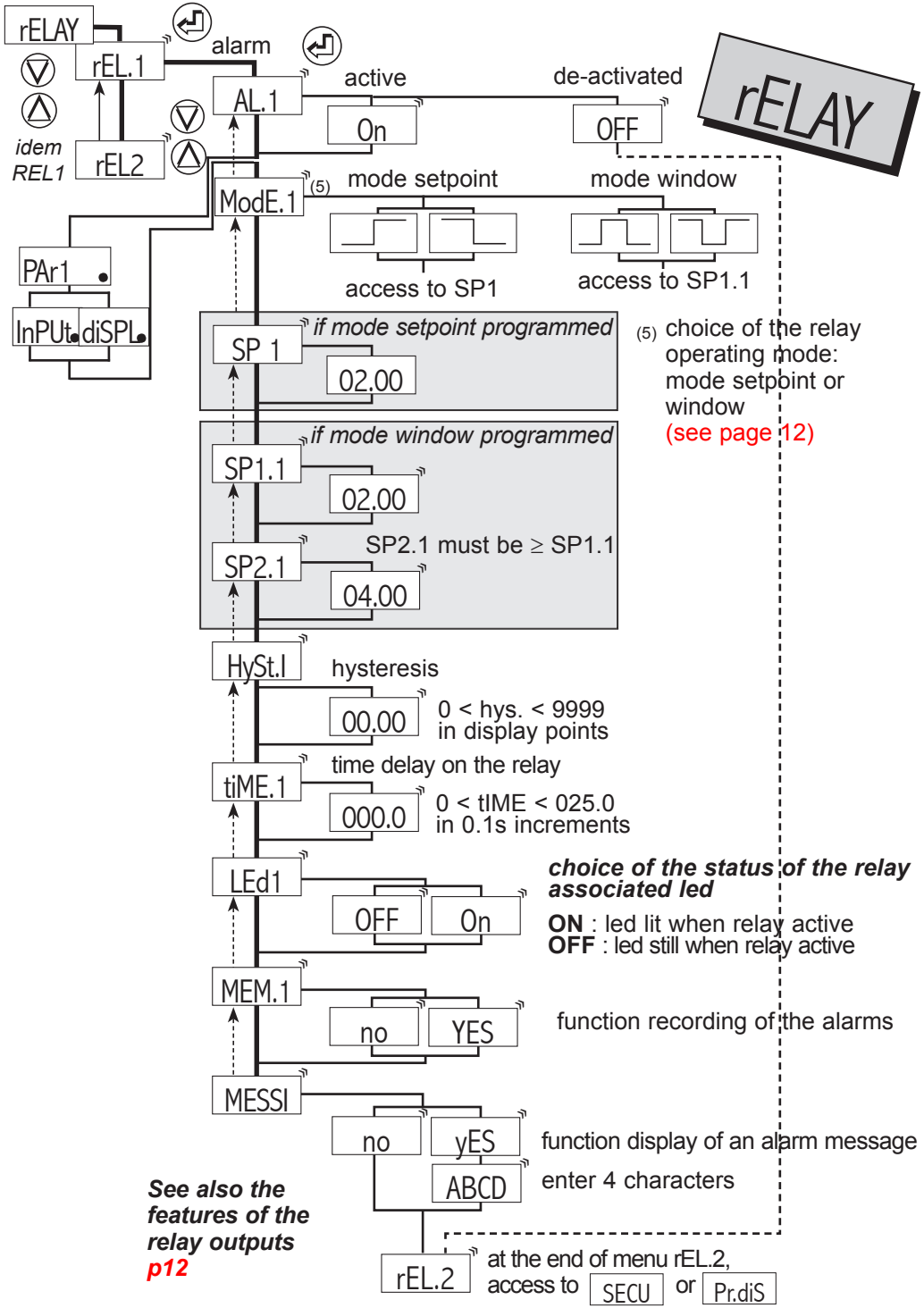
Eg.: with PArA InPut

InPut = mA d.out = 4 mA F.out = 20 mA dO.diS = 6.0 mA FO.diS = 20.00 mA

- When the value of the current measured on the input is 6.0 mA, the value of the analog output will be 4 mA
- When the value of the current measured on the input is 20.0 mA, the value of the analog output will be 20 mA

Menu exit / access
Upwards move / increase
Downwards move / decrease
Validation / vertical move

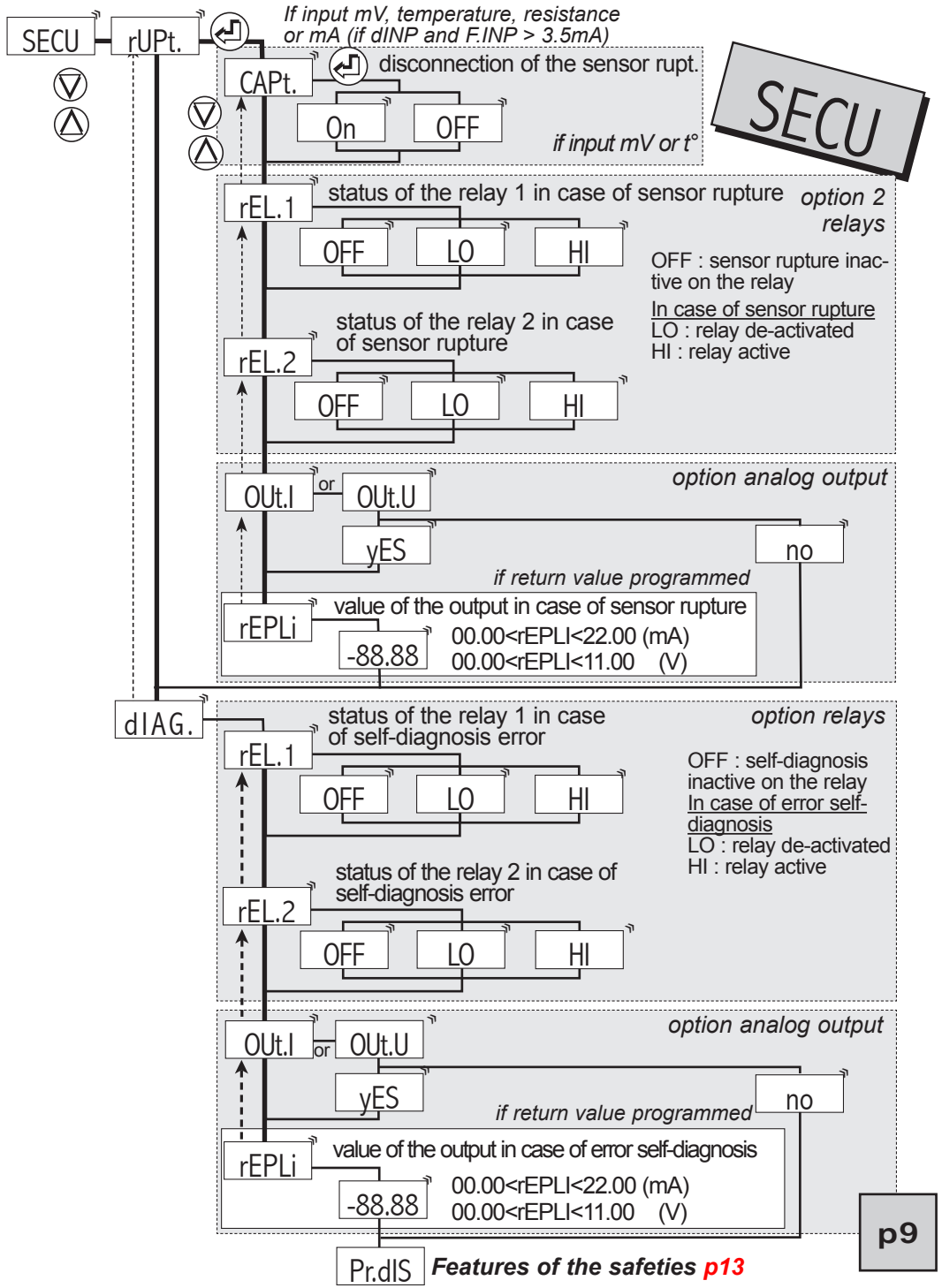
4.4.4 Programming of the relay outputs (if option)



(5) choice of the relay operating mode: mode setpoint or window (see page 12)

See also the features of the relay outputs ***p12***

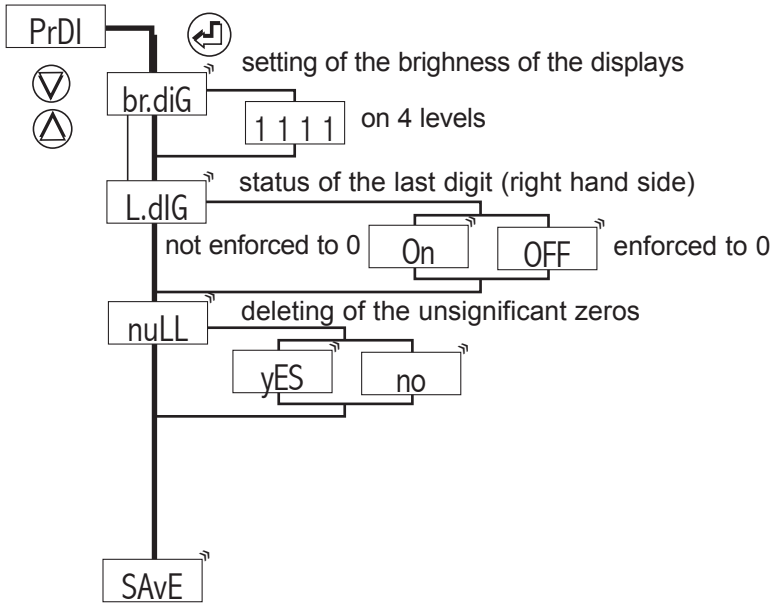
4.4.5 Programming of the safeties



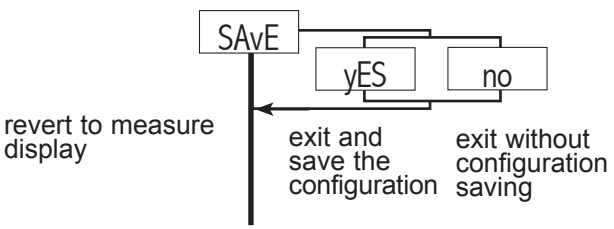
Features of the safeties ***p13***

4.4.6 Programming of the brightness, of the display

Pr.diS



Exit from the programming with or without saving



SAvE

Note: An exit fom mode programming with saving of the configuration (SAVE, YES) will automatically reset to zero the tare, the min. and the max. as well as the alarm recordings.

4.5 Features of the inputs and programming limits

4.5.1 Current input MA and voltage U

Special linearisation: Li.SPE

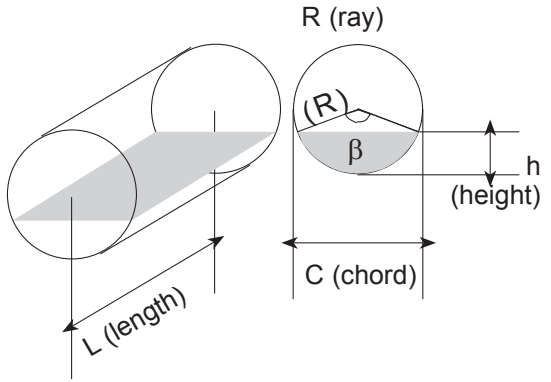
For specific applications such as the measurement of volume, the meter can memorise an unlinear curve, programmable in X and in Y.

The curve resulting from your equation can be replaced by a series of linear segments, with a maximum of 20 points (19 segments).

Note: The values of the abscisses (x) must go increasing d.in < value of A01 < value of A02...< F.in.

Example :
For a layed cylindric tank, 1 meter high (h) and 1 meter long (l); a 0-20 mA linear sensor measures the height of the liquid surface line:

Input of the meter: height h
0 meter -> 0 mA (empty tank)
1 meter -> 20 mA (full tank)
with $\cos \beta/2 = (R-h)/R$
$\sin \beta/2 = C/2R$



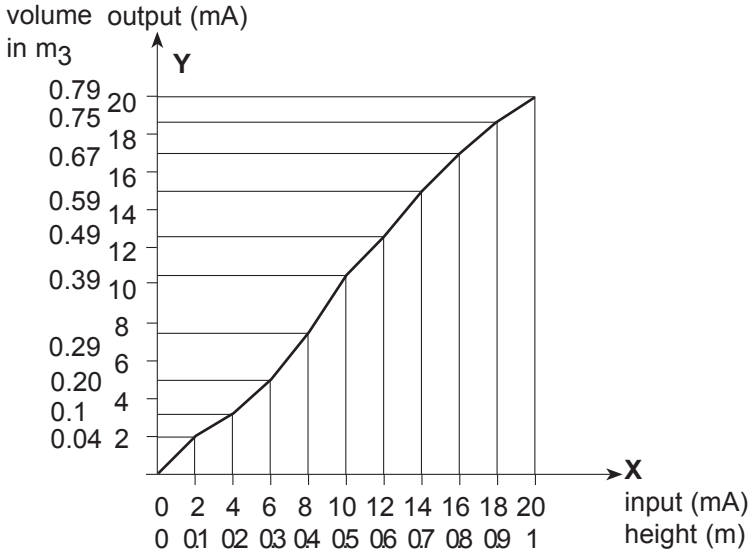
Display of the meter:
Empty tank volume d.diSP = 0.000
Full tank volume F.diSP =0.785

Volume = L [π R² β/360 - C(R-h)/2]

Say a curve of 10 equally long segments:
Measure range / number of segments = 20mA/10 = 2mA length of the segment. For 10 segments nb = 9 (11 points to be programmed, including d.in and F.in).

Input mA		Height m	Degree	Chord m	Volume m^3		Outputs in mA
d.in	0	0.0	0.00	0.00	d.diSP	0.000	00.00
A01	2	0.1	73.74	0.60	B01	0.041	01.04
A02	4	0.2	106.26	0.80	B02	0.112	02.85
A03	6	0.3	132.84	0.92	B03	0.198	05.04
A04	8	0.4	156.93	0.98	B04	0.293	07.47
A05	10	0.5	180.00	1.00	B05	0.393	10.00
A06	12	0.6	203.07	0.98	B06	0.492	12.54
A07	14	0.7	227.16	0.92	B07	0.587	14.96
A08	16	0.8	253.74	0.70	B08	0.674	17.17
A09	18	0.9	286.76	0.60	B09	0.745	18.98
F.in	20	1.0	360.00	0.00	F.diSP	0.785	20.00

Programming:
d.in = 0 mA F.in = 20 mA
nb = 9
d.disp = 0,000 m^3 F.disp = 0,785 m^3
Programming from A01 to A09 and from B01 to B09 according to the table.



4.6 Features of the outputs and programming limits

4.6.1 Analog output

Out.i or Out.U

0/4-20mA active current output, or 0-10V voltage output

- Accuracy: 0.1 % in relation to the display (at +25°C)
- Residual ripple ≤ 0,2%
- Admissible load 0Ω ≤ Lr ≤ 600Ω (current)
  Lr ≥ 500 kΩ (voltage)
- Scale ratio programmable with enlarging effect
- Response time: 40 ms in relation to the display

d.out	Down scale of the analog output (eg. 04.00 (4mA))
F.out	Full scale of the analog output (eg. 20.00 (20mA))
dO.diS	Display value corresponding to the output down scale
FO.diS	Display value corresponding to the output full scale

In mode measurement, the analog output can not overstepp 10% of the greatest of the 2 values : d.out and F.out

4.6.2 Relay outputs :

2 relay outputs rEL.1 rEL.2

- Hysteresis independently programmable in the display unit.
- Time delay independently programmable from 0 to 25 s, in 0.1s increments.
- NO-NC contact 8 A - 250 V on resistive load

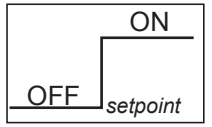
Activation or de-activation of alarm x AL.X

On The status of relay x depends on the performed programming

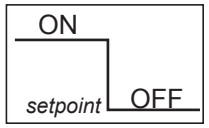
OFF The relay X remains still

Choice of the operating mode: ModE.x

- **Mode setpoint**



or



Legend:
ON coil supplied
OFF coil not supplied

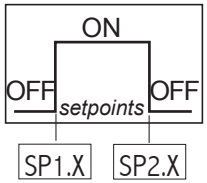
SPX SPX

Choice of the setting unit of the setpoints and hysteresis PArA.

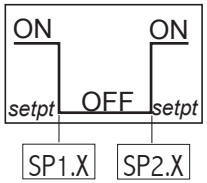
InPut setpoints and hysteresis in input scale points

diSPL. setpoints and hysteresis in display points

- **Mode window**



or



Choice of the status of the relay associated led LEdx

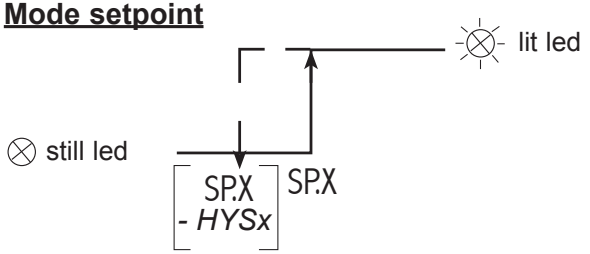
The led indicates the alarm status.

On Led lit when relay active (coil supplied)

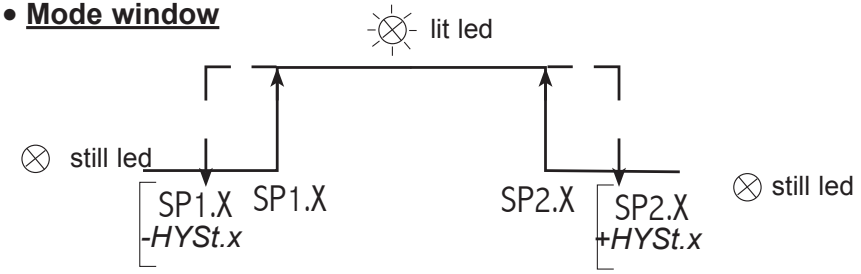
OFF Led still when relay active (coil supplied)

HySt.x Setting of the hysteresis in display points
The hysteresis is active on switching from lit led to still led; that is to say on switching out of alarm, as the led represents the alarm status.

- **Mode setpoint**



- **Mode window**



- **Time delay on the alarm** tiME.x

The relay time delay can be adjusted from 000.0 to 025.0s, in 0.1s increments. It is active both on switching and switching back.

- **Recording of the alarms** MEM.x

Allows recording the alarm after a setpoint has been passed. When the measure reverts below the alarm setpoint, the relay remains on and the led blinks to warn the user that a setpoint has been passed (to reset the alarm recordings to 0 see menu CLEAr).

Note: An exit from mode programming with saving of the configuration will reset the alarm recordings to zero.

- **Display of the alarm messages** MESSx

A programmed alarm message can be made to appear alternating with the measure. The message will appear only during the alarm, while the associated led is lit.

- **Setting of the setpoints:** there are 2 ways to adjust setpoints:

- either in mode programming entering the correct access code,
- or by pressing simultaneously on (M) and (△) if the access to a quick entering has been authorized on the programming of the code (see p18).

4.6.3 Safeties:

• **Self-diagnosis:** diAG

The meter permanently watches any drifts which may occur on its components. The self-diagnosis serves to warn the user in case of abnormal increase of these drifts before they may provoque false measures.

The information of self-diagnosis error can be reported:

· *On the display*: An error message appears alternating with the measure; an error code is registered and can be read in the menu About

Coding:

1 : Programming error
2 : Offset error
4 : Input calibration error
8 : Output calibration error
64: Upper or lower electrical overstepping of the input

If the instrument detects for instance an offset error (2) and a programming error (1) **the value of the error code will be 3** (2+1).

· *On the relays:*

OFF	No influence on the relay in case of self-diagnosis error
LO	Relay de-activated (coil not supplied) in case of self-diagnosis error
HI	Relay active (coil supplied) in case of self-diagnosis error

Note : The led is either still or lit according to its programming in the menu rELAY.

· *On the analog output*

If a return value has been entered
Value between: 0 and 22 mA (current output)
or 0 and 11 V (voltage output)

· *On the converter*: the led ON blinks fast

• **Sensor rupture** ruPt.

The sensor rupture can be detected on inputs mV, Tc, Pt100, Ni100, resistance, and current if the down and full scale > 3.5 mA.

The information of sensor rupture can be reported:

· *On the relays*

OFF	No influence on the relay in case of sensor rupture
LO	Relay de-activated (coil not supplied) in case of sensor rupture
HI	Relay active (coil supplied) in case of sensor rupture

Note: the led is either still or lit according to its programming in the menu rELAY.

· *On the analog output*

If a return value has been entered
Value between: 0 and 22 mA (current output)
or 0 and 11 V (voltage output)

· *On the display*: Message OPEN

Note**:** The sensor rupture detection has a priority over the self-diagnosis.

· *On the converter*: the led ON blinks slowly

• **Disconnection of the sensor rupture** *(If input mV or temperature)*

The sensor rupture detection can be disconnected in order not to disturb some calibrators which may be sensitive to the detection current.

In the menu SECU

CAPt.	Validation (or not) of the sensor rupture detection
On	Detection active
OFF	Detection inactive

4.6.4 **Display features**:

Point Place of the decimal point for the inputs other than temperature inputs

rESOL. Display resolution for the temperature inputs: **0.1°** or **1°**

d.diSP Display corresponding to the input down scale (except the temperature input)

F.diSP Display corresponding to the input down scale (except for the temperature input)

Cut.oF Only for the inputs process, resistance, potentiometer, expressed in display points.

– If the display full scale > display down scale and if the display is ≤ to the cut off value, then it will be held at down scale.

– If the display full scale < display down scale and if the display is ≥ to the cut off value, then it will be held at down scale.

• **Response time**:

intEG Integration indice of the digital filtering:
Programmable from 0 to 10; for use in case of unsteady input signal.

intEG	0	1	2	3	4	5
Typical response time at 90%	120 ms	400 ms	600 ms	1 s	1.4 s	2 s

6	7	8	9	10
3 s	5 s	7.5 s	10 s	15 s

To obtain the maximum response time, add 240 ms.

Note: For the response time of the analog output, add 40ms to the values shown in the table.
For the relays : add the time delay programmed on the alarms.

• **Setting of the digits brightness** br.diG

1111 Lowest brightness 4444 Strongest brightness

• **Inhibition of the last digit** *(bottom weight)* L.dIG

In the mode programming, the menu L.dIG allows suppressing the display of the last digit, the latter being enforced to 0 if OFF is validated.

• **Deleting of the unsignificant zeros** nuLL

nuLL = YES Suppresses the display of the unsignificant zeros on the left hand side.

Eg.: Display value 0015

nuLL = no Display = 0015

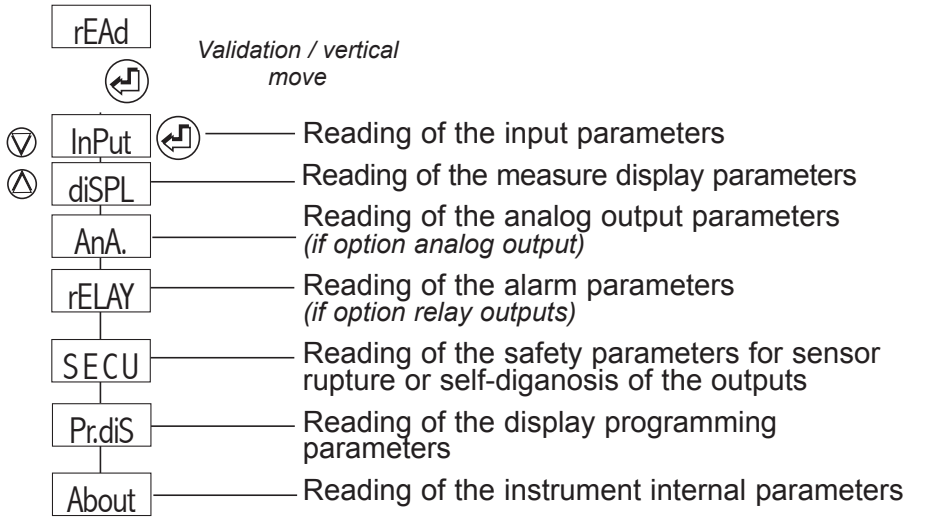
= YES Display = 15

Eg.: Display value 00.15

nuLL = no Display = 00.15

= YES Display = 0.15

4.7 **Reading of the configuration** rEAd



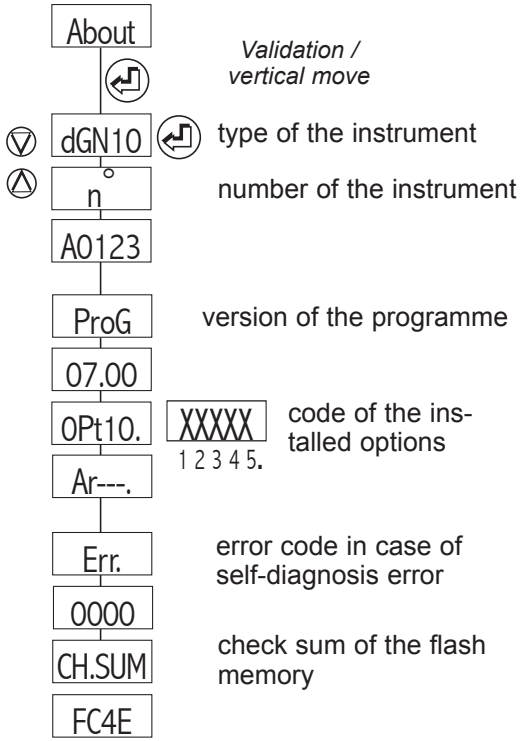
In each reading submenu, use keys ▽ and △ to move, and key ↵ to visualise the parameters.

If no key is pressed during 20 s., the instrument will revert to the measure display.

Submenu

X1 : - : No analog output
A : Analog output

X2 X3 : - - : No relay output
r- : Output 2 relays

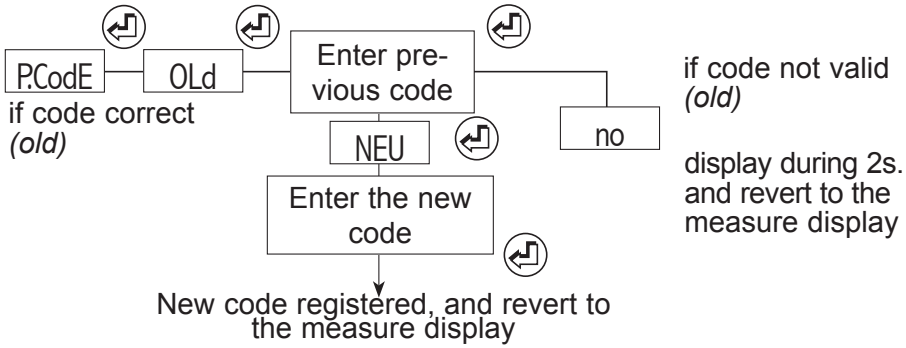


4.8 Access code

An access code adjustable from 0000 to 9999 serves to protect the meter and its setpoints from unauthorized programming, and to lock the access to some functions.

0 0 0 0	Factory code
x x x x	
0 to 5	Access to the display shifting
6 to 9	No access
0 to 5	Access to the display and output simulations
6 to 9	No access
0 to 5	Access to the function “tare” (except temperature inputs)
6 to 9	No access
0 to 5	Access to the quick entering of alarm setpoints
6 to 9	No access

4.9 Programming of a new access code



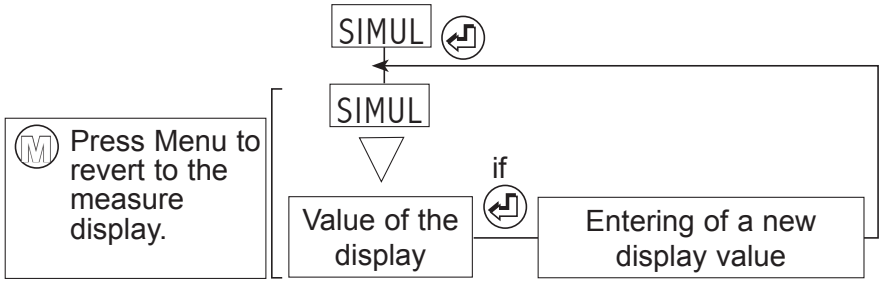
Reminder: If no key is pressed during 1 min, the instrument will revert to the measure display. On factory exit, the access code is 0000.

4.10 Functions which can be reached from the main menu

4.10.1 Simulation of the display

(accessible according to the programmed access code and if option relay outputs or analog output)

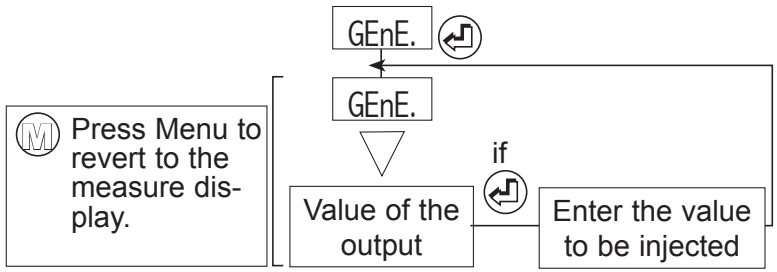
The display can be simulated with the meter in order to validate the configuration of the analog output and the relays in the installation.



Note: The instrument will no longer measure during the simulation. The analog output and the relay outputs will react according to the entered display.
If alarm messages have been programmed, they may appear during the simulation.

4.10.2 **Simulation of the analog output** *(mode generator)*

(accessible according to the programmed access code and if option analog output)

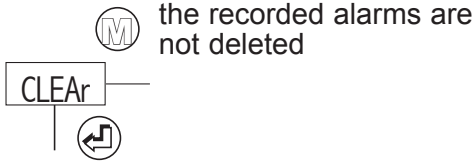


Note: The instrument will carry on measuring during the simulation. Only the analog output will no longer react to the measure.

4.10.3 **Menu** CLEAr **: Deleting of the recorded alarms**

If the function recording of alarms has been programmed:
the status of the relay will be recorded after the setpoint has been passed.

If the setpoint is passed back the other way, the status of the relay does not change and the corresponding led starts to blink.
To revert to the normal status (led not blinking and relay in the correct state) use menu CLEAr.

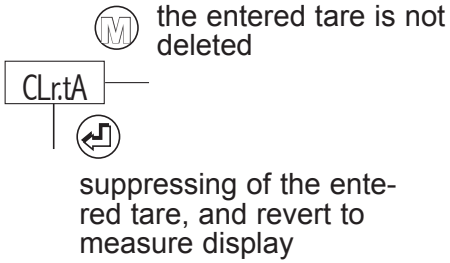


Reminder: If no key is pressed during 20 s., the instrument will revert to the measure display.

Note: An exit from mode programming with saving of the configuration will reset the alarm recordings to zero.

4.10.4 **Menu** CLr.tA **: Suppressing of the programmed tare**

(accessible according to the programmed access code)

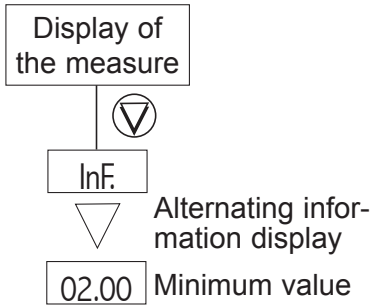


Reminder: If no key is pressed during 20 s., the instrument will revert to the measure display.

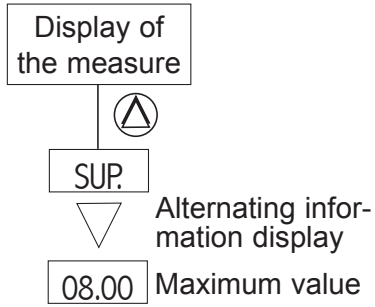
5. FUNCTIONS WHICH CAN BE REACHED ON THE FRONT PANEL

5.1 Functions which require pressing only 1 key:

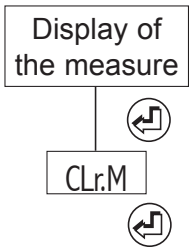
a / Display of the min. value



b/ Display of the max. value



c / Deleting of the min. and max. values



deleting of the recorded min. and max., and revert to the measure display

Ⓜ The instrument will revert to the measure display.

Reminder: If no key is pressed during 20 s., the instrument will revert to the measure display.

Note: An exit from mode programming with saving of the configuration will reset the min. and max. values to zero.

5.2 Functions which require pressing several keys:

5.2.1 Shifting of the display

(accessible according to the programmed access code)

Ⓐ Ⓥ Shifting of the display down scale (AdJ.Lo)

↵ Ⓜ Shifting of the display full scale (AdJ.Hi)

After injecting an input signal corresponding to the down (or full) display scale, press the keys Ⓐ and Ⓥ (or ↵ and Ⓜ) simultaneously. The message AdJ.Lo (AdJ.Hi) will appear alternating with the value, to indicate that you are in the menu adjustment.

By pressing Ⓐ and Ⓥ you can increase or decrease the down (or full) display scale.
If you keep pressing during 3s. on key Ⓐ or Ⓥ you can access a quick increasing or decreasing of the display value.
Press ↵ to validae the shifting. The message OK will appear during the acknowledgement of the shifting (1s.), and the instrument will revert to mode measure. Once all the shifting are validated, the input thus shifted will keep this shifting even after a setting off tension.
Press Ⓜ (or do not press any key during 20 s) to revert to the measure display without modifications.

- **Case of a process, resistance or potentiometer input**

The instrument will then re-adjust its scale factor and its display factor in order to obtain the required result on the display.

- **Case of a temperature input**

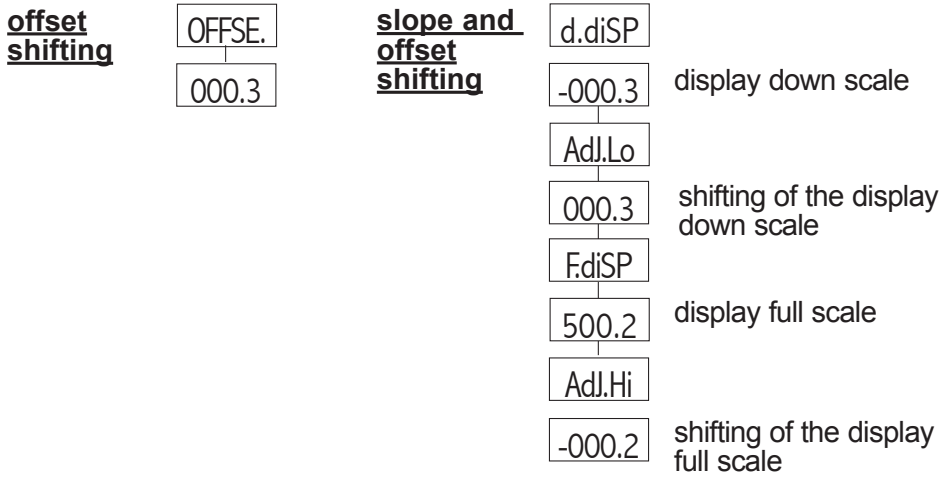
On a temperature input; if 1 of the 2 settings is performed: this will correspond to an offset, which means that all the points will be shifted by the same quantity.

On the contrary, if the 2 settings are performed, the slope and the offset will be corrected in order to obtain the required result.

example :

On a Pt100 input for 0°C, the obtained display is -000.3
For 500°C the obtained display is 0500.2. To correct this display, shift the display down scale by 3 points to obtain 000.0, and the display full scale by -2 points to obtain 0500.0.

note: only for **temperature inputs**:
From the menu rEAd, the performed scale shiftings can be visualised in the submenu InPut :



Suppressing of the input shifting:
(Case of a temperature input only)
The menu AdJuS. in the mode programming of a temperature input allows suppressing the entered shifting, or not.

no : the instrument will revert to the factory settings
Yes: the instrument will take the programmed (offset and/or slope) adjustments into account.

5.2.2 Visualisation of the direct measure

Press ▽ and Ⓜ to visualise the signal directly without processing: scale factor, square root, linearisation

– in mV, V or mA for process inputs,
– in mV for thermocouple inputs,
– in Ω for Pt100, Ni100 inputs,
– in Ω for resistance inputs,
– in percents for potentiometer inputs.

5.2.3 Visualisation and setting of the alarm setpoints

Option 2 or 4 relays

Setting of the setpoints: There are 2 ways to adjust setpoints :
- either in mode programming entering the correct safety access code (see p15)
- or by pressing simultaneously on △ and Ⓜ

The meter will then show the message SP.x or SPx.x alternating with the value of the corresponding setpoint.

The values of the various setpoints can be accessed with ▽ and △.

These setpoints can then be modified (if access code < 6000 (see p15)) by pressing ↵

When the setpoint is adjusted press ↵ to revert to the setpoints reading menu.

Once all the setpoints are adjusted, simply press Ⓜ and the meter will revert to mode measure, taking the new values into account.
If no key is pressed during 60 s. the meter will revert to the measure display without modification of the value of the setpoints.

5.2.4 Setting of the tare (except temperature inputs)

(accessible according to the programmed access code)

Press ↵ and ▽ to enforce the display for the signal currently present on the input as the display down scale d.dISP

Note : The tare will not be memorised in case of power supply cut.
To suppress the tare, validate the menu CLr.tA in the main menu p16.
An exit from mode programming with saving of the configuration will reset the tare to zero.

6. ERROR MESSAGES

2000	Measure in overrange	----	Upper or lower electrical overstepping of the input
OPEn	Sensor rupture	O.L	Displayable value overload.
Err.1	Value set out of range To enter the value again, press ↵	Er.xxx	Self-diagnosis error (see page 13)

7. GENERAL WARRANTY TERMS

WARRANTY applying and duration
This appliance is garanteed for a duration of 1 year against any design or manufacturing defects, under normal operating conditions.

Processing conditions * : Processing not under warranty will be submited to the acceptance of a repair estimate. The customer will return the products at his charge, and they will be restored to him after processing. Without a written agreement on the repair estimate within 30 days, products will not be held.

** Complete warranty terms and details available on request.*

8. LEXIQUE

Messages shown by the meter in mode programming and/or in mode reading

General access

- rEAd — Access to the reading of the parameters
- ProG — Access to the programming of the input and output parameters
- CodE — Code for access to the programming of the input and output parameters
- P.CodE — Programming of a new access code
- SiMUL — Access to the display simulation
- GEnE. — Access to the simulation of the analog output
- CLEAr — Deleting of the recorded alarms

Inputs

- InPut — Access to the input programming submenu
  - TYPE — Input type
    - U — Voltage input
    - MA — Current input
    - tEMP — Temperature input
    - Pot — Potentiometer input
    - rES — Resistance input

Potentiometer and resistance input — Pot — rES

- CALib — Choice of the resistance caliber
  - 400
  - 2 000
  - 8000

Voltage input and current input — U — MA

- CAL — Choice of the voltage caliber
  - 10U — Input 0 to 10 V (or -10/10V)
  - 300U — Input 0 to 300 V (or -300/300V)
  - 100M — Input 0 to 100 mV (or -100/100mV)
  - 1U — Input 0 to 1 V (or -1/+1V)
  - 2.UirE — mA input with supply for 2-wire sensor

Temperature input — tEMP

- CAPt. — Type of temperature sensor
  - Pt100 — Pt100 input
  - tc — Thermocouple input
    - tc-- — Type of thermocouple
      - tc.CA — Thermocouple K (see the table page 3)
    - CJC — Type of cold junction compensation
      - CJC-I — Internal CJC
      - CJC-E — External CJC

Cl-t° Value of the external CJC

ni 100 Input NI100

t° Type of degree

°C Degree Celcius

°F Degree Fahrenheit

AdJuS. Shifting of the input

OFFSE. Offset shifting

d.diSP Slope and offset shifting, display down scale

AdJ.Lo Adjusting of the display down scale

F.diSP Slope and offset shifting, display full scale

AdJ.Hi Adjusting of the display full scale

Display parameters

Pr.diS Submenu programming of the display features

br.diG Adjusting of the digits brightness (4 levels)

1 1 1 1 Lowest brightness

4444 Strongest brightness

L.dIG Last digit (bottom weight)

ON Last digit in service

OFF Last digit enforced to 0

nuLL Deleting of the unsignificant zeros

yES Yes

no No

Display

diSPL. Access to the display programming submenu

Point Choice of the place of the decimal point in mode measure

--.-- Place of the decimal point

Funct. Choice of the processing function

LinEA. Linear

d.in Input down scale

F.in Input full scale

d.diSP F.diSP Display down and full scale

Li.SPE Special linearisation

nb Number of linearisation points

Axx Abscisse of a special linearisation point

bxx Ordinate of a special linearisation point

Cut.oF Cut-off programmable or not

rESOL. Display resolution for the temperature inputs

0.1° Resolution 1/10th of degree

1° Resolution 1 degree

IntEG. Integration indice

Analog output

Out.U Access to the voltage output programming submenu

Out.i Access to the current output programming submenu

PArA.

InPut Output range in input scale points

diSPL. Output range in display points

d.out Down scale of the analog output

F.out Full scale of the analog output

dO.diS Access to the display corresponding to the output down scale

FO.diS Access to the display corresponding to the output full scale

Relay outputs: x : 1 or 2

rELAY Access to the submenu programming of the relay outputs

rEL.x Access to the programming of the relay x

AL.x Activation of the relay output 1

ON Activation OFF De-activation

PArA.

InPut Setpoint and hysteresis in input scale points

diSPL. Setpoint and hysteresis in display points

ModE.x Operating mode of the relay x

Mode setpoints

Mode window

SPx Value of the setpoint in mode setpoint

SP1.X Value of the 1st setpoint in mode window

SP2.X Value of the 2nd setpoint in mode window

HYSt.x Value of the hysteresis in display points

tiME.x Time delay on relay X

LEdx Programming of the led associated with the relay

On Led lit when relay active (coil supplied)

OFF Led still when relay active (coil supplied)

MEM.x Recording of the alarm X

yES Recording no No recording

MESSx Alarm message

yES Message no No message

Safeties

SECU Access to the submenu programming of the safeties

ruPt. Programming of the sensor rupture safety

CAPt. Validation (or not) of the sensor rupture

OFF Sensor rupt. inactive On Sensor rupt. active

rEL.X Status of relay X in case of sensor rupture

OFF No sensor rupture associated with the relay

LO Relay de-activated in case of sensor rupture (coil not supplied)

H I Relay active in case of sensor rupture (coil supplied)

Out.U Out.i Return value (or not) of the output in case of sensor rupture error

yES Return value required no No return value

rEPLi Return value

dI A G . Programming of the self-diagnosis safety

rEL.X Status of relay X in case of self-diagnosis error

OFF No self-diagnosis associated with the relay

LO Relay de-activated in case of self-diagnosis error (coil not supplied)

H I Relay activated in case of self-diagnosis error (coil supplied)

OUt.U OUt.i Return value (or not) of the output in case of self-diagnosis error

yES Return value required no No return value

rEPLi Return value

Saving of the configuration

SAVE	Saving of the configuration
YES	Saving
NO	No saving
UAit	Awaiting transfer

Reading of the instrument internal features

About		Acess to the submenu reading of the internal features
DGN		Nam of the instrument
dGNIO		Type of instrument
Ar--		Options of the instrument (-:standard - A: analog output -R: relay output)
n°	xxxx	Identification number of the instrument
PROG	xxx	Programme version number
Err.	0002	Type of error
CH.SUM	65F2	Check sum of the programme

Changing of the access code

P.CodE	Access to the submenu modification of the access code
OLd	Enter the former access code
NEU	Enter the new access code
no	The entered code is not valid

Further functions

InF.	Display of the min. value
SuP.	Display of the max. value
CLr.M	Deleting of the min. and max.
CLEAr	Deleting of the recorded alarms

Error messages

Err.1	Value set out of range
OPEn	Sensor rupture
2000	Blinking measure: measure in overrange
OL	Displayable value overload
----	Upper or lower electrical overstepping of the input
Erxx	Self-diagnosis error