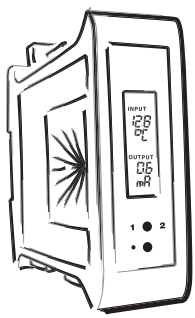
GUARANTEE
5
YEARS

OMX 102UNI

PROGRAMMABLE
UNIVERSAL TRANSMITTER

DC VOLTMETER/AMMETER
PROCESS MONITOR
OHMMETER
THERMOMETER FOR PT/NI/CU
THERMOMETER FOR THERMOCOUPLES
DISPLAYS FOR LINEAR POTENTIOMETERS



SAFETY INSTRUCTIONS

Please, read the enclosed safety instructions carefully and observe them!
These instruments should be safeguarded by isolated or common fuses (breakers)!
For safety information the EN 61 010-1 + A2 standard must be observed.
This instrument is not explosion-safe!

TECHNICAL DATA

Measuring instruments of the OMX 102 series conform to the European regulation 89/336/EWG.

The instruments are up to the following European standards:

EN 61010-1	Electrical safety
EN 61326-1	Electronic measuring, control and laboratory devices – Requirements for EMC "Industrial use"

Seismic capacity:
IEC 980: 1993, čl. 6

The instruments are applicable for unlimited use in agricultural and industrial areas.

CONNECTION

Supply of energy from the main line has to be isolated from the measuring leads.

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2. INSTRUMENT DESCRIPTION

2.1 DESCRIPTION

The OMX 102 model range are DIN rail mountable programmable transmitters designed with the utmost versatility and user comfort in mind whilst keeping the cost at a favourable level. The OMX 102 various executions are UNI, DC, PWR, UQC and T. As a standard the instrument is fitted with a backlit LCD display which projects measured values and configuration settings.

OMX 102UNI is a multifunctional instrument with 8 possible input configurations easily adjustable in the instrument's menu.

The instrument is based on an 32-bit microcontroller, 24-bit A/D and 16-bit D/A converters, which ensures good accuracy, stability and easy operation of the instrument.

TYPES AND RANGES

UNI	up to 2 individual inputs	
	DC:	±30/±60/1000 mV; ±20/±40/±80 V; ±90/±180 mA
	PM:	±5/±20 mA/4...20 mA; ±2/±5/±10 V
	OHM:	0...100/300 Ω/0...1,5/3/24/30 kΩ
	RTD-Pt:	Pt 50/100/500/1000
	RTD-Cu:	Cu 50/100
	RTD-Ni:	Ni 1 000/10 000
	T/C:	J/K/T/E/B/S/R/N/L
	DU:	Linear potentiometer (min. 500 Ω⊠)
DC		±1/±5 A; ±25/±50/±100/±200/±400 V

PROGRAMMABLE PROJECTION

Selection:	of type of input and measuring range
Measuring range:	adjustable
Setting:	manual, optional projection on the display may be set in the menu for both limit values of the input signal, e.g. input 0...20 mA > 0...150
Projection:	-99M...999M

ANALOG OUTPUTS

Type:	isolated, programmable with resolution of max. 16 bit, rate < 1 ms
Quantity:	up to 2
Range:	0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA, 0,2...2 200 Hz

COMPENSATION

of conduct:	in the menu it is possible to perform compensation for 2-wire connection
of conduct in probe:	internal connection (conduct resistance in measuring head)
of CJC (T/C):	manual or automatic, in the menu it is possible to perform selection of the type of thermocouple and compensation of cold junctions, which is adjustable or automatic(temperature at the brackets)

LINEARIZATION

Linearization:*	by linear interpolation in 50 points (solely via OM Link)

DIGITAL FILTERS

Floating average:	from 2...30 measurements
Exponen. average:	from 2...100 measurements
Arithmetic average:	from 2...100 measurements
Rounding:	setting the projection step for display

* only for types DC, PM, DU

MATHEMATIC FUCTIONS

Min/max. value:	registration of min./max. value reached during measurement
Tare:	designed to reset display upon non-zero input signal
Fixed Tare:	pre-set tare, fixed
Peak value:	the display shows only max. or min. value
Mat. operations:	polynome, 1/x, logarithm, exponential, power, root, sin x and mathematic operatin between input - total and divide

EXTERNAL CONTROL

Lock:	control keys blocking
Hold:	display/instrument blocking
Tare:	tare activation/resetting tare to zero
Resetting MM:	resetting min/max value
Memory:	data storage into instrument memory
Swap:	switching (swapping) between active inputs/outputs (where available)

2.2 OPERATION

The instrument is set and controlled by two control keys located on the front panel. All programmable settings of the instrument are performed in three adjusting modes:

LIGHT **Simple programming menu**
- contains solely items necessary for instrument setting and is protected by optional number code

PROFI **Complete programming menu**
- contains complete instrument menu and is protected by optional number code

USER **User programming menu**
- may contain arbitrary items selected from the programming menu (LIGHT/PROFI), which determine the right (see or change)
- acces without password

All programmable parameters are stored in the EEPROM memory (they hold even after the instrument is switched off).

OMLINK Complete instrument operation and setting may be performed via OM Link communication interface, which is a standard equipment of all instruments.

The operation program is freely accessible (www.orbit.merret.eu) and the only requirement is the purchase of OML cable to connect the instrument to PC. It is manufactured in version RS 232 and USB and is compatible with all ORBIT MERRET instruments. Another option for connection is with the aid of data output RS 232, RS 485, LAN and USB (without the need of the OML cable).

The program OM LINK in „Basic" version will enable you to connect one instrument with the option of visualization and archiving in PC. The OM Link „Standard" version has no limitation of the number of instruments connected.

2.3 OPTIONS

Excitation is suitable for supplying power to sensors and transmitters. It has a galvanic separation.

Comparators are assigned to monitor two limit values with relay output. The user may select limits regime: LIMIT/DOSING/FROM-TO. The limits have adjustable hysteresis within the full range of the display as well as selectable delay. Reaching the preset limits is signalled by LED and simultaneously by the switch-on of the relevant relay.

Data outputs jare for their rate and accuracy suitable for transmission of the measured data for further projection or directly into the control systems. We offer an isolated RS232 and RS485 with the ASCII/Mesbus/MODBUS/PROFIBUS protocol, CAN and LAN.

Measured data record is an internal time control of data collection. It is suitable where it is necessary to register measured values. Two modes may be used. FAST is designed for fast storage (40 records/s) of all measured values up to 8 000 records. Second mode is RTC, where data record is governed by Real Time with data storage in a selected time segment and cycle. Up to 250 000 values may be stored in the instrument memory. Data transmis sion into PC via serial interface USB, RS 232/485 and OM Link.

3. INSTRUMENT CONECTION

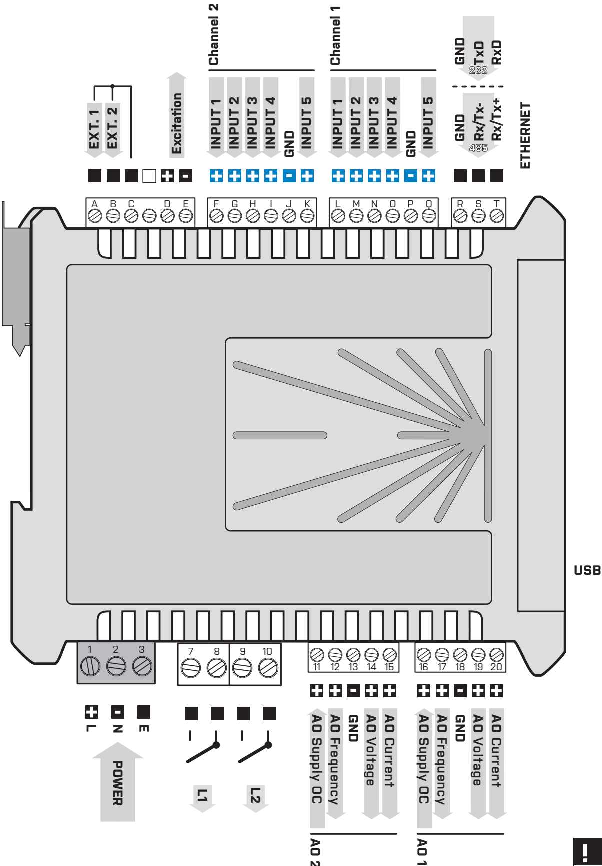
The instrument supply leads should not be in proximity of the incoming low-potential signals.
Contactors, motors with larger input power should not be in proximity of the instrument.
The leads into the instrument input (measured quantity) should be in sufficient distance from all power leads and appliances. Provided this cannot be secured it is necessary to use shielded leads with connection to ground (bracket E).
The instruments are tested in compliance with standards for use in industrial area, yet we recommend to abide by the above mentioned principles.

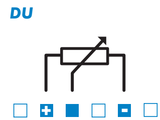
MEASURING RANGES

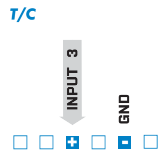
TYPE	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
DC	±20/±40/±80 V		±30/±60/±1000 mV		±90/±180 mA
PM	±2/±5/±10 V				±5/20/4...20 mA
T/C			J/K/T/E/B/S/R/N/L		
OHM			0...100/300 Ω/0...1,5/3/24/30 kΩ		
RTD-Pt			Pt 50/100/500/1 000		
RTD-Cu			Cu 50/100		
RTD-Ni			Ni 1 000/10 000		
DU			Linear potentiometer (min. 500 Ω)		

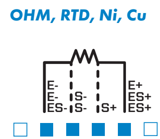
OMX 102DC

TYPE	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
DC	±25/±50/±100 V ±200/±400 V *Channel 1*				0...1/5 A *Channel 2*









!

Ground wire must be connected to terminal „E" at all times!

!

When using **RTD** or **OHM** inputs in 2-wire or 3-wire connection, it is essential connect unused inputs on the terminal board (**M**+**N**/**O**+**P** or **O**+**P**). The same applies to **Channel 2**.

!

Supply to open collector (OC) for frequency output is max. 40 V

(internal resistor 5k6)

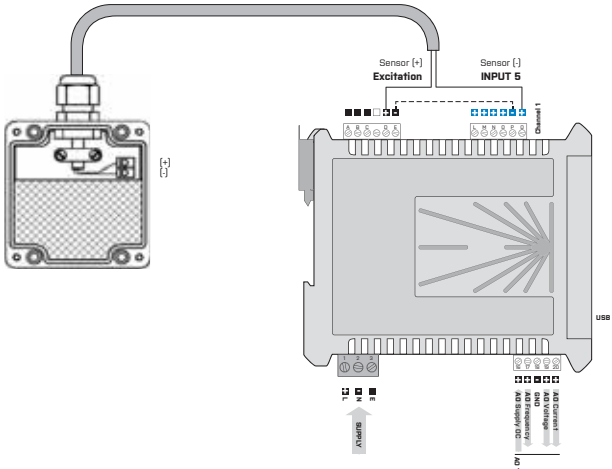
! USB

USB and OM Link are galvanic connected with input!

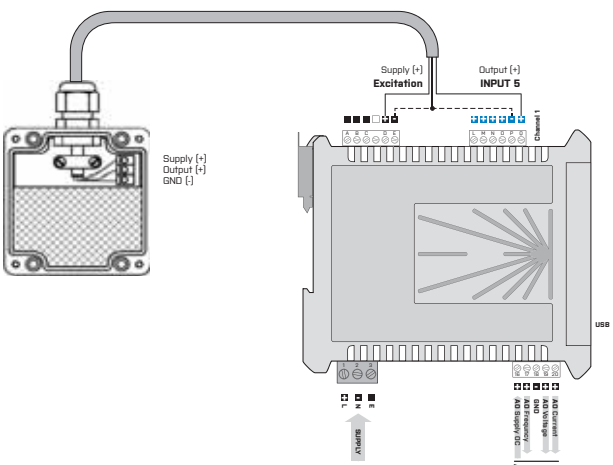
When iput wires are connected, a galvanic isolated USB cable MUST be used.

RISK OF DAMAGING YOUR COMPUTER

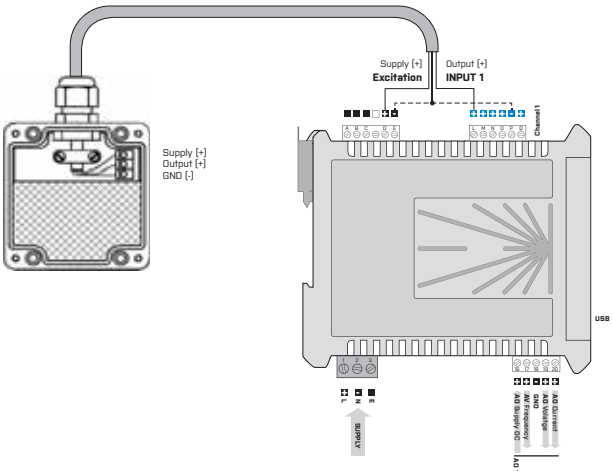
Example connection of a 2-wire sensor with current signal output powered by instrument's excitation



Example connection of a 3-wire sensor with current signal output powered by instrument's excitation



Example connection of 3-wire sensor with voltage signal output powered by instrument's excitation



SETTING **PROFI**

For expert users
Complete instrument menu
Access is password protected
Possibility to arrange items of the **USER MENU**
Tree menu structure

SETTING **LIGHT**

For trained users
Only items necessary for instrument setting
Access is password protected
Possibility to arrange items of the **USER MENU**
Linear menu structure

SETTING **USER**

For user operation
Menu items are set by the user (Profi/Light) as per request
Access is not password protected
Optional menu structure either tree (PROFI) or linear (LIGHT)

4.1 SETTING

The instrument is set and controlled by two control keys located on the front panel. All programmable settings of the instrument are performed in three adjusting modes:

LIGHT **Simple programming menu**
- contains solely items necessary for instrument setting and is protected by optional number code

PROFI **Complete programming menu**
- contains complete instrument menu and is protected by optional number code

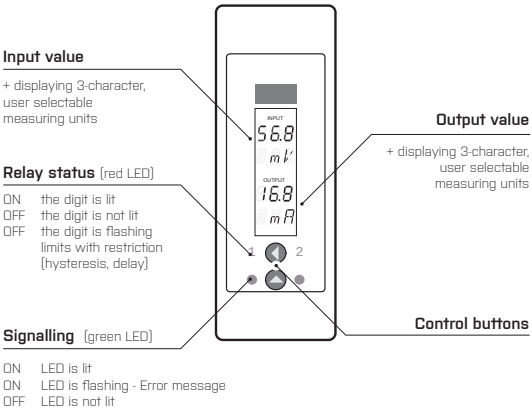
USER **User programming menu**
- may contain arbitrary items selected from the programming menu (LIGHT/PROFI), which determine the right (see or change)
- acces without password

All programmable parameters are stored in the EEPROM memory (they hold even after the instrument is switched off).

Complete instrument operation and setting may be performed via OM Link communication interface, which is a standard equipment of all instruments.
The operation program is freely accessible (www.orbit.merret.eu) and the only requirement is the purchase of OML cable to connect the instrument to PC. It is manufactured in version RS 232 and USB and is compatible with all ORBIT MERRET instruments.
Another option for connection is with the aid of data output RS 232 or RS 485 (without the need of the OML cable).

4. INSTRUMENT SETTING

Setting and controlling the instrument is performed by means of two control keys located on the front panel. With the aid of these keys it is possble to browse through the operation menu and to select and set required values.



Symbols used in the instructions

DC PM DU OHM RTD T/C Indicates the setting for given type of instrument

DEF values preset from manufacture

42 symbol indicates a flashing light (symbol)

MIN inverted triangle indicates the item that can be placed in USER menu

CON. broken line indicates a dynamic item, i.e. it is displayed only in particular selection/version

after pressing the key the set value will not be stored

after pressing the key the set value will be stored

30 continues on page 30

Setting the decimal point and the minus sign

DECIMAL POINT

Its selection in the setting mode is performed by control key ◀ with transition behind the highest decade, when the data starts flashing. Positioning is performed by ◀. For projection of value exceeding 999 the suffix may be set „m" - 0,001, „k" - 1000 or „M" - 100 000

THE MINUS SIGN

Setting the minus sign is performed by control key ◀ on the higher decade. When editing the item, figures change in numeric row 0,1...9,-,0,1

Control keys functions

KEY	MEASUREMENT	MENU	SETTING NUMBERS/SELECTION
◀	value of tare (DC, PM) measured resistance (RTD) cold junction compensation (T/C) swapping inputs	back to previous level	move to higher decade
▲	Tare/Reseting	move to next item	move up
▲ + ◀		confirm selection	confirm setting/selection
▲ + ◀ < 2 s	access into LIGHT menu		
▲ + ◀ > 2 s	direct access into PROFI menu		
◀	access into USER menu		

Setting items into „USER" menu

- in **LIGHT** or **PROFI** menu
- no items permitted in **USER** menu from manufacture
- on items marked by inverted triangle

USER

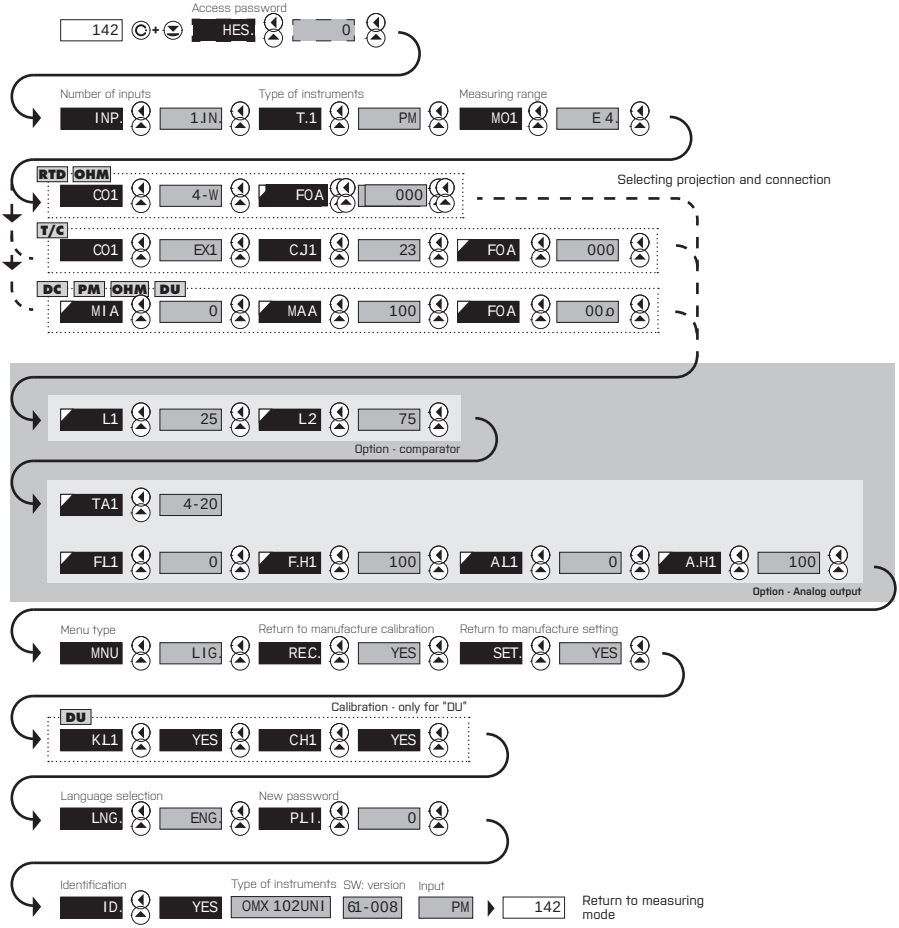
NO item will not be displayed in USER menu

YES item will be displayed in USER menu with the option of setting

SHO. item will be solely displayed in USER menu

SETTING **LIGHT**

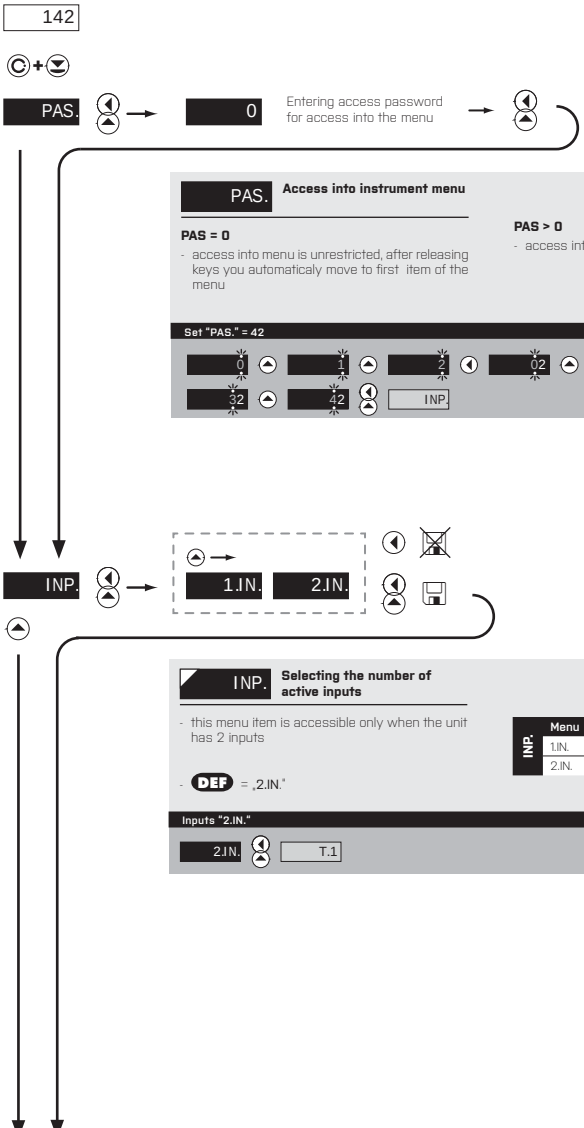
For trained users
Only items necessary for instrument setting
Access is password protected
Possibility to arrange items of the **USER MENU**
Linear menu structure

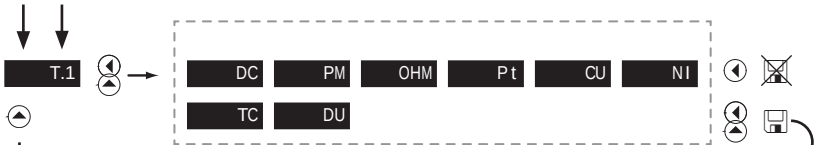


Preset from manufacture	
Password	"0"
Menu	LIGHT
USER menu	off
Setting the items	DEF

!

Upon delay exceeding 60 s the programming mode is automatically discontinued and the instrument itself restores the measuring mode


142
PAS.
0
Entering access password for access into the menu
PAS.
Access into instrument menu
PAS = 0
- access into menu is unrestricted, after releasing keys you automaticaly move to first item of the menu
PAS > 0
- access into menu is protected ny number code
Set "PAS." = 42
Example
0
1
2
02
12
22
32
42
INP.
INP.
1.IN.
2.IN.
INP.
Selecting the number of active inputs
- this menu item is accessible only when the unit has 2 inputs
- DEF = „2.IN."
INP.
Menu
Description
1.IN.
active input 1
2.IN.
active inputs 1 and 2
Inputs "2.IN."
Example
2.IN.
T.1



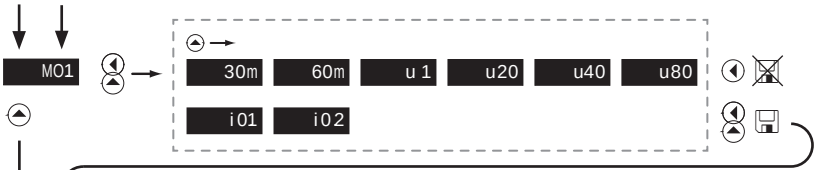
T.1 Selection of the type of instrument

- primary selection of the type of instrument
- performs default setting DEF of values from manufacture, incl. calibration
- DEF = „PM"

T.1	Menu	Type of instrument
	DC	DC voltmeter
	PM	Process monitor
	OHM	Ohmmeter
	RTD-Pt	Thermometer for sensors Pt
	RTD-Ni	Thermometer for sensors Ni
	TC	Thermometer for thermocouples
	DU	Display for lin. potentiometer
	RTD-Cu	Thermometer for sensors Cu

Type "PM" Example

Type DC 18
Type 102DC 20
Type PM 22
Type OHM 24
Type Pt 26
Type Cu 28
Type Ni 30
Type T/C 32
Type Du 34



MO1 **Selection of the instrument measuring range**

DEF = 60 mV

MO.1

Menu	Measuring range
30m	±30 mV
60m	±60 mV
u 1	±1 V
u20	±20 V
u40	±40 V
u80	±80 V
i0.1	±90 mA
i0.2	±180 mA

Range 1 V Example

MIA **Setting display projection for minimum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 0

Projection for 0 mV > MI.A = 0 Example

MAA **Setting display projection for maximum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

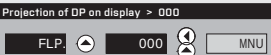
Projection for 60 mV > MA.A = 500 Example

FOA **Setting projection of the decimal point**

- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example



*subsequent item on the menu depends on instrument equipment

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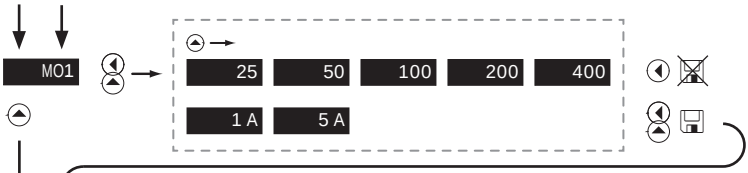
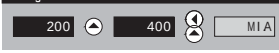


MO1 **Selection of the instrument measuring range**

DEF = 200 V

MO.1	Menu	Measuring range
	25	±25 V
	50	±50 V
	100	±100 V
	200	±200 V
	400	±400 V
	1 A	±1 A
	5 A	±5 A

Range 400 V Example



MIA **Setting display projection for minimum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 0

Projection for 0 V > MI.A = 0 Example

MAXA **Setting display projection for maximum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

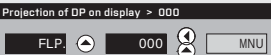
Projection for 200 V > MA.A = 400 Example

F0A **Setting projection of the decimal point**

- positioning of the DP is set here in the measuring mode

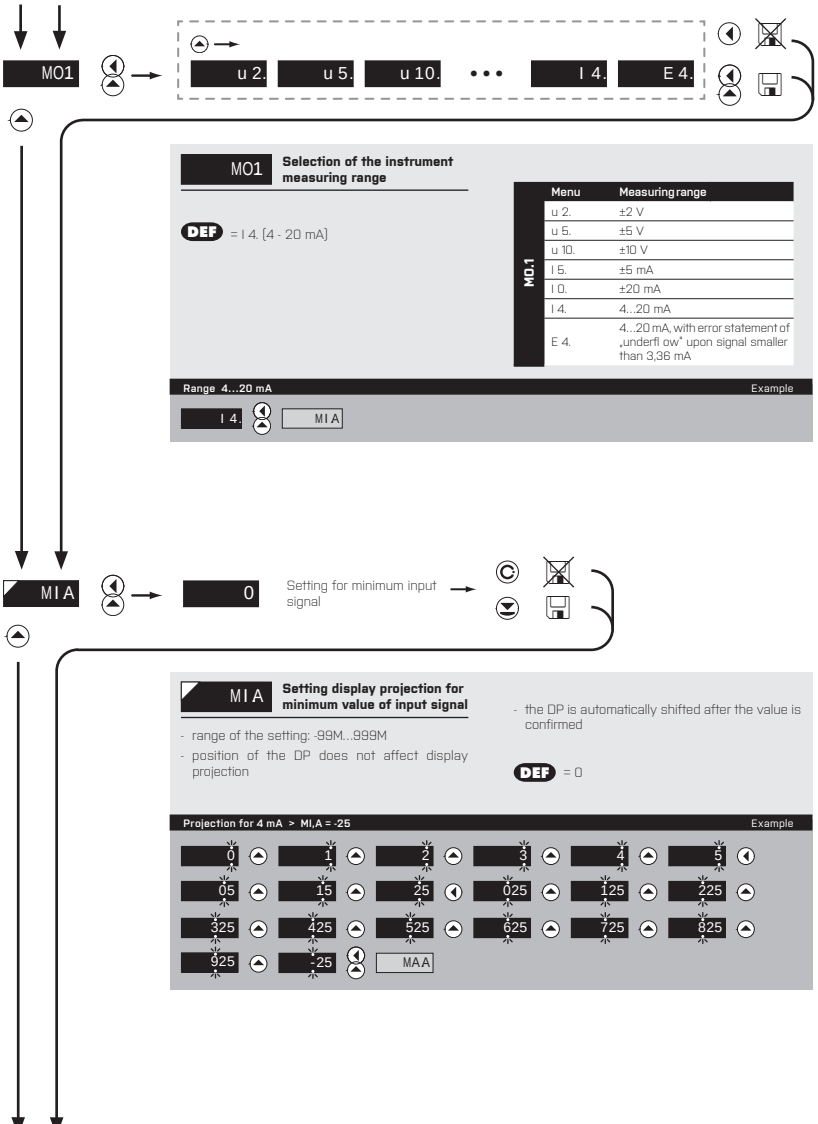
DEF = FLP.

Projection of DP on display > 000 Example



*subsequent item on the menu depends on instrument equipment

38


MO1
u 2.
u 5.
u 10.
I 4.
E 4.
MO1
Selection of the instrument measuring range
DEF = I 4. (4 - 20 mA)
MO.1
Menu
Measuring range
u 2. ±2 V
u 5. ±5 V
u 10. ±10 V
I 5. ±5 mA
I 0. ±20 mA
I 4. 4...20 mA
E 4. 4...20 mA, with error statement of „underfl ow" upon signal smaller than 3,36 mA
Range 4...20 mA
Example
I 4.
MIA
MIA
0
Setting for minimum input signal
MIA
Setting display projection for minimum value of input signal
- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed
DEF = 0
Projection for 4 mA > MI.A = -25
Example
0
1
2
3
4
5
05
15
25
025
125
225
325
425
525
625
725
825
925
-25
MAA

MAA **Setting display projection for maximum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

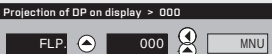
Projection for 20 mA > MA.A = 250 Example

FOA **Setting projection of the decimal point**

- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example



*subsequent item on the menu depends on instrument equipment

38

MO1 **Selection of instrument measuring range**

DEF = 100 Ω

MO.1	Menu	Measuring range
	0.1	0...100 Ω
	0.3	0...300 Ω
	1.5K	0...1,5 kΩ
	3.0K	0...3 kΩ
	24K	0...20 kΩ
	30K.	0...30 kΩ

Range 0...100 Ω — Example

C01 **Selection of the type of sensor connection**

DEF = 2 -wire

CO.1	Menu	Connection
	2-u	2-wire
	3-u	3-wire
	4-u	4-wire

Type of connection - 3 wire > CO.1 = 3-u — Example

MIA **Setting display projection for minimum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 0

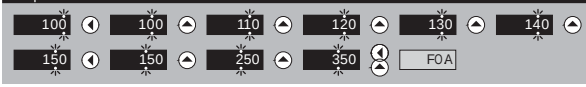
Projection for 0 Ohm > MI.A = 0 — Example

MAA **Setting display projection for maximum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

Projection for 300 Ohm > MA.A = 350 Example

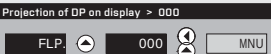


FOA **Setting projection of the decimal point**

- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example



*subsequent item on the menu depends on instrument equipment

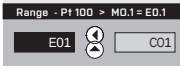
38

M01 **Selection of instrument measuring range**

DEF = Pt 100

M0.1	Menu	Measuring range
	E0.1	Pt 100 (3 850 ppm/°C)
	E0.5	Pt 500 (3 850 ppm/°C)
	E1.0	Pt 1000 (3 850 ppm/°C)
	U0.1	Pt 100 (3 920 ppm/°C)
	R.05	Pt 50 (3 910 ppm/°C)
	R0.1	Pt 100 (3 910 ppm/°C)

Range - Pt 100 > M0.1 = E0.1 — Example



C01 **Selection of the type of sensor connection**

DEF = 2 -wire

C0.1	Menu	Connection
	2-u	2-wire
	3-u	3-wire
	4-u	4-wire

Type of connection - 3 wire > C0.1 = 3-u — Example

38

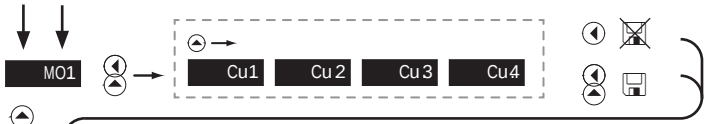
F0A Setting projection of the decimal point

- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example

FLP. ▲ 000 ◀▲ MNU *subsequent item on the menu depends on instrument equipment

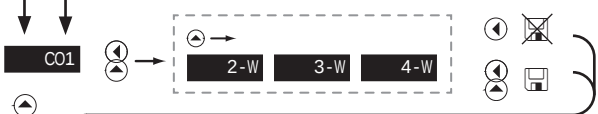


MO1 **Selection of instrument measuring range**

DEF = Cu. 2

MO.1	Menu	Measuring range
	Cu.1	Cu 50 (4 285 ppm/°C)
	Cu.2	Cu 100 (4 285 ppm/°C)
	Cu.3	Cu 50 (4 260 ppm/°C)
	Cu.4	Cu 100 (4 260 ppm/°C)

Range - Cu 100/4260 ppm > MO.1 = Cu.2 Example



C01 **Selection of the type of sensor connection**

DEF = 2 -wire

CO.1	Menu	Connection
	2-u	2-wire
	3-u	3-wire
	4-u	4-wire

Type of connection - 3 wire > CO.1 = 3-u Example

F0A Setting projection of the decimal point

- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example

FLP. 000 MNU *subsequent item on the menu depends on instrument equipment

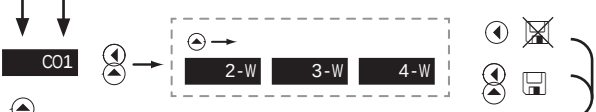
38

M01 **Selection of instrument measuring range**

DEF = Ni 1 000 - 5 000 ppm/°C

M0.1	Menu	Measuring range
	5-1	Ni 1 000 (5 000 ppm/°C)
	6-1	Ni 1 000 (6 180 ppm/°C)
	510	Ni 10 000 (5 000 ppm/°C)
	610	Ni 10 000 (6 180 ppm/°C)

Range - Ni 10 000, 5 000 ppm > M0.1 = 510 — Example

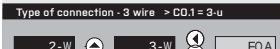


C01 **Selection of the type of sensor connection**

DEF = 2 -wire

C0.1	Menu	Connection
	2-u	2-wire
	3-u	3-wire
	4-u	4-wire

Type of connection - 3 wire > C0.1 = 3-u — Example



F0A **Setting projection of the decimal point**

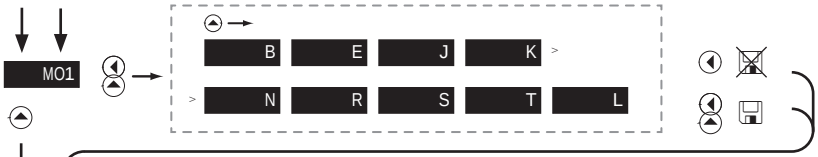
- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example

FLP. 000 MNU *subsequent item on the menu depends on instrument equipment

38

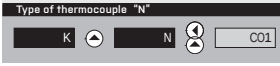


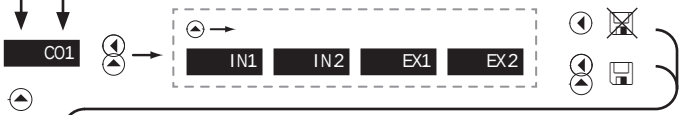
MO1 **Selection of the type of thermocouple**

DEF = Type "K"

MO.1	Menu	Type of thermocouple
	B	T/C B
	E	T/C E
	J	T/C J
	K	T/C K
	N	T/C N
	R	T/C R
	S	T/C S
	T	T/C T
	L	T/C L

Type of thermocouple "N" Example





C01 **Selection of the type of sensor connection**

DEF = EX. 1

C0.1	Menu	Connection	Ref. T/C
	IN.1	measuring C.J. at instrument brackets	×
	IN.2	measuring C. J. at instrument brackets with anti-series connected ref. TC	✓
	EX.1	the entire measuring set is working under invaried and constant temperature	×
	EX.2	when using compensation box	✓

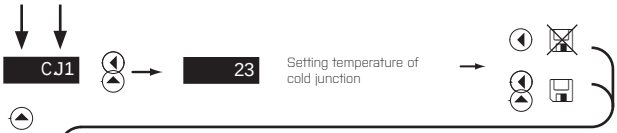
Selection of the type of sensor connection > C0.1 = EX.2 Example

!

For thermocoule type "**B**" the items "**C0.1**" and "**C.J.1**" are not available

!

Method and procedure of setting the cold junctions is described in separate chapter on page 82



CJ1 **Setting temperature of cold junction**

- rrange 0...99°C with compensation box

DEF = 23

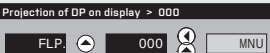
Setting temperature of cold junction > C.J.1 = 35 Example

F0A **Setting projection of the decimal point**

- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example



*subsequent item on the menu depends on instrument equipment

38

MIN **Setting display projection for minimum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 0

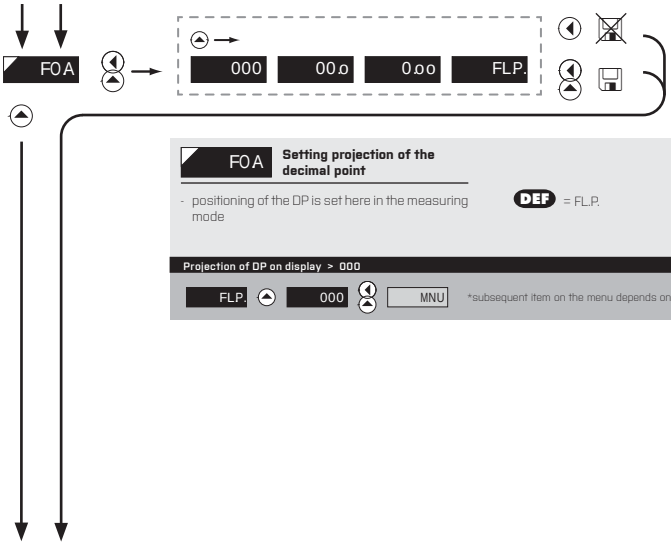
Projection for the beginning > MI.A = 0 Example

MAA **Setting display projection for maximum value of input signal**

- range of the setting: -99M...999M
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

Projection for the end > MA.A = 250 Example



F0A **Setting projection of the decimal point**

- positioning of the DP is set here in the measuring mode

DEF = FLP.

Projection of DP on display > 000 Example

FLP. 000 MNU *subsequent item on the menu depends on instrument equipment

38 Calibration of the beginning and the end of range of linear potentiometer is on page 39

L1 **Setting boundary for limit 1**

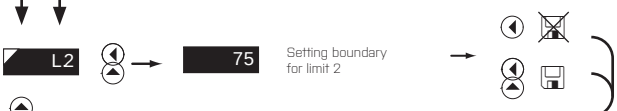
- range of the setting: -99M...999M
- contingent modification of hysteresis or delay may be performed in "**PROFI**" menu

DEF = 25

DEF „Hystresis"=0, „Delay"=0

Setting limit 1 > L. 1 = 30 Example

*subsequent item on the menu depends on instrument equipment



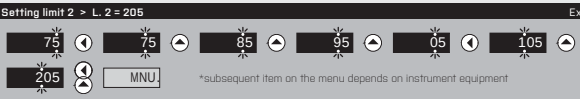
L2 **Setting boundary for limit 2**

- range of the setting: -99M...999M
- contingent modification of hysteresis or delay may be performed in "**PROFI**" menu

DEF = 75

DEF „Hystresis"=0, „Delay"=0

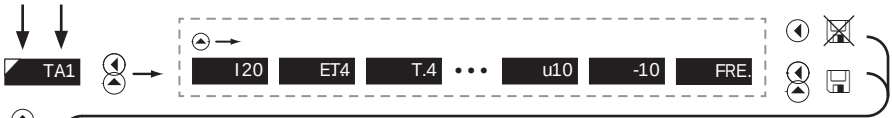
Setting limit 2 > L. 2 = 205 Example



*subsequent item on the menu depends on instrument equipment

!

Items for "**Limits**" and "**Analog output**" are accessible only if incorporated in the instrument.



TA1 Setting the type of analog output

T.A.1	Menu	Range	Description
	I20	0...20 mA	
	E.T.4	4...20 mA	with error message indication and broken loop indication (<3,6 mA)
	T 4	4...20 mA	with broken loop indication (<3,6 mA)
	E. 4	4...20 mA	with indication of error statement (<3,6 mA) DEF
	I 4	4...20 mA	
	I 5	0...5 mA	
	u 2	0...2 V	
	u 5	0...5 V	
	u10	0...10 V	
	-10	±10 V	
	FRE.	0,2...2200 Hz	

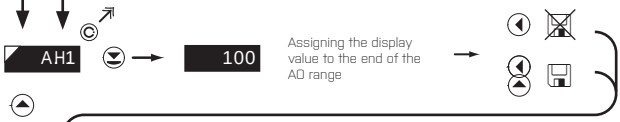
Type of analog output - 0...10 V > T.A.1 = U 10 — Example

AL1 Assigning the display value to the beginning of the AO range

- range of the setting: -99M...999M

DEF = 0

Display value for the beginning of the AO range > A.L.1 = 0 — Example

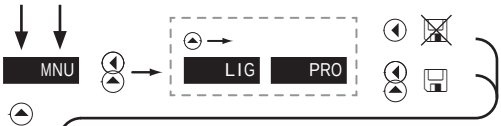


AH1 Assigning the display value to the end of the AO range

- range of the setting: -99M...999M

DEF = 100

Display value for the end of the AO range > A.H.1 = 120 — Example



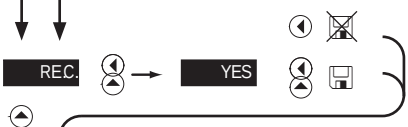
MNU **Setting the menu type LIGHT/PROFI**

LIG > menu LIGHT, a simple menu, which contains only the most essential items necessary for instrument setting
> linear tree structure

PRO > menu PROFI, a complete menu for complete instrument setting
> tree menu structure

DEF = LIGHT

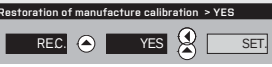
Menu LIGHT > MNU. = LIG. Example



REC. **Restoration of manufacture calibration**

- in the event of error calibration it is feasible to restore manufacture calibration
- Prior to execution of any modifications you will be asked to confirm your selection (**YES**)

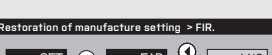
Restoration of manufacture calibration > YES Example



RES. **Restoration of manufacture instrument setting**

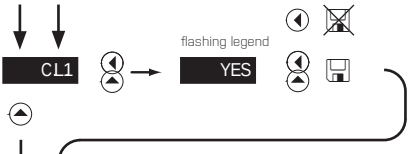
- in the event of error setting the manufacture setting may be restored
- restoration is performed for the currently selected type of the instrument input (select "**FIR.**")
- provided you stored your user setting in the "**PROFI**" menu, it may also be restored (select "**USR.**")
- loading manufacture calibration and primary setting of items on the menu (**DEF**)

Restoration of manufacture setting > FIR. Example



* subsequent item on the menu depends on instrument equipment

Type „DC"	40
Type "PM"	40
Type "OHM"	40
Type "RTD-Pt"	40
Type "RTD-Ni"	40
Type "T/C"	40
Type "DU"	39
Typ. "RTD-Cu"	40

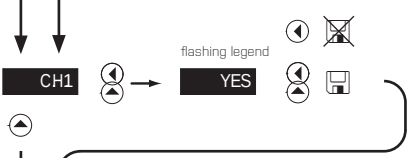


CL1 **Calibration of input range - the potentiometer traveller in initial position**

Only for type "DU"

- prior confirming the flashing "YES" sign the potentiometer traveller has to be in given idle position

Calibration of the beginning of the range > C.L.1 Example

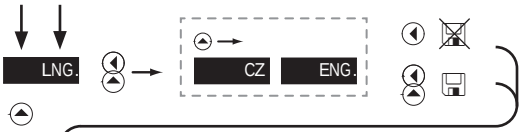


CH1 **Calibration of input range - the potentiometer traveller in end position**

Only for type "DU"

- prior confirming the flashing "YES" sign the potentiometer traveller has to be in given idle position

Calibration of the end of the range > C.L.1 Example



LNG. **Selection of language in instrument menu**

- selection of language version of the instrument menu

DEF = ENG.

Language selection - ENGLISH > LNG. = ENG. Example

PLI. **Setting new access password**

- access password for menu **LIGHT**
- range of the number code 0...999
- upon setting the password to "**000**" the access to menu **LIGHT** is free without prompt to enter it
- in case the password is lost, please contact the adminstrator of this device

DEF = 0

New password - 341 > P.LI. = 341 Example

ID. **Instrument SW version**

- the display shows the type of instrument indication, SW number, SW version and current input setting (Mode)
- if SW version contains a letter in first position, then it is a customer SW
- after the identification is completed the menu is automatically exited and the instrument restores the measuring mode

SETTING
PROFI

For expert users
Complete instrument menu
Access is password protected
Possibility to arrange items of the **USER MENU**
Tree menu structure

6.0 SETTING "PROFI"

PROFI **Complete programming menu**

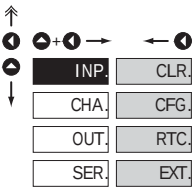
- contains complete instrument menu and is protected by optional number code
- designed for expert users
- preset from manufacture is menu **LIGHT**

Switching over to "PROFI" menu

> 2s
- access to **PROFI** menu
- authorization for access to **PROFI** menu does not depend on setting under item SER. > MNU.
- password protected access (unless set as follows under the item SER. > N.PA. > PROFI =0)

< 2s
- access to menu selected under item SER. > MNU. > **LIGHT**/**PROFI**
- password protected access (unless set as follows under the item SER. > N.PA. > LIGHT =0)
- for access to **LIGHT** menu passwords for **LIGHT** and **PROFI** menu may be used

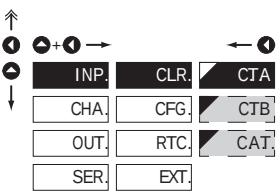
6.1 SETTING "PROFI" - INPUT



The primary instrument parameters are set in this menu

CLR.	Resetting internal values
CFG.	Selection of measuring range and parameters
RTC.	Setting date and time for option with RTC
EXT.	Setting external inputs functions

6.1.1 RESETTING INTERNAL VALUES

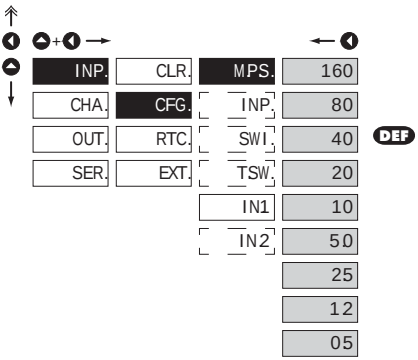


CLR.	**Resetting internal values**
CTA	Tare resetting - Channel A
CTB	Tare resetting - Channel A
CAT.	Tare resetting on both channels simultaneously

!

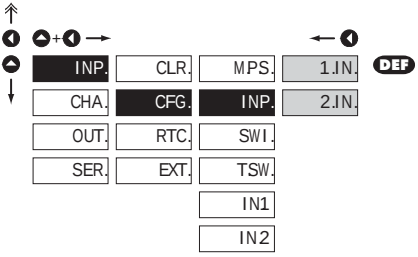
Only for **DC**, **PM** and **DU** types

6.1.2a SELECTION OF MEASURING RATE



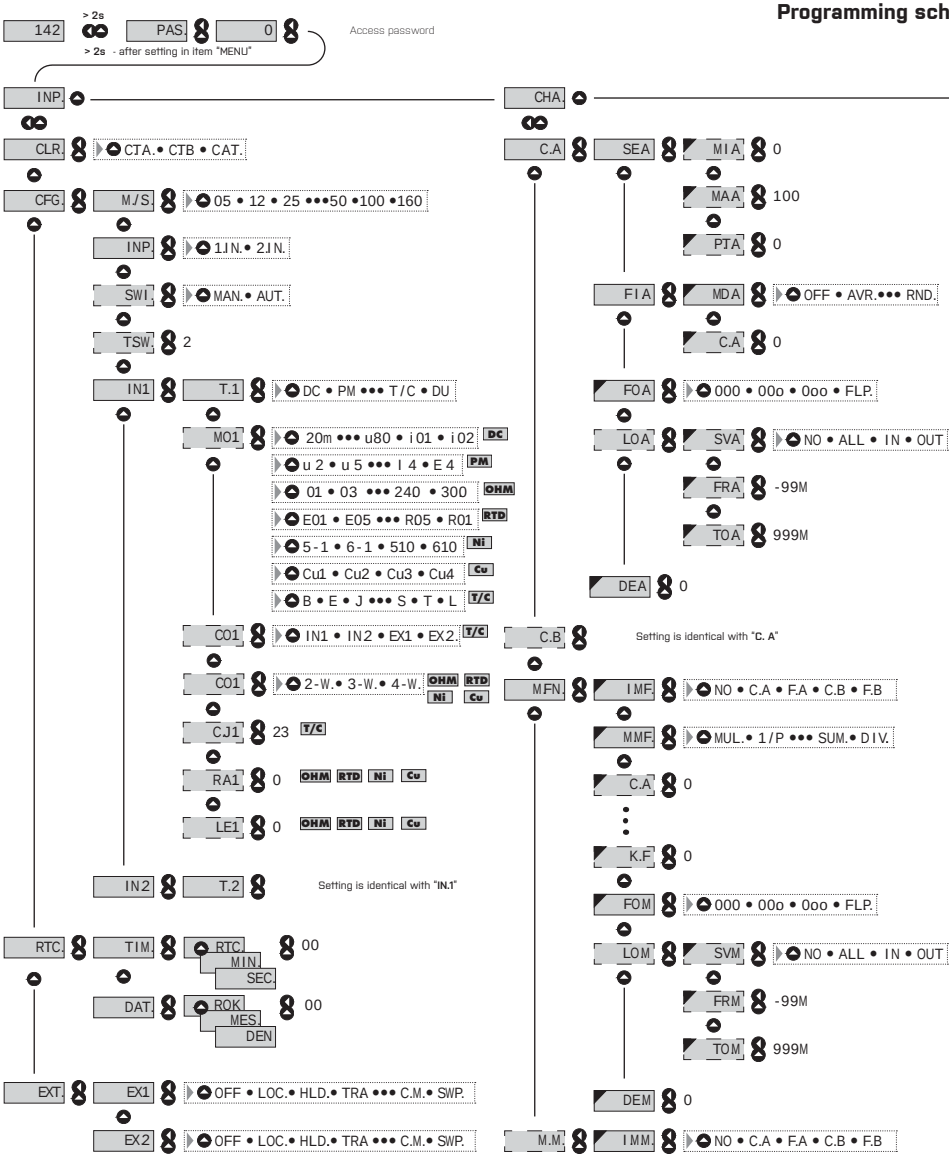
MPS.	Selection of measuring rate
160	160 measurements/s
80	80 measurements/s
40	40 measurements/s
20	20 measurements/s
10	10 measurements/s
50	5 measurements/s
25	2,5 measurements/s
12	1,2 measurements/s
05	0,5 measurements/s

6.1.2a SELECTION OF THE NUMBER OF ACTIVE INPUTS

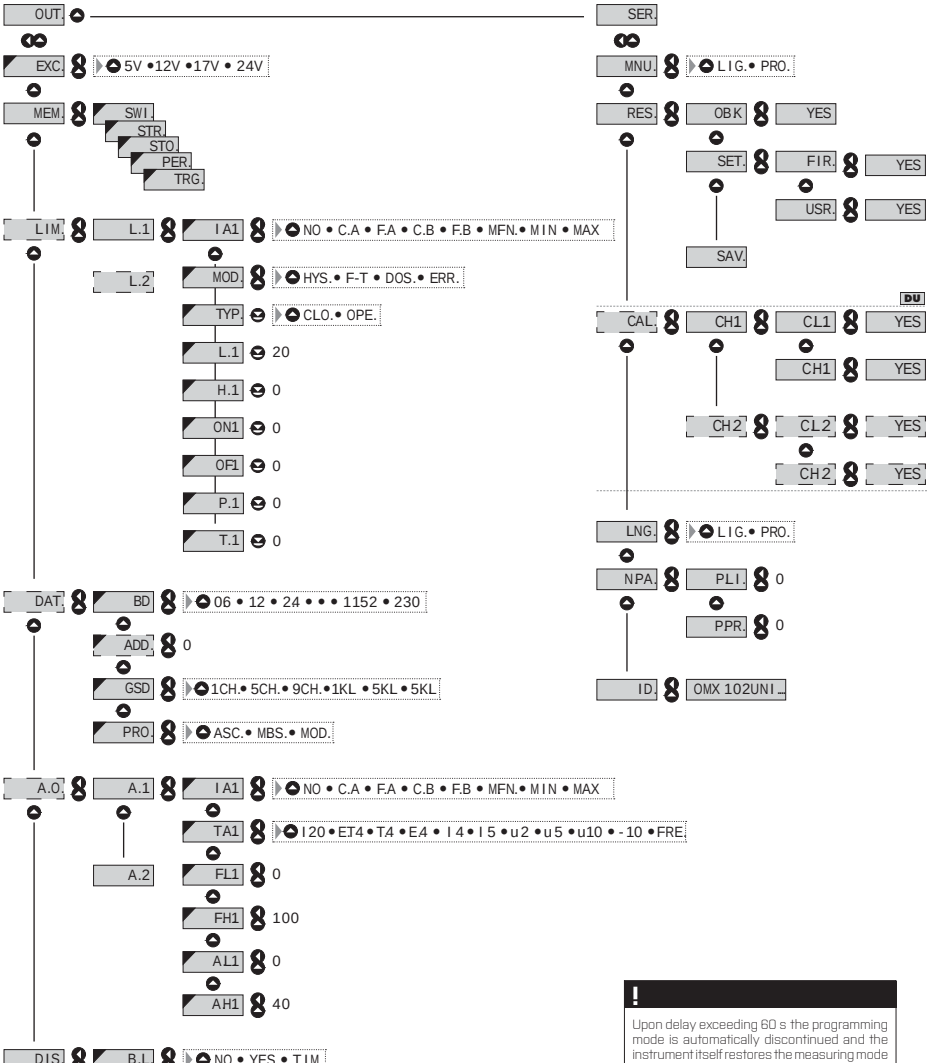


INP.	Selection of the number of active inputs
- this menu item is accessible only in the 2-input version of the device	
1.IN.	Active input 1
2.IN.	Active inputs 1 and 2

Programming sch



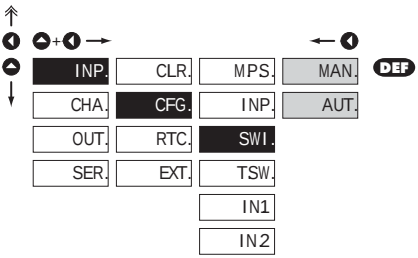
eme PROFI MENU



!

Upon delay exceeding 60 s the programming mode is automatically discontinued and the instrument itself restores the measuring mode

6.1.2c SELECTION OF INPUTS SWITCHING



SWI. Selection of inputs switching

- this menu item is accessible only in the 2-input version of the device

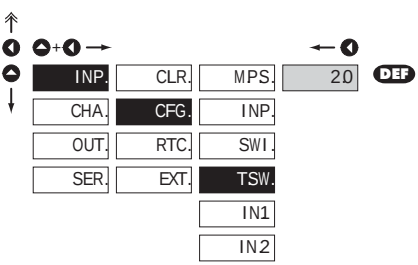
MAN. Manual inputs switching

- inputs switching is controlled by selected key on the front panel or selected external input

AUT. Automatic inputs switching

- inputs switching is automatic in a time period set in "T.SW."

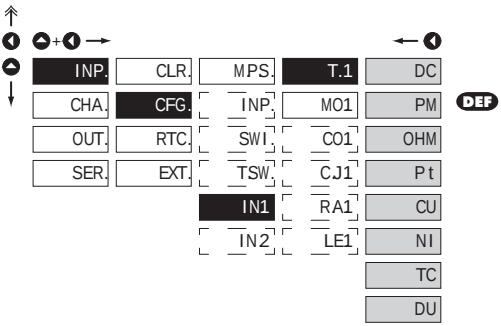
6.1.2d SETTING THE PERIOD FOR INPUTS SWITCHING



SWI. Setting the period for inputs switching

- setting the time period for projection of channels in automatic mode ode of inputs switching ("AUT.")
- range of the setting: 0,5...99,5 s (step 0,5)
- DEF T.SW. = 2 s

6.1.2e SELECTION OF „INSTRUMENT" TYPE FOR CHANNEL 1

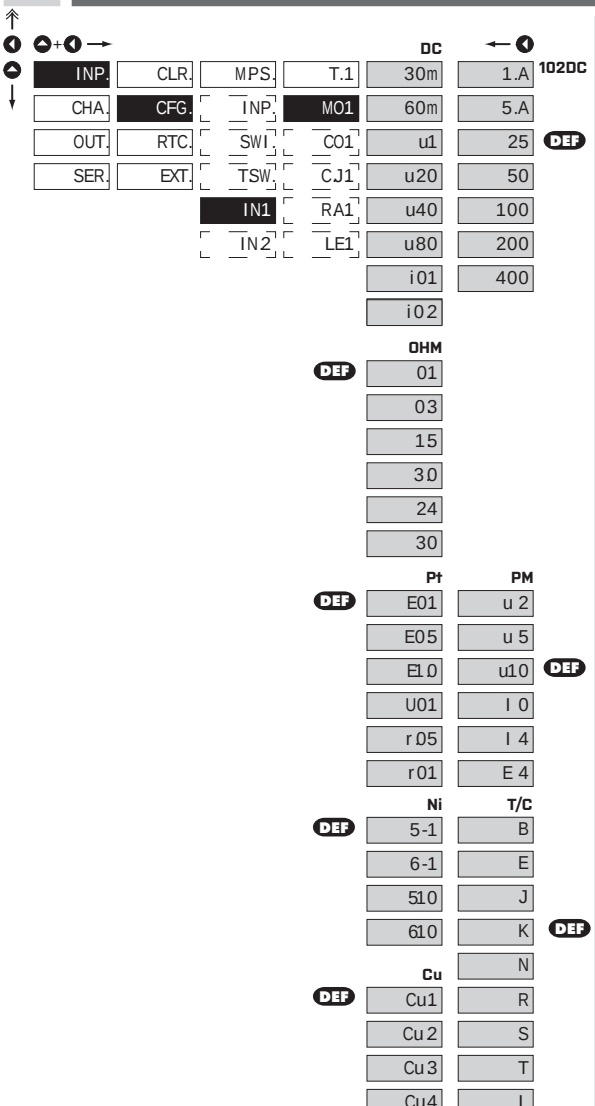


T.1 **Selection of „instrument" type**

- selection of particular type of "instrument" is bound to relevant dynamic items

DC	DC voltmeter
PM	Process monitor
OHM	Ohmmeter
Pt	Thermometer for Pt xxx
Cu	Thermometer for Cu xxx
Ni	Thermometer for Ni xxxx
TC	Thermometer pro thermocouples
DU	Display for linear potentiometers

6.1.2f SELECTION OF MEASURING RANGE FOR CHANNEL 1



MOD. **Selection of instrument measuring range**

	Menu	Measuring range
OMX 102DC	1. A	±1 A
	5. A	±5 A
	25	±25 V
	50	±50 V
	100	±100 V
	200	±200 V
	400	±400 V

	Menu	Measuring range
DC	30m	±30 mV
	60m	±60 mV
	u 1	±⊠1 V
	u20	±20 V
	u40	±40 V
	u80	±80 V
	i0.1	±90 mA
	i0.2	±180 mA

	Menu	Measuring range
PM	u 2	±2 V
	u 5	±5 V
	u10	±10 V
	I 5	±5 mA
	I 0	±20 mA
	I 4	4...20 mA
	E 4	4...20 mA, with error statement of „underfl ow" upon signal smaller than 3,36 mA

	Menu	Measuring range
OHM	0.1	0...100 ⊠Ω
	0.3	0...300 ⊠Ω
	1.5	0...1,5 ⊠Ω
	3.0	0...3 ⊠kΩ
	24	0...24 k⊠Ω
	30	0...30 k⊠Ω

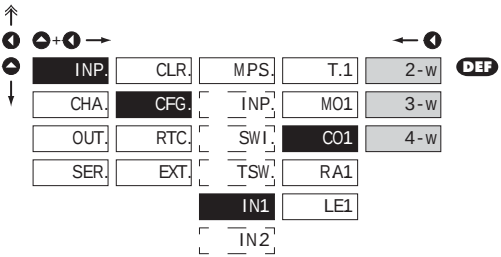
	Menu	Measuring range
RTD	E0.1	Pt 100 (3 850 ppm/°C)
	E0.5	Pt 500 (3 850 ppm/°C)
	E1.0	Pt 1000 (3 850 ppm/°C)
	U0.1	Pt 100 (3 920 ppm/°C)
	R.05	Pt 50 (3 910 ppm/°C)
	R0.1	Pt 100 (3 910 ppm/°C)

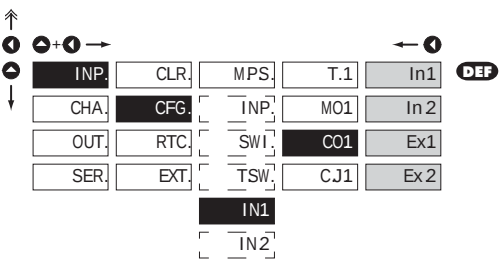
	Menu	Measuring range
NI	5-1	Ni 1 000 (5 000 ppm/°C)
	6-1	Ni 1 000 (6 180 ppm/°C)
	510	Ni 10 000 (5 000 ppm/°C)
	610	Ni 10 000 (6 180 ppm/°C)

	Menu	Measuring range
CU	Cu.1	Cu 50 (4 280 ppm/°C)
	Cu.2	Cu 1 00 (4 280 ppm/°C)
	Cu.3	Cu 50 (4 260 ppm/°C)
	Cu.4	Cu 100 (4 260 ppm/°C)

	Menu	Type of thermocouple
T/C	B	T/C B
	E	T/C E
	J	T/C J
	K	T/C K
	N	T/C N
	R	T/C R
	S	T/C S
	T	T/C T
	L	T/C L

6.1.2g SELECTION OF THE TYPE OF SENSOR CONNECTION FOR CHANNEL 1 RTD OHM T/C





CO1 **Selection of the type of sensor connection**

RTD OHM

2-w 2-wire connection

3-w 3-wire connection

4-w 4-wire connection

T/C

IN1 Measurement without reference thermocouple

- measuring cold junction at instrument brackets

IN2 Measurement with reference thermocouple

- measuring cold junction at instrument brackets with anti-series connected reference thermocouple

EX1 Measurement without reference thermocouple

- the entire measuring set is working under invaried and constant temperature

EX2 Measurement with reference thermocouple

- when using compensation box

!

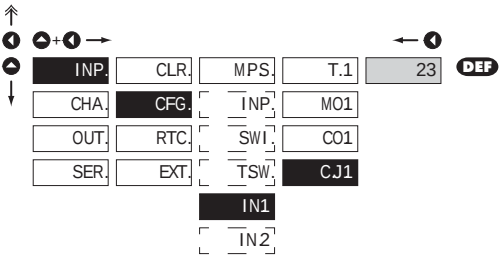
Method and procedure of setting the cold junctions is described in separate chapter on page 82

!

For thermocoule type „B" the items „CO.1" and „C.J.1" are not available

6.1.2h SETTING TEMPERATURE OF COLD JUNCTION FOR CHANNEL 1

T/C

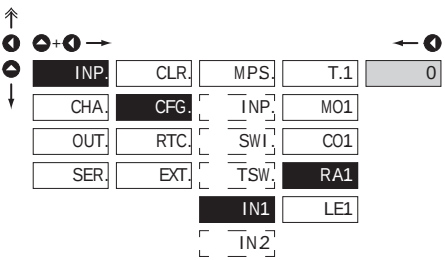


CJ1 **Setting temperature of cold junction**

- range 0...99°C with compensation box
- setting of cold junction compensation is identical both for „Channel 1" and „Channel 2"
- DEF = 23°C

6.1.2i ZERO OFFSET OF THE MEASUREMENT RANGE FOR CHANNEL 1

RTD OHM

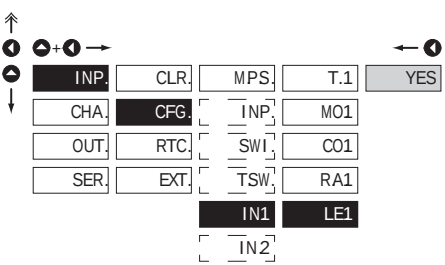


RA1 **Offset of the beginning of the measuring range**

- in cases when it is necessary to offset the beginning of the range by certain value, e.g. while using sensor in measuring head
- entered directly in Ohm (0...999)
- DEF = 0

6.1.2j COMPENSATION OF 2-WIRE CONDUCT FOR CHANNEL 1

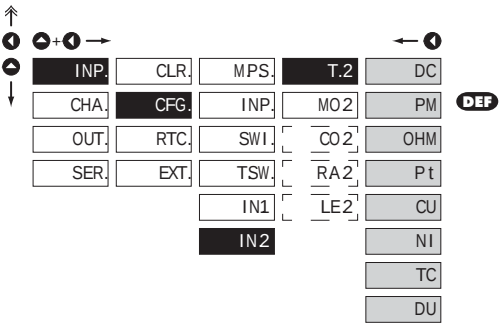
RTD OHM



LE1 **Compensation of 2-wire conduct**

- for measurement accuracy it is necessary to perform compensation of conduct always in case of 2-wire connection
- prior confirmation of the displayed prompt "YES" it is necessary to substitute the sensor at the end of the conduct by a short-circuit
- DEF = 0

6.1.2k SELECTION OF „INSTRUMENT" TYPE FOR CHANNEL 2



T.2 **Selection of „instrument" type**

- selection of particular type of "instrument" is bound to relevant dynamic items

DC DC voltmeter

PM Process monitor

OHM Ohmmeter

Pt Thermometer for Pt xxx

Cu Thermometer for Cu xxx

Ni Thermometer for Ni xxxx

TC Thermometer pro thermocouples

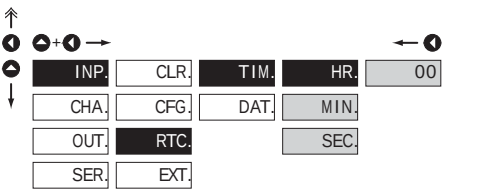
- first thermocouple has to be connected to „Channel 1", because that is where the temperature for cold junction compensation is taken
- in menu „Channel 2" the temperature of cold junction compensation is not set (it is adopted from „Channel 1")

DU Display for linear potentiometers

*****

Following settings are identical with menu items for „IN.1"

6.1.3 SETTING THE REAL TIME CLOCK



RTC. **Setting the real time clock (RTC)**

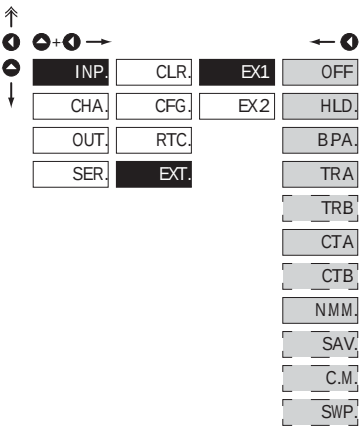
TIM. Time setting

- format 23.59.59

DAT. Date setting

- format DD.MM.RR

6.1.4 EXTERNAL INPUT FUNCTION SELECTION



EXT. External input function selection

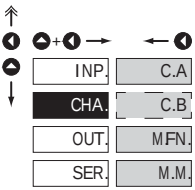
- **OFF** Input is off
- **HLD.** Activation of HOLD
- **BPA.** Activation of locking access into programming menu LIGHT/PROFI
- **TRA** Tare activation for Channel 1
- **TRB** Tare activation for Channel 2
- **CTA** Tare resetting for Channel 1
- **CTB** Tare resetting for Channel 2
- **NMM.** Resetting min/max value
- **SAV.** Activation of measured data record in instrument memory for option FAST/RTC
- **C.M.** Clearing memory for option FAST/RTC
- **SWP.** Swapping between analogue inputs/outputs
  - Swapping between analogue outputs (configuration: 1x input > 2x output)
  - Swapping between analogue inputs (configuration: 2x input > 1x output)

- DEF EX.1 > HLD.
- DEF EX.2 > B.PA.

*****

Identical procedure to the one shown above can also be applied to „EX.2"

6.2 SETTING "PROFI" - CHANNELS

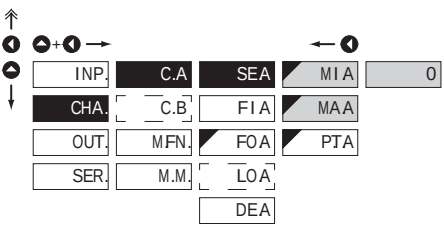


In this section of the menu input parameters are set

- **C.A** Setting of parameters of measuring input "Channel 1"
- **C.B** Setting of parameters of measuring input "Channel 2"
- **MFN.** Setting of parameters of mathematical functions
- **M.M.** Selecting the input for evaluating the Min/Max value

6.2.1a DISPLAY PROJECTION FOR CHANNEL 1

DC AC PM DU OHM



SEA **Setting display projection**

MIA Setting display projection for minimum value of input signa

- range of the setting: -99M...999M
- DEF = 0

MAA Setting display projection for maximum value of input signal

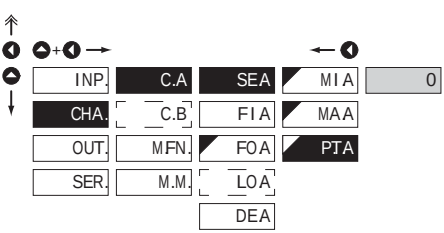
- range of the setting: -99M...999M
- DEF = 100

!

Setting is identical with channel „C. B"

6.2.1b SETTING FIXED TARE FOR CHANNEL 1

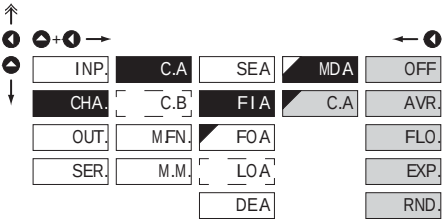
DC AC PM DU OHM

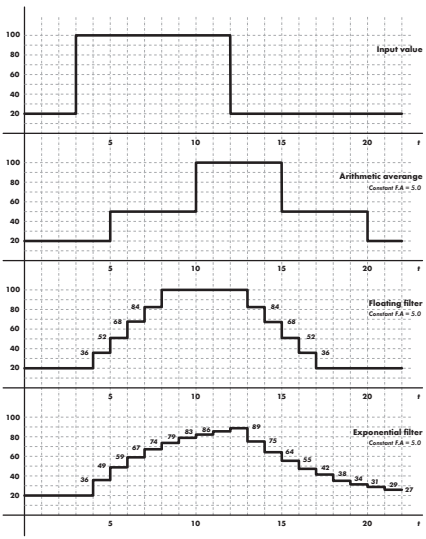


SEA **Setting "Fixed tare" value**

- setting is designed for the event when it is necessary to firmly shift the beginning of the range by known size
- when setting [P.T.A≠0] is in effect, display does not show the "T" symbol
- range of the setting: -99M...999M
- DEF = 0

6.2.1c DIGITAL FILTERS FOR CHANNEL 1





FIA **Selection of digital filters**

- at times it is useful for better user projection of data on display to modify it mathematically and properly , wherefore the following filters may be used

OFF Filters are off

AVR. Measured data average

- arithmetic average from given number „C. A" of measured values
- range 2...100

FLO. Selection of floating filter

- floating arithmetic average from given number „C. A" of measured data and updates with each measured value
- range 2...30

EXP. Selection of exponential filter

- integration filter of first prvního grade with time constant „C. A" measurement
- range 2...100

RND. Measured value rounding

- is entered by any number, which determines the projection step (e.g: "C. A"=2,5 > display 0, 2.5, 5,...)

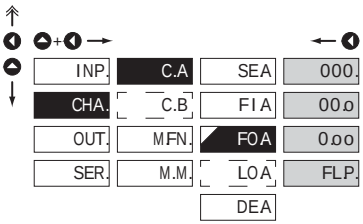
C.A Setting constants

- this menu item is always displayed after selection of particular type of filter
- DEF = 2

!

Setting is identical with channel „C. B"

6.2.1d PROJECTION FORMAT - POSITIONING OF DECIMAL POINT FOR CHANNEL 1



!

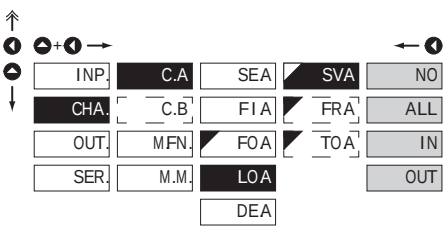
Setting is identical with channel „C. B"

F0A Selection of decimal point

- the instrument allows for classic projection of a number with positioning of the DP as well as projection with floating DP, allowing to display a number in its most exact form „FLP."

000	Setting DP - XXX
00.0	Setting DP - XX.x
0.00	Setting DP - X.xx
FLP.	Floating DP

6.2.1e SELECTION OF STORING DATA INTO INSTRUMENT MEMORY FOR CHANNEL 1



!

Setting is identical with channel „C. B"

LOA Selection of storing data into instrument memory

- by selection in this item you allow to register values into instrument memory
- another setting in item "OUT. > MEM." (not in standard experiment)

NO	Measured data is not stored
ALL	Measured data is stored in memory
IN	Only data measured within the set interval is stored in memory
OUT	Only data measured outside the set interval is stored in memory

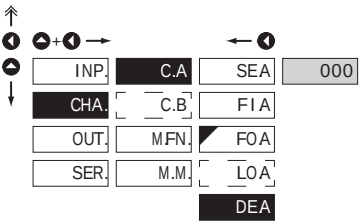
FRA Setting the initial interval value

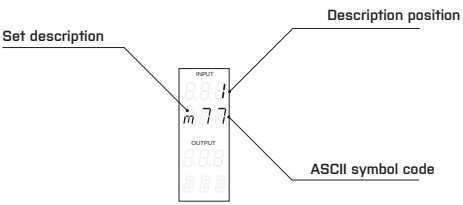
- range of the setting: -99M...999M
- DEF = -99M

TOA Setting the final interval value

- range of the setting: -99M...999M
- DEF = 999M

6.2.1f PROJECTION OF DESCRIPTION - THE MEASURING UNITS FOR CHANNEL 1





DEA **Setting projection of description**

- 3 characters can be added to standard numerical formats
- setting is realised using modified ASCII code, where upper number defines position of the character, bottom line at the first position displays the charater and at the last two positions show the code of the character in interval 0...95.
- description is cancelled by code 000
- RTD T/C DEF = °C
- DC PM DU OHM DEF = none

!

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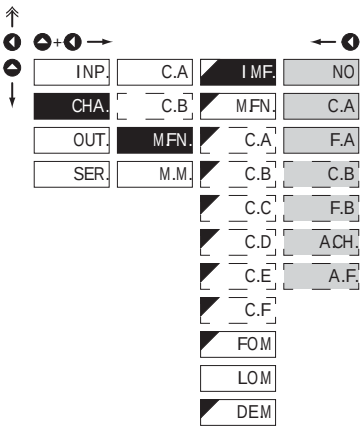
!

Setting is identical with channel „C. B"

6.2.2a MATHEMATIC FUNCTIONS - INPUT SELECTION

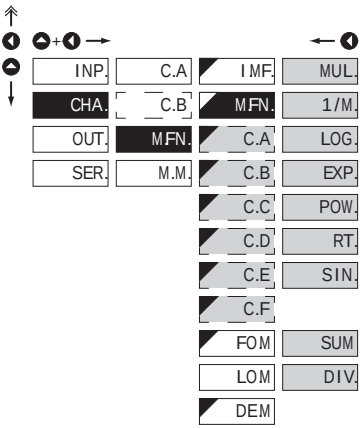


IMF. Selection of input for calculation of mathematic function

- selection of value from which the mathematic function will be calculated

NO	Mathematic functions are off
C.A	From "Channel A"
F.A	From "Channel A" after modification by digital filter
C.B.	From "Channel B"
F.B	From "Channel B" after modification by digital filter
A.CH.	From "Channels A, B"
A.F.	From "Channels A, B," after modification by digital filters

6.2.2b MATHEMATIC FUNCTIONS



M.FN. Selection of mathematic functions

On selecting „From chan. A/B" in item „V.MF."

MUL. Multinominal

$$Ax^5 + Bx^4 + Cx^3 + Dx^2 + Ex + F$$

1/M. 1/x

$$\frac{A}{x^5} + \frac{B}{x^4} + \frac{C}{x^3} + \frac{D}{x^2} + \frac{E}{x} + F$$

LOG. Logarithm

$$A \times \ln\left(\frac{Bx + C}{Dx + E}\right) + F$$

EXP. Exponential

$$A \times e^{\left(\frac{Bx+C}{Dx+E}\right)} + F$$

POW. Power

$$A \times (Bx + C)^{(Dx+E)} + F$$

RT. Root

$$A \times \sqrt{\frac{Bx + C}{Dx + E}} + F$$

On selecting „From chan. A+B" in item „V.MF."

SUM Sum of the values from channels (inputs)

(A x KA + B x KB + C x KC + D x KD) x E + F

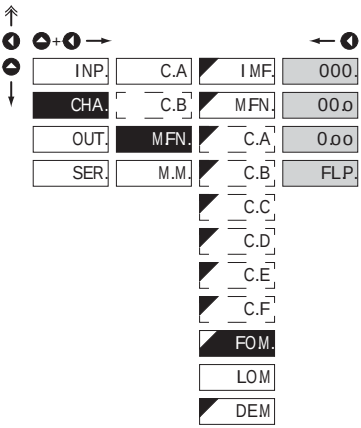
DIV. Quotient of values from channels (inputs)

(A x KA + C x KC) /(B x KB + D x KD) x E + F

C. - Setting constants for calculation of mat.functions

- this menu is displayed only after selection of given mathematic function

6.2.2c PROJECTION FORMAT - POSITIONING OF DECIMAL POINT

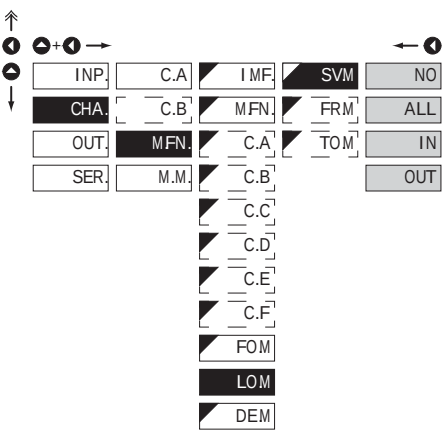


FOM **Selection of decimal point**

- the instrument allows for classic projection of a number with positioning of the DP as well as projection with floating DP, allowing to display a number in its most exact form „FLP."

000	Setting DP - XXX
00.0	Setting DP - XX.x
0.00	Setting DP - X.xx
FLP.	Floating DP

6.2.2d MATHEMATIC FUNCTIONS - SELECTION OF STORING DATA INTO INSTRUMENT MEMORY



LOM **Selection of storing data into instrument memory**

- by selection in this item you allow to register values into instrument memory
- another setting in item "OUT. > MEM." (not in standard experiment)

NO	Measured data is not stored
ALL	Measured data is stored in memory
IN	Only data measured within the set interval is stored in memory
OUT	Only data measured outside the set interval is stored in memory

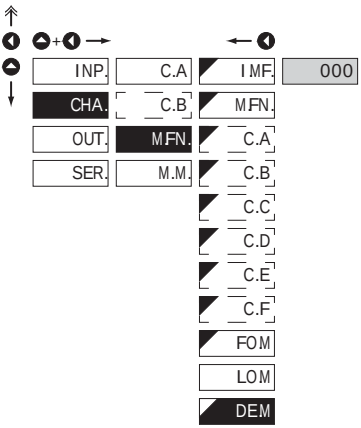
FRM Setting the initial interval value

- range of the setting: -99M...999M
- DEF = -99M

TOM Setting the final interval value

- range of the setting: -99M...999M
- DEF = 999M

6.2.2e MATHEMATIC FUNCTIONS - MEASURING UNITS



DEM **Setting projection of description**

- 3 characters can be added to standard numerical formats
- setting is realised using modified ASCII code, where upper number defines position of the character, bottom line at the first position displays the charater and at the last two positions show the code of the character in interval 0...95.
- description is cancelled by code 000
- RTD T/C DEF = °C
- DC PM DU OHM DEF = none

!

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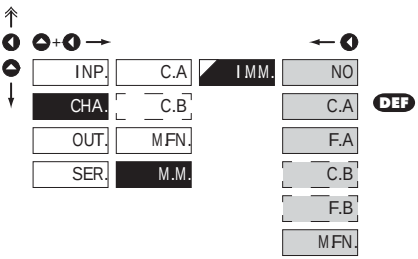
6.2.3 SELECTION OF EVALUATION OF MIN/MAX VALUE

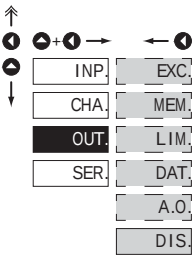


I MM. **Selection of evaluation of min/max value**

- selection of value from which the min/max value will be calculated

NO	Evaluation of min/max value is off
C.A	From "Channel A"
F.A	From "Channel A" after digital filters processing
C.B.	From "Channel B"
F.B	From "Channel B" after digital filters processing
M.FN.	From "Mathematic functions"

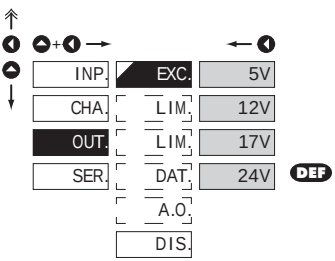
6.3 SETTING „PROFI" - OUTPUTS



In this menu it is possible to set parameters of the instrument output signals

- EXC. — Setting of excitation voltage
- MEM. — Setting data logging into memory
- LIM. — Setting type and parameters of limits
- DAT. — Setting type and parameters of data output
- A.O. — Setting type and parameters of analog output
- DIS. — Setting of backlight

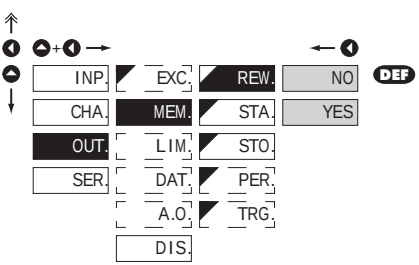
6.3.1 SETTING OF EXCITATION VOLTAGE



EXC. — Setting of excitation voltage

- 5V — 5 VDC, max. 2,5 W
- 12V — 12 VDC, max. 2,5 W
- 17V — 17 VDC, max. 2,5 W
- 24V — 24 VDC, max. 2,5 W

6.3.2a SELECTION OF MODE OF DATA LOGGING INTO INSTRUMENT MEMORY

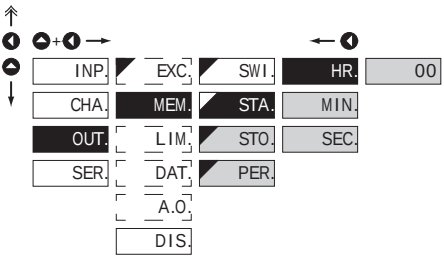


REW. — Selection of the mode of data logging

- selection of the mode in the event of full instrument memory

- NO — Rewriting values prohibited
- YES — Rewriting values permitted, the oldest get rewritten by the latest

6.3.2b SETTING DATA LOGGING INTO INSTRUMENT MEMORY - RTC



STA. Start of data logging into instrument memory

- time format HH.MM.SS

STO. Stop data logging into instrument memory

- time format HH.MM.SS

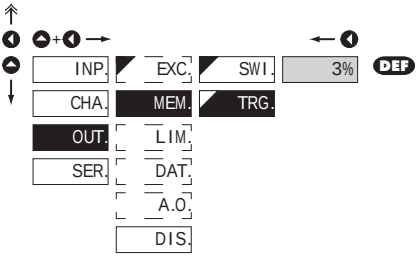
PER. Period of data logging into instrument memory

- determines the period in which values will be logged in an interval delimited by the time set under items **START** and **STOP**
- time format HH.MM.SS
- records are made on a daily basis in selected interval and period
- item not displayed if "SAVE" is selected in menu „INP. > EXT. > LO.A"

RTC

The lowest recording rate possible is once a day, the highest is every second. Under exceptional circumstances it is possible to set the rate to 8 times per second by entering the recording period as 00:00:00. However, this mode is not recommended due to the memory overload. Recordings are realised in a timeframe of one day and are repeated periodically every following day. Recordings can take place either inside or outside of selected time intervals. The duration of re-writing can be determined by the number of channels recorded as well as by the recording rate.

6.3.2c SETTING DATA LOGGING INTO INSTRUMENT MEMORY - FAST



TRG. **Setting logging data into inst. memory**

- logging data into inst. memory is governed by the following selection, which determines how many percent of the memory is reserved for data logging prior to initiation of trigger imputse
- initialization is on ext. input or button
- setting in range 1...100 %
- when setting 100 %, datalogging works in the mode **ROLL** > data keep getting rewritten in cycles

1. Memory initialization

- clear memory (ext.input, button)
- LED "M" flashes, after reading TRIGGER (%) memory is permanently shining. In ROLL flashes constantly.

2. Triggering

- external input, button
- after the memory LED is full "M" turns off
- in the ROLL mode the trigger ends datalogging and LED turns off

3 . Termination

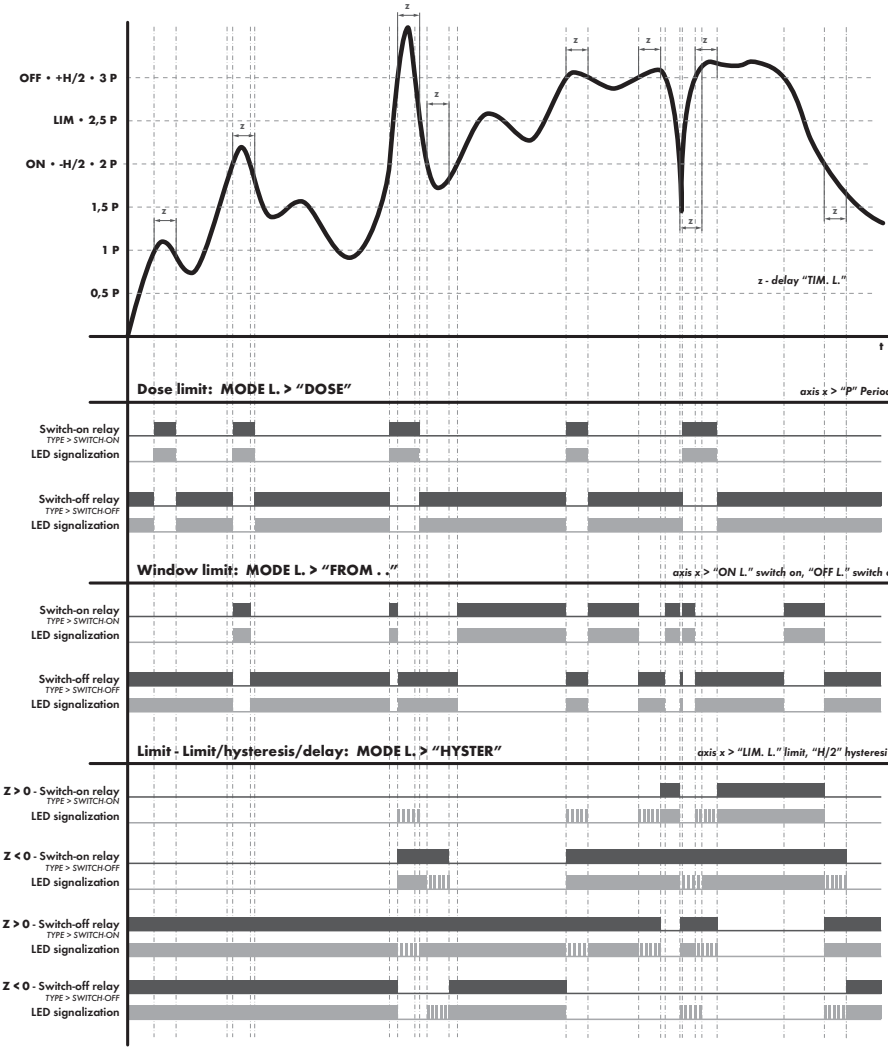
- ext. input, button or reading data via RS

FAST

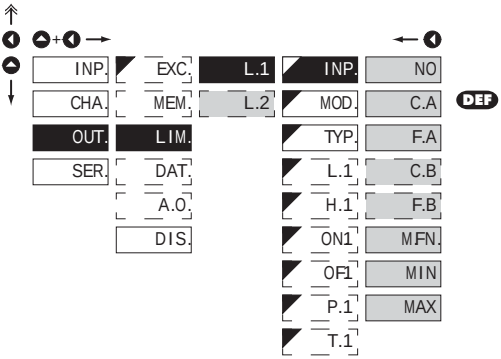
The memory operates on the basis of memory oscilloscope. Select an area of 0...100% of the memory capacity (100% represents 8 192 individual recordings for a single channel measurement). This area is filled cyclically up to the point when the recording starts (activated by the front panel button or by an external input). When the remaining memory capacity fills up the recording stops. A new recording is possible after the deletion of the latest recording. It is possible to abort a recording before its completion by reading out the data.

DESCRIPTION OF RELAY FUNCTION

MODE > HYSTER • FROM - TO • DOSING



6.3.3a SELECTION OF INPUT FOR LIMITS EVALUATION



INP. Selection evaluation of limits

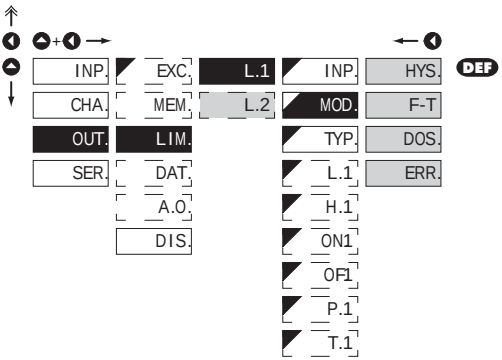
- selection of value from which the limit will be evaluated

NO	Limit evaluation is off
C.A	Limit evaluation from "Channel A"
F.A	Limit evaluation from "Channel A" after digital filters processing
C.B	Limit evaluation from "Channel B"
F.B	Limit evaluation from "Channel B" after digital filters processing
MFN.	Limit evaluation from "Mathematic functions"
MIN.	Limit evaluation from "Min. value"
MAX	Limit evaluation from "Max. value"

!

Setting is identical for „L. 2"

6.3.3b SELECTION OF TYPE OF LIMIT



MOD. **Selection the type of limit**

HYS. Limit is in mode "Limit, hysteresis, delay"

- for this mode the parameters of "L. 1" are set, at which the limit will shall react, "H. 1" the hysteresis range around the limit (LIM ±1/2 HYS) and time "T. 1" determining the delay of relay switch-on

F-T Frame limit

- for this mode the parameters are set for interval "ON.1" the relay switch-on and "OF.1" the relay switch-off

DOS. Dose limit (periodic)

- for this mode the parameters are set for "P. 1" determining the limit value as well as its multiples at which the output is active and "T. 2" indicating the time during which is the output active

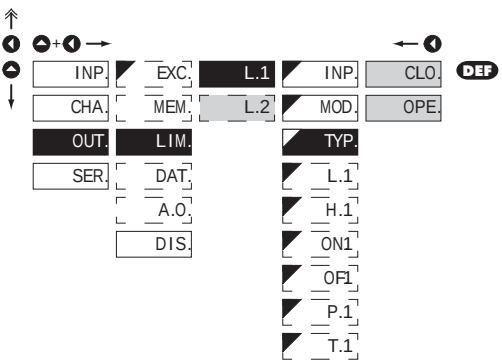
ERR. Error indication

- output is active when error message is on

!

Setting is identical for „L. 2"

6.3.3c SELECTION OF TYPE OF OUTPUT



TYP. **Selection of type of output**

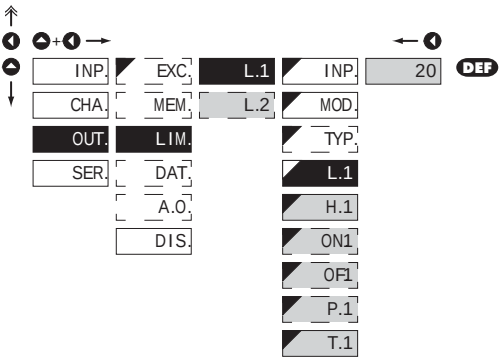
CLO. Output switches on when condition is met

OPE. Output switches off when condition is met

!

Setting is identical for „L. 2"

6.3.3d SETTING VALUES FOR LIMITS EVALUATION



L.1 Setting limit for switch-on

- for type "HYS."

H.1 Nastavení hystereze

- for type "HYS."
- indicates the range around the limit (in both directions, LIM. ±1/2 HYS.)

ON1 Setting the outset of the interval of limit switch-on

- for type "F-T"

OF1 Setting the end of the interval of limit switch-on

- for type "F-T"

P.1 Setting the period of limit switch-on

- for type "DOS."

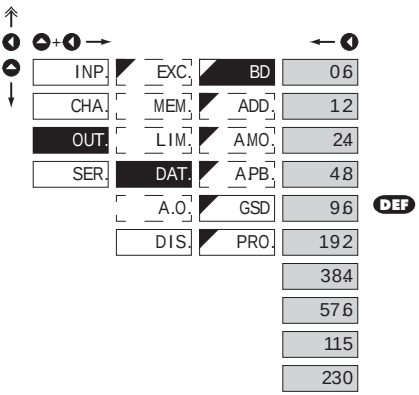
T.1 Setting the time switch-on of the limit

- for type "HYS." and "DOS."
- setting within the range: ±0...99,9 s
- positive time > relay switches on after crossing the limit (L. 1) and the set time (T. 1)
- negative time > relay switches off after crossing the limit (L. 1) and the set negative time (T. 1)

!

Setting is identical for „L. 2"

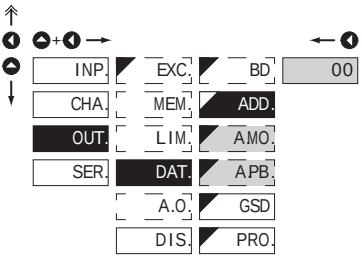
6.3.4a SELECTION OF DATA OUTPUT BAUD RATE



BD **Selection of data output baud rate**

06	Rate - 600 Baud
12	Rate - 1 200 Baud
24	Rate - 2 400 Baud
48	Rate - 4 800 Baud
96	Rate - 9 600 Baud
192	Rate - 19 200 Baud
384	Rate - 38 400 Baud
576	Rate - 57 600 Baud
115	Rate - 115 200 Baud
230	Rate - 230 400 Baud

6.3.4b SETTING INSTRUMENT ADDRESS



ADD. **Setting instrument address**

- setting in range: 0...31
- DEF = 00

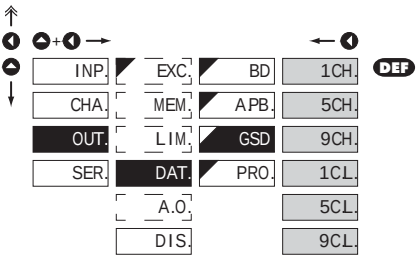
AMO. **Setting instrument address - MODBUS**

- setting in range: 1...247
- DEF = 01

APB. **Setting instrument address- PROFIBUS**

- setting in range: 1...127
- DEF = 19

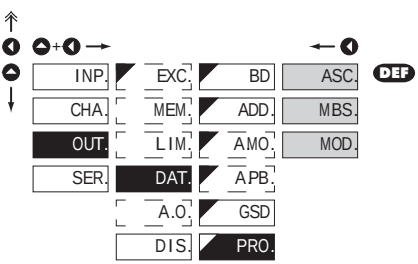
6.3.4c SELECTION OF GSD FILE FORMAT



GSD — **Selection of GSD file format**

1CH.	1 channel
5CH.	5 channels
9CH.	9 channels
1CL.	1 channel + limit
5CL.	5 channels + limit
9CL.	9 channels + limit

6.3.4d SELECTION OF DATA OUTPUT PROTOCOL

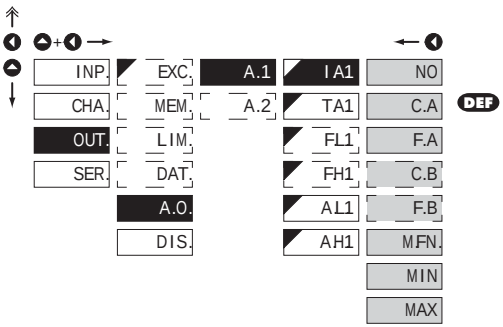


PROT. — **Selection of the type of analog output**

ASC.	Data protocol ASCII
MBS.	Data protocol DIN MessBus
MOD.	Data protocol MODBUS - RTU

- option is available only for RS 485

6.3.5a SELECTION OF INPUT FOR ANALOG OUTPUT



IA1 **Selection evaluation analog output**

- selection of value from which the analog output will be evaluated

NO AO evaluation is off

C.A AO evaluation from "Channel A"

F.A AO evaluation from "Channel A" after digital filters processing

C.B AO evaluation from "Channel B"

F.B AO evaluation from "Channel B" after digital filters processing

MFN. AO evaluation from "Math. functions"

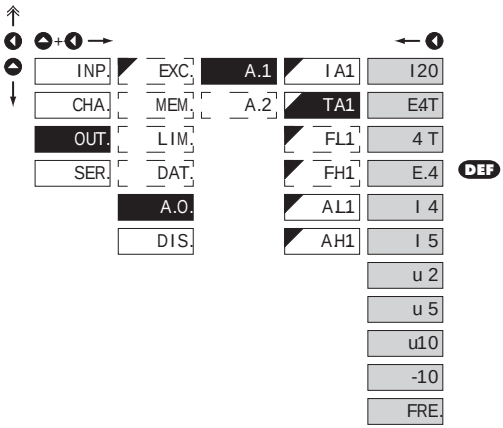
MIN AO evaluation from "Min. value"

MAX AO evaluation from "Max. value"

!

Setting is identical also for „A. 2"

6.3.5b SELECTION OF THE TYPE OF ANALOG OUTPUT

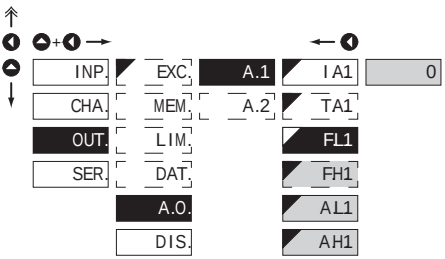


A.1	**Selection of the type of analog output**
I20	Type: 0...20 mA
E4T	Type: 4...20 mA with indication
	- with broken loop detection and indication of error statement (< 3,6 mA)
4 T	Type: 4...20 mA with indication
	- with broken loop detection (< 3,6 mA)
E.4	Type: 4...20 mA with indication
	- with indic. of error statement (< 3,6 mA)
I 4	Type: 4...20 mA
I 5	Type: 0...5 mA
u 2	Type: 0...2 V
u 5	Type: 0...5 V
u10	Type: 0...10 V
-10	Type: ±10 V
FRE.	Type: 0,2...2200 Hz

!

Setting is identical also for „A. 2"

6.3.5c SETTING THE ANALOG OUTPUT RANGE



A.O. Setting the analog output range

- analog output is isolated and its value corresponds with displayed data. It is fully programmable, i.e. it allows to assign the AO limit points to two arbitrary points of the entire measuring range

FL1 Setting the beginning of the frequency range for item „MIN"

- range of the setting: 0,2...2 200 Hz
- DEF = 0 (-40 - RTD, T/C)

FH1 Setting the end of the frequency range for item „MAX"

- range of the setting: 0,2...2 200 Hz
- DEF = 100 (199 - RTD, T/C)

AL1 Assigning the display value to the beginning of the AO range

- range of the setting: -99M...999M
- DEF = 0 (-40 - RTD, T/C)

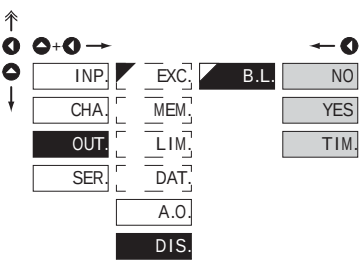
AH1 Assigning the display value to the end of the AO range

- range of the setting: -99M...999M
- DEF = 100 (199 - RTD, T/C)

!

Setting is identical also for „**A. 2**"

6.3.6 SELECTION OF DISPLAY BACKLIGHT



B.L. Backlight

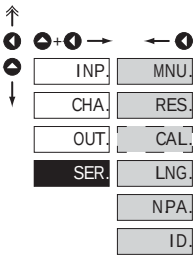
NO Backlight is off

YES Backlight is on

TIM. Backlight is time limited

- after a key stroke the backlight is active for 60 s

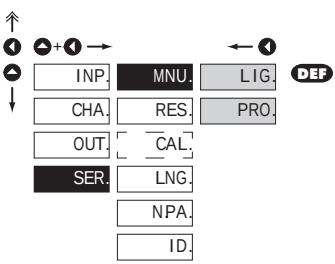
6.4 SETTING "PROFI" - SERVICE



The instrument service functions are set in this menu

MNU.	Selection of menu type LIGHT/PROFI
RES.	Restore instrument manufacture setting and calibration
CAL.	Input range calibration for „DU" version
LNG.	Language version of instrument menu
C.M.	Setting new access password
ID.	Instrument identification

6.4.1 SELECTION OF TYPE OF PROGRAMMING MENU



MNU. Selection of menu type - LIGHT/PROFI

- enables setting the menu complexity according to user needs and skills

LIG. Aktivní LIGHT menuActive LIGHT menu

- simple programming menu, contains only items necessary for configuration and instrument setting
- linear menu > items one after another

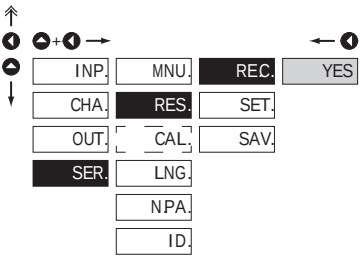
PRO. Active PROFI menu

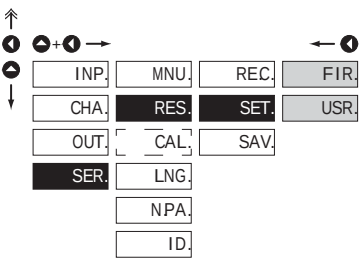
- complete programming menu for expert users
- tree menu

!

Change of setting is valid upon next access into menu

6.4.2 RESTORATION OF MANUFACTURE SETTING





RES. **Restoration of manufacture setting**

- in the event of error setting or calibration, manufacture setting may be restored

REC. Restoration of manufacture calibration of the instrument

- prior executing the changes you will be asked to confirm you selection „YES"

SET. **Restoration of instrument manufacture setting**

FIR. Restoration of instrument manufacture setting

- generating the manufacture setting for currently selected type of instrument (items marked **DEF**)

USR. Restoration of instrument user setting

- generating the instrument user setting, i.e. setting stored under SER./RES./SAV.

SAV. Save instrument user setting

- storing the user setting allows the operator to restore it in future if needed

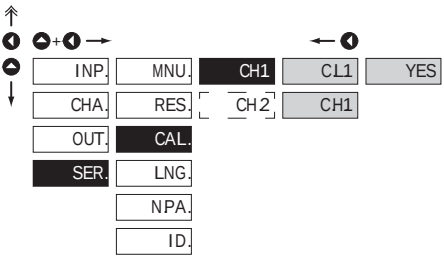
!

After restoration the instrument switches off for couple seconds

JOBS PERFORMED	RESTORE	
	CALIBRATION	SETTING
cancels USER menu rights	✓	✓
deletes table of items order in USER - LIGHT menu	✓	✓
adds items from manufcture to LIGHT menu	✓	✓
deletes data stored in FLASH	✓	✓
cancels or linearization tables	✓	✓
clears tare	✓	✓
restore manufacture calibration	✓	×
restore manufacture setting	×	✓

6.4.3 CALIBRATION - INPUT RANGE

DU



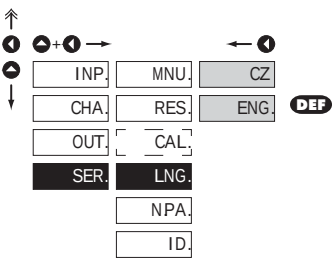
CH1 **Kalibrace vstupního rozsahu**

- when "C.L.1" is displayed, move the potentiometer traveller to the required minimum position and confirm by „Enter", calibration is confirmed by "YES"
- when "C.H.1" is displayed, move the potentiometer traveller to required maximum position and confirm by „Enter", calibration is confirmed by "YES"

!

This setting is identical also for „CH.2"

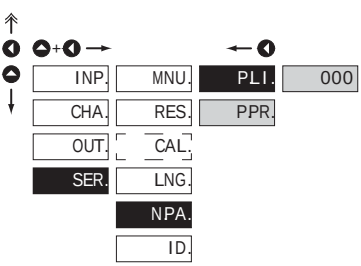
6.4.4 SELECTION OF INSTRUMENT MENU LANGUAGE VERSION



LNG. **Selection of instrument menu language version**

CZ	Instrument menu is in Czech
ENG.	Instrument menu is in English

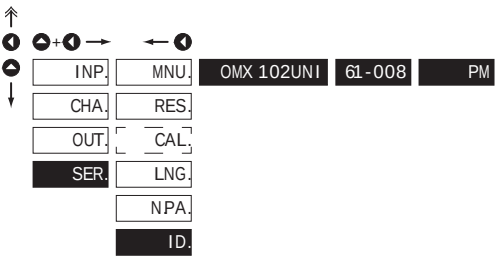
6.4.5 SETTING NEW ACCESS PASSWORD



NPA. **Setting new password for access to LIGHT and PROFI menu**

- this option allows to change the numeric code, which blocks the access into **LIGHT** and **PROFI** menu.
- numerci code range: 0...999
- universal passwords in the event of loss: LIGHT Menu > „177" PROFI Menu > „915"

6.4.6 INSTRUMENT IDENTIFICATION



ID. **Projection of instrument SW version**

- display shows type identification of the instrument, SW number, SW version and current input setting (Mode)
- if the SW version reads a letter on first position, it is a customer SW

IDENT.

Pos.	Description
1.	type of instrument
2.	SW: number - version
3.	the input type

SETTING
USER

For user operation
Menu items are set by the user (Profi/Light) as per request
Access is not password protected
Optional menu structure either tree (PROFI) or linear (LIGHT)

7.0 SETTING ITEMS INTO "USER" MENU

- **USER** menu is designed for users who need to change only several items of the setting without the option to change the primary instrument setting (e.g. repeated change of limit setting)
- there are no items from manufacture permitted in **USER** menu
- on items indicated by inverse triangle LIM 1
- setting may be performed in **LIGHT** or **PROFI** menu, with the **USER** menu then overtaking the given menu structure

Setting

NO item will not be displayed in USER menu

YES item will be displayed in USER menu with editing option

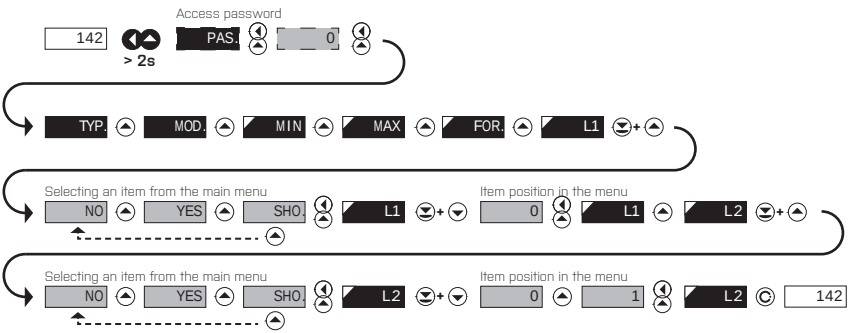
SHO. item will be solely displayed in USER menu

Setting sequence of items in "USER" menu

In compiling USER menu from active LIGHT menu the items (max. 10) may be assigned a sequence, in which they will be projected in the menu

Example of ranking the order of menu items in the "USER" menu

In this example we want to have a direct access to menu items Limit 1 and Limit 2 (example show is for the Light menu, but can equaly be used in the Profi menu).

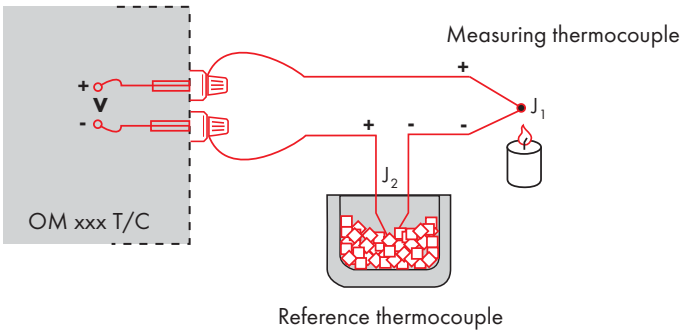


The result of this setting is that when the ▲ button is pressed, the display will read **„L.1"**. By pressing ◀ button you confirm your selection and then you can set the desired limit value, or by pressing the ▲ button you can go to setting of **„L.2"** where you can proceed identically as with Limit one.

You can exit the setting by pressing the ◀ button by which you store the latest setting and pressing the ◀ button will take you back to the measuring mode

8. METHOD OF MEASURING THE CJC

Instrument with input for temperature measurement with thermocouple allows to set two types of measurement of cold junction.



WITH REFERENCE THERMOCOUPLE

- a reference thermocouple may be located in the same place as the measuring instrument or in place with stable temperature/compensation box
- when measuring with reference thermocouple set C01 in the instrument menu to IN2 or EX2
- when using a thermostat (a compensation box or environment with constant temperature) set in the instrument menu CJ1 its temperature (applies for setting C01 to EX2)
- if the reference thermocouple is located in the same environment as the measuring instrument then set in the instrument menu C01 to IN2. Based on this selection the measurement of the ambient temperature is performed by a sensor located in the instrument terminal board

WITHOUT REFERENCE THERMOCOUPLE

- inaccuracy originating from the creation of dissimilar thermocouples on the transition point terminal/conductor of the thermocouple is not compensated for in the instrument
- when measuring without reference thermocouple set C01 in the instrument menu to IN1 or EX1
- when measuring temperature without reference thermocouple the error in measured data may be as much as 10°C (applies for setting C01 to EX1)

ERROR	CAUSE	ELIMINATION
ED._	Number is too small (large negative) to be displayed	change DP setting, channel constant setting
ED.–	Number is too large to be displayed	change DP setting, channel constant setting
ET._	Number is outside the table range	increase table values, change input setting (channel constant setting)
ET.–	Number is outside the table range	increase table values, change input setting (channel constant setting)
E.I._	Input quantity is smaller than permitted input quantity range	change input signal value or input (range) setting
E.I.–	Input quantity is larger than permitted input quantity range	change input signal value or input (range) setting
EHW.	A part of the instrument does not work properly	send the instrument for repair
EEE	Data in EEPROM corrupted	perform restoration of manufacture setting, upon repeated error statement send instrument for repair
EDT.	Data in EEPROM outside the range	perform restoration of manufacture setting, upon repeated error statement send instrument for repair
ECL.	Memory was empty (presetting carried out)	upon repeated error statement send instrument for repair, possible failure in calibration
EOu.	Analogue input/output current loop disconnected	check wire connection

10. DATA PROTOCOL

The instruments communicate via serial line RS232 or RS485. For communication they use the ASCII protocol. Communication runs in the following format:

ASCII: 8 bit, no parity, one stop bit
DIN MessBus: 7 bit, even parity, one stop bit

The transfer rate is adjustable in the instrument menu. The instrument address is set in the instrument menu in the range of 0 ÷ 31. The manufacture setting always presets the ASCII protocol, rate of 9600 Baud, address 00. The type of line used - RS232 / RS485 - is determined by an output board automatically identified by the instrument.
The commands are described in specifications you can find at www.orbit.merret.eu or SW OM Link.

DETAILED DESCRIPTION OF COMMUNICATION VIA SERIAL LINE

EVENT	TYPE	PROTOCOL		TRANSMITTED DATA													
Data solicitation (PC)	232	ASCII		#	A	A	<CR>										
		MessBus		No - data is transmitted permanently													
	485	ASCII		#	A	A	<CR>										
		MessBus		<SADR>	<ENQ>												
Data transmission (instrument)	232	ASCII		>	D	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<CR>		
		MessBus		<STX>	D	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<ETX>	<BCC>	
	485	ASCII		>	D	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<CR>		
		MessBus		<STX>	D	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<ETX>	<BCC>	
Confirmation of data acceptannce (PC) - OK	485	MessBus		<DLE>	1												
Confirmation of data acceptance (PC) - Bad				<NAK>													
Sending address (PC) prior command				<EADR>	<ENQ>												
Confirmation of address (instrument)				<SADR>	<ENQ>												
Command transmission (PC)	232	ASCII		#	A	A	N	P	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<CR>	
		MessBus		<STX>	$	N	P	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<ETX>	<BCC>	
	485	ASCII		#	A	A	N	P	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<CR>	
		MessBus		<STX>	$	N	P	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<ETX>	<BCC>	
Command confirmation (instrument)	232	ASCII	OK	!	A	A	<CR>										
			Bad	?	A	A	<CR>										
		Messbus		No - data is transmitted permanently													
	485	ASCII	OK	!	A	A	<CR>										
			Bad	?	A	A	<CR>										
		Mess-Bus	OK	<DLE>	1												
			Bad	<NAK>													
Instrument identification				#	A	A	1	Y	<CR>								
HW identification				#	A	A	1	Z	<CR>								
One-time transmission				#	A	A	7	X	<CR>								
Repeated transmission				#	A	A	8	X	<CR>								

LEGEND

SING	RANGE		DESCRIPTION
#	35	23_H	Command beginning
A A	0...31		Two characters of instrument address (sent in ASCII - tens and units, e.g. "01", "99" universal
<CR>	13	$0D_H$	Carriage return
<SP>	32	20_H	Space
N, P			Number and command - command code
D			Data - usually characters "0"..."9", "-", "."; (0) - dp. and (-) may prolong data
R	30_H...$3F_H$		Relay and tare status
!	33	21_H	Positive confirmation of command (ok)
?	63	$3F_H$	Negative confirmation of command (point)
>	62	$3E_H$	Beginning of transmitted data
<STX>	2	02_H	Beginning of text
<ETX>	3	03_H	End of text
<SADR>	adresa +60_H		Prompt to send from address
<EADR>	adresa +40_H		Prompt to accept command at address
<ENQ>	5	05_H	Terminate address
<DLE>1	16 49	10_H 31_H	Confirm correct statement
<NAK>	21	15_H	Confirm error statement
<BCC>			Check sum -XOR

RELAY, TARE

SIGN	RELAY 1	RELAY 2	TARE	CHANGE
P	0	0	0	0
Q	1	0	0	0
R	0	1	0	0
S	1	1	0	0
T	0	0	1	0
U	1	0	1	0
V	0	1	1	0
W	1	1	1	0

Relay status is generated by command #AA6X <CR>.

The instrument immediately returns the value in the format >HH <CR>, where HH is value in HEX format and range 00_H...FF_H. The lowest bit stands for „Relay 1", the highest for „Relay 2"

11. TABLE OF SIGNS

The instrument allows to add two descriptive characters to the classic numeric formats (at the expense of the number of displayed places). The setting is performed by means of a shifted ASCII code. Upon modification the first two places display the entered characters and the last two places the code of the relevant symbol from 0 to 95. Numeric value of given character equals the sum of the numbers on both axes of the table.

Description is cancelled by entering characters with code 00

	0	1	2	3	4	5	6	7
0		!	"	#	$	%	&	'
8	(	)	*	+	,	-	.	/
16	0	1	2	3	4	5	6	7
24	8	9	VA	Vr	<	=	>	?
32	@	A	B	C	D	E	F	G
40	H	I	J	K	L	M	N	O
48	P	Q	R	S	T	U	V	W
56	X	Y	Z	[	\	]	^	_
64	`	a	b	c	d	e	f	g
72	h	i	j	k	l	m	n	o
80	p	q	r	s	t	u	v	w
88	x	y	z	{	|	}	~	

12. TECHNICAL DATA

INPUT - OMX 102UNI

No. of inputs: up to 2

DC

Range:			
	±90 mA	< 200 mV	Input 5
	±180 mA	< 200 mV	Input 5
	±30 mV	> 10 MΩ	Input 3
	±60 mV	> 10 MΩ	Input 3
	±1000 mV	> 10 MΩ	Input 3
	±20 V	1,25 MΩ	Input1
	±40 V	1,25 MΩ	Input 1
	±80 V	1,25 MΩ	Input 1

PM

Range:			
	±5 mA	< 200 mV	Input 5
	±20 mA	< 200 mV	Input 5
	4...20 mA	< 200 mV	Input 5
	±2 V	> 10 MΩ	Input 1
	±5 V	1,25 MΩ	Input 1
	±10 V	1,25 MΩ	Input 1

OHM

Range: 0...100 Ω
0...300 Ω
0...1,5 kΩ
0...3,0 kΩ
0...24,0 kΩ
0...30,0 kΩ

Connection: 2, 3 or 4 -wire

RTD

EU • Pt xxxx	-50°...450°C
US • Pt 100	-50°...450°C
RU • Pt 50	-200°...1 100°C
RU • Pt 100	-200°...450°C
Cu 100/4 280	-200°...200°C
Cu 100/4 260	-50°...200°C
Ni xxxx	-50°..250°C

Typ Pt: EU > 100/500/1 000 Ω, with 3 850 ppm/°C
US > 100 Ω, with 3 920 ppm/°C
RU > 50/100 Ω with 3 910 ppm/°C

Typ Ni: Ni 1 000/ Ni 10 000 with 5 000/6 180 ppm/°C

Typ Cu: Cu 50/Cu 100 with 4 260/4 280 ppm/°C

Connection: 2, 3 or 4 -wire

T/C

Type:		
	J (Fe-CuNi)	-100°...900°C
	K (NiCr-Ni)	-100°...1 300°C
	T (Cu-CuNi)	-200°...400°C
	E (NiCr-CuNi)	-100°...800°C
	B (PtRh30-PtRh6)	700°...1 820°C
	S (PtRh10-Pt)	100°...1 760°C
	R (Pt13Rh-Pt)	100°...1 760°C
	N (Omegalloy)	-0°...1 300°C
	L (Fe-CuNi)	-100°...900°C

Voltage of lin. pot. 2,5 VDC/6 mA **DU**
min. potentiometer resistance is 500 Ω

INPUT - OMX 102DC

No. of inputs: 1

Range:			
	±1 A	< 200 mV	Input 5
	±5 A	< 200 mV	Input 5
	±25 V	1,25 MΩ	Input 1
	±50 V	1,25 MΩ	Input 1
	±100 V	1,25 MΩ	Input 1
	±200 V	1,25 MΩ	Input 1
	±400 V	1,25 MΩ	Input 1

PROJECTION

Display: LCD with backlight,
2x 3 characters + 2x description (3 characters)
Projection -99M...999M
Decimal point: adjustable - in menu

INSTRUMENT ACCURACY

TK: 50 ppm/°C
Přesnost: ±0,15 % of range + 1 digit
±0,3 % of range + 1 digit **T/C**
Accuracy of cold junction measur.: ±1,5°C
Rate: 0,5...160 measurements/s
Přetížitelnost: 2x; 10x (t < 100 ms) not for > 200 V and 5 A,
Linearisation: by linear interpolation in 50 points
- solely via OM Link
Digital filters: Averaging, Floating average, Exponential filter, Rounding
Comp. of conduct: max. 40 Ω/100 Ω **RTD**
Comp. of cold junc.: adjustable **T/C**
0°...99°C or automatic
Functions: Tare - display resetting
Hold - stop measuring (at contact)
Lock - control key locking
MM - min/max value
Mathematic functions
OM Link: company communication interface for setting, operation and update of instrument SW
Watch-dog: reset after 400 ms
Calibration: at 25°C and 40% of r.h.

COMPARATOR

Type:	digital, adjustable in menu, response time < 50 ms
Mode:	Hyster, F-T, Dosing, Error
Limits:	999, resp -99M...999M
Hysteresis:	0...999, resp. 999 k
Delay:	0...99,9 s
Výstupy:	2x relays with switch-on contact (Form A)
Relay:	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300

DATA OUTPUTS

Protocols:	ASCII, DIN MessBus, MODBUS, PROBUS
Data format:	8 bit + no parity + 1 stop bit (ASCII) 7 bit + even parity + 1 stop bit (MessBus)
Rate:	600...230 400 Baud 9 600 Baud...12 Mbaud (PROFIBUS) 1 Mbaud (CAN)
RS 232:	isolated, two-way communication
RS 485:	isolated, two-way communication, addressing (max. 31 instruments)
PROFIBUS	Data protocol SIEMENS
Ethernet:	10/100BaseT, secure communication, POP3, ftp, http
USB	not-isolated, two-way communication

ANALOG OUTPUTS

Type:	isolated, dual, programmable with 16 bits D/A convertor, analogoutput corresponds with displayed data, type and range are adjustable
Non-linearity:	0,1% of range
TC:	15 ppm/°C
Rate:	response to change of value < 1 ms
Voltage:	0...2 V/5 V/10 V/±10 V
Curernt:	0...5/20 mA/4...20 mA - compensation of conduct to 500 Ω/12 V
Freqency:	isolated, programmable, open collector with the option of external supply (max. 40 V) vie intervnal resistance (5k6), 0,2...2200 Hz

MEASURED DATA RECORD

Type RTC:	time-controlled logging of measured data into instrument memory, allows to log up to 250 000 values
Type FAST:	fast data logging into instrument memory, allows to log up to 8 000 values at a rate of 40 records/s
Transmission:	via USB or data output RS 232/485 or via OM Link

EXCITATION

Adjustbale	5/12/17/24 VDC, max. 2,5 W, isolated

POWER SUPPLY

Options:	10...30 V AC/DC, max. 13,5 VA, PF ≥ 0,4, I_{STP}< 40 A/1 ms, isolated - fuse inside (T 4000 mA)
	80...250 V AC/DC, max. 13,5 VA, PF ≥ 0,4, I_{STP}< 40 A/1 ms, isolated - fuse inside (T 630 mA)

MECHANIC PROPERTIES

Material:	PA 66, incombustible UL 94 V-I, blue
Dimensions:	113 x 98 x 35 mm
Installation:	to DIN rail, width 35 mm

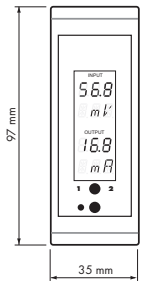
OPERATING CONDITIONS

Connection:	connector terminal board, conductor cross-section <1,5 mm² /<2,5 mm²
Stabilisation period:	within 15 minutes after switch-on
Working temp.:	-20°...60°C
Storage temp.:	-20°...85°C
Cover:	IP20
Construction:	safety class I
Overvoltage cat.:	EN 61010-1, A2
Dielectric strength:	4 kVAC after 1 min between supply and input 4 kVAC after 1 min between supply and data/analog output 4 kVAC after 1 min between supply and relays 3,75 kVAC after 1 min between input and data/analog output 3,75 kVAC after 1 min between inputs
Insulation resist.:	for pollution degree II, measurement cat. III supply, input, output > 600 V (ZI), 300 V (DI)
EMC:	EN 61326-1
Seismic resistance:	IEC 980: 1993, par. 6

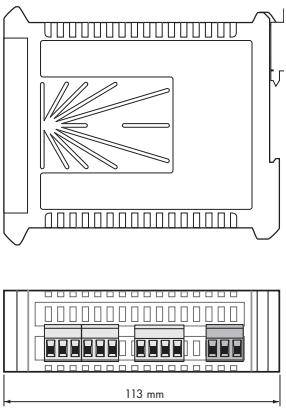
* values apply for resistance load

PI - Primary insulation, DI - Double insulation

Front view



Side view



Installation to DIN rail of 35 mm width

Product	**OMX 102UNI**	**DC**
Type	.....	
Manufacturing No.	.....	
Date of sale	.....	

GUARANTEE

A guarantee period of 60 months from the date of sale to the user applies to this instrument.
Defects occuring during this period due to manufacture error or due to material faults shall be eliminated free of charge.

For quality, function and construction of the instrument the guarantee shall apply provided that the instrument was connected and used in compliance with the instructions for use.

The guarantee shall not apply to defects caused by:

- mechanic damage
- transportation
- intervention of unqualified person incl. the user
- unavoidable event
- other unprofessional interventions

The manufacturer performs guarantee and post.guarantee repairs unless provided for otherwise.

5 YEARS

Stamp, signature

ES DECLARATION OF CONFORMITY

Company: **ORBIT MERRET, spol. s r.o.**
Klánova 81/141, 142 00 Prague 4, Czech Republic, IDNo.: 00551309

Manufactured: **ORBIT MERRET, spol. s r.o.**
Vodňanská 675/30, 198 00 Prague 9, Czech Republic

declares at its explicit responsibility that the product presented hereunder meets all technical requirements, is safe for use when utilised under the terms and conditions determined by ORBIT MERRET, spol.s r.o. and that our company has taken all measures to ensure conformity of all products of the types referred-to hereunder, which are being brought out to the market, with technical documentation and requirements of the appurtenant Czech statutory orders.

Product: Programmable panel instrument

Type **OMX 102**

Version: DC, UNI, PWR, UQC, T

Thas been designed and manufactured in line with requirements of:

Statutory order no. 17/2003 Coll., on low-voltage electrical equipment (directive no. 73/23/EHS)
Statutory order no. 616/2006 Coll., on electromagnetic compatibility (directive no. 2004/108/EHS)

The product qualities are in conformity with harmonized standard:

El. safety: EN 61010-1

EMC: EN 61326-1
Electronic measuring, control and laboratory devices – Requirements for EMC "Industrial use"
EN 50131-1, chap. 14 and chap. 15, EN 50130-4, chap. 7, EN 50130-4, chap. 8, (EN 61000-4-11, ed. 2),
EN 50130-4, chap. 9 (EN 61000-4-2), EN 50130-4, chap. 10, (EN 61000-4-3, ed. 2), EN 50130-4, chap. 11 (EN 61000-4-6),
EN 50130-4, chap. 12, (EN 61000-4-4, ed. 2), EN 50130-4, chap. 13 (EN 61000-4-5), EN 61000-4-8, EN 61000-4-9,
EN 61000-6-1, EN 61000-6-2, EN 55022, chap. 5 and chap. 6

Seismic resistance: IEC 980: 1993, par. 6

The product is furnished with CE label issued in 2014

As documentation serve the protocoles of authorized and accredited organizations:

EMC MO CR, Testing institute of technical devices, protocol no. 80/6-46/2006 of 15/01/2014
MO CR, Testing institute of technical devices, protocol no. EMI.80/6-333/2006 of 15/01/2014
Seismic resistance VOP-026 Stemberk, protocol no.: 6430-16/2007 of 07/02/2007 03/03/2014

Place and date of issue: Prague, 5. Februar 2014

Miroslav Hackl v.r.
Company representative

Assessment of conformity pursuant to §22 of Act no. 22/1997 Coll. and changes as amended by Act no.71/2000 Coll. and 205/2002 Coll