OMD 202UNI

4/6 DIGIT PROGRAMMABLE
UNIVERSAL LAGRE DISPLAY

DC VOLTMETER/AMMETER
PROCESS MONITOR
OHMMETER
THERMOMETER FOR PT 100/500/1 000
THERMOMETER FOR NI 1 000
THERMOMETER FOR THERMOCOUPLES
DISPLAYS FOR LIN. 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 OMD 202 series conform to the European regulation 89/336/EWG.

The instruments are up to the following European standards:
EN 55 022, class B
EN 61000-4-2, -4, -5, -6, -8, -9, -10, -11

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.

INSTRUMENT DESCRIPTION

2.1 Description

The OMD 202 model series are 4/6 digit large panel programmable displays designed for maximum efficiency and user comfort while maintaining their favourable price. It comes either with a 3-colour LED display (red/green/orange) or with High Brightness LEDs (red or green with brightness of 1 300 mcd).

Type OMD 202UNI is a multifunction instrument with the option of configuration for 8 various input options, easily configurable in the instrument menu. By further options of input modules it is feasible to measure larger ranges of DC voltage and current or increase the number of inputs up to 4 (applies for PM).

The instrument is based on an 8-bit microcontroller with a multichannel 24-bit sigma-delta converter, which secures high accuracy, stability and easy operation of the instrument.

The OMD 202 is a multifunction instrument available in following types and ranges

type UNI
DC: ±60/±150/±300/±1200 mV
PM: 0...5 mA/0...20 mA/4...20 mA/±2 V/±5 V/±10 V/±40 V
OHM: 0...100 Ω/0...1 kΩ/0...10 kΩ/0...100 kΩ
RTD-Pt: Pt 50/100/Pt 500/Pt 1 000
RTD-Cu: Cu 50/Cu 100
RTD-Ni: Ni 1 000/Ni 10 000
T/C: J/K/T/E/B/S/R/N/L
DU: Linear potentiometer (min. 500 Ω)

type UNI, option A
DC: ±0,1 A/±0,25 A/±0,5 A/±2 A/±5 A/±100 V/±250 V/±500 V

type UNI, option B (expansion by 3 more inputs)
PM: **3x** 0...5 mA/0...20 mA/4...20 mA/±2 V/±5 V/±10 V/±40 V

PROGRAMMABLE PROJECTION

Selection:	of type of input and measuring range
Measuring range:	adjustable as fixed or with automatic change
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...850,0
Projection:	-9999...9999 (-99999...999999)

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

Plovoucí průměr:	z 2...30 měření
Aritmetický průměr:	z 2...1000 měření
Exponen.average:	from 2...100 measurements
Rounding:	setting the projection step for display

MATHEMATIC FUCTIONS

Min/max. value:	registration of min./max. value reached during measurement
Tare:	designed to reset display upon non-zero input signal

* only for types DC, PM, DU

Peak value: the display shows only max. or min. value
Mat. operations: polynome, 1/x, logarithm, exponential, power, root, sin x

EXTERNAL CONTROL

Lock: control keys blocking
Hold: display/instrument blocking
Tare: tare activation/resetting tare to zero
Resetting MM: resetting min/max value

2.2   Operation

The instrument is set and controlled by IR Remote control. 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.cz) 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).
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 one, two, three or four 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 of the switch-on in the range of 0...99,9 s. Reaching the preset limits is signalled by LED and simultaneously by the switch-on of the relevant relay.

Data outputs are 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 or DIN MessBus protocol.

Analog outputs will find their place in applications where further evaluating or processing of measured data is required in external devices. We offer universal analog output with the option of selection of the type of output - voltage/current. The value of analog output corresponds with the displayed data and its type and range are selectable in Menu.

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 I	Input U
DC		0...60/150/300/1 200 mV
PM	0...5/20 mA/4...20 mA	±2/±5/±10/±40 V
OHM	0...0,1/1/10/100 kΩ/Autorange	
RTD-Pt	Pt 100/Pt 500/ Pt 1 000	
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)	

OPTION "A"

Type	Input I	Input U
DC	±0,1 A/±0,25 A/±0,5 A to GND (C) ±2 A/±5 A to GND (B)	±100 V/±250 V/±500 V to GND (C)

OPTION "B"

Type	Input 2, 3, 4/I	Input 2, 3, 4/U
PM	0...5/20 mA/4...20 mA	±2/±5/±10/±40 V
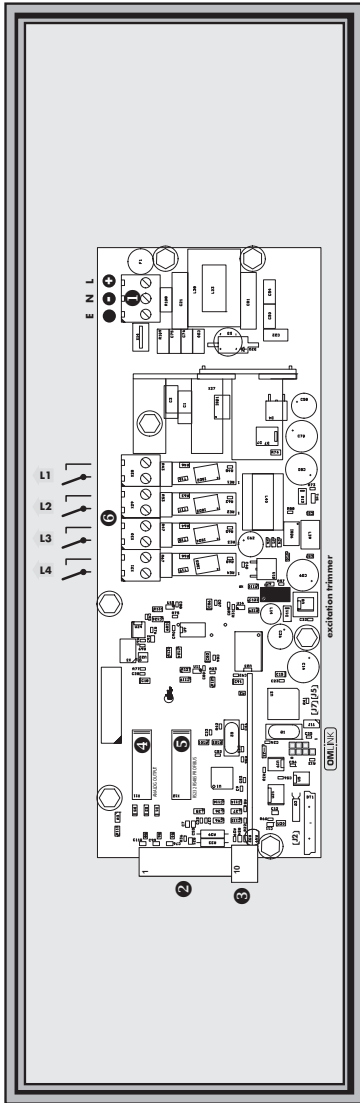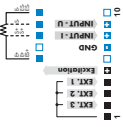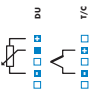
Jumpers

J2   back-up battery
J5   hardware test
J7   "cold" load of instrument's FW

❸ INPUT - Option

Option B

INPUT: 4/I
INPUT: 4/I
INPUT: 3/U
INPUT: 3/I
GND
INPUT: 2/U
INPUT: 2/I

A B C D E F G

Option A

INPUT: U
GND -U/I0,5
GND -I5
INPUT: I

A B C D E

INPUT: U
INPUT: U
GND - U
GND - I
INPUT: I

PWR

❷ Input

DU

T/C

RTD, OHM, Ni

DC, PM

U - INPUT
I - INPUT
GND
Excitation
EXT. 1
EXT. 2
EXT. 3

10

1

❶ Power supply

L1
L2
L3
L4

excitation trimmer

E N L

❹ Analog output

GND
AO-I
AO-U

GND
AO-I
AO-U

❺ Data output

GND
TxD
RxD

Rx D/L+
Tx D/L-
GND

❻ Relays

GND
L-
L+

INSTRUMENT CONNECTION

(+)
(-)

A *35680.2*

1
2
3
4

01 02 03 04 05 06 07 08 09 10

Excitation
Sensor (+)

INPUT - I
Sensor (-)

Supply (+)
Output (+)
GND (-)

A *35680.2*

1
2
3
4

01 02 03 04 05 06 07 08 09 10

Excitation
Supply (+)

INPUT - I
Output (+)

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

A **35680.2** 1 2 3 4

Supply (+)
Output (+)
GND (-)

01 02 03 04 05 06 07 08 09 10

Excitation
Supply (+)
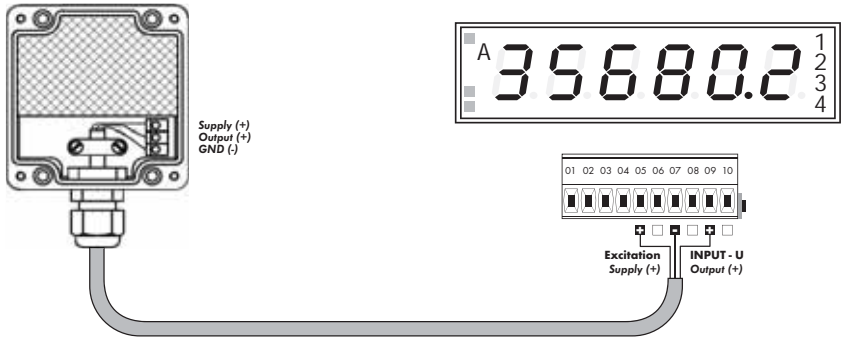
INPUT - U
Output (+)

Example connection of resistance measurement using 4 wires

By connecting resistor R* we elimintate error message E. I.OV. (input overflow) when the measured resistance is disconnected

A **35680.2** 1 2 3 4

Terminals
for the measured resistance

* resistor 100...1000 Ohm

01 02 03 04 05 06 07 08 09 10

E+ S+ S- E-
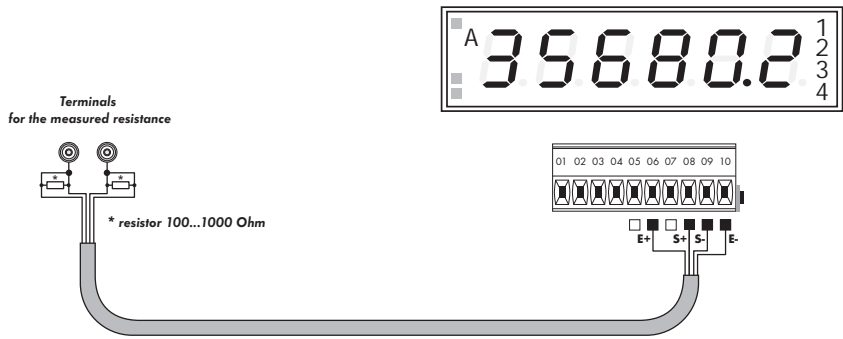
Setting PROFI

profi

▸ • For expert users
- Complete instrument menu
- Access is password protected
- Possibility to arrange items of the „User" menu
- Tree menu structure

Setting LIGHT

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

profi   light

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 IR Remote control. 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.cz) 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).

Scheme of processing the measured signal

INSTRUMENT SETTING
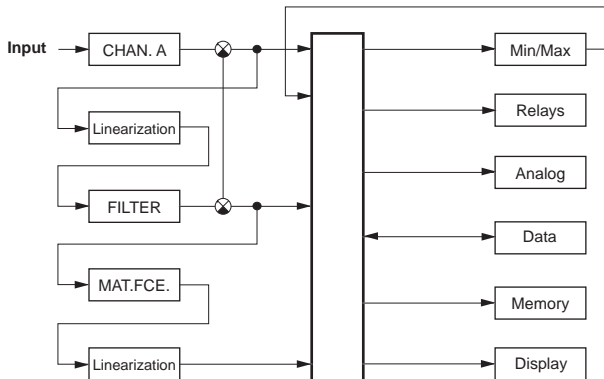
Setting and controlling the instrument is performed by means of the Remote control. With the aid of the Remote control it is possible to browse through the operation menu and to select and set the required values.

Indication of measured input (green LED)
input number
(only for option "A")

Measured value (red/green/orange LED)
the last two places may display
measuring units

Data communications (orange LED)
IR remote control

Ralay status (red LED)
ON   the digit is lit
OFF the digit is not lit
OFF the digit is flashing
*limits with restriction
(hysteresis, delay)*

Function (green LED)
M   Min/max. value
     - upper LED
T   Tare
     - bottom LED

A 35680.2   1 2 3 4

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

CONECT   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 menu, upon modification of the number to be adjusted it is performed by the control key ◁ with transition beyond the highest decade, when the decimal point starts flashing . Positioning is performed by ⌃/⌄.

THE MINUS SIGN

Setting the minus sign is performed by the key ⌄ on higher decade. When editing the item substraction must be made from the current number (e.g.: 013 > ⌄ , on class 100 > -87)

Control keys functions

Key	Measurement	Menu	Setting numbers/selection
R	access into USER menu	exit menu	quit editing
◀	programmable key function	back to previous level	move to higher decade*
▼	programmable key function	move to previous item	move down*
▲	programmable key function	move to next item	move up*
✉	programmable key function	confirm selection	confirm setting/selection
G	access into LIGHT/PROFI menu		
>3 s G	direct access into PROFI menu		
1			configuration of an item for "USER" menu
2			determine the sequence of items in "USER - LIGHT" menu
●	cancelation of address instrument/remote controler		

alternatively, the setting may be done from the numeric keys of the remote control by selecting directly the number required

Setting items into „USER" menu

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

legend is flashing - current setting is displayed

▲ →   ← ▼   return to item

① --- ⬛ NO YES SHOW R ✖ 🖫 → ---

| NO | item will not be displayed in USER menu |
| YES | item will be displayed in USER menu with the option of setting |
| SHOW | item will be solely displayed in USER menu |

| 5.0 | Setting   "LIGHT" |

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

▸   • **For capable 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**

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G

PASSW. ⊗ 0 ⊗   *Access password*

TYPE ⊗ DC ⊗ MODE ⊗ 60 mV ⊗   *Selecting input and range*

RTD OHM   *Selecting projection and connection*
CONECT. ⊗ 2-WIRE ⊗ FORM.A ⊗ 00000.o ⊗

T/C
CONECT. ⊗ EXT.1TC ⊗ CJ.TEM. ⊗ 23 ⊗ FORM.A ⊗ 00000.o ⊗

DC PM OHM DU
MIN A ⊗ 0 ⊗ MAX A ⊗ 100 ⊗ FORM.A ⊗ 0000.oo ⊗

Option - comparator
LIM.L1 ⊗ 20 ⊗ LIM.L2 ⊗ 40 ⊗

LIM.L3 ⊗ 60 ⊗ LIM.L4 ⊗ 80 ⊗

Option - Analog output
TYP.AO. ⊗ 4-20mA ⊗ MIN AO. ⊗ 0 ⊗ MAX AO. ⊗ 100 ⊗

Primary color   *First color limit*   *Color beyond first limit*
COL.0 ⊗ GREEN ⊗ DISL.1 ⊗ 33.33 ⊗ COL.2 ⊗ ORANGE ⊗

Second color limit   *Color beyond second limit*   *Remote controler address*
DISL1. ⊗ 66.67 ⊗ COL2 ⊗ RED ⊗ ADR.Ir. ⊗ 0 ⊗

Menu type   *Return to manufacture calibration*   *Return to manufacture setting*
MENU ⊗ LIGHT ⊗ RE.CAL. ⊗ YES ⊗ RE.SET. ⊗ TYPE ⊗

Calibration - only for "DU"
DU C.MIN ⊗ YES ⊗ C.MAX ⊗ YES ⊗

Language selection   *New password*   *Identification*   *Return to measuring mode*
LANG. ⊗ ENGL. ⊗ PAS.LI. ⊗ 0 ⊗ IDENT. ⊗ YES OMD 202.... ▶

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G

PASSW. ⊻ ⟶ 0   *Entering access password for access into the menu* ⟶ ⊻

PASSW. **Access into instrument menu**

PAS = 0
- access into menu is unrestricted, after releasing keys you automatically move to first item of the menu

PAS > 0
- access into menu is protected ny number code

Set "Password" = 42   *Example*

0 ⌃   1 ⌃   2 ◁   02 ⌃   12 ⌃   22 ⌃
32 ⌃   42 ⊻   TYPE

TYPE ⊻ ⟶   ⌃ ⟶   ⟵ ⌄

| DC | PM | OHM | RTD-Pt | RTD-Ni | TC |
| DU | RTD-Cu |

R ⊠ ⊻ 💾

TYPE **Selection of the type of instrument**

- primary selection of the type of instrument
- performs default setting **DEF** of values from manufacture, incl. calibration

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*
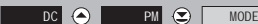
DC ⌃   PM ⊻   MODE

Type "DC"

MODE

| 60 mV | 150 mV | 300 mV | 1200mV |
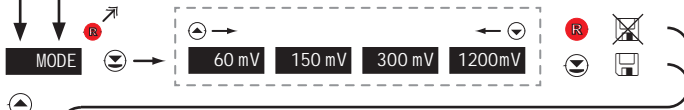
MODE Selection of the instrument measuring range

DEF = 60 mV

DEF = 500 V*

* only for option "A"

	Menu	Measuring range
MODE	60 mV	±60 mV
	150 mV	±150 mV
	300 mV	±300 mV
	1200mV	±1,2 V
MODE - A	100 V	±100 V
	250 V	±250 V
	500 V	±500 V
	0.10 A	±0,1 A
	0.25 A	±0,25 A
	0.50 A	±0,5 A
	1.00 A	±1 A
	5.00 A	±5 A

Range ±150 mV   *Example*

| 60 mV | 150 mV | MI N A |

MI N A   →   0   *Setting for minimum input signal*

MI N A Setting display projection for minimum value of input signal

- range of the setting is -99999...999999

- 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 > MIN A = 0   *Example*

| 0 | MAX A |

MAX A → 100 *Setting for maximum input signal*

| MAX A | **Setting display projection for maximum value of input signal** |

- range of the setting is -99999...999999

- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

Projection for 150 mV > MAX A = 3500 Example

| 100 | 100 | 100 | 200 | 300 | 400 |
| 500 | 0500 | 1500 | 2500 | 3500 | FORM.A |
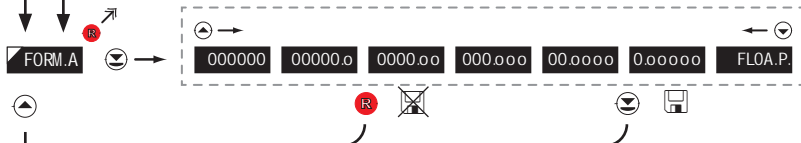
FORM.A → 000000 00000.o 0000.oo 000.ooo 00.oooo 0.ooooo FLOA.P.

| FORM.A | **Setting projection of the decimal point** |

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

DEF = 0000.oo

Projection of DP on display > 00000.o Example

| 0000.oo | 00000.o | COL.0 |

*subsequent item on the menu depends on instrument equipment

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SETTING

light

Type "PM"

| MODE | | 0-5mA | 0-20mA | 4-20mA | • • • | 0-10 V | 0-40 V | ER4-20 |

MODE Selection of the instrument measuring range

DEF = 4 - 20 mA

	Menu	Range
MODE	0-5mA	0...5 mA
	0-20mA	0...20 mA
	4-20mA	4...20 mA
	0-2 V	±2 V
	0-5 V	±5 V
	0-10 V	±10 V
	0-40 V	±40 V
	Er.4-20	4...20 mA, with error statement of „underfl ow" upon signal smaller than 3,36 mA

Range 0...20 mA   *Example*

| 4-20mA | 0-20 mA | MIN A |

| MIN A | | 0 | Setting for minimum input signal

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

- range of the setting is -99999...999999

- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 0

Projection for 0 mA > MIN A = -25   *Example*

| 0 | 1 | 2 | 3 | 4 | 5 |
| 05 | -5 | -05 | -15 | -25 | MAX A |

MAX A → 100   *Setting for maximum input signal*

	MAX A	**Setting display projection for maximum value of** input signal

- range of the setting is   -99999...999999

- 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 > MAX A = 2500   Example

100	100	100	200	300	400
500	0500	1500	2500	FORM.A	

FORM.A

000000	00000.o	0000.oo	000.ooo	00.oooo	0.ooooo	FLOA.P.

FORM.A	**Setting projection of the decimal point**	**DEF** = 0000.oo

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

Projection of DP on display > 00000.o   Example

0000.oo	00000.o	COL.O

* subsequent item on the menu depends on instrument equipment

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OHM OHM OHM OHM OHM OHM OHM OHM OHM

Type "OHM"

| MODE | → | 100 R | 1 K | 10 K | 100 K | 100 K | 100 K |

MODE **Selection of instrument measuring range**

DEF = 100 Ω

	Menu	Measuring range
MODE	100 R	0...100 Ω
	1 k	0...1 kΩ
	10 k	0...10 kΩ
	100 k	0...100 kΩ
	AUTO	Autorange

Range 0...10 kΩ   *Example*

| 100 R | 1 k | 10 K | CONECT |

CONECT. | 2-WIRE | 3-WIRE | 4-WIRE |

CONECT. **Selection of the type of sensor connection**

DEF = 2- WIRE

	Menu	Connection
CONECT.	2-WIRE	2-wire
	3-WIRE	3-wire
	4-WIRE	4-wire

Type of connection - 3 wire > CONECT. = 3-WIRE   *Example*

| 2-WIRE | 3-WIRW | MIN A |

MIN A | 0 | *Setting for minimum input signal*

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

- range of the setting is -99999...999999

- 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 > MIN A = 0   *Example*

| 0 | MAX A |

MAX A ⊖ → 100 *Setting for maximum input signal* → ⓡ ⌧ ⊖ 💾

MAX A	Setting display projection for maximum value of input signal

- range of the setting is -99999...999999

- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

Projection for 10 kOhm > MAX A = 10000   *Example*

100 ◄ 100 ◄ 100 ⊖ 000 ◄ 0000 ◄ 00000 ▲
10000 ⊖ FORM.A

FORM.A ⊖ → ▲→ 000000   00000.o   0000.oo   000.ooo   00.oooo   0.ooooo   FL0A.P. ←⊖

ⓡ ⌧   ⊖ 💾

FORM.A	Setting projection of the decimal point

DEF = 0000.oo

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

Projection of DP on display > 00000.o   *Example*

0000.oo ⊖ 00000.o ⊖ COL.0   ** subsequent item on the menu depends on instrument equipment*

📖 **34**

RTD-Pt RTD-Pt RTD-Pt RTD-Pt RTD-Pt RTD-Pt RTD-Pt RTD-Pt

Type "RTD-Pt"

MODE

| EU-100 | EU-500 | EU-1k0 | US-100 | US-100 | US-100 | RTD |

| MODE | **Selection of instrument measuring range** |

DEF = Pt 100

	Menu	Measuring range
MODE	EU-100	Pt 100 (3 850 ppm/°C)
	EU-500	Pt 500 (3 850 ppm/°C)
	EU-1k0	Pt 1000 (3 850 ppm/°C)
	US-100	Pt 100 (3 920 ppm/°C)
	RU-50	Pt 50 (3 910 ppm/°C)
	RU-100	Pt 100 (3 910 ppm/°C)

Range - Pt 1 000 > MODE = EU-1k0   *Example*

| EU-100 | EU-500 | EU-1K0 | CONECT. |

CONECT.

| 2-WIRE | 3-WIRE | 4-WIRE |

| CONECT. | **Selection of the type of sensor connection** |

DEF = 2- WIRE

	Menu	Connectiion
CONECT.	2-WIRE	2-wire
	3-WIRE	3-wire
	4-WIRE	4-wire

Type of connection - 3 wire > CONNEC = 3-WIRE   *Example*

| 2-WIRE | 3-WIRE | FORM.A |

RTD - Pt   RTD - Pt   RTD - Pt   RTD - Pt   RTD - Pt   RTD - Pt   RTD - Pt

FORM.A Setting projection of the decimal point   **DEF** = 00000.o

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

Projection of DP on display > 000000   *Example*

00000.o ⌄ 000000 ⌄ COL.0   * subsequent item on the menu depends on instrument equipment

34

RTD-Ni RTD-Ni RTD-Ni RTD-Ni RTD-Ni RTD-Ni RTD-Ni

Type "RTD-Ni"

| MODE | 5.0-1k | 6.2-1k | 5.0-10k | 6.2-10k |

| **MODE** | Selection of instrument measuring range |

DEF = Ni 1 000 - 5 000 ppm/°C

Menu	Measuring range
5.0-1k	Ni 1 000 (5 000 ppm/°C)
6.2-1k	Ni 1 000 (6 180 ppm/°C)
5.0-10k	Ni 10 000 (5 000 ppm/°C)
6.2-10k	Ni 10 000 (6 180 ppm/°C)

Range - Pt 1 000 > MODE = EU-1k0   *Example*

| EU-100 | EU-500 | EU-1K0 | CONECT |

| CONECT. | 2-WIRE | 3-WIRE | 4-WIRE |

| **CONECT.** | Selection of the type of sensor connection |

DEF = 2- WIRE

Menu	Connection
2-WIRE	2-wire
3-WIRE	3-wire
4-WIRE	4-wire

Type of connection - 3 wire > CONNEC = 3-WIRE   *Example*

| 2-WIRE | 3-WIRE | FORM.A |

FORM.A

000000 00000.o 0000.o o

R

| FORM.A | Setting projection of the decimal point | DEF = 00000.o |

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

Projection of DP on display > 000000   *Example*

00000.o   →   000000   →   COL.0   *subsequent item on the menu depends on instrument equipment*

📖 34

T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C

Type "T/C"

MODE

| T/C B | T/C E | T/C J | T/C K | > |
| T/C N | T/C R | T/C S | T/C T | T/C T |

MODE — Selection of the type of thermocouple

- setting the input range depends on the measuring range ordered

DEF = Type "J"

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

Type of thermocouple "K" — Example

J → K → CONECT.

CONECT.

| INT1TC | INT2TC | EXT1TC | EXT2TC |

CONECT. — Selection of the type of sensor connection

DEF = EXT. 1TC

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

Type of connection > CONECT. = EXT. 2TC — Example

EXT1TC → EXT2TC → CJ.TEM.

T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C T/C

C.J.TEM. → 23   *Setting temperature of cold junction* →

C.J.TEM.   **Setting temperature of cold junction**   **DEF** = 23

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

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

23   24   25   25   35   **FORM.A**

FORM.A → 000000   00000.o   0000.o.o

FORM.A   **Setting projection of the decimal point**   **DEF** = 00000.o

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

Projection of DP on display > 000000   *Example*

00000.o   000000   **COL.O**   * subsequent item on the menu depends on instrument equipment

---

!
For thermocoule type "B" the items CONECT. and C.J. TEM. are not available

!
Method and procedure of setting the cold junctions is described in separate chapter on page 80

📖 **34**

Type "DU"

MI N A — 0   *Setting for minimum input signal*
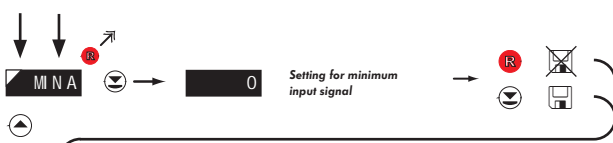
MI N A **Setting display projection for minimum value of input signal**

- range of the setting is   -99999...999999

- 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 > MIN A = 0   *Example*

0   MAX A

MAX A — 100   *Setting for maximum input signal*

MAX A **Setting display projection for maximum value of input signal**

- range of the setting is   -99999...999999
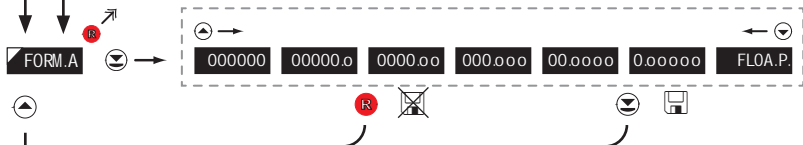
- position of the DP does not affect display projection
- the DP is automatically shifted after the value is confirmed

DEF = 100

Projection for the end > MAX A = 5000   *Example*
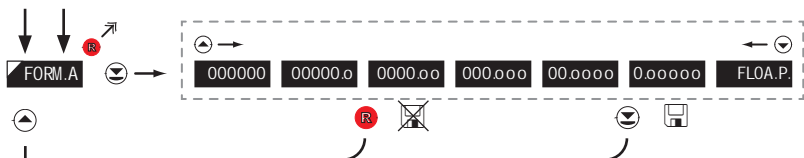
100   100   100   000   0000   1000
2000   3000   4000   5000   FORM.A

FORM.A

000000 00000.o 0000.oo 000.ooo 00.oooo 0.ooooo FLOA.P.

FORM.A | Setting projection of the decimal point | **DEF** = 0000.oo
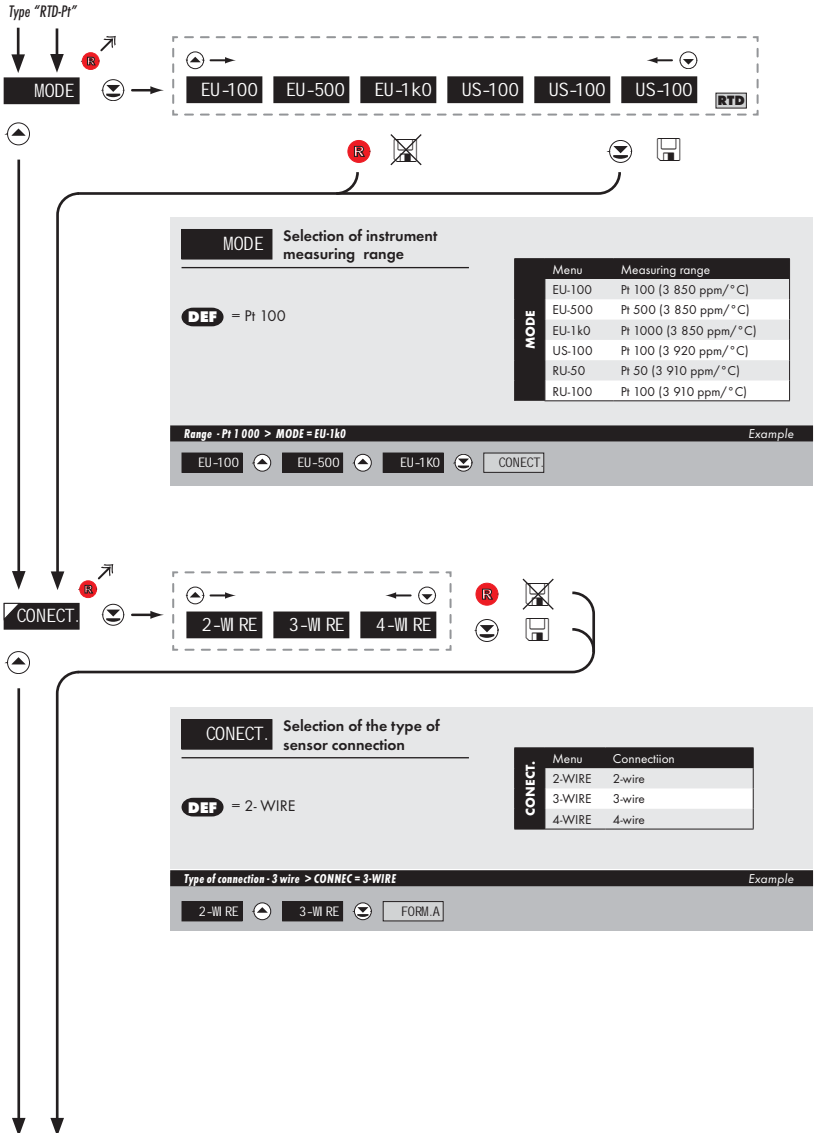
- positioning of the DP is set here in the measuring mode

Projection of DP on display > 0000.oo   *Example*

0000.oo → COL.0   * subsequent item on the menu depends on instrument equipment

34 *Calibration of the beginning and the end of range of linear potentiometer is on page 41*

Type "RTD-Cu"

MODE → 428-50 | 428-01 | 426-50 | 426-01
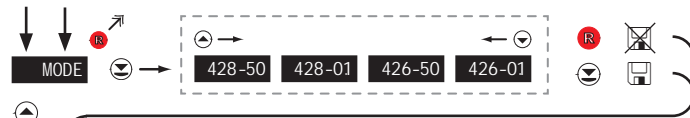
MODE Selection of instrument measuring range

DEF = Cu 50/4 280 ppm

Menu	Measuring range
428-50	Cu 50 (4 280 ppm/°C)
428-0.1	Cu 100 (4 280 ppm/°C)
426-50	Cu 50 (4 260 ppm/°C)
426-0.1	Cu 100 (4 260 ppm/°C)

Range - Cu-50/4 260 ppm > MODE = 426-50 *Example*

428-50 → 428-01 → 426-50 → CONECT

CONECT. → 2-WIRE | 3-WIRE | 4-WIRE

CONECT. Selection of the type of sensor connection

DEF = 2-WIRE

Menu	Connection
2-WIRE	2-wire
3-WIRE	3-wire
4-WIRE	4-wire

Type of connection - 3 wire > CONNEC = 3-WIRE *Example*

2-WIRE → 3-WIRE → FORM.A

FORM.A → 000000 00000.o 0000.oo

FORM.A Setting projection of the decimal point   DEF = 00000.o

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

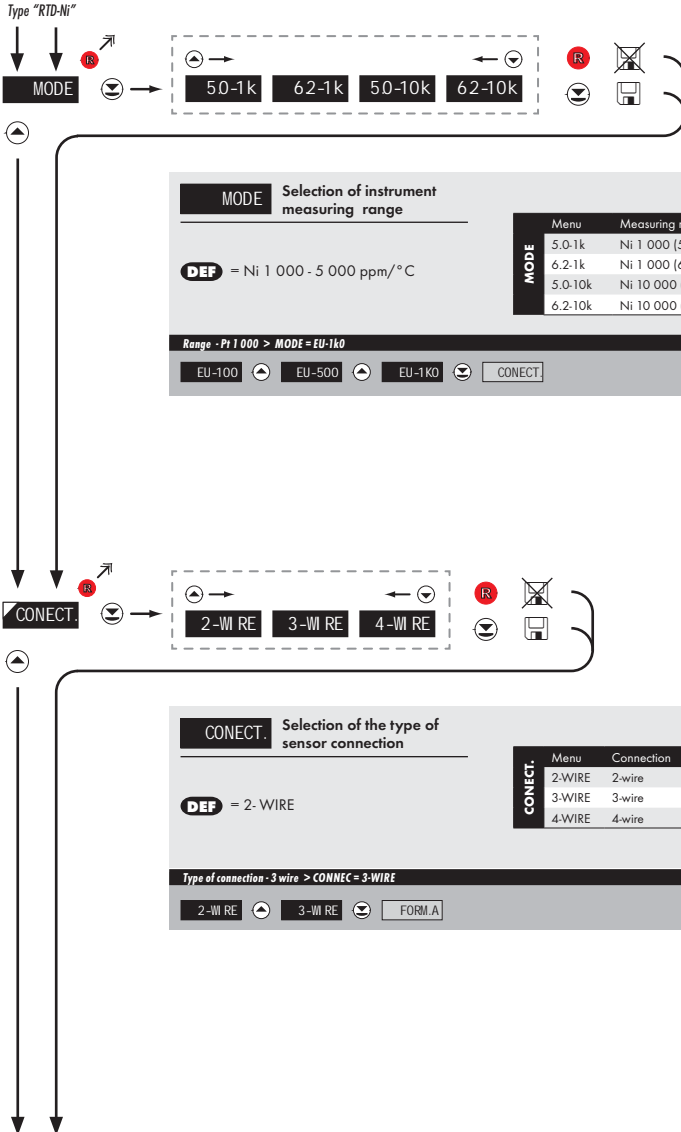*Projection of DP on display > 000000*   *Example*

00000.o 000000 COL.O   * subsequent item on the menu depends on instrument equipment

📖 34

Displayed only with options > **Comparators**

LI M L.1   20   **Setting boundary for limit 1**

R

| LI M L.1 | **Setting boundary for limit 1** | - contingent modification of hysteresis or delay may be performed in "PROFI" menu |

- range of the setting is -99999...999999
- default "Hystresis"=0 "Delay"=0

DEF = 20

Setting limit 1 > L 1 = 32   Example

20 → 21 → 22 → 22 → 32 → COL.0

LI M L.2   40   **Setting boundary for limit 2**

R

| LI M L.2 | **Setting boundary for limit 2** | - contingent modification of hysteresis or delay may be performed in "PROFI" menu |

- range of the setting is -99999...999999
- default "Hysteresis"=0 "Delay"=0

DEF = 40

Setting limit 2 > L 2 = 53.1   Example

40 → 41 → 41 → 31 → 031 → 131

231 → 331 → 431 → 531 → 0531 → 00531

000531 → 000531 → 000531 → COL.0   * subsequent item on the menu depends on instrument equipment

!

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

LI M L3 ⬇ → 60   Setting boundary for
limit 3

R ✖
⬇ 💾

LI M L3 Setting boundary for
limit 3

- contingent modification of hysteresis or
delay may be performed in "PROFI" menu

- range of the setting is -99999...999999
- default "Hysteresis"=0 "Delay"=0

DEF = 60

Setting limit 3 > L 3 = 85   Example

60 ▲ 61 ▲ 62 ▲ 63 ▲ 64 ▲ 65 ◄

65 ▲ 75 ▲ 85 ▼ COL.0   * subsequent item on the menu depends on instrument
equipment

LI M L4 ⬇ → 80   Setting boundary for
limit 4

R ✖
⬇ 💾

LI M L4 Setting boundary for
limit 4

- contingent modification of hysteresis or
delay may be performed in "PROFI" menu

- range of the setting is -99999...999999
- default "Hysteresis"=0 "Delay"=0

DEF = 80

Setting limit 4 > L 4 = 103   Example

80 ▲ 81 ▲ 82 ▲ 83 ◄ 93 ▲ 93 ▲

03 ◄ 003 ▲ 103 ▼ COL.0   * subsequent item on the menu depends on instrument
equipment

Displayed only with options ˅ **Comparators**

TYP.A.O.

0-20mA Er.4-T 4-20 T • • • 0-5 V 0-10 V +-10 V

| TYP.A.O. | **Setting the type of analog output** |

Menu	Range	Description
0-20mA	0...20 mA	
Er.4-T	4...20 mA	signaling interrupted current loop and displaying an error message (<3,6 mA)
4-20 T	4...20 mA	signaling broken current loop
E. 4-20mA	4...20 mA	with indication of error statement (<3,6 mA)
4-20mA	4...20 mA	
0-5mA	0...5 mA	
0-2 V	0...2 V	
0-5 V	0...5 V	
0-10 V	0...10 V	
+-10 V	±10 V	

DEF = 4...20 mA

Type of analog output - 0...10 V > TYP. A.O. = 0-10 V   *Example*

4-20mA   0-5mA   0-2 V   0-5 V   0-10 V   MIN A.O.

MIN A.O.

0   *Assigning the display value to the beginning of the AO range*

| MIN A.O. | **Assigning the display value to the beginning of the AO range** |

DEF = 0

- range of the setting is -99999...999999

Display value for the beginning of the AO range > MIN A.O. = 0   *Example*

0   MAX A.O.

!

Items for "Limits" and "Analog output" are accessible only if incorporated in the instrument.
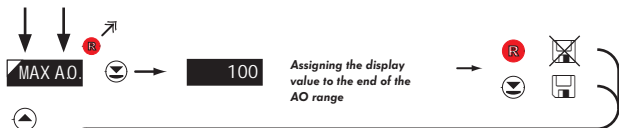
MAX A.O. → 100 *Assigning the display value to the end of the AO range*

MAX A.O. **Assigning the display value to the end of the** **DEF** = 100
AO range

- range of the setting is -99999...999999

Display value for the end of the AO range > MAX A.O. = 120 *Example*

100 ◄ 100 ▲ 110 ▲ 120 ▼ COL.0

Displayed only with options > **Analog output**

COL.0

RED. GREEN ORANGE

COL.0 Selection of display color
> primary setting

DEF = Green

Selection of display color - primary > red *Example*

GREEN → RED → DI SL.1

DI SL.1.

33.33 *Setting limit for display color change*

DI SL.1. Setting first value for color display change

DEF = 33.33

- range of setting is -999...9999

Display value for 1st color change > DIS. L.1 = 100 *Example*

33.33 + 0 ◄ 00 ◄ 000 100 COL.1

COL.1

RED GREEN ORAnGE

COL.1 Selection of display color
> after exceeding DIS.L. 1.

DEF = Orange

- selection of display color is governed by setting under item dIS.L1
- the color changes if the displayed value is higher than the value set in DIS.L1

Selection of display color if the data is > COL. 1 = green *Example*

ORANGE → GREEN → DI SL.2

DI S.L.2.   →   66.67   *Setting limit for display color change* → ©

DI S.L.2.   Setting second value for display color change   **DEF** = 66.67

- range of setting is -999...9999

Display value for 1st color change > DIS. L.2 = 400   *Example*

66.67 ▽ + △   0 ◁   00 ◁   000

200 △   300 △   400 ▽   COL.2

COL.2   ▽ →   RED   GREEN   ORANge   ← ▽   © 🖫

COL.2   Selection of display color > after exceeding DIS.L. 2   **DEF** = Red

- selection of display color is governed by setting under item DIS.L.2
- the color changes if the displayed value is higher than the value set in DIS.L.2

Selection of display color if the data is > DIS.L.2 > orange   *Example*

RED ▽   ORANGE ▽   ADR.I R.

ADR.I R.   🔽 → 0   *Nastavení adresy dálkového ovladače*   R ⊠ 🔽 💾

ADR.I R. — Setting the address of the Remote Controler

- setting the address of the IR Remote Controler is needed only when more than one OMD 202 are within the controler's reach

- range of setting 0...99
- possible cancelation of address is done by pressing the RC's blue button

DEF = 0

Setting the address - 21 > Adr. Ir. = 21   *Example*

0 🔼 1 ◀ 01 🔼 11 🔼 21 🔽 MENU.

MENU 🔽 → [🔼 → LI GHT   PROFI ← 🔽] R ⊠ 🔽 💾

MENU — Setting the menu type LIGHT/PROFI

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

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

DEF = LIGHT

Menu LIGHT > MENU = LIGHT   *Example*

LI GHT 🔽 RE.CAL.

RE.CAL. 🔽 → YES R ⊠ 🔽 💾

RE.CAL. — 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 setting > RE. CAL.   *Example*

RE.CAL. 🔼 YES 🔽 RE.SET.

RE.SET.

TYPE → USER

RE.SET. **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 "TYPE")

- provided you stored your user setting in the "PROFI" menu, it may also be restored (select "USER")
- loading manufacture calibration and primary setting of items on the menu (DEF)

Restoration of manufacture setting > RE. SET.   *Example*

RE.SET. → TYPE → LANG.   * subsequent item on the menu depends on instrument type, for "DU" > "K. MIN"

Type „DC"   📖 42
Type "PM"   📖 42
Type "OHM"   📖 42
Type "RTD-Pr"   📖 42
Type "RTD-Ni"   📖 42
Type "T/C"   📖 42
Type "DU"   📖 41
Type "RTD-Cu"   📖 42

Type "DU"

C.MI N → YES   *flashing legend*
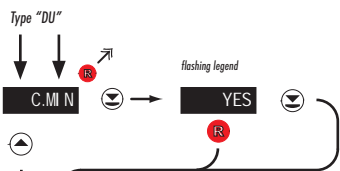
C.MI N **Calibration of input range - the potentiometer traveller**   *Only for type "DU"*

in initial position

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

Calibration of the beginning of the range > C. MIN   *Example*

YES → C.MAX

DU DU DU DU DU DU

C.MAX → YES

flashing legend

| C.MAX | 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. MAX *Example*

YES → LANG.

LANG. → CZECH ← ENGL.

| LANG. | Selection of language in instrument menu |

- selection of language version of the instrument menu   **DEF** = ENGL.

Language selection - ENGLISH > LANG. = ENGL. *Example*

CZECH → ENGL. → PAS.LI

PAS.LI . ⇒ **0** *Setting new access password* →

PAS.LI . **Setting new access password**

- access password for menu LIGHT
- range of the number code 0...9999

- upon setting the password to "000" the access to menu LIGHT is free without prompt to enter it
- in the event of loss universal password "8177" may be used

DEF = 0

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

| 0 | 1 | 01 | 11 | 21 | 31 |
| 41 | 041 | 141 | 241 | 341 | I DENT |

---

instrument type | SW number | SW version | setting the input type

I DENT. ⇒ **YES** ⇒ **OM D 202** **77 –** **169** **PM**
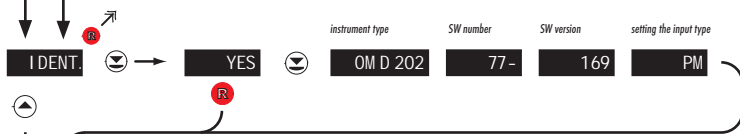
I DENT. **Instrument SW version**

- 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

1428 *Return to measuring mode*

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**

- **For expert users**
- **Complete instrument menu**
- **Access is password protected**
- **Possibility to arrange items of the „User" menu**
- **Tree menu structure**

Switching over to "PROFI" menu

>3 s
G

- access to **PROFI** menu
- authorization for access to **PROFI** menu does not depend on setting under item SERVIC. > MENU
- password protected access (unless set as follows under the item SERVIC. > N. PASS. > PROFI =0)

G

- access to menu selected under item SERVIC. > MENU > **LIGHT**/**PROFI**
- password protected access (unless set as follows under the item SERVIC. > N. PASS. > LIGHT =0)
- for access to **LIGHT** menu passwords for **LIGHT** and **PROFI** menu may be used

profi

Programming sch...

1428 ● PASSW. ⊝ 0 ⊝ *Access password*

INPUTS

CLEAR ⊝ ◔ CL.TAR. • CL.MM. ◔

CONFIG ⊝ READ./S ⊝ ◔ 01 • 02 • • • 200 • 400 ◔
        TYPE ⊝ ◔ DC • PM • • • T/C • DU ◔
        MODE ⊝

Setting input, range and projection

DC ◔ 60mV • 150mV • 300mV • 1200mV ◔
PM ◔ 0–5mA • 0–20mA • • • 0–40V • Er4–20 ◔
OHM ◔ 01k • 1k • 10k • 100k ◔
RTD ◔ EU–100 • EU–500 • EU–1k • • • RU–100 ◔
RTD ◔ 50–1k • 62–1k • 50–10k • 62–10k ◔
T/C ◔ T/C B • T/C E • • • T/C S • T/C T ◔
DU LINPOT
RTD ◔ 428–50 • 428–01 • 426–50 • 426–01 ◔

CONECT. ⊝ ◔ 2–WIRE • • • 4–WIRE ◔
AD.RES ⊝ 0
LEADS ⊝ 0
CONECT. ⊝ ◔ INT1TC • • • EXT2TC ◔
C.J.TEM. ⊝ 0

RTC ⊝ TIME ⊝ 0
      DATE ⊝ 0

EXT.IN ⊝ EXT.1 ◔ OFF • HOLD • • • FIL.A • MATFN. ◔
        M.HOLD ◔ DISPL. • DIS+AO. • D+AO+L. • ALL ◔

KEYS ⊝ LEFT ⊝ FN.LE. ⊝ ◔ NO • CL.MM • CL.TA. • MENU • TEMP. V. • TARE ◔
                TMP.LE ⊝ ◔ NO • CHAN.A • FIL.A • MAT.FN. • MIN • MAX. • LIM.1 • • • P.TARE • COLD.T. ◔
       ENTER   MNU.LE ⊝ ◔ LIM.1 • LIM.2. • LIM.3 • LIM.4 • • • OFF 1 • OFF 2 • OFF 3 • OFF 4 ◔

CHANNE

CHAN.A ⊝ SET.A ⊝ MIN A ⊝ 0
                  MAX A ⊝ 100
                  P.TAR.A ⊝ 0
                  TARED ⊝ ◔ CHAN.A • FIL.A ◔

          FILTR ⊝ MOD.FA ⊝ ◔ NO • AVER. • • • ROUND. ◔
                  CON.F.A ⊝ 0

          FORM.A ⊝ ◔ 000000 • 00000o • • • FL0A.P. ◔
          DESC.A ⊝ 0

MAT.FN. ⊝ MATH.F. ⊝ ◔ OFF • POLIN. • 1/MUL • • • SIN X ◔
          CON.A ⊝ 0
          CON.F ⊝ 0
          FORM.M ⊝ ◔ 000000 • 00000o • • • FL0A.P. ◔
          DESC. M ⊝ 0

MINMAX ⊝ INP.MM. ⊝ ◔ NO • CHAN.A • FIL.A • MAT.FN. ◔

profi

...eme **PROFI MENU**

OUTPUT.

LI MI TS — LI M 1 — I NP.L1 — NO • CHAN.A • FI L.A • • • MAX
              MOD L1 — HYSTER • FROM..• DOSI NG
              TYP.L1 — CLOSE • OPEN
              LI M.L1 — 20
              HYS.L1 — 0
              ON L1 — 0
              OFF L1 — 0
  LI M 4   PER.L1 — 0
              TI M.L1 — 0

DATA — DAUB — 600 • 1200 • 2400 • • • 115200 • 230400
      ADDR. — 0
      AD.MOD. — 1
      ADR.PB. — 19
      PROT. — ASCI I • MODBUS • M.BUS

ANALOG — I NP.AO. — NO • CHAN.A • FI L.A • MAT.FN.• MI N •MAX
       TYP AO. — 0-20mA • Er4- T • 4-20 t • ER4-20 • 4-20mA • 0-5mA • 0-2V • 0-5V • 0-10V • +-10V
       MI N AO. — 0
       MAX AO. — 100

DI SP. — PERM. — CHAN.A • FI L.A • MAT.FN.• MI N •MAX
     COL.O — RED • GREEN • ORAnGE
     DI S.L1. — 33.33
     COL.1 — RED • GREEN • ORAnGE
     DI S.L2. — 66.67
     COL.2 — RED • GREEN • ORAnGE
     BRI GHT. — 0% • 25% • 50% • 75% • 100%

SERVI C.
ADR.I R — 0
MENU — LI GHT • PROFI
RESTOR — RE.CAL. — YES
       RE.SET. — TYPE
                  USER
       SAVE
                  DU
CALI B. — C.MI N — YES
       C.MAX — YES
MENU — CZECH • ENGL.
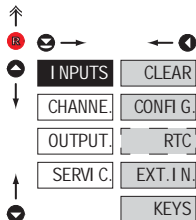N. PASS — PAS.LI . — 0
       PAS.PR.
I DENT. — OMD202UNI ....

!

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

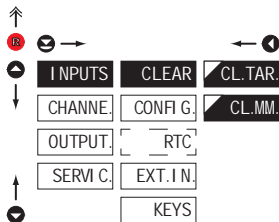## 6.1 Setting "PROFI" - INPUT

The primary instrument parameters are set in this menu

CLEAR	Resetting internal values
CONFIG.	Selection of measuring range and parameters
RTC	Setting date and time for option with RTC
EXT.IN.	Setting external inputs functions
KEYS	Assigning further functions to keys on the instrument

6.1.1 Resetting internal values

CLEAR	**Resetting internal values**
CL.TAR.	Tare resetting
CL.MM.	Resetting min/max value

- resetting memory for the storage of minimum and maximum value achieved during measurement

6.1.2a Selection of measuring rate

INPUTS	CLEAR	READ/S	40.0
CHANNE.	CONFIG.	TYPE	20.0
OUTPUT.	RTC	MODE	10.0
SERVIC.	EXT.IN.	CONECT.	5.0 DEF
	KEYS	CJ.TEM.	2.0
		AD.RES.	1.0
		LEADS	0.5
			0.2
			0.1

READ./S	Selection of measuring rate
40.0	40,0 measurements/s
20.0	20,0 measurements/s
10.0	10,0 measurements/s
5.0	5,0 measurements/s
2.0	2,0 measurements/s
1.0	1,0 measurement/s
0.5	0,5 measurements/s
0.2	0,2 measurements/s
0.1	0,1 measurements/s

6.1.2b Selection of „instrument" type

INPUTS	CLEAR	READ/S	DC
CHANNE.	CONFIG.	TYPE	PM DEF
OUTPUT.	RTC	MODE	OHM
SERVIC.	EXT.IN.	CONECT.	RTD-Pt
	KEYS	CJ.TEM.	RTD-Ni
		AD.RES.	TC
		LEADS	DU
			RTD-Cu

TYPE	Selection of „instrument" type
	- selection of particular type of "instrument" is bound to relevant dynamic items
DC	DC voltmeter
PM	Process monitor
OHM	Ohmmeter
RTD-Pt	Thermometer for Pt xxx
RTD-Ni	Thermometer for Ni xxxx
TC	Thermometer for thermocouples
DU	Display for linear potentiometers
RTD-Cu	Thermometer for Cu xxx

6.1.2c Selection of measuring range

INPUTS → CLEAR → READ/S | **DC** | **OHM** ← ◄

INPUTS	CLEAR	READ/S	DC	OHM
CHANNE.	CONFIG.	TYPE	60mV	100 R	DEF
OUTPUT.	RTC	MODE	150mV	1 k
SERVI C.	EXT. I N.	CONECT.	300mV	10 k
	KEYS	C.J.TEM.	1200mV	100 k
		AD.RES.		AUTO
		LEADS		

DC - A | **PM**

DC - A	PM
100 V	0-5mA
250 V	0-20mA
DEF 500 V	4-20mA DEF
010 A	0-2 V
025 A	0-5 V
050 A	0-10 V
100 A	0-40 V
500 A	Er4-20

!

Switching in the mode AUTO - "OHM"

0.1 > 1 k	0.101 k
1 k > 10 k	1.010 k
10 k > 100 k	10.10 k
100 > 10 k	9.900 k
10 k > 1 k	0.990 k
1 k > 0.1 k	0.099 k

When selecting the "AUTO" range, the items "MIN", "MAX", "P. TAR. A" will not be displayed in the "CHAN. A" setting

RTD-Pt | **RTD-Cu**

RTD-Pt	RTD-Cu
DEF EU-100	428-50 DEF
EU-500	428-01
EU-1k0	426-50
US-100	426-01
RU-50	
RU-100	**T/C**

RTD-Ni	T/C
DEF 50-1k	T/C B
62-1k	T/C E
50-10k	T/C J
62-10k	T/C K DEF
DU	T/C N
DEF LI NPOT.	T/C R
	T/C S
	T/C T

MODE	Selection of instrument measuring range

	Menu	Measuring range
DC	60 mV	±60 mV
	150 mV	±150 mV
	300 mV	±300 mV
	1200mV	±1,2 V
DC - A	100 V	±100 V
	250 V	±250 V
	500 V	±500 V
	0.10 A	±0,1 A
	0.25 A	±0,25 A
	0.50 A	±0,5 A
	1.00 A	±1 A
	5.00 A	±5 A
	Menu	Measuring range
PM	0-5mA	0...5 mA
	0-20mA	0...20 mA
	4-20mA	4...20 mA
	0-2 V	±2 V
	0-5 V	±5 V
	0-10 V	±10 V
	0-40 V	±40 V
	Er.4-20	4...20 mA, with error statement of „underfl ow" upon signal smaller than 3,36 mA
	Menu	Measuring range
OHM	100 R	0...100 Ω
	1 k	0...1 kΩ
	10 k	0...10 kΩ
	100 k	0...100 kΩ
	AUTO	Autorange
	Menu	Measuring range
RTD-Pt	EU-100	Pt 100 (3 850 ppm/°C)
	EU-500	Pt 500 (3 850 ppm/°C)
	EU-1k0	Pt 1000 (3 850 ppm/°C)
	US-100	Pt 100 (3 920 ppm/°C)
	RU-50	Pt 50 (3 910 ppm/°C)
	RU-100	Pt 100 (3 910 ppm/°C)
	Menu	Measuring range
RTD-Ni	5.0-1k	Ni 1 000 (5 000 ppm/°C)
	6.2-1k	Ni 1 000 (6 180 ppm/°C)
	5.0-10k	Ni 10 000 (5 000 ppm/°C)
	6.2-10k	Ni 10 000 (6 180 ppm/°C)
	Menu	Measuring range
RTD-Cu	428-50	Cu 50 (4 280 ppm/°C)
	428-0.1	Cu 1 00 (4 280 ppm/°C)
	426-50	Cu 50 (4 260 ppm/°C)
	426-0.1	Cu 100 (4 260 ppm/°C)
	Menu	Type of thermocouple
T/C	T/C B	B
	T/C E	E
	T/C J	J
	T/C K	K
	T/C N	N
	T/C R	R
	T/C S	S
	T/C T	T
	T/C L	L

| | 6.1.2d | Selection of type of sensor connection | RTD OHM T/C |

Menu diagram 1:

INPUTS — CLEAR — READ/S — 2-WIRE — DEF
CHANNE. — CONFIG. — TYPE — 3-WIRE
OUTPUT. — RTC — MODE — 4-WIRE
SERVIC. — EXT.IN. — CONECT.
KEYS — AD.RES.
LEADS

Menu diagram 2:

INPUTS — CLEAR — READ/S — INT1TC
CHANNE. — CONFIG. — TYPE — INT2TC
OUTPUT. — RTC — MODE — EXT1TC — DEF
SERVIC. — EXT.IN. — CONECT. — EXT2TC
KEYS — CJ.TEM.

| CONECT. | **Selection of type of sensor connection** |

RTD OHM

2-WIRE	2-wire connection
3-WIRE	3-wire connection
4-WIRE	4-wire connection

T/C

| INT.1TC | Measurement without reference thermocouple |

- measuring cold junction at instrument brackets

| INT2TC | Measurement with reference thermocouple |

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

| EXT1TC | Measurement without reference thermocouple |

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

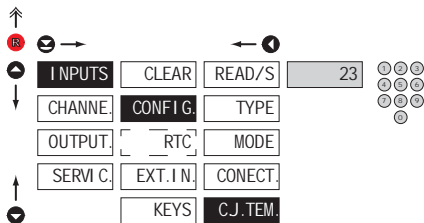| EXT2TC | Measurement with reference thermocouple |

- when using compensation box

> **!**
> *Method and procedure of setting the cold junctions is described in separate chapter on page 80*

> **!**
> *For thermocoule type "B" the items CONECT. and C.J. TEM. are not available*

6.1.2e Setting temperature of cold junction `T/C`

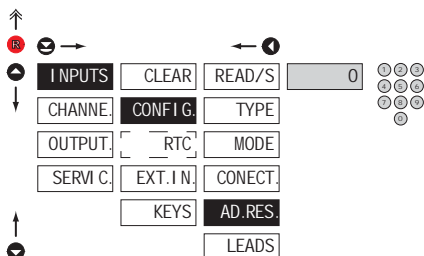| INPUTS | CLEAR | READ/S | 23 |
CHANNE.	CONFIG.	TYPE	
OUTPUT.	RTC	MODE	
SERVIC.	EXT.IN.	CONECT.	
	KEYS	CJ.TEM.	

CJ.TEM. Setting temperature of cold junction

- range 0...99°C with compensation box
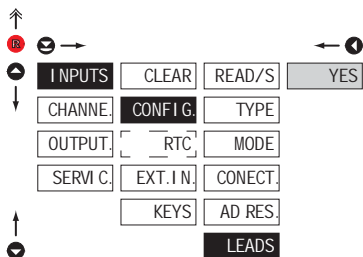- **DEF** = 23°C

6.1.2f Compensation of 2-wire conduct `RTD` `OHM`

INPUTS	CLEAR	READ/S	0
CHANNE.	CONFIG.	TYPE	
OUTPUT.	RTC	MODE	
SERVIC.	EXT.IN.	CONECT.	
	KEYS	AD.RES.	
		LEADS	

AD.RES. 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...9999)
- **DEF** = 0

6.1.2g Compensation of 2-wire conduct `RTD` `OHM`

INPUTS	CLEAR	READ/S	YES
CHANNE.	CONFIG.	TYPE	
OUTPUT.	RTC	MODE	
SERVIC.	EXT.IN.	CONECT.	
	KEYS	AD RES.	
		LEADS	

LEADS 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

6.1.3 Setting the real time clock

INPUTS	CLEAR	TIME 00.00.00
CHANNE.	CONFIG.	DATE
OUTPUT.	RTC	
SERVIC.	EXT.IN.	
	KEYS	
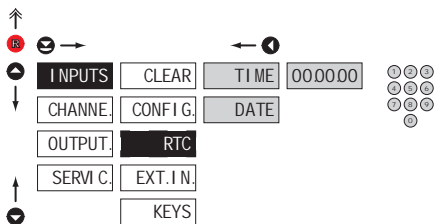
RTC	Setting the real time clock (RTC)
TIME	Time setting

- format 23.59.59

DATE	Date setting

- format DD.MM.YY

6.1.4a External input function selection

INPUTS	CLEAR	EXT.1	OFF
CHANNE.	CONFIG.	EXT. 2	HOLD
OUTPUT.	RTC	EXT. 3	LOCK K.
SERVIC.	EXT.IN.	M.HOLD	TARE
	KEYS		CL. MM
			CL.TAR.
			B.PASS.
			CHAN.A
			FIL.A
			MAT.FN.
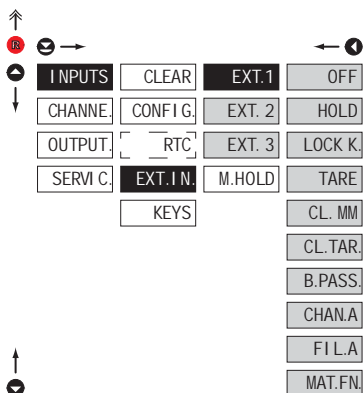
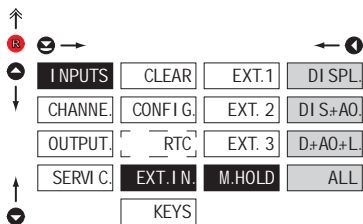|	
EXT.IN.	External input function selection
OFF	Input is off
HOLD	Activation of HOLD
LOCK K.	Locking keys on the instrument
TARE	Tare activation
CL.MM	Resetting min/max value
CL.TAR.	Tare resetting
B.PASS.	Activation of locking access into programming menu LIGHT/PROFI
CHAN.A	Displaying value of "Channel A"
FIL.A	Displaying value of "Channel A" after being processed by digital filters
MAT.FN.	Displaying value of "Mathematical function"

- **DEF** EXT. 1 > HOLD
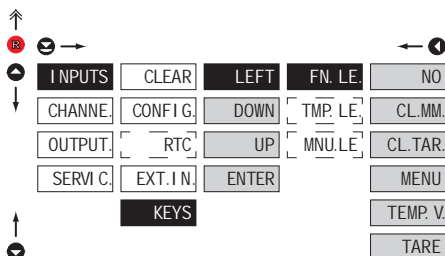- **DEF** EXT. 2 > LOCK K.
- **DEF** EXT. 3 > TARE

*

Setting procedure is identical for EXT. 2 and EXT. 3

6.1.4b Selection of function "HOLD"

INPUTS	CLEAR	EXT.1	DISPL.
CHANNE.	CONFIG.	EXT. 2	DIS.+AO.
OUTPUT.	RTC	EXT. 3	D.+AO.+L.
SERVIC.	EXT.IN.	M.HOLD	ALL
	KEYS		

M.HOLD — Selection of function "HOLD"

DISPL. — "HOLD" locks only the value displayed

DIS.+AO. — "HOLD" locks the value displayed and on AO

D.+AO.+L. — "HOLD" locks the value displayed, on AO and limit evaluation

ALL — "HOLD" locks the entire instrument

6.1.5a Optional accessory functions of the keys

INPUTS	CLEAR	LEFT	FN. LE.	NO
CHANNE.	CONFIG.	DOWN	TMP. LE.	CL.MM.
OUTPUT.	RTC	UP	MNU.LE.	CL.TAR.
SERVIC.	EXT.IN.	ENTER		MENU
	KEYS			TEMP. V.
				TARE

FN. LE. — Assigning further functions to instrument keys

- „FN. LE." > executive functions
- „TMP. LE." > temporary projection of selected values
- „MNU. LE." > direct access into menu on selected item

NO — Key has no further function

CL.MM. — Resetting min/max value

CL.TAR. — Tare resetting

MENU — Direct access into menu on selected item

- after confirmation of this selection the "MNU. LE." item is displayed on superior menu level, where required selection is performed

TEMP. V. — Temporary projection of selected values

- after confirmation of this selection the item "TMP. LE." is displayed on superior menu level, whererequired selection is performed

TARE — Tare function activation

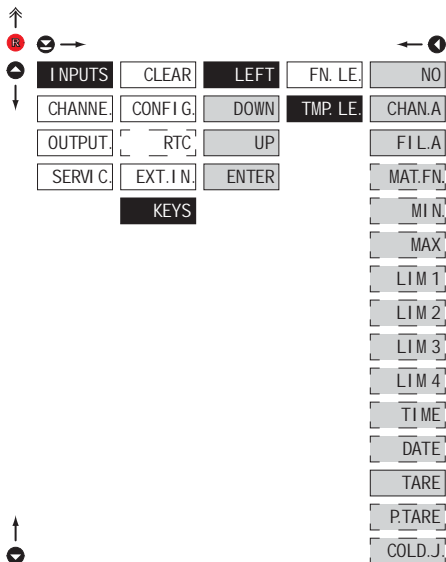
!

Preset values of the control keys **DEF** *:*
LEFT   Show Tare
UP   Show Max. value
DOWN   Show Min. value
ENTER   w/o functione

!

Setting is identical for LEFT, DOWN, UP and ENTER

6.1.5b	Optional accessory functions of the keys - Temporary projection

INPUTS	CLEAR	LEFT	FN. LE.	NO
CHANNE.	CONFIG.	DOWN	TMP. LE.	CHAN.A
OUTPUT.	RTC	UP		FIL.A
SERVIC.	EXT.IN.	ENTER		MAT.FN.
	KEYS			MIN.
				MAX
				LIM 1
				LIM 2
				LIM 3
				LIM 4
				TIME
				DATE
				TARE
				P.TARE
				COLD.J.

TMP. LE. **Temporary projection of selected item**

- "Temporary" projection of selected value is displayed for the time of keystroke
- "Temporary" projection may be switched to permanent by pressing Ⓡ + "Selected key", this holds until the stroke of any key

NO Temporary projection is off

CHAN.A Temporary projection of "Channel A" value

FIL.A Temporary projection of "Channel A" value after processing digital filters

MAT.FN. Temporary projection of "Mathematic functions" value

MIN Temporary projection of "Min. value"

MAX Temporary projection of "Max. value"

LIM 1 Temporary projection of "Limit 1" value

LIM 2 Temporary projection of "Limit 2" value

LIM.3 Temporary projection of "Limit 3" value

LIM.4 Temporary projection of "Limit 4" value

TIME Temporary projection of "TIME" value

DATE Temporary projection of "DATE" value

TARE Temporary projection of "TARE" value

P.TARE Temporary projection of "P. TARE" value

COLD.J. Temporary projection of "CJC" value

!

Setting is identical for LEFT, DOWN, UP and ENTER

| 6.1.5c | Optional accessory functions of the keys - Direct access to item |

INPUTS	CLEAR	LEFT	FN. LE.	LIM 1
CHANNE.	CONFIG.	DOWN	MNU.LE.	LIM 2
OUTPUT.	RTC	UP		LIM 3
SERVIC.	EXT.IN.	ENTER		LIM 4
	KEYS			HYS.1
				HYS.2
				HYS.3
				HYS.4
				ON 1
				ON 2
				ON 3
				ON 4
				OFF 1
				OFF 2
				OFF 3
				OFF 4
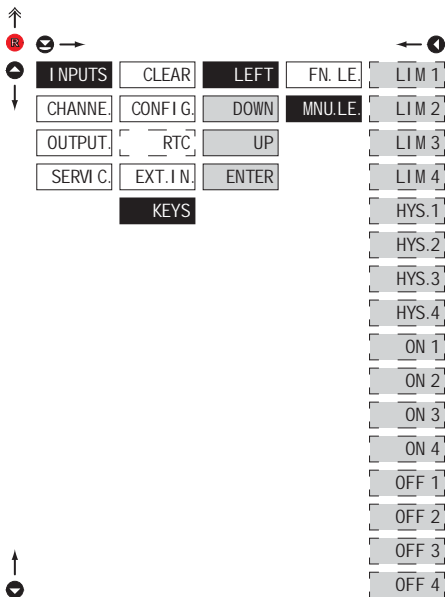
MNU.LE. Assigning access to selected menu item

LIM 1	Direct access to item "LIM 1"
LIM 2	Direct access to item "LIM 2"
LIM 3	Direct access to item "LIM 3"
LIM 4	Direct access to item "LIM 4"
HYS.1	Direct access to item "HYS. 1"
HYS.2	Direct access to item "HYS. 2"
HYS.3	Direct access to item "HYS. 3"
HYS.4	Direct access to item "HYS. 4"
ON 1	Direct access to item "ON 1"
ON 2	Direct access to item "ON 2"
ON 3	Direct access to item "ON 3"
ON 4	Direct access to item "ON 4"
OFF 1	Direct access to item "OFF 1"
OFF 2	Direct access to item "OFF 2"
OFF 3	Direct access to item "OFF 3"
OFF 4	Direct access to item "OFF 4"

!

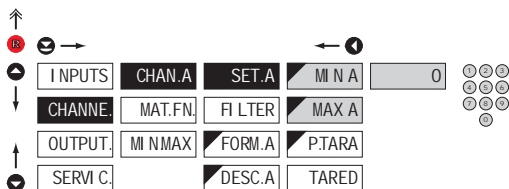*Setting is identical for LEFT, DOWN, UP and ENTER*

6.2 Setting "PROFI" - CHANNELS

INPUTS	CHAN.A
CHANNE.	MAT.FN.
OUTPUT.	MIN MAX
SERVIC.	
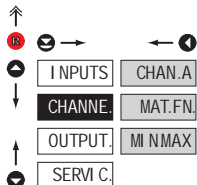
The primary instrument parameters are set in this menu

CHAN.A	Setting parameters of measuring "Channel"
MAT.FN.	Setting parameters of mathematic functions
MIN MAX	Selection of access and evaluation of Min/max value

6.2.1a Display projection `DC` `PM` `DU` `OHM`

INPUTS	CHAN.A	SET.A	MIN A	0
CHANNE.	MAT.FN.	FILTER	MAX A	
OUTPUT.	MIN MAX	FORM.A	P.TARA	
SERVIC.		DESC.A	TARED	

SET.A — Setting display projection

MIN A — Setting display projection for minimum value of input signal
- range of the setting is -99999...999999
- **DEF** = 0

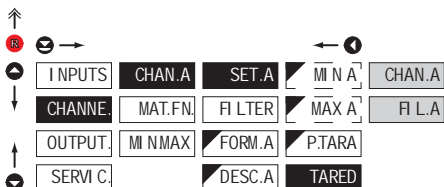**MAX A** — Setting display projection for maximum value of input signal
- range of the setting is -99999...999999
- **DEF** = 100

6.2.1b SETTING FIXED TARE

INPUTS	CHAN.A	SET.A	MIN A	0
CHANNE.	MAT.FN.	FILTER	MAX A	
OUTPUT.	MIN MAX	FORM.A	P.TARA	
SERVIC.		DESC.A	TARED	
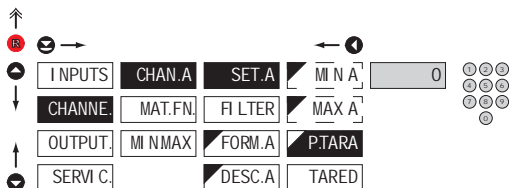
P.TAR.A — Setting "Fixed tare" value

- setting is designed for the event when it is necessary to firmly shift the beginning of the range by known size
- when setting ($P. TAR. A \neq 0$) is in effect, display does not show the "T" symbol
- range of the setting is: -99999...999999
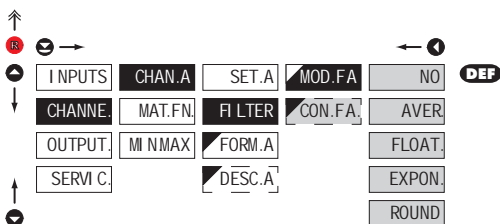
- **DEF** = 0

6.2.1b SETTING FIXED TARE

⇑
Ⓡ ☒ →   ← ◀
⬆ | INPUTS | CHAN.A | SET.A | MIN A | CHAN.A |
↓ | CHANNE. | MAT.FN. | FILTER | MAX A | FIL.A |
↑ | OUTPUT. | MINMAX | FORM.A | P.TARA |
⬇ | SERVIC. | | DESC.A | TARED |

| TARED | Selecting the position of tare |

| CHAN.A | The value will be tared before linearisation and |
digital filter

| FIL.A | The value will be tared after linearisation and |
digital filter

6.2.1c Digital filters

⇑
Ⓡ ☒ →   ← ◀
⬆ | INPUTS | CHAN.A | SET.A | MOD.FA | NO | DEF
↓ | CHANNE. | MAT.FN. | FILTER | CON.F.A. | AVER. |
| OUTPUT. | MINMAX | FORM.A | | FLOAT. |
| SERVIC. | | DESC.A | | EXPON. |
⬇ | | | | | ROUND |

| MOD.FA | 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:

| NO | Filters are off |

| AVER. | Measured data average |

- arithmetic average from given number („CON.F. A.") of measured values
- range 2...100

| FLOAT. | Selection of floating filter |

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

| EXPON. | Selection of exponential filter |

- integration filter of first prvního grade with time constant („CON.F. A.") measurement
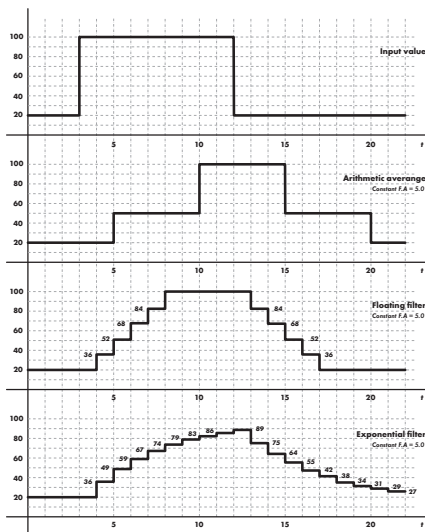- range 2...100

| ROUND | Measured value rounding |

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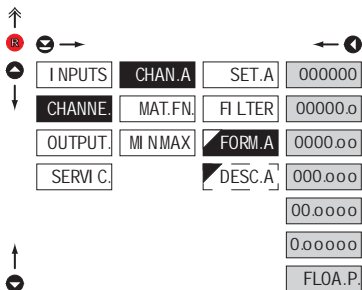
| CON.F.A. | Setting constants |

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

Input value

Arithmetic average
Constant F.A = 5.0

Floating filter
Constant F.A = 5.0

Exponential filter
Constant F.A = 5.0

6.2.1d Projection format - positioning of decimal point

INPUTS	CHAN.A	SET.A	000000
CHANNE.	MAT.FN.	FILTER	00000.o
OUTPUT.	MINMAX	FORM.A	0000.oo
SERVIC.		DESC.A	000.ooo
			00.oooo
			0.ooooo
			FLOA.P.

FORM.A 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 „FLOAT.P."

000000. Setting DP - XXXXXX.

00000.o Setting DP - XXXXX.x

- **DEF** > **RTD** **T/C**

0000.oo Setting DP - XXXX.xx

- **DEF** > **DC** **PM** **DU** **OHM**

000.ooo Setting DP - XXX.xxx

00.oooo Setting DP - XX.xxxx

0.ooooo Setting DP - X.xxxxx

FLOA.P. Floating DP

6.2.1e Projection of description - the measuring units

INPUTS	CHAN.A	SET.A	00
CHANNE.	MAT.FN.	FILTER	
OUTPUT.	MINMAX	FORM.A	
SERVIC.		DESC.A	
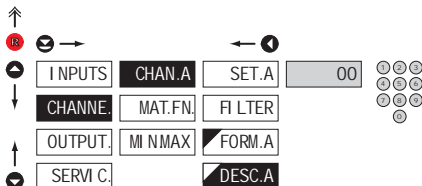
DESC.A Setting projection of descript. for "Channel A"

- projection of mesured data may be extended (at the expense of the number of displayed places) by two characters for description
- description is set by shifted ASCII code, when two first places show the set description and two last characters their code in period 0...95
- description is cancelled by code 00
- **RTD** **T/C** **DEF** = °C
- **DC** **PM** **DU** **OHM** **DEF** =none

!

Table of signs on page 83

6.2.2a Mathematic functions

INPUTS | CHAN.A | MATH.F. | OFF | **DEF**

CHANNE. | MAT.FN.

OUTPUT. | MINMAX | CON.A | POLI N.

SERVI C. | | CON.B | 1/MUL.

CON.C | LOGAR.

CON.D | EXPON.

CON.E | POWER

CON.F | ROOT

FORM.M. | SI N X

DESC.M.

MATH.F. Selection of mathematic functions

OFF Mathematic functions are off

POLI N Polynome

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

1/MUL. $1/x$

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

LOGAR. Logarithm

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

EXPON. Exponential

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

POWER Power

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

ROOT Root

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

SI N X Sin x

$$A\sin^5 x + B\sin^4 x + C\sin^3 x + D\sin^2 x + E\sin x + F$$

CON. - Setting constants for calculation of mat. functions

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

6.2.2b Mathematic functions - decimal point

INPUTS	CHAN.A	MATH.F.	000000
CHANNE.	MAT.FN.	CON.A	00000.o
OUTPUT.	MINMAX	CON.B	0000.oo
SERVIC.		CON.C	000.ooo
		CON.D	00.oooo
		CON.E	0.ooooo
		CON.F	FLOA.P. DEF
		FORM.M.	
		DESC.M.	

FORM.M. 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 „*FLOA.P.*"

000000.	Setting DP - XXXXXX.
00000.o	Setting DP - XXXXX.x
0000.oo	Setting DP - XXXX.xx
000.ooo	Setting DP - XXX.xxx
00.oooo	Setting DP - XX.xxxx
0.ooooo	Setting DP - X.xxxxx
FLOA.P.	Floating DP

- **DEF**

6.2.2c Mathematic functions - measuring units

INPUTS	CHAN.A	MATH.F.	00
CHANNE.	MAT.FN.	CON.A	
OUTPUT.	MINMAX	CON.B	
SERVIC.		CON.C	
		CON.D	
		CON.E	
		CON.F	
		FORM.M.	
		DESC.M.	

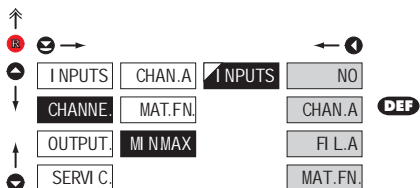**DESC.M.** Setting projection of description for "MAT.FN"

- projection of mesured data may be extended (at the expense of the number of displayed places) by two characters for description
- description is set by shifted ASCII code, when two first places show the set description and two last characters their code in period 0...95
- description is cancelled by code 00

- **DEF** = no description

!

Table of signs on page 83

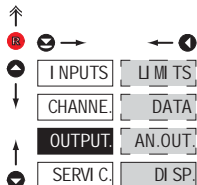| 6.2.3 | Selection of evaluation of min/max value |

| INPUTS | **Selection of evaluation of min/max value** |

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

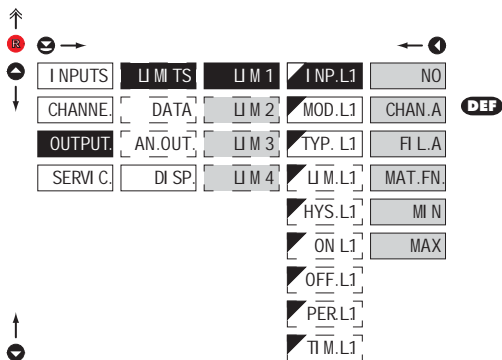| NO | Evaluation of min/max value is off |
CHAN.A	From "Channel A"
FIL.A	From "Channel A" after digital filters processing
MAT.FN.	From "Mathematic functions"

6.3 Setting „PROFI" - OUTPUTS

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

I NPUTS	LI MI TS
CHANNE.	DATA
OUTPUT.	AN.OUT.
SERVI C.	DI SP.

LI MI TS — Setting type and parameters of limits

DATA — Setting type and parameters of data output

AN.OUT. — Setting type and parameters of analog output
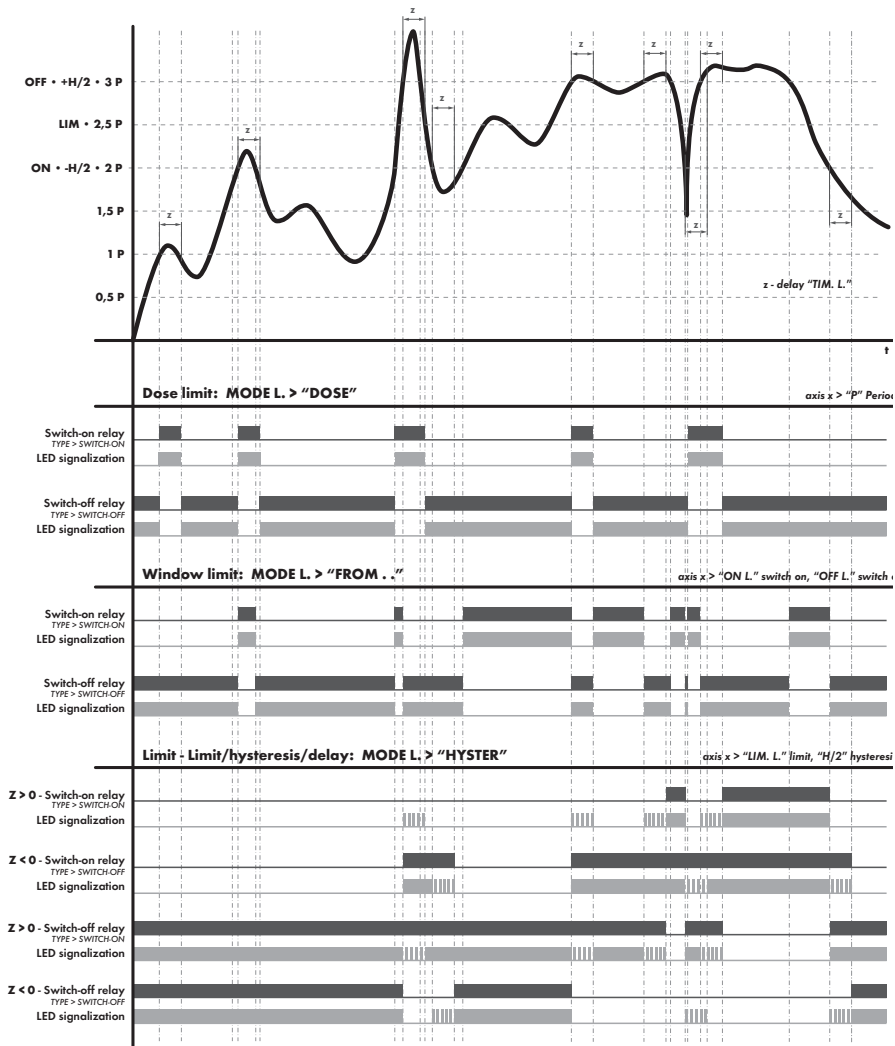
DI SP. — Setting display projection and brightness

6.3.1a SELECTION OF INPUT FOR LIMITS EVALUATION

I NPUTS	LI MI TS	LI M 1	I NP.L1	NO
CHANNE.	DATA	LI M 2	MOD.L1	CHAN.A
OUTPUT.	AN.OUT.	LI M 3	TYP. L1	FI L.A
SERVI C.	DI SP.	LI M 4	LI M.L1	MAT.FN.
			HYS.L1	MI N
			ON L1	MAX
			OFF.L1	
			PER.L1	
			TI M.L1	

DEF

I NP.L1 — **Selection evaluation of limits**

- selection of value from which the limit will be evaluated

NO — Limit evaluation is off

CHAN.A — Limit evaluation from "Channel A"

FI L.A — Limit evaluation from "Channel A" after digital filters processing

MAT.FN. — Limit evaluation from "Mathematic functions"

MI N — Limit evaluation from "Min.value"

MAX — Limit evaluation from "Max.value"

!

Setting is identical for LIM 2, LIM 3 and LIM 4

OFF • +H/2 • 3 P

LIM • 2,5 P

ON • -H/2 • 2 P

1,5 P

1 P

0,5 P

z - delay "TIM. L."

Dose limit: MODE L. > "DOSE"

axis x > "P" Perio

Switch-on relay
TYPE > SWITCH-ON
LED signalization

Switch-off relay
TYPE > SWITCH-OFF
LED signalization

Window limit: MODE L. > "FROM . ."

axis x > "ON L." switch on, "OFF L." switch

Switch-on relay
TYPE > SWITCH-ON
LED signalization

Switch-off relay
TYPE > SWITCH-OFF
LED signalization

Limit - Limit/hysteresis/delay: MODE L. > "HYSTER"

axis x > "LIM. L." limit, "H/2" hysteresis

Z > 0 - Switch-on relay
TYPE > SWITCH-ON
LED signalization

Z < 0 - Switch-on relay
TYPE > SWITCH-OFF
LED signalization

Z > 0 - Switch-off relay
TYPE > SWITCH-ON
LED signalization

Z < 0 - Switch-off relay
TYPE > SWITCH-OFF
LED signalization

Description of relay function > HYSTER • FROM-TO • DOSING

6.3.1b Selection of type of limit

```
R ⊖ →                                    ← ◁
▲  INPUTS    LIMITS    LIM 1    INP.L1   HYSTER  DEF
   CHANNE.   DATA      LIM 2    MOD.L1   FROM..
   OUTPUT.   AN.OUT.   LIM 3    TYP.L1   DOSING
   SERVIC.   DISP.     LIM 4    LIM.L1
                                HYS.L1
                                ON L1
                                OFF.L1
                                PER.L1
▼                               TIM.L1
```

MOD.L1 Selection the type of limit

HYSTER Limit is in mode "Limit, hysteresis, delay"

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

FROM.. Frame limit

- for this mode the parameters are set for interval *"ON. L."* the relay switch-on and *"OFF. L."* the relay switch-off

DOSING Dose limit (periodic)

- for this mode the parameters are set for *"PER. L."* determining the limit value as well as its multiples at which the output is active and *"TIM. L."* indicating the time during which is the output active

!

Setting is identical for LIM 2, LIM 3 and LIM 4

6.3.1c Selection of type of output

```
R ⊖ →                                    ← ◁
▲  INPUTS    LIMITS    LIM 1    INP.L1   CLOSE.  DEF
   CHANNE.   DATA      LIM 2    MOD.L1   OPEN
   OUTPUT.   AN.OUT.   LIM 3    TYP.L1
   SERVIC.   DISP.     LIM 4    LIM.L1
                                HYS.L1
                                ON L1
                                OFF.L1
                                PER.L1
▼                               TIM.L1
```

TYP.L1 Selection of type of output

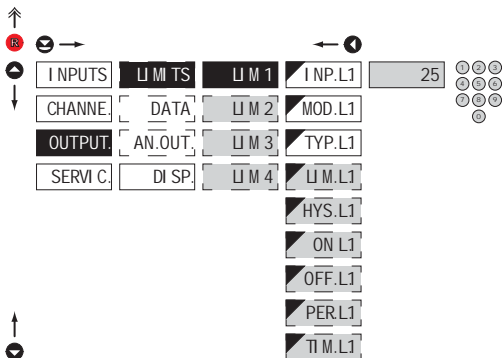**CLOSE.** Output switches on when condition is met

OPEN Output switches off when condition is met

!

Setting is identical for LIM 2, LIM 3 and LIM 4

6.3.1d **Setting values for limits evaluation**

| LI M.L1 | Setting limit for switch-on |

- for type *"HYSTER"*

| HYS.L1 | Setting hysteresis |

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

| ON.L1 | Setting the outset of the interval of limit switch-on |

- for type *"FROM"*

| OFF.L1 | Setting the end of the interval of limit switch-on |

- for type *"FROM"*

| PER.L1 | Setting the period of limit switch-on |

- for type *"DOSE"*

| TI M.L1 | Setting the time switch-on of the limit |

- for type *"HYSTER"* and *"DOSE"*
- setting within the range: ±0...99,9 s
- positive time > relay switches on after crossing the limit (LIM. L1) and the set time (TIM. L1)
- negative time > relay switches off after crossing the limit (LIM. L1) and the set negative time (TIM. L1)

!

Setting is identical for LIM 2, LIM 3 and LIM 4

6.3.2a	Selection of data output baud rate

BAUD	Selection of data output baud rate
600	Rate - 600 Baud
1200	Rate - 1 200 Baud
2400	Rate - 2 400 Baud
4800	Rate - 4 800 Baud
9600	Rate - 9 600 Baud
19200	Rate - 19 200 Baud
38400	Rate - 38 400 Baud
57600	Rate - 57 600 Baud
115200	Rate - 115 200 Baud
230400	Rate - 230 400 Baud

INPUTS · LIMITS · BAUD · 600
CHANNE. · DATA · ADDR. · 1200
OUTPUT. · AN.OUT. · AD.-MOD. · 2400
SERVIC. · DISP. · PROT. · 4800
9600 DEF
19200
38400
57600
115200
230400

6.3.2b	**SETTING INSTRUMENT ADDRESS**

INPUTS · LIMITS · BAUD · 0
CHANNE. · DATA · ADDR.
OUTPUT. · AN.OUT. · AD.MOD.
SERVIC. · DISP. · ADr.PB.
PROT.

ADDR.	Setting instrument address

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

ADDR.	Setting instrument address - MODBUS

- setting in range 1...247
- **DEF** = 1

ADR.PB.	Setting instrument address - PROFIBUS

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

6.3.2c Selection of data output protocol

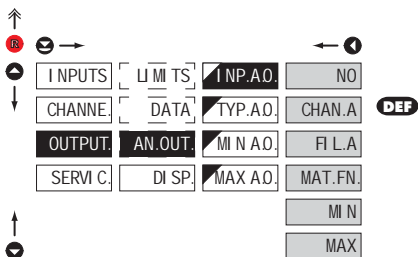| INPUTS | LIMITS | BAUD | ASCII | DEF |
CHANNE.	DATA	ADDR.	MBUS
OUTPUT.	AN.OUT.	AD.–MOD.	MODBUS
SERVIC.	DISP.	PROT.
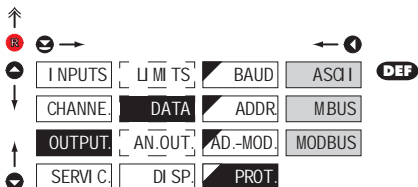
PROT. Selection of the type of analog output

ASCII Data protocol ASCII

M.BUS Data protocol DIN MessBus

MODBUS Data protocol MODBUS-RTU

- option is available only for RS 485

6.3.3a Selection of input for analog output

INPUTS	LIMITS	INP.AO.	NO	DEF
CHANNE.	DATA	TYP.AO.	CHAN.A
OUTPUT.	AN.OUT	MIN AO.	FIL.A
SERVIC.	DISP.	MAX AO.	MAT.FN.
			MIN
			MAX

INP.AO. Selection evaluation analog output

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

NO AO evaluation is off

CHAN.A AO evaluation from "Channel A"

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

MAT.FN. AO evaluation from "Math.functions"

MIN AO evaluation from "Min.value"

MAX AO evaluation from "Max.value"

6.3.3b Selection of the type of analog output
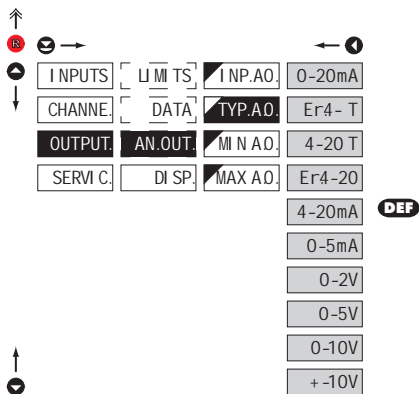
TYP. AO.	Selection of the type of analog output
0-20mA	Type - 0...20 mA
Er4- T	Type - 4...20 mA with broken loop detection and indication of error statement
4-20 T	Type - 4...20 mA with broken loop detection
Er4-20	Typ - 4...20 mA, with indic. of error statement (< 3,0 mA)
4-20mA	Type - 4...20 mA
0-5mA	Type - 0...5 mA
0-2V	Type - 0...2 V
0-5V	Type - 0...5 V
0-10V	Type - 0...10 V
+-10V	Type - ±10 V

6.3.3c Setting the analog output range
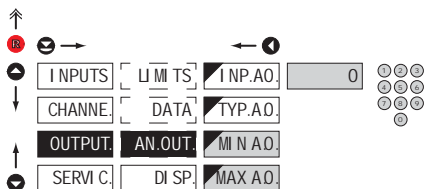
AN.OUT.	Setting the analog output range

- 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

MIN AO.	Assigning the display value to the beginning of the AO range

- range of the setting is -99999...999999
- **DEF** = 0

MAX AO.	Assigning the display value to the end of the AO range

- range of the setting is -99999...999999
- **DEF** = 100

6.3.4a Selection of input for display projection

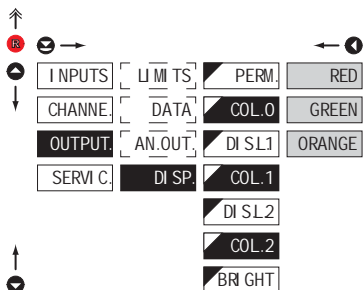|				
I NPUTS	LI MI TS	PERM.	CHAN.A	DEF
CHANNE.	DATA	COL.0	FI L.A	
OUTPUT.	AN.OUT.	DI S.L.1	MAT.FN.	
SERVI C.	DI SP.	COL.1	MI N	
		DI S.L.2	MAX	
		COL.2		
		BRI GHT		
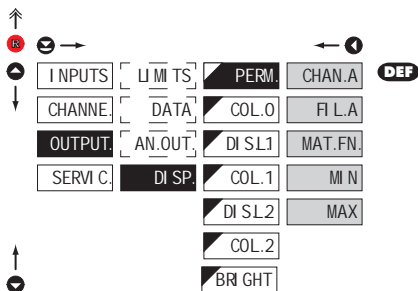
PERM. **Selection display projection**

- selection of value which will be shown on the instrument display

CHAN.A Projection of values from "Channel A"

FI L.A Projection of values from "Channel A" after digital filters processing

MAT.FN. Projection of values from "Math.functions"

MI N. Projection of values from "Min.value"

MAX Projection of values from "Max.value"

6.3.4b Selection of display color

I NPUTS	LI MI TS	PERM.	RED
CHANNE.	DATA	COL.0	GREEN
OUTPUT.	AN.OUT.	DI S.L.1	ORANGE
SERVI C.	DI SP.	COL.1	
		DI S.L.2	
		COL.2	
		BRI GHT	

COL.- **Selection of display color**

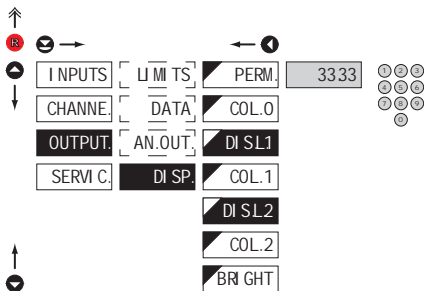- the color selection is governed by setting under items "DIS.L.1." and "DIS.L.2."

RED Red color

GREEN Green color

ORANGE Orange color

- "COL. 0." **DEF** = Green
- "COL. 1." **DEF** = Orange
- "COL. 2." **DEF** = Red

!

If the instrument is in the Hi Brightness LEDs execution, this menu item is not accessible

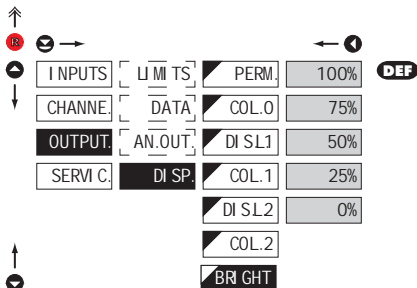## 6.3.4c Selection of display color change

DISL.- Selection of display color change

- under items "DIS.L. 1" and "DIS.L.2" the limit is set for the time when the display color shall change

- "DIS.L. 1." **DEF** = 9999
- "DIS.L. 2." **DEF** = 9999

!

If the instrument is in the Hi Brightness LEDs execution, this menu item is not accessible

6.3.4d Selection of display brightness

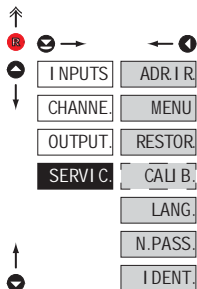**BRIGHT** Selection of display brightness

- by selecting display brightness we may appropriately react to light conditions in place of instrument location

| 0% | Display is off |

- after keystroke display turns on for 10 s

| 25% | Display brightness - 25 % |
50%	Display brightness - 50 %
75%	Display brightness - 75 %
100%	Display brightness - 100 %

6.4　Setting "PROFI" - SERVICE

The instrument service functions are set in this menu

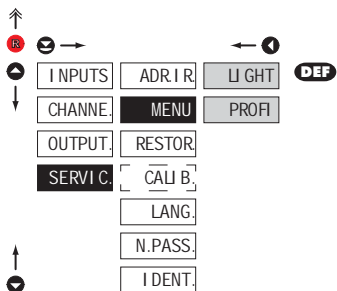|	
ADR.I.R.	Nastavení adresy IR ovládání
MENU	Selection of menu type LIGHT/PROFI
RESTOR.	Restore instrument manufacture setting and calibration
CALI.B	Input range calibration for „DU" version
LANG.	Language version of instrument menu
N.PASS.	Setting new access password
IDENT.	Instrument identification

INPUTS　ADR.I.R.
CHANNE.　MENU
OUTPUT.　RESTOR.
SERVIC.　CALI.B.
　　　　LANG.
　　　　N.PASS.
　　　　IDENT.

6.4.1　Setting the address of IR remote control
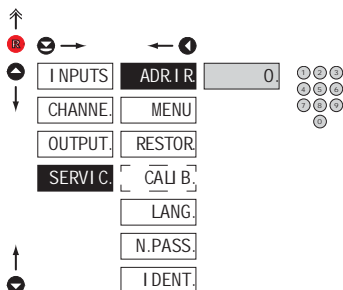
ADR.I.R.	Setting the address of IR remote control

- setting the remote control address is inevitable only in case there are other large displays OMD 202 within the reach of IR remote control
- range of the setting is 0...99

- **DEF** = 0

INPUTS　ADR.I.R.　　0.
CHANNE.　MENU
OUTPUT.　RESTOR.
SERVIC.　CALI.B.
　　　　LANG.
　　　　N.PASS.
　　　　IDENT.

6.4.2 **Selection of type of programming menu**

INPUTS	ADR.I.R.	LIGHT	DEF
CHANNE.	MENU	PROFI	
OUTPUT.	RESTOR.		
SERVIC.	CALIB.		
	LANG.		
	N.PASS.		
	IDENT.		

MENU — **Selection of menu type - LIGHT/PROFI**

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

LIGHT — Active LIGHT menu

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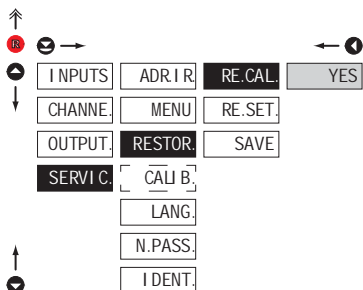- linear menu > items one after another

PROFI — Active PROFI menu

- complete programming menu for expert users
- tree menu

!

Change of setting is valid upon next access into menu

6.4.3 **Restoration of manufacture setting**

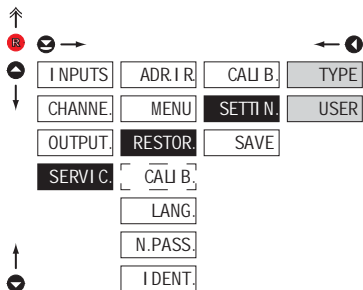|			
INPUTS	ADR.I.R.	RE.CAL.	YES
CHANNE.	MENU	RE.SET.	
OUTPUT.	RESTOR.	SAVE	
SERVIC.	CALIB.		
	LANG.		
	N.PASS.		
	IDENT.		

RESTOR. — **Restoration of manufacture setting**

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

RE.CAL.. — Restoration of manufacture calibration of the instrument

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

INPUTS	ADR.IR.	CALIB.	TYPE
CHANNE.	MENU	SETTIN.	USER
OUTPUT.	RESTOR.	SAVE	
SERVIC.	CALIB.		
	LANG.		
	N.PASS.		
	IDENT.		

| **RE.SET.** | **Restoration of instrument manufacture setting** |

| **TYPE** | Restoration of instrument manufacture setting |

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

| **USER** | Restoration of instrument user setting |

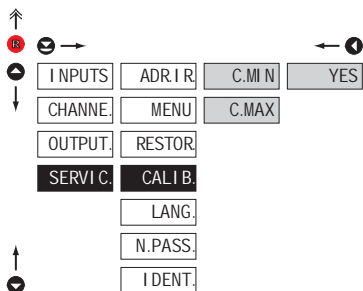- generating the instrument user setting, i.e. setting stored under SERVIC./RESTOR./SAVE

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	✓	✓
clears conduct resistances	✓	✓
restore manufacture calibration	✓	✗
restore manufacture setting	✗	✓

| **SAVE** | Save instrument user setting |

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

!

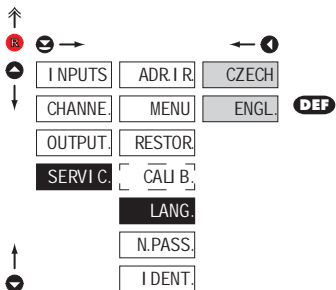*After restoration the instrument switches off for couple seconds*

6.4.4 Calibration - Input range   **DU**

INPUTS	ADR.IR.	C.MIN	YES
CHANNE.	MENU	C.MAX	
OUTPUT.	RESTOR.		
SERVIC.	CALIB.		
	LANG.		
	N.PASS.		
	IDENT.		

| **CALIB.** | **Input range calibration** |

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

- when "C. MAX" is displayed, move the potentiometer traveller to required maximum position and confirm by „Enter", calibration is confirmed by „YES"
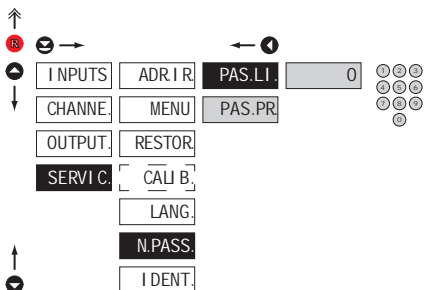
6.4.5 Selection of instrument menu language version

INPUTS	ADR.I R.	CZECH
CHANNE.	MENU	ENGL. DEF
OUTPUT.	RESTOR.	
SERVIC.	CALI B.	
	LANG.	
	N.PASS.	
	I DENT.	

LANG.	Selection of instrument menu language version
CZECH	Instrument menu is in Czech
ENGL.	Instrument menu is in English

6.4.6 Setting new access password

| INPUTS | ADR.I R. | PAS.LI | 0 |
CHANNE.	MENU	PAS.PR	
OUTPUT.	RESTOR.		
SERVIC.	CALI B.		
	LANG.		
	N.PASS.		
	I DENT.		

| N.PASS. | 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...9999
- universal passwords in the event of loss:
LIGHT Menu > „8177"
PROFI Menu > „7915"

6.4.7 Instrument identification

INPUTS	ADR.I R
CHANNE.	MENU
OUTPUT.	RESTOR
SERVIC.	CALI B.
	LANG.
	N.PASS.
	I DENT.
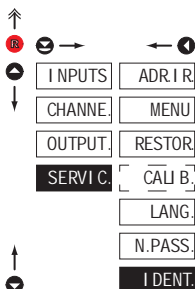
| I DENT. | Projection of instrument SW version |

- 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

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   L 1
- setting may be performed in **LIGHT** or **PROFI** menu, with the **USER** menu then overtaking the given menu structure

USER

Setting

profi light

user

- **For user operation**
- **Menu items are set by the user (Profi/Light) as per request**
- **Access is not password protected**

Setting

flashing legend - current setting is displayed

NO   YES   SHOW   R   return to item   - - -

- - -   ①

NO	item will not be displayed in USER menu
YES	item will be displayed in USER menu with editing option
SHOW	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

setting projection sequence

- - - ② 0

Example:

Into USER menu were selected these items

(keys ①) > *CL. TAR., LIM 1, LIM 2, LIM 3*, for which we have preset this sequence (keys ②):

CL. TAR.   5
LIM 1   0 (sequence not determined)
LIM 2   2
LIM 3   1

Upon entering USER menu

(key 🔴) items will be projected in the following sequence: LIM 3 > LIM 2 > CL.TAR. > LIM 1

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

Measuring thermocouple

Reference thermocouple

OM xxx T/C

J_1

J_2
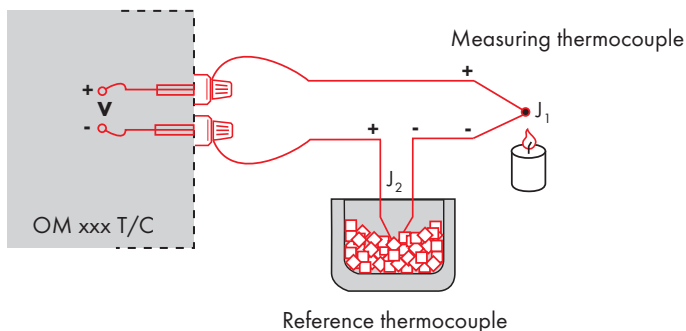
WITH REFERENCE THERMOCOUPLE

– 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 CONECT.in the instrument menu to I NT2TC or EXT2TC

– when using a thermostat (a compensation box or environment with constant temperature) set in the instrument menu CJC.TEM. its temperature (applies for setting CONECT. to EXT2TC)

– if the reference thermocouple is located in the same environment as the measuring instrument then set in the instrument menu CONECT. to I NT2TC.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 CONECT.in the instrument menu to I NT1TC or EXT1TC

– when measuring temperature without reference thermocouple the error in measured data may be as much as 10°C (applies for setting CONECT.to EXT1TC)

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 na www.orbit.merret.cz/rs or in the OM Link program.

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	<SADR>	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	<SADR>	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)	<ETX>	<BCC>		
	485	ASCII	#	A	A	N	P	(D)	(D)	(D)	(D)	(D)	(D)	(D)	<CR>
		MessBus	<SADR>	$	N	P	(D)	(D)	(D)	(D)	(D)	<ETX>	<BCC>		
Command confirmation (instrument)	232	ASCII OK	!	A	A	<CR>									
		ASCII Bad	?	A	A	<CR>									
		Messbus	No - data is transmitted permanently												
	485	ASCII OK	!	A	A	<CR>									
		ASCII Bad	?	A	A	<CR>									
		MessBus OK	<DLE>	1											
		MessBus Bad	<NAK>												
Command confirmation (inst.) - OK	485	MessBus	!	A	A	<CR>									
Command confirmati (instrument) - Bad			?	A	A	<CR>									
Instrument identification			#	A	A	1Y	<CR>								
HW identification			#	A	A	1Z	<CR>								
One-time transmission			#	A	A	7X	<CR>								
Repeated transmission			#	A	A	8X	<CR>								

LEGEND

#	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", "-", "."; (D) - 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>	addresa +60$_H$		Prompt to send from address
<EADR>	addresa +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 relay 3/4
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
p	0	0	0	1
q	1	0	0	1
r	0	1	0	1
s	1	1	0	1
t	0	0	1	1
u	1	0	1	1
v	0	1	1	1
w	1	1	1	1

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 8"

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

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	:	;	<	=	>	?
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	{	|	}	~	

INPUT

range is adjustbale			*DC*
	±60 mV	>100 MOhm	Input U
	±150 mV	>100 MOhm	Input U
	±300 mV	>100 MOhm	Input U
	±1200 mV	>100 MOhm	Input U

range is adjustbale			*DC - option "A"*
	±0,1 A	< 300 mV	Input I
	±0,25 A	< 300 mV	Input I
	±0,5 A	< 300 mV	Input I
	±1 A	< 30 mV	Input I
	±5 A	< 150 mV	Input I
	±100 V	20 MOhm	Input U
	±250 V	20 MOhm	Input U
	±500 V	20 MOhm	Input U

range is adjustbale			*PM*
	0/4...20 mA	< 400 mV	Input I
	±2 V	1 MOhm	Input U
	±5 V	1 MOhm	Input U
	±10 V	1 MOhm	Input U
	±40 V	1 MOhm	Input U

range is adjustbale		*OHM*
	0...100 Ohm	
	0...1 kOhm	
	0...10 kOhm	
	0...100 kOhm	
	Autorange	
Connection:	2, 3 or 4 wire	

Pt xxxx	-200°...850°C	*RTD*
Pt xxxx/3910 ppm	-200°...1 100°C	
Ni xxxx	-50°..250°C	
Cu/4260 ppm	-50°...200°C	
Cu/4280 ppm	-200°...200°C	
Type Pt:	EU > 100/500/1 000 Ohm, with 3 850 ppm/°C	
	US > 100 Ohm, with 3 920 ppm/°C	
	RU > 50/100 Ohm, with 3 910 ppm/°C	
Type Ni:	Ni 1 000/ Ni 10 000 with 5 000/6 180 ppm/°C	
Type Cu:	Cu 50/Cu 100 with 4 260/4 280 ppm/°C	
Connection:	2, 3 or 4 wire	

range is adjustbale in configuration menu			*T/C*
Type:	J (Fe-CuNi)	-200°...900°C	
	K (NiCr-Ni)	-200°...1 300°C	
	T (Cu-CuNi)	-200°...400°C	
	E (NiCr-CuNi)	-200°...690°C	
	B (PtRh30-PtRh6)	300°...1 820°C	
	S (PtRh10-Pt)	-50°...1 760°C	
	R (Pt13Rh-Pt)	-50°...1 740°C	
	N (Omegalloy)	-200°...1 300°C	
	L (Fe-CuNi)	-200°...900°C	

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

PROJECTION

Display:	999999, digit height 57, 100 or 125 mm
	- 3-colour 7 segment LED display, red/green/orange
	- high brightness LEDs, red or green (1300 mcd)
Projection:	-999...9999 or -99999...999999
Decimal point:	adjustable - in menu
Brightness:	adjustbale - in menu

INSTRUMENT ACCURACY

TC:	50 ppm/°C	
Accuracy:	±0,1 % of range + 1 digit	
	±0,15 % of range + 1 digit	*RTD, T/C*
	±0,3 % of range + 1 digit	*PWR*
	Above accuracies apply for projection 9999	
Resolution:	0,01°/0,1°/1°	*RTD*
Rate:	0,1...40 measurements/s**	
Overload capacity:	10x (t < 100 ms) not for 500 V and 5 A,	
	2x (long-term)	
Linearisation:	by linear interpolation in 50 points	
	- solely via OM Link	
Digital filters:	Averaging, Floating average, Exponential filter, Rounding	
Comp. of conduct:	max. 40 Ohm/100 Ohm	*RTD*
Comp. of cold junct.:	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
Mode:	Hysteresis, From, Dosing
Limita:	-99999...999999
Hysteresis:	0...999999
Delay:	0...99,9 s
Outputs:	4x relays with with switch-on contact (Form A)
	(230 VAC/30 VDC, 3 A)*
Relay:	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300

* values apply for resistance load

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)
RS 232:	isolated, two-way communication
RS 485:	isolated, two-way communication,
	addressing (max. 31 instruments)
PROFIBUS	Data protocol SIEMENS

ANALOGO OUTPUTS

Type:	isolated, programmable with 12 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 Ohm/12 V or 1 000 Ohm/24 V

EXCITATION

Adjustbale:	5...24 VDC/max. 1,2 W, isolated

POWER SUPPLY

Options:	10...30 V AC/DC, 15 VA, isolated,
	- fuse inside (T 4000 mA)
	80...250 V AC/DC, 15 VA, isolated
	- fuse inside (T 630 mA)

MECHANIC PROPERTIES

Material:	anodized aluminum, black
Dimensions:	see chapter 13
Panel cut-out:	see chapter 13

OPERATING CONDITIONS

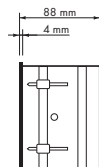|	
Connection:	through cable bushings to terminal boards inside the instrument, conductore section up to <1,5 mm² /<2,5 mm²
Stabilisation period:	within 15 minutes after switch-on
Working temp.:	0°...60°C
Storage temp.:	-10°...85°C
Cover:	IP64
Construction:	safety class I
Overvoltage cat.:	EN 61010-1, 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 relay output
	2,5 kVAC after 1 min between supply and data/analog output
Insulation resistance:	for pollution degree II, measurement category III
	instrum.power supply > 670 V (PI), 300 V (DI)
	Input/output > 300 V (PI), 150 (DI)
EMC:	EN 61000-3-2+A12; EN 61000-4-2, 3, 4, 5, 8, 11; EN 550222, A1, A2

**Table of rate of measurement in relation to number of inputs

Channels/Rate	40	20	10	5	2	1	0,5	0,2	0,1
No.of channels: 1 (Type: DC, PM, DU)	40,00	20,00	10,00	5,00	2,00	1,00	0,50	0,20	0,10
No.of channels: 2	5,00	2,50	1,25	1,00	0,62	0,38	0,22	0,09	0,05
No.of channels: 3	3,33	1,66	0,83	0,66	0,42	0,26	0,14	0,06	0,03
No.of channels: 4	2,50	1,25	0,62	0,50	0,31	0,19	0,11	0,05	0,02
No.of channels: 1 (Type: OHM, RTD, T/C)	5,00	2,50	1,25	1,00	0,62	0,38	0,22	0,09	0,05
No.of channels: 2	3,33	1,066	0,83	0,66	0,42	0,26	0,14	0,06	0,03
No.of channels: 3	2,50	1,25	0,62	0,50	0,31	0,19	0,11	0,05	0,02
No.of channels: 4	2,00	1,00	0,50	0,40	0,25	0,15	0,08	0,04	0,02

PI - Primary insulation, DI - Double insulation

Front view

X mm

Y mm

Side view

88 mm
4 mm

Panel cutout

X1 mm

Y1 mm
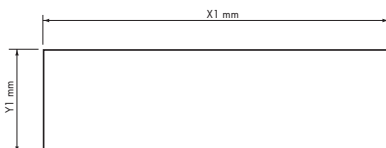
Panel thickness: 0,5 ... 50 mm

Height	X	Y	X1	Y1
57-6	375	119	367	111
100-4	465	181	457	173
100-6	651	181	643	173
125-4	539	237	531	228
125-6	754	237	746	228

Wall mounting

As a standard, large displays are designed for panel installation. Upon request we may also supply a holder for wall mounting, see picture.

148,00

82,00

52,00
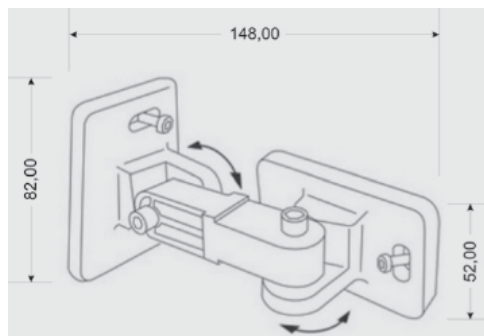
Product	**OMD 202UNI** **A B**
Type	. . . .
Manufacturing No.	. . . .
Date of sale	. . . .

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.

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   **OMD 202**

Version: UNI, PWR, UQC

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 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8,
                         EN 61000-4-11, EN 61000-3-2, EN 61000-3-3, EN 55022, chap. 5 and chap. 6

The product is furnished with CE label issued in 2001.

As documentation serve the protocoles of authorized and accredited organizations:

EMC   MO CR, Testing institute of technical devices, protocol no. 08-041/2001 of 24/11/2001
                       MO CR, Testing institute of technical devices, protocol no. 730-325/2001 of 02/05/2001
                       MO CR, Testing institute of technical devices, protocol no. 730-350/2001 of 07/05/2001
                       MO CR, Testing institute of technical devices, protocol no. 730-372/2001 of 02/05/2001
                       MO CR, Testing institute of technical devices, protocol no. 730-934/2001 of 20/11/2001

Place and date of issue: Prague, 19. Juli 2010   Miroslav Hackl
                                                      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