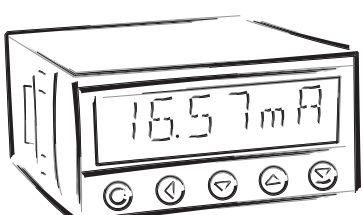
GUARANTEE
5
YEARS

OM 602AV

6 DIGIT PROGRAMMBLE
ANALOG OUTPUT



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 OM 602 series conform to the European regulation 89/336/EWG and the Ordinance 168/1997 Coll.

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.

CE

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2.1 Description

The OM 602AV type is universal programmable analog output.

The instrument is based on a microcontroller, which secures high precision, stability and easy operation of the instrument.

The instrument generates analog output signal, which is set by buttons on the front panel, contacts on external inputs (EXT. 1, 2, 3) or automatically selected function.

PROGRAMMABLE PROJECTION

Setting:	manual, optional display projection may be set for both limit values of the output signal in the menu, e.g. output 0...20 mA > 0...850,0
Projection:	-99999...999999

ANALOG OUTPUT

Type:	isolated with resolution 10 000 points
Setting:	type and range is selectable in the menu
Output:	manual, sinus, ramp, triangle, square or at random generated sinus

LINEARIZATION

Linearization:	by linear interpolation in 50 points (solely via OM Link) - enables the user to set the path of the analog output curve

DIGITAL FILTERS

Floating average:	from 2...30 measurements
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
Mat. operations:	polynome, 1/x, logarithm, exponential, power, root, sin x

EXTERNAL CONTROL

Lock:	control keys blocking
Hold:	display/instrument blocking
Resetting MM:	resetting min/max value
Function:	selectable in the instrument menu

2.2 Operation

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

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

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

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

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

OMLINK Complete instrument operation and setting may be performed via OM Link communication interface, which is a standard equipment of all instruments.
The operation program is freely accessible (www.orbit.merret.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

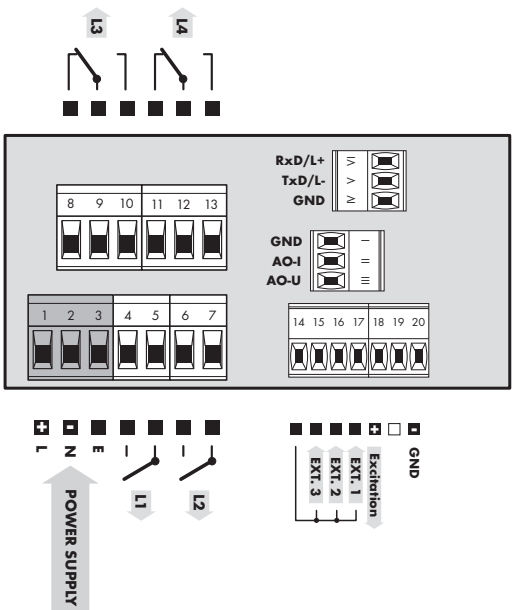
Excitation is suitable for supplying power to sensors and transmitters. It has a galvanic separation.
Comparators are assigned to monitor one, two, three or four limit values with relay output. The user may select limits regime: LIMIT/DOSING/FROM-TO. The limits have adjustable hysteresis within the full 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.

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.



!

Excitation has the minus pole common with the input - the bracket no. 20 - GND and you may set its value by trimmer above the bracket no. 17

Setting PROFI

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

Setting LIGHT

- For trained users
- Only items necessary for instrument setting
- Access is password protected
- Possibility to arrange items of the „User" menu
- Linear menu structure

Setting USER

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

4.1 Setting

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

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

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

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

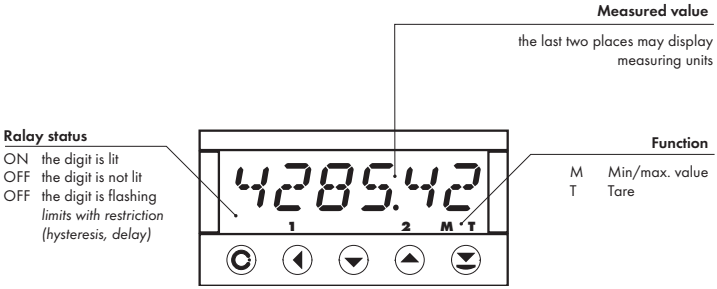
All programmable parameters are stored in the EEPROM memory (they hold even after the instrument is switched off).

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

The operation program is freely accessible (www.orbit.merret.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).

Setting and controlling the instrument is performed by means of 5 control keys located on the front panel. With the aid of these keys it is possble to browse through the operation menu and to select and set required values.



Symbols used in the instructions

DEF values preset from manufacture

symbol indicates a flashing light (symbol)

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

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
	step 1 - up		
	step 1 - down		
	step 2 - up		
	step 2 - down		
	maximum AO		
	minimum AO		
	display AO value		
	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
			numeric value is set to zero
	access into LIGHT/PROFI menu		
	direct access into PROFI menu		
		CONFIG.uration of an item for “USER” menu	
		determine the sequence of items in “USER - LIGHT” menu	

The rate of setting new values on the display is dynamic, i.e. it increases with the period the button is held for
< 1 s - repeat 300 ms • < 2 s - repeat 200 ms • < 3 s - repeat 100 ms

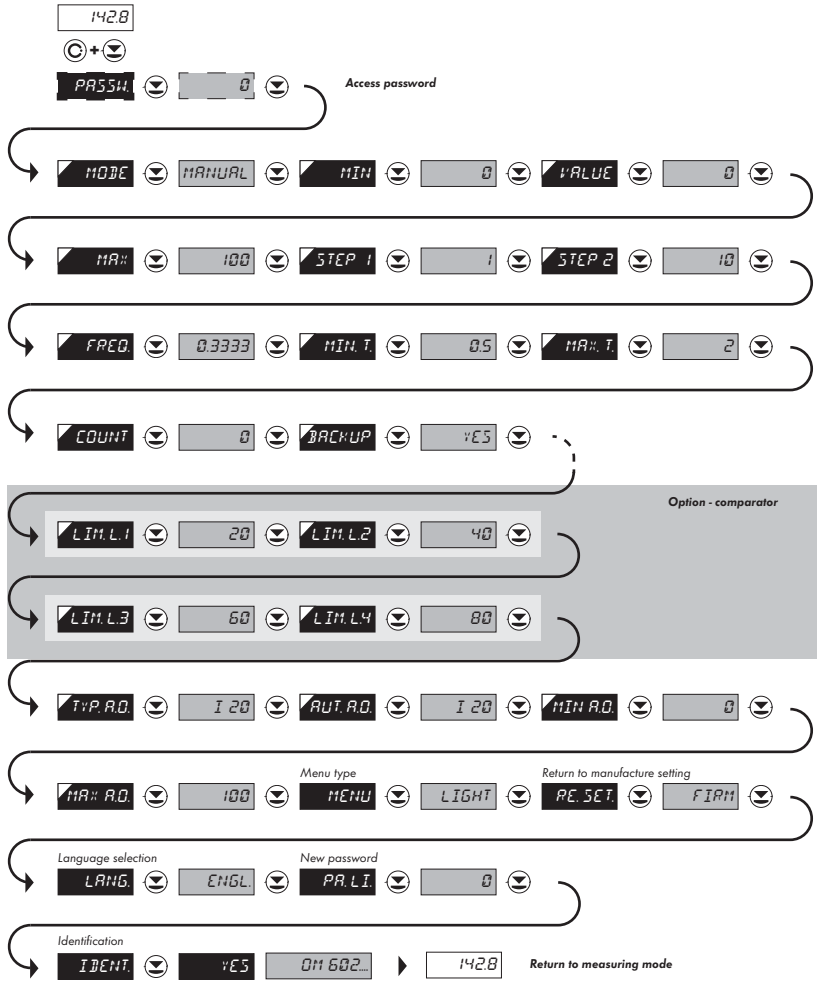
5.0 Setting "LIGHT"

LIGHT **Simple programming menu**

- contains only items necessary for instrument setting and is protected by optional number code

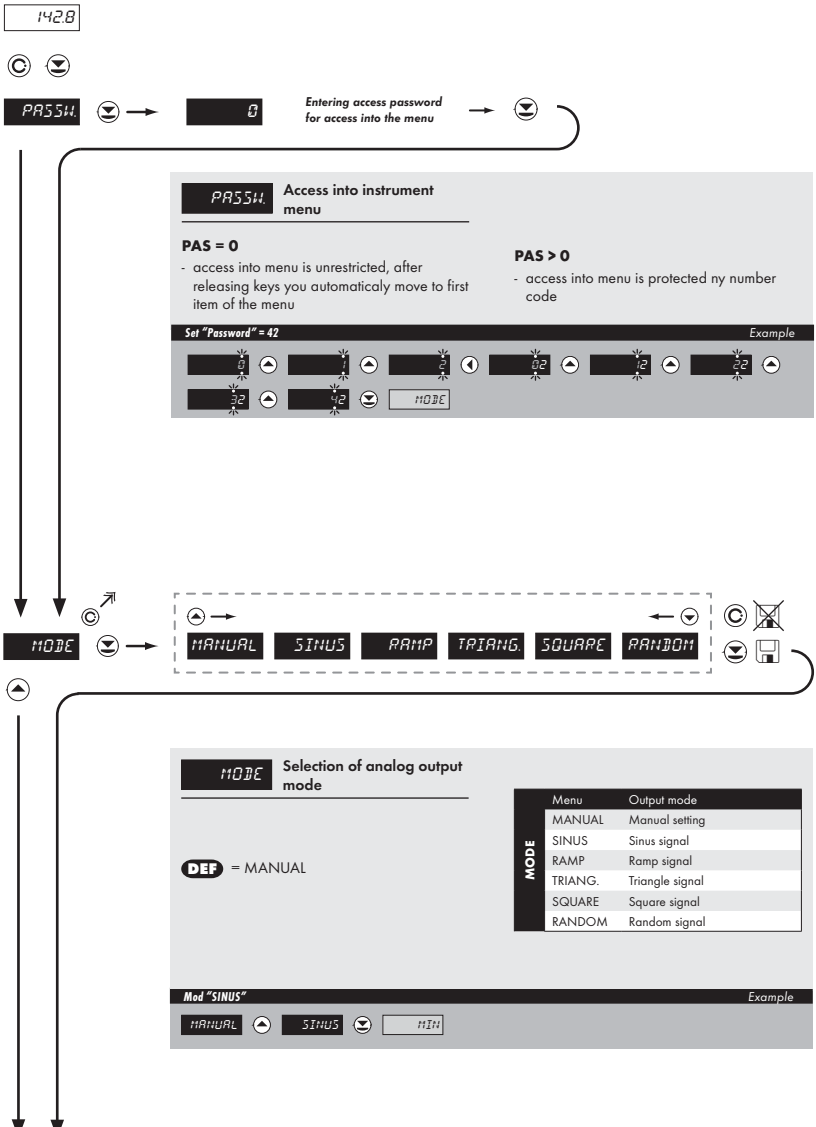
- **For capable users**
- **Only items necessary for instrument setting**
- **Access is password protected**
- **Possibility to arrange items of the „User" menu**
- **Linear menu structure**

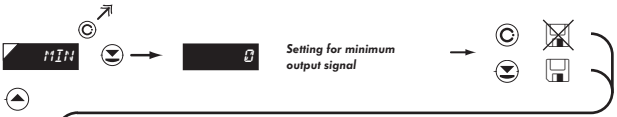
Preset from manufacture	
Password	*"0"*
Menu	*LIGHT*
USER menu	*off*
Setting the items	DEF



!

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


142.8
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 automaticaly 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
MODE
MODE
MANUAL
SINUS
RAMP
TRIANG.
SQUARE
RANDOM
MODE
Selection of analog output mode
DEF = MANUAL
MODE
Menu
Output mode
MANUAL
Manual setting
SINUS
Sinus signal
RAMP
Ramp signal
TRIANG.
Triangle signal
SQUARE
Square signal
RANDOM
Random signal
Mod "SINUS"
Example
MANUAL
SINUS
MIN



MIN **Setting display projection for minimum value of output 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

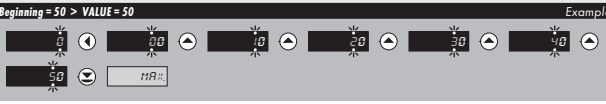
Projection for 0 mA > MIN = 0 *Example*

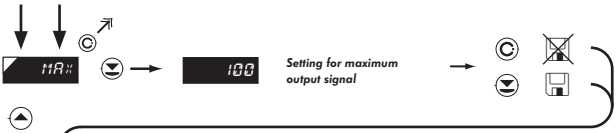
VALUE **Setting the initial analog output value**

- range of the setting is 0...999999
- only for "MODE - MANUAL"
- analog output value which is set after the instrument is connected to the mains and provided that the backup function ("BACKUP") is not active

DEF = 0

Beginning = 50 > VALUE = 50 *Example*





MAX Setting display projection for maximum value of output 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 = 3500 *Example*

STEP 1 Setting fine step operation of the display

- range of the setting is 0...999999
- operation > (-) / (+)
- DEF = 1
- for more comfortable change of setting the AO value it is possible in this item to preset the format of the fine step

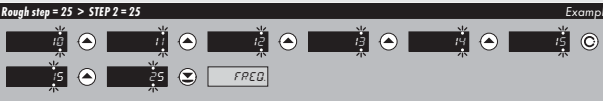
Fine step 1 > STEP 1 = 1 *Example*

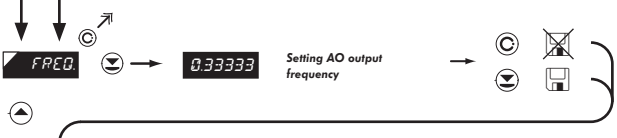
STEP 2 Setting rough step of the display

- range of the setting is 0...999999
- operation > ◀ + ▼ (-) / ◀ + ▲ (+)
- DEF = 10

- for more comfortable change of setting the AO value it is possible in this item to preset the format of the rough step

Rough step = 25 > STEP 2 = 25 *Example*





FREQ. Setting AO output frequency

- rrange of the setting is 0,001...3 Hz
- only for "MODE" - "SINUS", "RAMP". "TRIANG.", "SQUARE"

- DEF = 0,33333 Hz

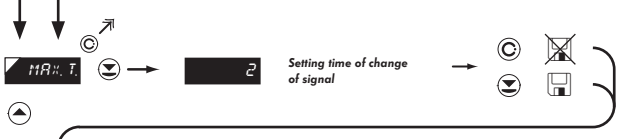
Frequecy = 1 Hz > FREQ. = 1 *Example*

MIN. T. **Setting minimum time of change of signal**

- determines minimum time of change of signal from one value to another
- only for "MODE - RANDOM"

- **DEF** = 0,5

Miniimum time = 0,8 s > MIN. T. = 0.8 *Example*

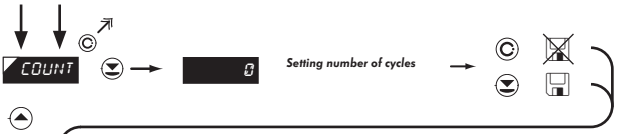


MAX. T. **Setting time of change of signal**

- determines maximum time of change of signal from one value to another
- only for "MODE - RANDOM"

- **DEF** = 2

Setting time = 2,3 > MAX. T. = 2.3 *Example*

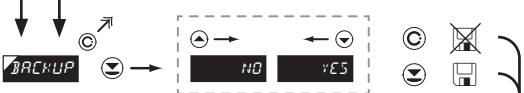


COUNT Setting defined number of periods

- if "0" value is set, the output signal is permanently generated
- if non-zero value is set , the signal will be generated after pushing a button or the switch-on by control input in a selected number of periods
- only for "MODE" - "SINUS", "RAMP". "TRIANG.", "SQUARE"
- DEF = 0

Example

Number of cycles = 11 > COUNT= 11



BACKUP Selection of display status backup

- only for "MODE - MANUAL"
- DEF = YES

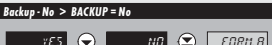
NO Instrument is set to "VALUE" after switch-on

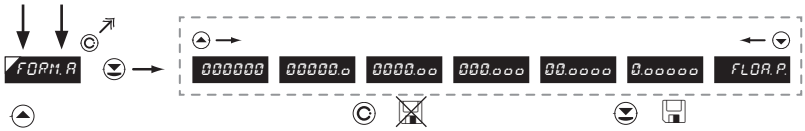
- value is set in "VALUE"

YES After switch-on the instrument restores status prior switch-off

Example

Backup - No > BACKUP = No





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

DEF = 000.000

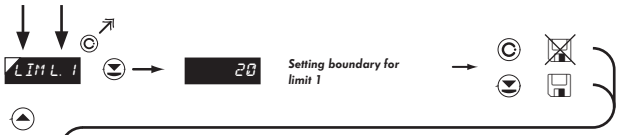
- positioning of the DP is set here in the measuring mode

Projection of DP on display > 000.000 *Example*

000.000 TYP.A.D

** subsequent item on the menu depends on instrument equipment*

22



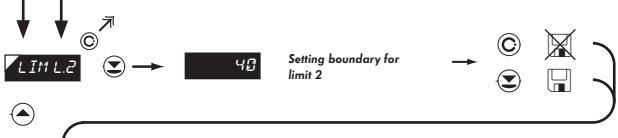
LIM L.1 **Setting boundary for limit 1**

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

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

DEF = 20

Setting limit 1 > L1 = 32 *Example*



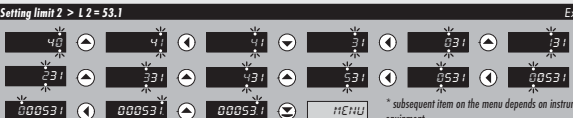
LIM L.2 **Setting boundary for limit 2**

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

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

DEF = 40

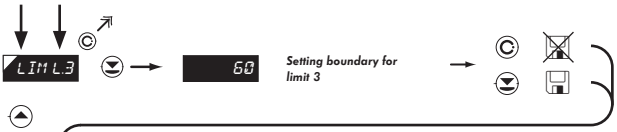
Setting limit 2 > L2 = 53.1 *Example*



* subsequent item on the menu depends on instrument equipment

!

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



LIM L3 **Setting boundary for limit 3**

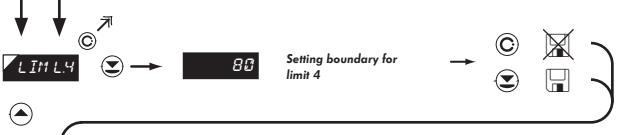
- range of the setting is -99999...999999
- default "Hysteresis"=0 "Delay"=0

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

DEF = 60

Setting limit 3 > L3 = 85 *Example*

** subsequent item on the menu depends on instrument equipment*



LIM L4 **Setting boundary for limit 4**

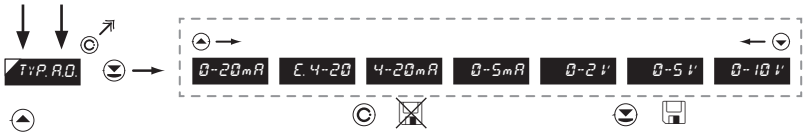
- range of the setting is -99999...999999
- default "Hysteresis"=0 "Delay"=0

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

DEF = 80

Setting limit 4 > L4 = 103 *Example*

** subsequent item on the menu depends on instrument equipment*



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

Menu	Range	Description
0-20mA	0...20 mA	
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	

DEF = 4...20 mA

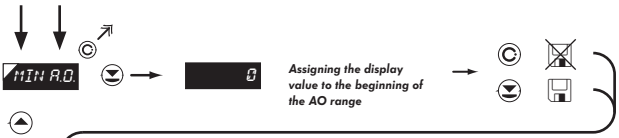
Type of analog output - 0...10 V > TYP. A.O. = 0-10 V *Example*

AUT. A.O. Automatic presetting of analog output type

Menu	Range	Description
0-20mA	0...20 mA	
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	

DEF = 4...20 mA

Typ e of analog output - 0...10 V > Typ. A.O. = U 10 *Example*

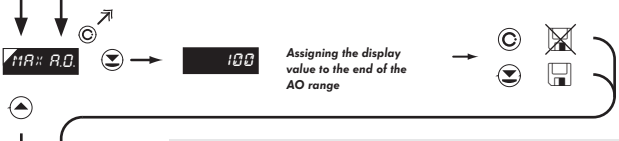


MIN A.O. **Assigning the display value to the beginning of the AO range**

DEF = 0

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

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

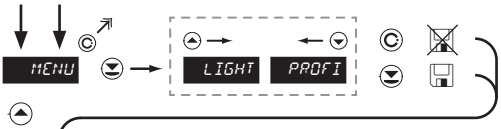


MAX A.O. **Assigning the display value to the end of the AO range**

DEF = 100

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

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



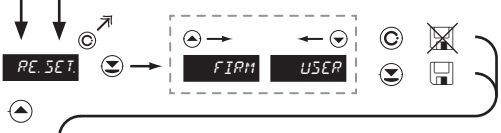
MENU **Setting the menu type LIGHT/PROFI**

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

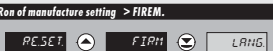
Menu LIGHT > MENU = LIGHT *Example*

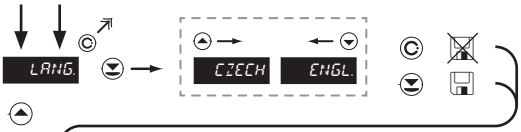


RE.SET. **Return to manufacture setting of the instrument**

- in case of error setting it is possible to return to manufacture setting.
- if you have not stored you user setting in the "PROFI" menu it is possile to restore it (seelect "USER.")
- reading elementary setting of items in menu (DEF)

Ron of manufacture setting > FIREM. *Example*





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

- selection of language version of the instrument menu

DEF = ENGL.

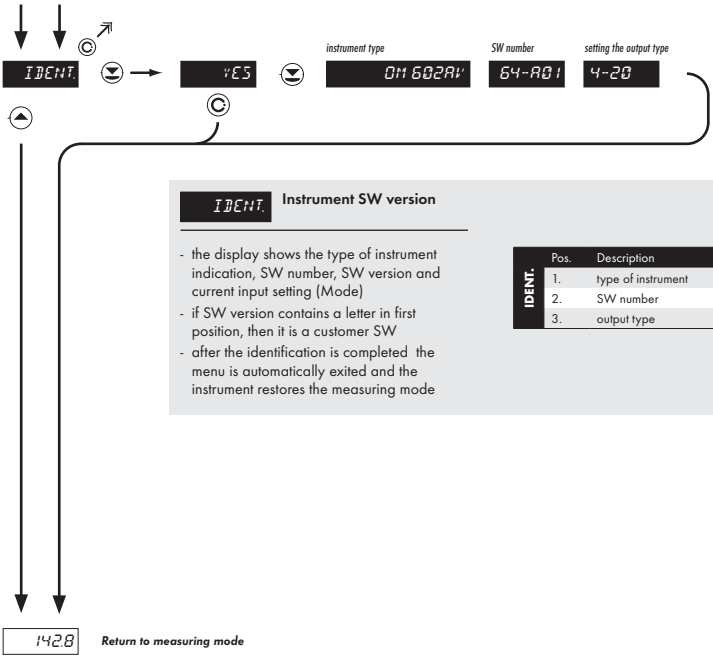
Language selection - ENGLISH > LANG. = ENGL. *Example*

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*



IDENT. **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

IDENT.	Pos.	Description
	1.	type of instrument
	2.	SW number
	3.	output type

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**

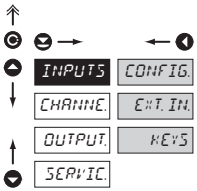
- **For expert users**
- **Complete instrument menu**
- **Access is password protected**
- **Possibility to arrange items of the „User" menu**
- **Tree menu structure**

Switching over to "PROFI" menu

C + ▼
- 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)

C + ▼
- 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

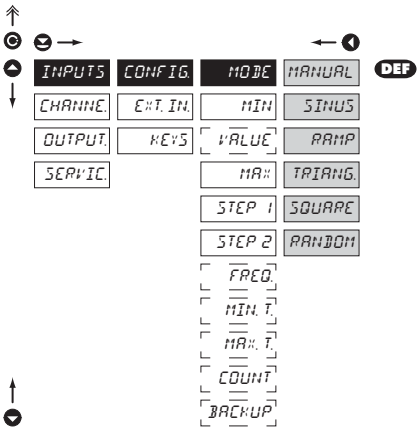
6.1 Setting "PROFI" - INPUTS



The primary instrument parameters are set in this menu

CONFIG.	Selection of measuring range and parameters
EXT. IN.	Setting external inputs functions
KEYS	Assigning further functions to keys on the instrument

6.1.1a Selection of operation mode



MODE **Selection of operation mode**

MANUAL Manual setting of output value

- instrument generates signal in the range from "MIN A.O." to "MAX A.O."

SINUS Output signal - Sinus

- instrument generates sinus signal in range from "MIN A.O." to "MAX A.O." at frequency set under "FREQ."

RAMP Output signal - Ramp

- instrument generates ramp signal in range from "MIN A.O." to "MAX A.O." at frequency set under "FREQ."

TRIANG. Output signal - Triangle

- instrument generates triangle signal in range from "MIN A.O." to "MAX A.O."at frequency set under "FREQ."

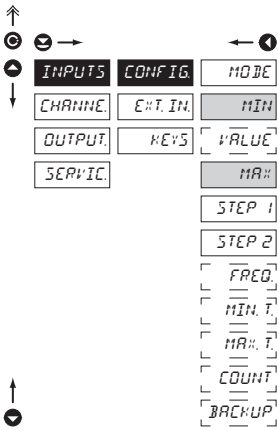
SQUARE Output signal - Square

- instrument generates square signal in range from "MIN AV." to "MAX AV." at frequency set under "FREQ."

RANDOM. Output signal generated at random

- instrument generates signal composite from sections with linear change of value. Extent of the change is random in the range from "MIN AO." to "MAX A.O.",The time of change is set at random in interval „MIN C.–MAX C."

6.1.1b Setting display projection

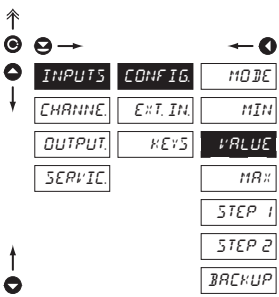


MIN **Setting display projection for minimum value of output signal**

MAX **Setting display projection for maximum value of output signal**

- setting display projection may be set for both limit values of the output signal in the menu, (OUTPUT./ANALOG)
  e.g. output: 4...20 mA > 0...100,
  for "MIN" =0, "MAX" =100

6.1.1c Setting the initial analog output value

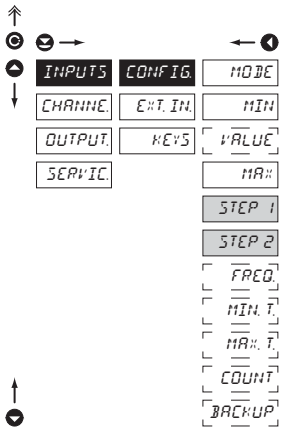


VALUE **Setting the initial analog output value**

- range of the setting is 0...999999
- only for "MODE - MANUAL"
- analog output value which is set after the instrument is connected to the mains and provided that the backup function ("BACKUP") is not active

- **DEF** = 0

6.1.1d Setting step operation of the display/value AO



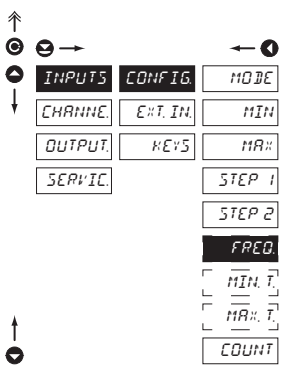
STEP 1 **Setting fine step operation of the display**

- for more comfortable change of setting the AO value it is possible in this item to preset the format of the fine step
- operation > ▼ (-) / ▲ (+)
- DEF = 1

STEP 2 **Setting rough step of the display**

- for more comfortable change of setting the AO value it is possible in this item to preset the format of the rough step
- operation > ◀ + ▼ (-) / ◀ + ▲ (+)
- DEF = 10

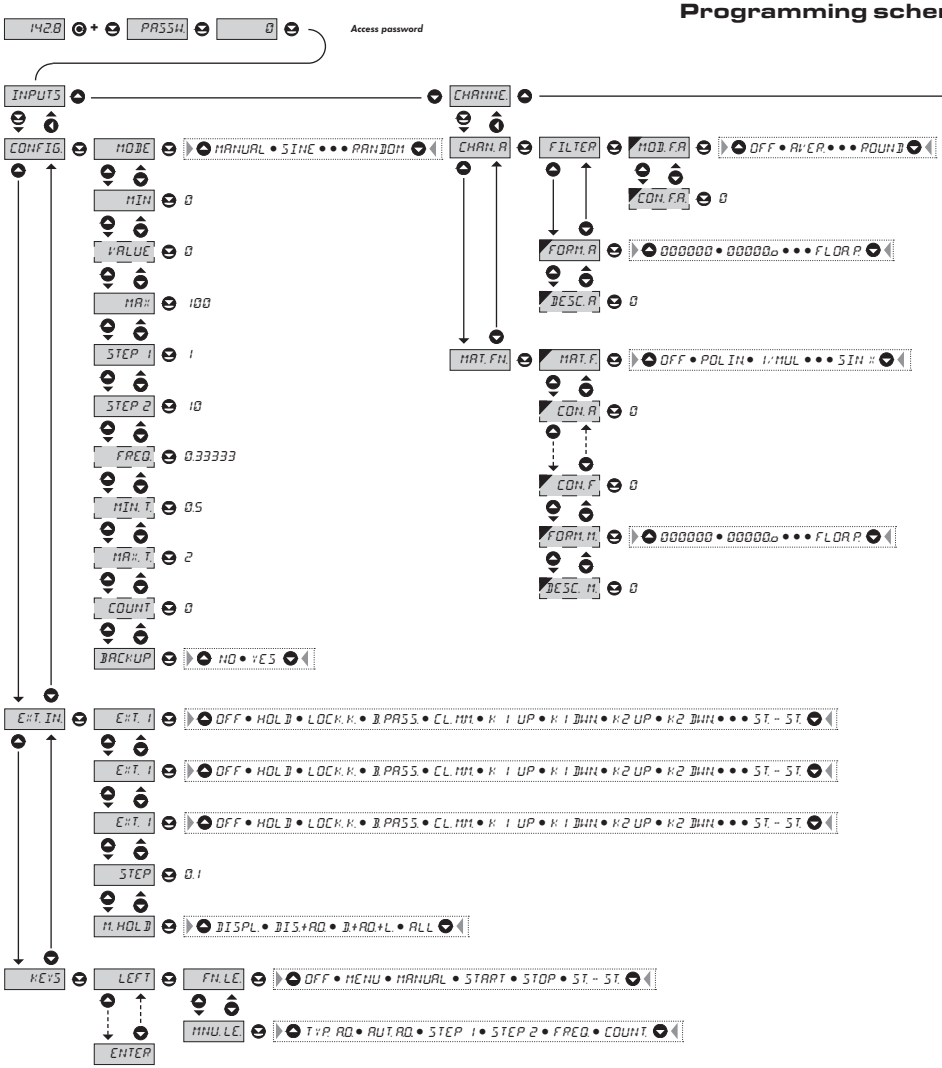
6.1.1e Setting analog ouput frequecy



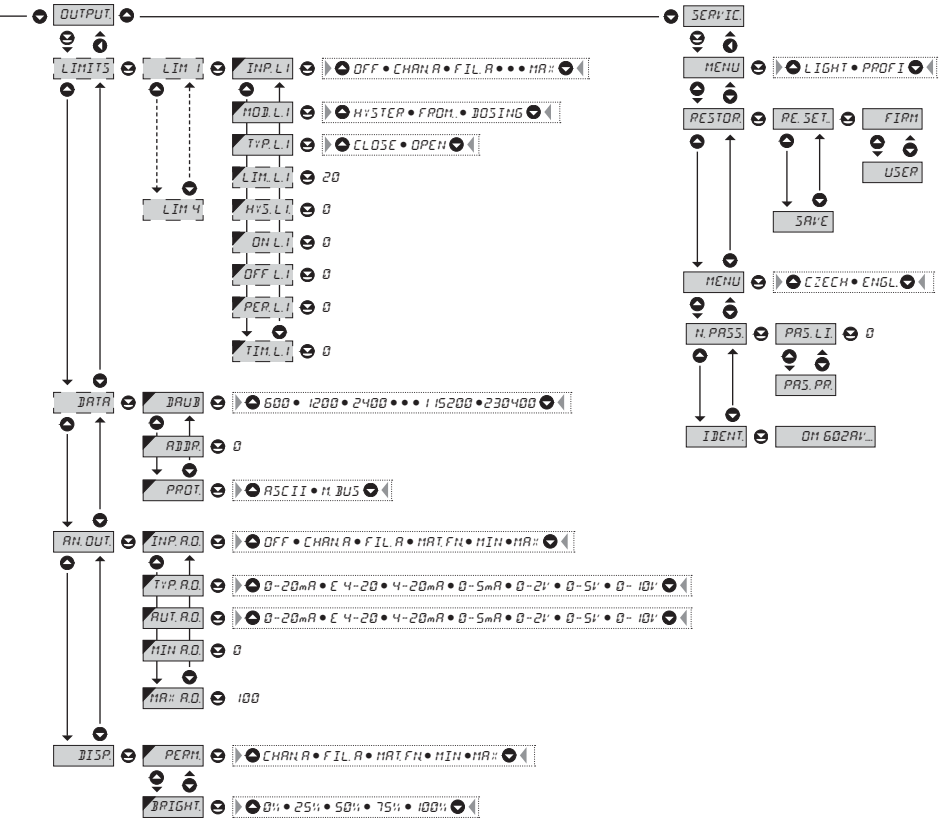
FREQ. **Setting AO output frequency**

- rrange of the setting is 0,001...3 Hz
- only for "MODE" - "SINUS", "RAMP". "TRIANG.", "SQUARE"
- DEF = 0,33333 Hz

Programming sche



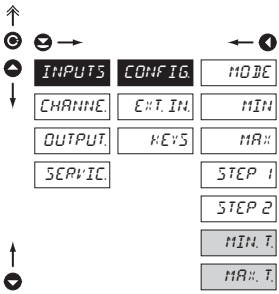
me of PROFI MENU



!

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

6.1.1f Setting of change signal in "Random" mode



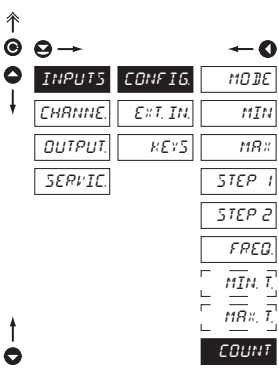
MIN. T. Setting minimum time of change of signal

- determines minimum time of change of signal from one value to another
- only for "MODE - RANDOM"
- DEF = 0,5

MAX. T. Setting time of change of signal

- determines maximum time of change of signal from one value to another
- only for "MODE - RANDOM"
- DEF = 2

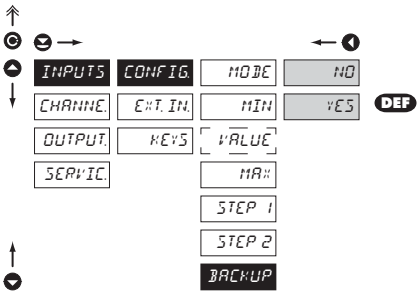
6.1.1g Setting defined number of period



COUNT Setting defined number of periods

- if "0" value is set, the output signal is permanently generated
- if non-zero value is set , the signal will be generated after pushing a button or the switch-on by control input in a selected number of periods
- only for "MODE" - "SINUS", "RAMP". "TRIANG.", "SQUARE"
- DEF = 0

6.1.1h Selection of display status backup



BACKUP **Selection of display status backup**

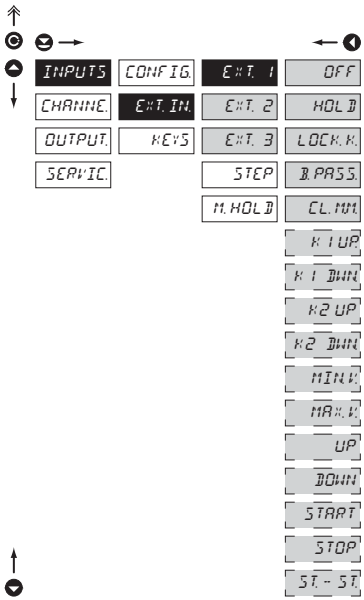
- only for "MODE - MANUAL"

NO Instrument is set to "VALUE" after switch-on

- value is set in "VALUE"

YES After switch-on the instrument restores status prior switch-off

6.1.2a External input function selection



EXT. IN. **External input function selection**

- **OFF** Input is off
- **HOLD** Activation of HOLD
- **LOCK K.** Locking keys on the instrument
- **D.PASS.** Activation of locking access into programming menu LIGHT/PROFI
- **CL.MM** Resetting min/max value
- **K1 UP** Step 1 - Up
- **K1 DWN.** Step 1 - Down
- **K2 UP** Step 2 - Up
- **K2 DWN.** Step 2 - Down
- **MIN.V.** Minimum range
- **MAX.V.** Maximum range
- **UP** Increases output signal value
  - with active input the "STEP" is added every 10 ms
- **DOWN** Decreases output signal value
  - with active input the "STEP" is subtracted every 10 ms
- **START** Start of cycle
  - if „NUMBER" > 0 it will start anew from the beginning
- **STOP** Stop cycle
- **ST. - ST.** Start/Stop cycle
  - if „NUMBER" > 0 it will start anew from the beginning

!

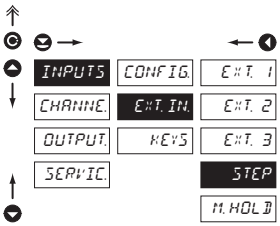
Preset values of the ext. inputs **DEF**:

EXT. 1	*Hold*
EXT. 2	*K1 Up*
EXT. 3	*K1 Down*

*****

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

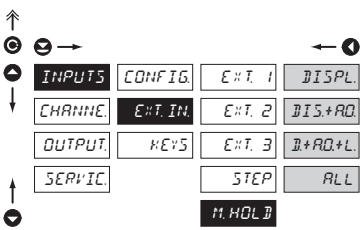
6.1.2b Setting the "Step"



STEP **Setting "step" for ext. control**

- with active input the AO value will be changing every 10ms by preset value
- range 0...999999
- **DEF** = 0,1

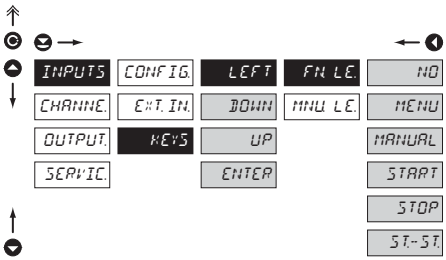
6.1.2c Selection of function "HOLD"



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

6.1.3a Optional accessory functions of the keys



!

Setting is identical for LEFT, DOWN, UP and ENTER

FN. LE. Assigning further functions to instrument keys

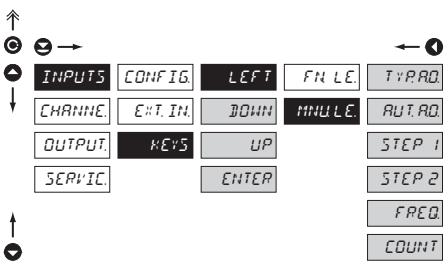
- *„FN. LE."* > executive functions
- *„MNU. LE."* > direct access into menu on selected item

NO	Key has no further function
MENU	Direct access into menu on selected item

- after confirmation of this selection the *"MENU"* item is displayed on superior menu level, where required selection is performed

MANUAL	Manual setting
START	Start of cycle
STOP	Stop of cycle
ST.-ST.	Start/Stop cycle

6.1.3b Optional accessory functions of the keys - Direct access to item



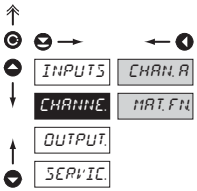
!

Setting is identical for LEFT, DOWN, UP and ENTER

MNU.LE. Assigning access to selected menu item

TYP.A.O.	Direct access to item "TYPE A.O."
AUT.A.O.	Direct access to item"AUT. A.O."
STEP 1	Direct access to item "STEP 1"
STEP 2	Direct access to item "STEP 2"
FREQ.	Direct access to item "FREQ."
COUNT	Direct access to item "COUNT"

6.2 Setting "PROFI" - CHANNELS

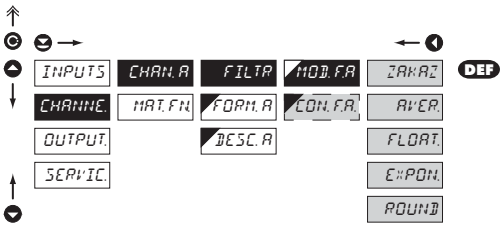


The primary instrument parameters are set in this menu

CHAN.A Setting parameters of measuring "Channel"

MAT.FN. Setting parameters of mathematic functions

6.2.1a Digital filters



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

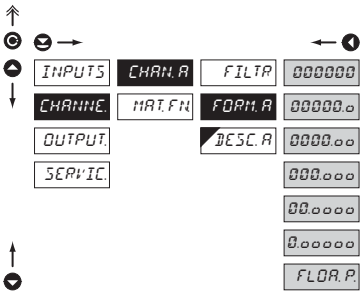
ROUND Measured value rounding

- 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

6.2.1b Projection format - positioning of decimal point



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.

00000.0 Setting DP - XXXXX.x

0000.00 Setting DP - XXXX.xx

000.000 Setting DP - XXX.xxx

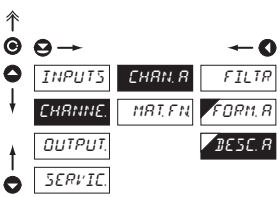
- DEF

00.0000 Setting DP - XX.xxxx

0.00000 Setting DP - X.xxxxx

FLOA.P. Floating DP

6.2.1e Projection of description - the measuring units



DESC.A Setting projection of descript. for "Channel A"

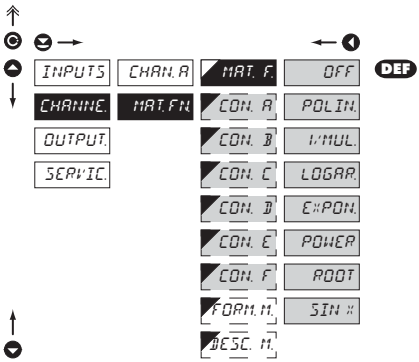
- projection of mesured data may be extended (at the expense of the number of displayed places) by two characters for description
- description is set by shifted ASCII code, when two first places show the set description and two last characters their code in period 0...95
- description is cancelled by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

- DEF = nnone

!

Table of signs on page 67

6.2.2a Mathematic functions



MATH. F. Selection of mathematic functions

OFF Mathematic functions are off

POLIN 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

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

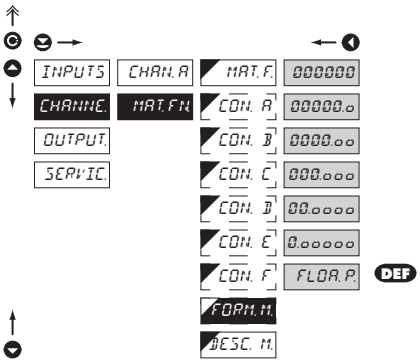
SIN x Sin x

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

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



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.

00000.0 Setting DP - XXXXX.x

0000.00 Setting DP - XXXX.xx

000.000 Setting DP - XXX.xxx

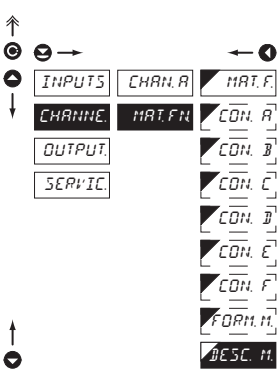
00.0000 Setting DP - XX.xxxx

0.00000 Setting DP - X.xxxxx

FLOA.P. Floating DP

- DEF

6.2.2c Mathematic functions - measuring units



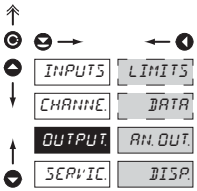
DESC.M. Setting projection of description for "MAT.FN"

- 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 65

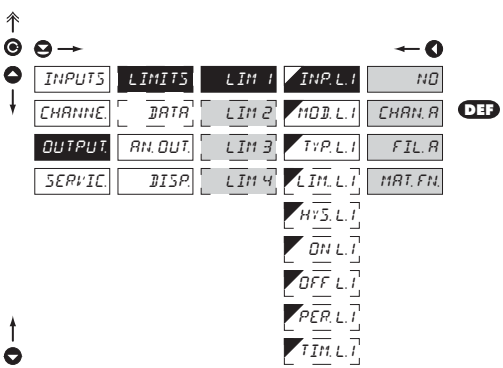
6.3 Setting „PROFI“ - OUTPUTS



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

- LIMITS — Setting type and parameters of limits
- DATA — Setting type and parameters of data output
- AN. OUT. — Setting type and parameters of analog output
- DISP. — Setting display projection and brightness

6.3.1a Selection of input for limits evaluation



INP. L.1 Selection evaluation of limits

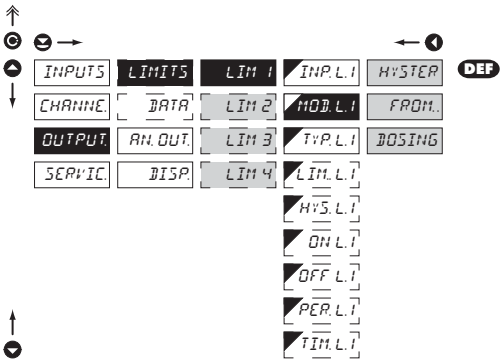
- selection of value from which the limit will be evaluated

- NO — Limit evaluation is off
- CHAN. A — Limit evaluation from “Channel A”
- FIL. A — Limit evaluation from “Channel A” after digital filters processing
- MAT. FN. — Limit evaluation from “Mathematic functions”

!

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

6.3.1b Selection of type of limit



!

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

MOD. L.1 **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

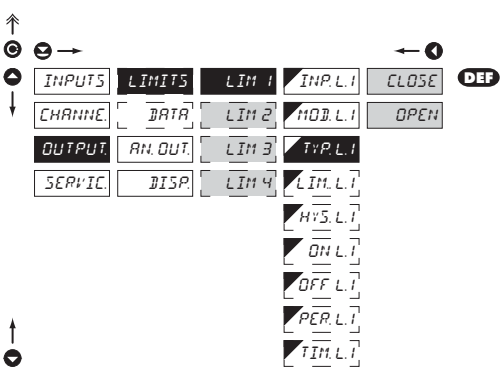
FROM.. Frame limit

- 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

6.3.1c Selection of type of output



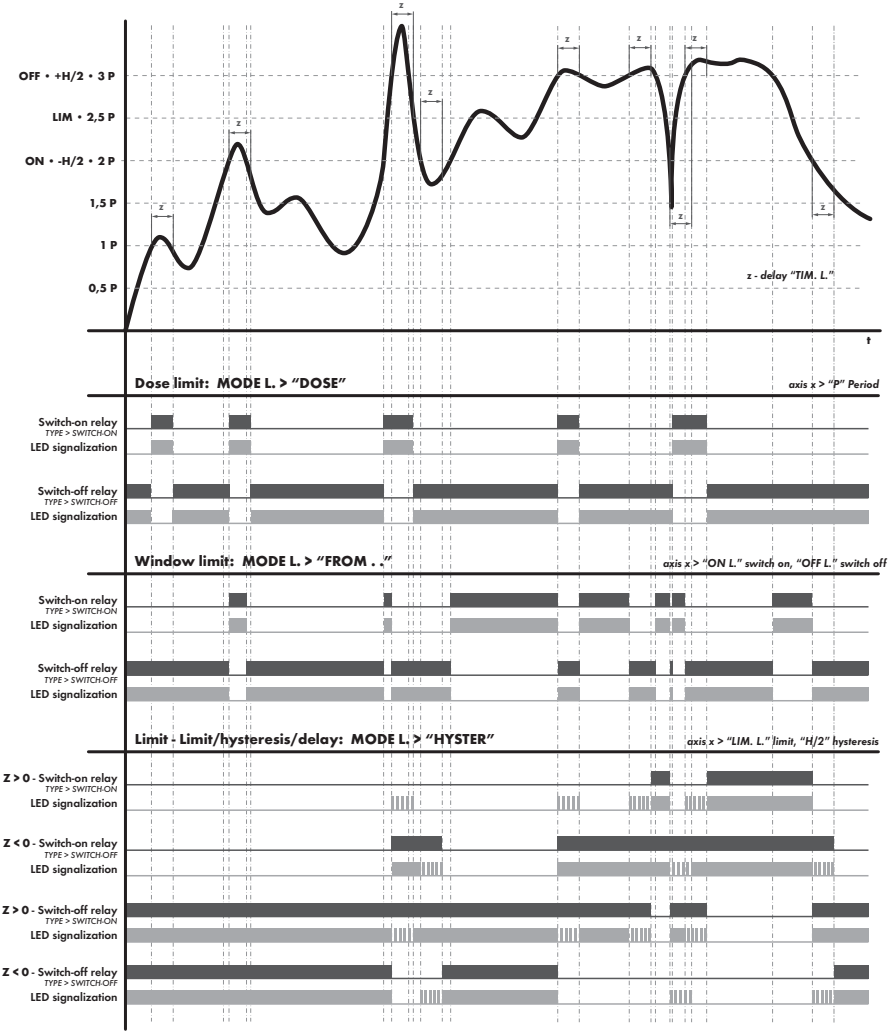
TYP. L.1 **Selection of type of output**

CLOSE. Output switches on when condition is met

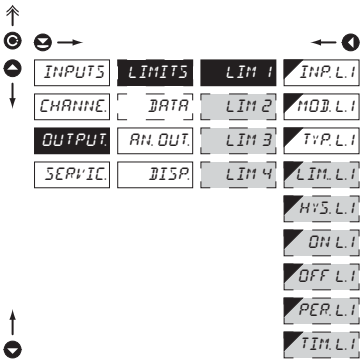
OPEN Output switches off when condition is met

!

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


OFF • +H/2 • 3 P
LIM • 2,5 P
ON • -H/2 • 2 P
1,5 P
1 P
0,5 P
z
z - delay "TIM. L."
t
Dose limit: MODE L. > "DOSE"
axis x > "P" Period
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 off
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

6.3.1d Nastavení hodnot pro vyhodnocení mezí



LIM. L.1 Setting limit for switch-on
- for type *"HYSTER"*

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

ON L.1 Setting the outset of the interval of limit switch-on
- for type *"FROM"*

OFF L.1 Setting the end of the interval of limit switch-on
- for type *"FROM"*

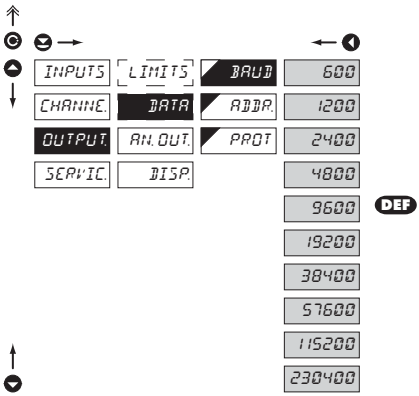
PER. L.1 Setting the period of limit switch-on
- for type *"DOSING"*

TIM. L.1 Setting the time switch-on of the limit
- for type *"HYSTER"* and *"DOSING"*

!

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

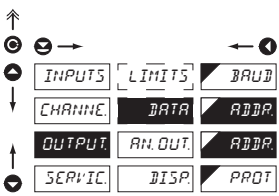
6.3.2a Selection of data output baud rate



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

6.3.2b Setting instrument address



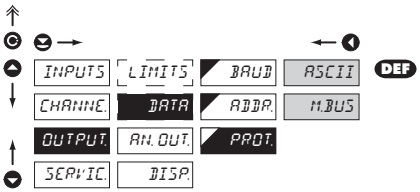
ADDR. Setting instrument address

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

ADR. P.B. Setting instrument address - PROFIBUS

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

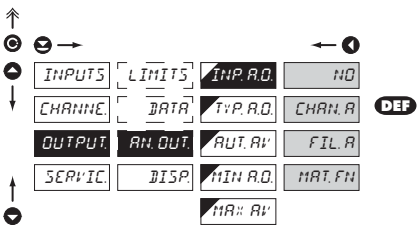
6.3.2c Selection of data output protocol



PROT. Selection of the type of analog output

- ASCII — Data protocol ASCII
- M. BUS — Data protocol DIN MessBus

6.3.3a Selection of input for analog output

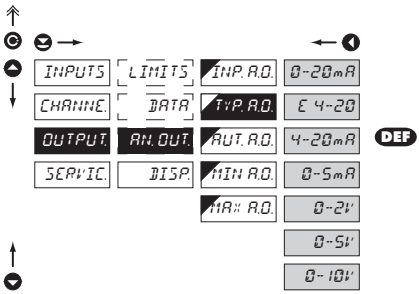


INP.AO. Selection evaluation analog output

- 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"

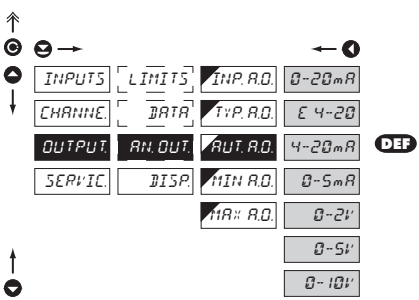
6.3.3b Selection of the type of analog output



TYP. A.O. Selection of the type of analog output

- 0-20mA Type - 0...20 mA
- E 4-20 Type - 4...20 mA
- with indication 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

6.3.3c Automatic presetting of analog output type



AUT. A.O. Automatic presetting of analog output type

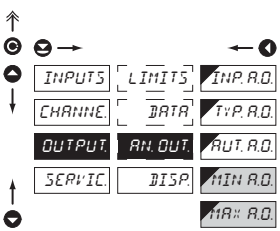
- 0-20mA Type - 0...20 mA
- E 4-20 Type - 4...20 mA
- with indication of error statement (< 3,0 mA)
- 4-20mA Type - 4...20 mA
- 0-5mA Type - 0...5 mA
- 0-2V Type - 0...2 V
- 0-5V Type - 0...5 V
- 0-10V Type - 0...10 V

Table of automatic presetting of analog output

Automatic presetting serves for fast change of output while maintaining or recalculating the original presetting to new range.
Upon the change of AO range are the values "*" from the following table dependant on the setting from which it is switching to (i.e. it changes according to current setting). As an example serve the "DEF" values from manufacture setting.

Items menu/Output AO	0 - 20 mA	E 4 - 20 mA	4 - 20 mA	0 - 5 mA	0 - 2 V	0 - 5 V	0 - 10 V
MIN	0	4	4	0	0	0	0
VALUE *	0	4	4	0	0	0	0
MAX	20	20	20	5	2	5	10
STEP 1 *	4	3,2	3,2	1	0,4	1	2
STEP 2 *	0,2	0,16	0,16	0,05	0,02	0,05	0,01
STEP *	0,02	0,016	0,016	0,005	0,002	0,005	0,01
FORM. A	XXXX.xx	XXXX.xx	XXXX.xx	XXXX.xx	XXXX.xx	XXXX.xx	XXXX.xx
DESC. A	mA	mA	mA	mA	V	V	V
MIN. A.O.	0	4	4	0	0	0	0
MAX. A.O.	20	20	20	5	2	5	10

6.3.3d Setting the analog output range



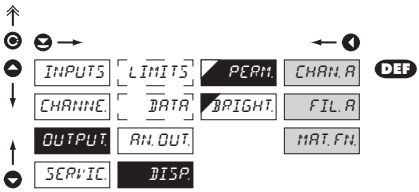
AN.OUT. Setting the analog output range

- 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 A.O. Assigning the display value to the beginning of the AO range
- range of the setting is -99999...999999
- DEF = 0

MAX A.O. 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



PERM. Selection display projection

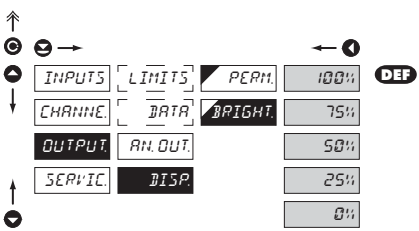
- selection of value which will be shown on the instrument display

CHAN.A Projection of values from "Channel A"

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

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

6.3.4b 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

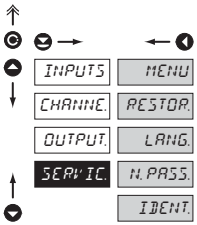
25% Display brightness - 25 %

50% Display brightness - 50 %

75% Display brightness - 75 %

100% Display brightness - 100 %

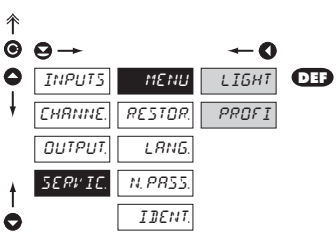
6.4 Setting "PROFI" - SERVICE



The instrument service functions are set in this menu

MENU	Selection of menu type LIGHT/PROFI
RESTOR.	Restore instrument manufacture setting and calibration
LANG.	Language version of instrument menu
N.PASS.	Setting new access password
IDENT.	Instrument identification

6.4.1 Selection of type of programming menu



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 CONFIG.uration and instrument setting
- linear menu > items one after another

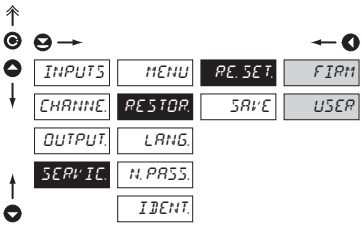
PROFI Active PROFI menu

- complete programming menu for expert users
- tree menu

!

Change of setting is valid upon next access into menu

6.4.2 Restoration of manufacture setting



RE.SET. Restoring manufacture setting of the instrument

FIRM — Return to manufacture setting of the instrument

- readng manufacture setting (items marked DEF)

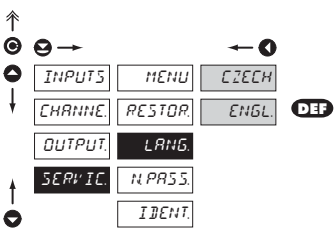
USER — Return to user setting of the instrument

- reading user setting, i.e. setting which was stored under SERVIC./RESTOR./SAVE

SAVE — Storing user setting of the instrument

- storing the setting enables the operator its future contingent restoration

6.4.3 Selection of instrument menu language version

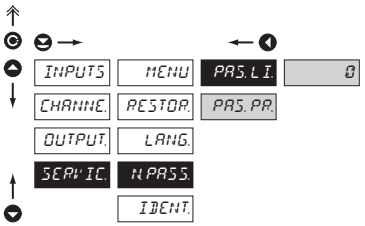


LANG. Selection of instrument menu language version

CZECH — Instrument menu is in Czech

ENGL. — Instrument menu is in English

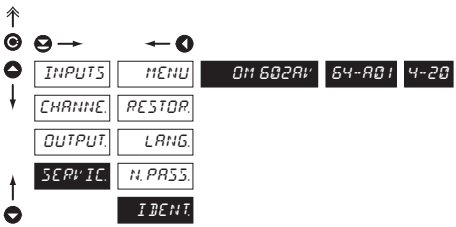
6.4.4 Setting new access password



N.PASS. Setting new password for access to LIGHT and PROFI menu

- this selection enables changing number code that blocks the access into LIGHT and PROFI Menu.
- range of the number code is 0...9999
- universal password in the event of loss is „8177"

6.4.6 Instrument identification



IDENT. Projection of instrument SW version

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

IDENT.	Pos.	Description
	1.	type of instrument
	2.	SW number
	3.	output type

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 

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

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

Setting

item will not be displayed in USER menu

item will be displayed in USER menu with editing option

item will be solely displayed in USER menu

Setting sequence of items in "USER" menu

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

Example:

Into USER menu were selected these items

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

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

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 specification you can find at **www.orbit.merret.cz/rs**.

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>									
			Bad	?	A	A	<CR>									
		Messbus		No - data is transmitted permanently												
	485	ASCII	OK	!	A	A	<CR>									
			Bad	?	A	A	<CR>									
		MessBus	OK	<DLE>	1											
			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			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>	adresa +60_H		Prompt to send from address
<EADR>	adresa +40_H		Prompt to accept command at address
<ENQ>	5	05_H	Terminate address
<DLE>1	16 49	10_H 31_H	Confirm correct statement
<NAK>	21	15_H	Confirm error statement
<BCC>			Check sum -XOR

RELAY, TARE

Sign	Relay 1	Relay 2	Tare	Change 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

SENDING DATA TO INSTRUMENT

#AA 9 dddddd <CR> dddddd are data to be displayed

Protocol DIN MessBus

<EADR><ENQ> >>> respons OK .... <DLE> 1

<STX>$9 dddddd <ETX><BCC>

ERROR	CAUSE	ELIMINATION
E. D. U n.	Number is too small (large negative) to be displayed	change DP setting, channel constant setting
E. D. O v.	Number is too large to be displayed	change DP setting, channel constant setting
E. T. U n.	Number is outside the table range	increase table values, change input setting (channel constant setting)
E. T. O v.	Number is outside the table range	increase table values, change input setting (channel constant setting)
E. I. U n.	Input quantity is smaller than permitted input quantity range	change input signal value or input (range) setting
E. I. O v.	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. SET.	Change of a linked item in the menu, Data in EEPROM outside the range	change of contiguous items, 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

The instrument allows to add two descriptive characters to the classic numeric formats (at the expense of the number of displayed places). The setting is performed by means of a shifted ASCII code. Upon modification the first two places display the entered characters and the last two places the code of the relevant symbol from 0 to 95. Numeric value of given character equals the sum of the numbers on both axes of the table.
Description is cancelled by entering characters with code 00

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

PROJECTION

Display:	999999, intensive red or green 14-ti segment LED, digit height 14 mm
Projection:	-99999...999999
Decimal point:	adjustable - in menu
Brightness:	adjustbale - in menu

INSTRUMENT ACCURACY

TC:	50 ppm/°C
Linearisation:	by linear interpolation in 50 points - solely via OM Link
Digital filters:	Averaging, Floating average, Exponential filter, Rounding
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, Dose
Limita:	-99999...999999
Hysteresis:	0...999999
Delay:	0...99,9 s
Outputs:	2x relays with switch-on contact (Form A) (230 VAC/30 VDC, 3 A)* 2x relays with switch-off contact (Form C) (230 VAC/50 VDC, 3 A)*
Relay:	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300

DATA OUTPUTS

Protocols:	ASCII, DIN MessBus
Data format:	8 bit + no parity + 1 stop bit (ASCII) 7 bit + even parity + 1 stop bit (MessBus)
Rate:	600...230 400 Baud
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 resolution of max.10 000 points, analog output corresponds with displayed data, type and range are adjustable
Mode:	MANUAL, SINE, RAMP, TRIANGL, SQUARE, RANDOM
Non-linearity:	0,2 % of range
TC:	50 ppm/°C
Rate:	response to change of value < 40 ms
Voltage:	0...2 V/5 V/10 V
Curernt:	0...5/20 mA/4...20 mA - compensation of conduct to 500 Ohm

EXCITATION

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

POWER SUPPLY

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

MECHANIC PROPERTIES

Material:	Noryl GFN2 SE1, incombustible UL 94 V-I
Dimensions:	96 x 48 x 120 mm
Panel cut-out:	90,5 x 45 mm

OPERATING CONDITIONS

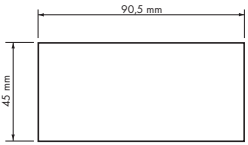
Connection:	connector terminal board, conductor cross-section <1,5 mm^2 /<2,5 mm^2
Stabilisation period:	within 15 minutes after switch-on
Working temp.:	0°...60°C
Storage temp.:	-10°...85°C
Cover:	IP65 (front panel only)
Construction:	safety class I
Dielectric strength:	4 kVAC after 1 min between supply 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
Overvoltage category:	EN 61010-1, A2
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
Seismic resistance:	IEC 980: 1993, čl. 6

** values apply for resistance load*

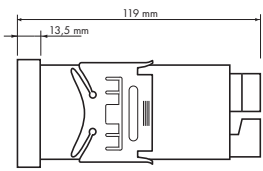
PI - Primary insulation, DI - Double insulation

Front view

Panel cut



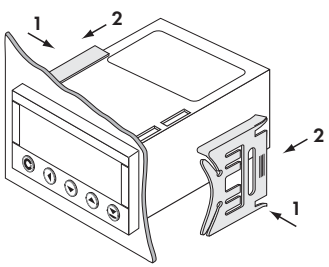
Side view

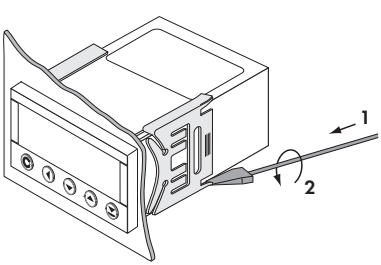


Panel thickness: 0,5...20 mm

Instrument installation

1. insert the instrument into the panel cut-out
2. fit both travellers on the box
3. press the travellers close to the panel





Instrument disassembly

1. slide a screw driver under the traveller wing
2. turn the screw driver and remove the traveller
3. take the instrument out of the panel

Product	**OM 602AV**
Type	. . . . .
Manufacturing No.	. . . . .
Date of sale	. . . . .

GUARANTEE

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

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

The guarantee shall not apply to defects caused by:

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

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

Stamp, signature

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 full 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 type listed hereunder, which are being brought out to the market, with technical documentation and requirements of the appurtenant statutory orders.

Product: 6-digit programmable panel instrument

Type: **OM 602**

Version: UQC, AV, RS

Conformity is assessed pursuant to the following standards:

El. safety:	EN 61010-1	
EMC:	EN 50131-1, chapter 14 and chapter 15	
	EN 50130-4, chapter 7	EN 61000-4-11
	EN 50130-4, chapter 8	EN 61000-4-11
	EN 50130-4, chapter 9	EN 61000-4-2
	EN 50130-4, chapter 10	EN 61000-4-3
	EN 50130-4, chapter 11	EN 61000-4-6
	EN 50130-4, chapter 12	EN 61000-4-4
	EN 50130-4, chapter 13	EN 61000-4-5
	EN 50130-5, chapter 20	
	prEN 50131-2-1, par. 9.3.1	
	EN 61000-4-8	
	EN 61000-4-9	
	EN 61000-3-2 ed. 2:2001	
	EN 61000-3-3: 1997, Cor. 1:1998, Z1:2002	
	EN 55022, chapter 5 and chapter 6	

and Ordinance on:

El. safety:	No. 168/1997 Coll.
EMC:	No. 169/1997 Coll.

The evidence are the protocols of authorized and accredited organizations:
VTÚE Praha, experimental laboratory No. 1158, accredited by ČIA
VTÚPV Vyškov, experimental laboratory No. 1103, accredited by ČIA

Place and date of issue: Prague, 18. March 2006

Miroslav Hackl v.r.
Company representative

Mode of asses. of conformity §12, par. 4 b, d Act No. 22/1997 Coll.