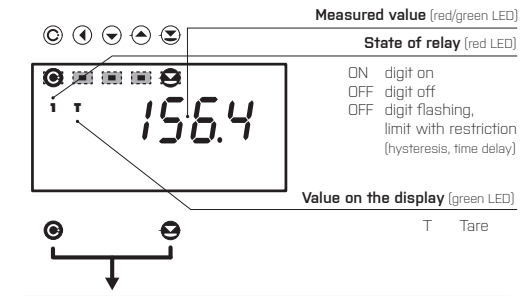
Programming diagram of the LIGHT MENU



Password to access the menu
range: 0...999

Selection of the type of instrument
Basic selection of input type, default „DEF" items of the selected type

Selecting the instrument's mode

DC	DC voltmeter
PM	Process monitor
OHM	Ohmmeter
Pt	Thermometer for sensors Pt 100/500/1 000
Cu	Thermometer for sensors Cu 50/100
Ni	Thermometer for sensors Ni 1 000/10 000
TC	Thermometer for thermocouples
DU	Display for linear potentiometer

Selection of the instrument measuring range
Measuring ranges 30 mV and 60 mV have detection of broken input circuit „E. in."

Range selection

30n	30 mV
60n	60 mV
u 1.	1 V

DC

Selection of the instrument measuring range

Range selection

U 2.	0...2 V
U 5.	0...5 V
U 10.	0...10 V
I 0.	0...20 mA
I 4.	4...20 mA
E 4.	4...20 mA (broken loop indication)

PM

Selection of the instrument measuring range
Measuring ranges have detection of broken input circuit „E. in."

Range selection

0.1	100 Ω
0.3	300 Ω
1.5	1,5 kΩ
3.0	3 k Ω
24.0	24 kΩ
300	30 kΩ

Selection of the type of sensor connection

Connection

2-u	2-wire
4-u	4-wire

OHM

Selection of the instrument measuring range

Range selection

E0.1	Pt 100
E0.5	Pt 500
E 1.0	Pt 1000
U0.1	Pt 100 - US
r0.5	Pt 50 - RU
r0.1	Pt 100 - RU

Selection of the type of sensor connection

Connection

2-u	2-wire
3-u	3-wire
4-u	4-wire

Pt

Selection of the instrument measuring range

Range selection

Cu.1	Cu 50/4280
Cu2	Cu 100/4280
Cu3	Cu 50/4260
Cu4	Cu 100/4260

Selection of the type of sensor connection

Connection

2-u	2-wire
3-u	3-wire
4-u	4-wire

Cu

Selection of the instrument measuring range

Range selection

S- 1	Ni 1000/5000
b- 1	Ni 1000/6180
S 10	Ni 10000/5000
b 10	Ni 10000/6180

Selection of the type of sensor connection

Connection

2-u	2-wire
3-u	3-wire
4-u	4-wire

Ni

Selection of the instrument measuring range

Selection of thermoc.

b	T/C - B
E	T/C - E
J	T/C - J
K	T/C - K
n	T/C - N
r	T/C - R
S	T/C - S
t	T/C - T
L	T/C - L

Selection of the type of sensor connection
Measuring ranges have detection of broken input circuit „E. in."

Connection

in.1	measuring C.J. at instrument brackets
in2.	measuring C. J. at instrument brackets with anti-series connected ref. TC
EH.1	the entire measuring set is working under invaried and constant temperature
EH2.	when using compensation box

For thermocoule type "B" the items CON. and C.J. T. are not available

T/C

Setting display projection for minimum value of input signal
range: ±1999

Setting display projection for maximum value of input signal
range: ±1999

DC **PM** **OHM** **DU**

C

Pt

Selection of the following items depends on the nuber of options the instruemnnt is equipped with

Selection of output type

Select. of out. type

CLO.	switch on relay
OPE.	switch off relay
rdy.	all OK
Err.	error indication

Setting of limit 1
range: ±1999

Selecting the menu type LIGHT/PROFI
LIG. - simplified menu (minimal choice of settings)
PRO. - entire menu (for advanced users)

Return to the manufacturer's settings
Restores manufacturer's califrations and default setting of menu items (DEF)

Return to the user's settings
Restores user's setting, which means setting which was saved in the menu item SER./RES./SAV.

Calibration of input range, potentiometr slidind element is at the start position
Before confirming the „YES" the sliging element must be still!

Calibration of input range, potentiometr slidind element is at the end position
Before confirming the „YES" the sliging element must be still!

DU

Setting a new user password for the LIGHT menu
range: 0...999

- range of the number code: 0...999
- universal passwords in the event of loss: „177"

Displaying the instrument's SW version
Type of instrument, SW version and currectly selected input (Mode) are projected on the display

156.4

Options - Comparators

These menu items can be accessed only if the instrument contains corresponding options

If the mode „DU" is not selected, these calibration menu items are left out

Only for mode „DU"

Programming diagram of the PROFI MENU

1428 ⊙ + ⊖ PAS. ⊖ 0 ⊖

inP
- Tare reseting: CLr. ⊖ C.tA
- Selection of measuring rate: CFG. ⊖ n.PS. ⊖ 05 • 12 • 25 • 50 • 100 • 200
- Selection of "instrument" type: TyP ⊖ dC • PM • • • tr/C • dU
- Selection of instrument measuring range: MOd ⊖
  - DC: 30n • 60n • U 1
  - PM: 10 • 14 • E4 • U2 • U5 • U10
  - OHM: E0.1 • E05 • E 10 • U0.1 • r05 • r0.1
  - RTD: E0.1 • E05 • E 10 • U0.1 • r05 • r0.1
  - Cu1 • Cu2 • Cu3 • Cu4
  - n.5 • n.6
  - T/C: b • E • J • t • n • r • S • t • L
  - CON. ⊖ 2-u • 3-u • 4-u
  - P.At. ⊖ 0 — Setting for RTD/OHM
  - LEA. ⊖ 0
  - CON. ⊖ in1 • in2 • EH.1 • EH2
  - T.C.J. ⊖ 0 — Setting for T/C
- Selecting function of auxiliary input: EHE ⊖ EH.1 ⊖ OFF • HLd • tAr.

CHA
- C.A. ⊖ SEt ⊖ Min. ⊖ 1 — Setting display projection for minimum value of input signal
- MAX. ⊖ 1 — Setting display projection for maximum value of input signal
- FIL. ⊖ MOd. ⊖ n0 • EXP • rnd. — Setting the digital filters*
- COn. ⊖ 0 — Setting the constant
- FOr. ⊖ 000 • 00o • 0oo • ooo • FLP — Setting the decimal point

*Setting the digital filters

OFF	filters are off
EXP.	exponential filter
rnd.	rouding
COn.	setting of the calibration constant

OUt
- L.IN. ⊖ L. 1 ⊖ tyP. ⊖ CLO. • OPE • rdY • Err. — Selecting output mode **
- L.1 ⊖ 25 — Setting of limit value
- H.1 ⊖ 0 — Setting of limit's hysteresis
- t.1 ⊖ 0 — Setting of limit's time delay
- diS. ⊖ br.I ⊖ 25 • 50 • 75 • 100 • AH • AM • AL — Selecting the display's brightness

*Selecting output mode

CLO.	closing relay (normally open)
OPE.	opening relay (normally closed)
rdY.	all OK
Err.	error indication

SEr.
- MnU. ⊖ L IO. • Pro. — Selecting type of menu
- rES. ⊖ FAc. ⊖ YES — Restoring manufacturer's settings
  - USr.
  - SAv.
- CAL. ⊖ CLO. ⊖ 0 — Calibratin of the range (OU)
  - CHI.
- n.PA. ⊖ P.L.I. ⊖ 0 — Setting access passwords
  - P.P.r.
- Id. ⊖ OML 343Uni... — Identification of instrument

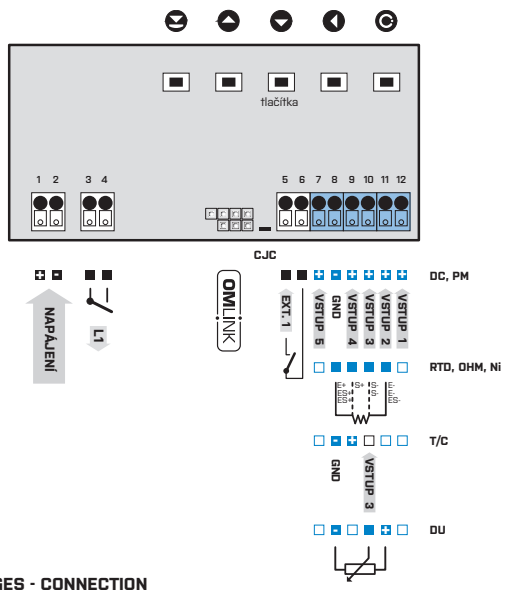
ERROR STATEMENTS

ERROR	CAUSE	ELIMINATION
E.dU.	number is too small (large negative) to be displayed	change DP setting, channel constant
E.dO.	number is too large to be displayed	change DP setting, channel constant
E. IU	Input quantity is smaller than permitted input quantity range	change input signal value or input (range) setting
E. IO.	Input quantity is larger than permitted input quantity range	change input signal value or input (range) setting
EHu	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.dt	data in EEPROM outside the range	perform restoration of manufacture setting, upon repeated error statement send instrument for repair
E.CL.	memory was empty (presetting carried out)	upon repeated error statement send instrument for repair, possible failure in calibration
E. In	disconnected input circuit	check wiring

!

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

CONNECTING AND CONTROLING OF INSTRUMENT



MEASURING RANGES - CONNECTION

TYPE	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
DC	0...1 V		0...60 mV	0...20 mV	
PM	0...5/10 V			0...20 mA	0/4...20 mA
OHM	0...300 Ω/0...1,5 kΩ/0...3 kΩ/0...30 kΩ				
RTD-PT	Pt 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)				

EXTERNAL INPUT

	DESCRIPTION	CONTROLS
EXT. 1	controlling input, its function is set in the menu (see. Menu > EXT. IN.)	upon contact, terminal (No. 5 + 6)

Power supply cord should not be near low voltage input signal leads.

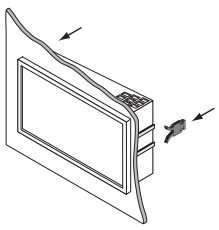
Contactors, large electrical motors and other power elements should not be operated in the vicinity of the instrument.

Input signal leads (measured value) should be separated from all power devices. If this is not possible to provide, the input leads have to be shielded and the shielding grounded (terminal E).

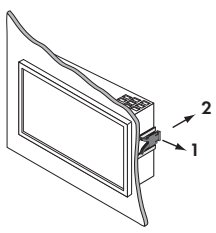
Our instruments are extensively tested and they comply with relevant standrads for use in industrial environment, however, adhering to the above mentioned measures is stronlgy advised.

MOUNTING AND DIMENSIONS

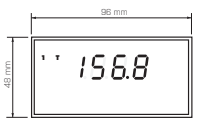
Mounting the instrument
1. insert the instrument into the panel cutout
2. insret the fixating sliders into side groves of the enclosure as shown
3. press the sliders tightly aginst the rear side of the panel



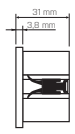
Removal of the instrument
1. pry the rear end of the sliders away from the instrument's enclosure
2. slide the fixating sliders out of side groves of the enclosure as shown
3. remove the instrument from the panel cutout



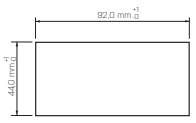
Front view



Side view



Panel cut



Panel thickness: 0,1...3,5mm

TECHNICAL DATA

MEASURING INPUT

INPUT	**DC**	Range	±20 mV	> 10 MΩ Input 4
			±60 mV	> 10 MΩ Input 3
			±1 000 mV	1,25 MΩ Input 1
	PM	Range	0/4...20 mA	< 200 mV Input 5
			0...2 V	> 10 MΩ Input 4
			0...5 V	1,25 MΩ Input 1
			0...10 V	1,25 MΩ Input 1
	OHM	Range	0...300 Ω	
			0...1,5 kΩ	
			0...3 kΩ	
			0...30 kΩ	
		Connection	2-, 3- or 4-wire	
	RTD	Type	EU > 100/500/1 000 Ω, with 3 850 ppm	-50°...450°C
			US > 100 Ω, with 3 920 ppm/°C	-50°...450°C
			RU > 50/100 Ω with 3 910 ppm/°C	-200°...1 100°/450°C
		Connection	2-, 3- or 4-wire	
	Ni	Type	Ni 1 000/ Ni 10 000 with 5 000 ppm/°C	-50°...250°C
			Ni 1 000/ Ni 10 000 with 6 180 ppm/°C	-200°...250°C
		Connection	2-, 3- or 4-wire	
	Cu	Type	Cu 50/Cu 100 with 4 260 ppm/°C	-50°...200°C
			Cu 50/Cu 100 with 4 280 ppm/°C	-200°...200°C
		Connection	2-, 3- or 4-wire	
	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	Lin. pot.supply	2,5 VDC/6 mA, min. potentiometer resistance is 500 Ω	

INSTRUMENT'S ACCURACY

TC	50 ppm/°C
Accuracy	±0,15 % of the range + 1 digit ±0,3 % of the range + 1 digit (T/C)
Accuracy of cold junction measurement:	±1,5°C
Rate	0,5...20 measurements/s
Overload capacity:	10x (t < 30 ms) - not for > 200 V and 5 A; 2x
Resolution	0,1°C (RTD), 1°C (T/C)
Data back-up	stores the measured value after the device has been switched off (EEPROM)
Digital filtres	exponencialn filter, rounding
Functions	Hold - "freezing the measured value", Lock - blocking the control buttons, Tare (upon contact)
External inputs	1, with the possibility of assigning various functions in the instrument's menu
OM Link	Company communication interface for operating, setting and updating of instruments
Watch-dog	reset after 500 ms
Calibration	at 25°C and 40 % r.h.

PROJECTION

Display	1999, red or green 7-segment LED, digit height 14 mm
Projection	±1999
Decimal point	setting - in menu
Brightness	0%, 25%, 50%, 75%, 100% (selectable in the menu) or automatically at three steps Auto. H, Auto. M and Auto. L

COMPARATOR

Type	digital, menu selectable
Mode	Hysteresis, Once, Pulse
Limit	±1999
Hysteresis	0...1999
Delay	0...99,9 s
Output	1x relay with a switch on contact (Form A), (250 VAC/30 VDC, 3 A)* 1x open collector, (30 VDC/100 mA)*
Relay	1/8 HP 277 VAC, 1/10 HP 125 V, Pilot Duty D300

* values given are for resistive load

POWER SUPPLY

	10...30 VDC/24 VAC, ±10 %, 3 VA, isolated

MECHANICAL PROPERTIES

Material	Noryl GFN2 SE1, incombustible UL 94 V-I
Dimensions	96 x 48 x 30 mm
Panel cut out	92 x 44 mm

ENVIROMENTAL

Connection	terminal board, section < 1,5 mm²
Stabilization period	15 minutes after switch on
Working temperature	-20°...60°C
Storage temperature	-20°...85°C
Cover	IP65 (front panel only), rear of the instrument is open!
Construction	security calss I
El. safety	EN 61010-1, A2
Dielectric strength	2,5 kVAC after 1 min between supply and input 4 kVAC after 1 min between supply and relay output
Insulation resistance*	for pollution degree II, measuring cat. III. power supply > 300 V (PI) input, output > 300 V (DI)
EMC	EN 61326-1 (Industrial area)

*PI - Primary insulation, DI - Double insulation

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