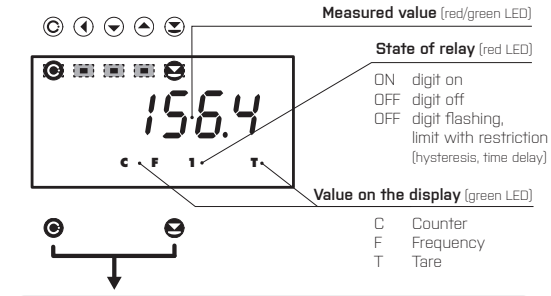
Programming diagram of the LIGHT MENU



Password to access the menu
range: 0...9999

Setting the initial value
Function enables the user to set the initial value to be projected on the display

This item „SET V." is not shown for the mode „FREQV."

Selecting the instrument's measuring mode
basic seletion of instrument's type

Selecting the instrument's measuring mode
SINGLE Impulse counter/frequency meter
QUADR. Impulse counter/frequency meter for IRC encoders
- measures on two inputs A+B and can display count/frequency of signals A and B
UP/DW UP/DW Impulse counter/frequency meter
- measured input is input A (input B defines direction, adding or subtracting) and can also show count/frequency
UP-DW UP-DW Impulse counter/frequency meter
- measures count in both inputs A (UP), and B (DW) and can show count/frequency
TIME Mode „Timer/clock"
RTC Mode „Timer/clock" with RTC back up
- this is not in standard, it is an option

Selecting a digital fiter
Digital filter can reduce/eliminate unwanted interference (for example diring relay contact opening/closing) in the input signal

Entered value defines the maximum frequency up to which the instrument will process without being restricted
If the input isgnal is „upon contact" and the maximum input frequency is known, we recomend to use this filter

Setting the controls of timer/clock
Setting the time in the menu ican be accessed only in the timer/clock mode

Setting the controls
CONTIN. Timer/clock keeps running while the instrument is on
CONTAC. Timer/clock keeps running while the external contact is on
EDGE Timer/clock is controlled by the edge of the measured signal
- timer is activated by the edge (input signal exceeding comparative level) and deactivated by the next incoming edge
RUN.ST.C. Timer/clock is both controlled and zeroed by the edge of an activating signal
- timer is activated by the edge (input signal exceeding comparative level) and both stopped and zeroed by the next incoming edge
C.RUN.ST. Timer/clock is both controlled and zeroed by the edge of the activating signal
- timer is zeroed ald launched by the edge of the input signal (input signal exceeding comparative level) and stops running when the second edge comes
CLR.RUN Timer/clock is zeroed and launched by the edge of the activating signal
CL.RU.RE. Timer/clock is zeroed and launched by the edge of the activating signal. This cycle is repeated with every incoming edge
RUN Timer/clock is only launched by the edge of the activating signal

Zeroing the timer
This menu item is accesible only when in the Timer/clock mode

Setting the controls
CLEAR Timer/clock is zeroed by input „Clear"
ST. CLR. Timer/clock is stopped and zeroed by input „Clear"
STOP Timer/clock is stopped by input „Clear"

Measuring mode - TIME/RTC

Measuring mode- SINGLE/QUADR./UP-DW

Automatic setting of inputs
It is possible to select in the menu either automatic or manual setting for both Input A and input B. When automatic setting is selected is it essential that the input signal is 10 Hz or higher in order to be detected
Automatic setting
Manual setting
To confirm the selection and to go to setting of input B (short key stroke)
To confirm the selection and to copy the setting into channel B (long key stroke) and to go onto the next menu item

Setting of input B
Automatic setting
Manual setting
To confirm the selection and to go onto the next menu item

Setting of multiplication constant - channel counter
The multiplication constant is used for converting the input signal value into the required display value. If a negative constant is entered, the sense of the cout will be reversed, which menas the count will be „downwards"

Setting of division constant - channel counter
The division onstant is used for converting the input signal value into the required display value
range: -0,00001...999999

Setting of additive constant - PRESET, for counter channel
Offset of the initial value. This offset value is used every time after the display is cleared (zeroed)
range: -99999...999999

Setting of the projection format
The instrument alows for the standard projection with a fixed position of the decimal point as well as for projection with a floating decimal point „FLOA. P."

For measuring modes „TIME" and „RTC" are pre-set for the following specific time formats:
HHMMSS
99MMSS
HHMM
HHHHMM
MMMMSS
MMSSCC
99SSCC
HHMSSC

Setting of multiplication constant - channel frequency
The multiplication constant is used for converting the input signal value into the required display value
range: -0,00001...999999

Setting of division constant - channel frequency
The division constant is used for converting the input signal value into the required display value. Constant at its valeu from 2 to 100 will ensure precise measurement to given value or its multiplication. In reality this means that revolutions are measured after each cycle is completed which ensures bettere stability of the measured value.
This mode is not suitable for higher frequecies as it can extend the period o fthe measing cycle. If you do not wish to use this mode, please use the decimal point and adjust the multiplication period accordingly

Setting of additive constant - PRESET, for channel Frequency
Offset of the initial value. This offset value is automatically added to the projected value.
range: -99999...999999

Setting of the projection format
The instrument alows for the standard projection with a fixed position of the decimal point as well as for projectionit with a floating decimal point „FLOA. P."

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

Options - Comparators

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

Selecting the channel for limit evaluation
COUNT. - limit will react the value of channel „Counter"
FREQ. - limit will react the value of channel „Frequency"

Setting of limit 1
range: -99999...999999

Sellecting the channel to be shown on the display
COUNT. - channel „Counter" will be shown on the display
FREQ. - channel „Frequency" will be shown on the display

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

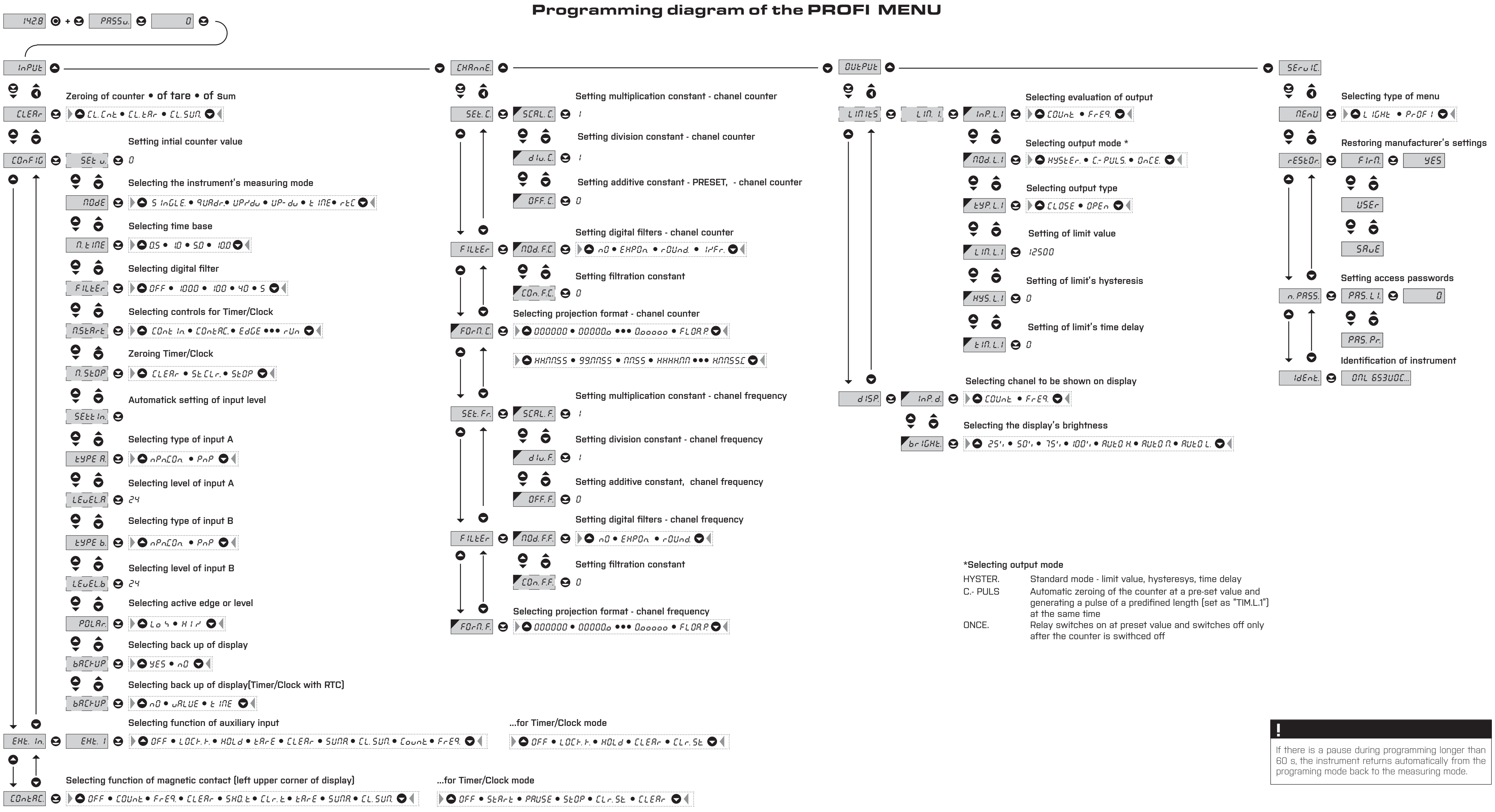
Return to the manufacturer's settings
Restores manufacturer's califrations and default setting of menu items (DEF)

Return to the user's settings
Restores user's setting, which means setting which was saved in the menu item SERVIC./RESTOR./SAVE

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

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

Programming diagram of the PROFI MENU



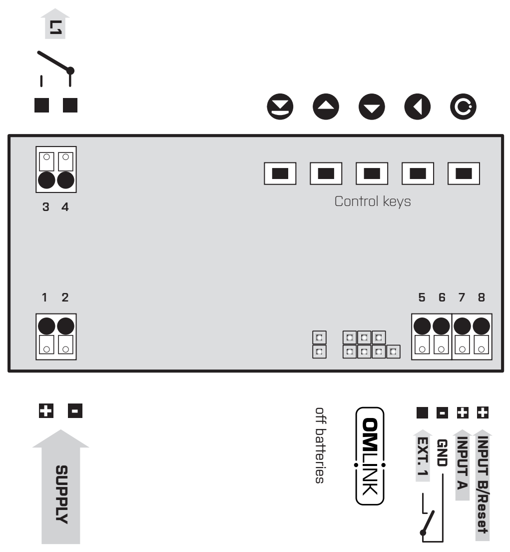
***Selecting output mode**

HYSTER.	Standard mode - limit value, hysteresys, time delay
C.- PULS	Automatic zeroing of the counter at a pre-set value and generating a pulse of a predifined length (set as "TIM.L.1") at the same time
ONCE.	Relay switches on at preset value and switches off only after the counter is swithced off

!

If there is a pause during programming longer than 60 s, the instrument returns automatically from the programing mode back to the measuring mode.

CONNECTING AND CONTROLING OF INSTRUMENT



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.

In executions without galvanic isolated power supply please beware of ground loops!

Terminals no. 2 and 6 are galvanic conneted.

CONNECTIONS

	DESCRIPTION	CONNECTION
INPUT A	input signal < 60 V	GND + Input A
INPUT B	input signal < 60 V	GND + Input B/Zeroing

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)

CONTROLLING

	POPIS
BY MAGNET	in the left upper corner the instrument can be controlled according to function selected in item "CONTAC."

TECHNICAL DATA

MEASURING INPUT

Type	upon contact, TTL, NPN/PNP
Measurement	1x counter/frequency UP or DOWN 1x counter/frequency UP/DOWN 1x counter/frequency for IRC encoders 1x timer/clock - measuring range is selectable
Input frequency	0,1...50 kHz (Mode SINGLE) 0,1...20 kHz (Mode UP/DW) 0,1...20 kHz (Mode UP-DW) 0,1...20 kHz (Mode QUADR. - frequency) 0,1...10 kHz (Mode QUADR. - counter)
Input levels	9,7 - 14,4 - 19,2 - 23,9 - 28,7 - 33,5 - 38,3 V

INSTRUMENT'S ACCURACY

TK	50 ppm/°C
Accuracy	±0,01% of the range + 1 digit (frequency)
Time base	0,5/1/5/10 s
Multiplication constant	±0,00001...999999
Division constant	±0,00001...999999
Filtration constant	enables the user to select maximum valid frequency, which is processed (OFF/5...1000 Hz)
Data back-up	stores the measured value after the device has been switched off (EEPROM)
Digital filtres	exponencialn filter, rounding up/down, 1/frequncy, measuring only completed revolutions (division constant)
Functions	Hold - "freezing the measured value", Lock - blocking the control buttons, Tare, Summation - adding values after each working shift is completed (upon contact)
Controlling the instrument	by sliding a magnet (accross the right lower corner of the bezel) this function can be selected in the PROFI menu, item "CONTAC" with the following selection: OFF/counter/frequency/zeroing/show tare/zero tare/tare/summation/zeroing of summation. When in mode Timer/Clock the list is: OFF/start/pause/stop/zeroing+start/zeroing.
External inputs	1, with the possibility of assigning various functions in the instrument's menu
RTC	keeps the internal clock running when the instrument's power supply is off. Battery powered (it is possible to switch off - jumper inside the instrument), min. life 1 year
Battery	Lithium cell CR 2032RV, 3V/220 mAh
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.v.

PROJECTION

Display	999999, red or green 7-segment LED, digit height 14 mm
Projection	999999
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	999999
Hysteresis	0...999999
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 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

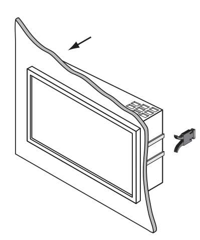
Connection	terminal board, section < 1,5 mm^2
Stabilization period	15 minutes after switch on
Working temperature	-20°...60°C
Storage temperature	-20°...85°C
Cover	IP65 (front panel only), rear of the instrument is open!
Provedení	security calss I
El. safety	EN 61010-1, A2
Dielectric strength	2,5 kVAC 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

MOUNTING AND DIMENSIONS

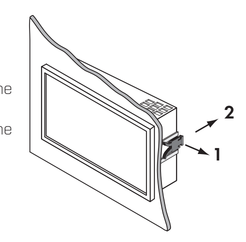
Mounting the instrument

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

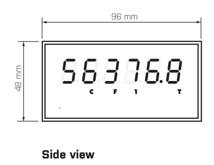


Removal of the instrument

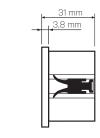
1. pry the rear end of the sliders away from the instrument's enclosure
2. slide the fixating sliders out of side groves of the enclosure as shown
3. remove the instrument from the panel cutout



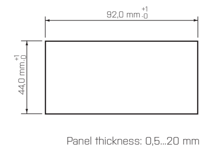
Front view



Side view



Panel cut



Panel thickness: 0,5...20 mm

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ORBIT MERRET, spol. s r.o.
Vodňanská 675/30
198 00 Praha 9
Czech republic

Tel: +420 - 281 040 200
Fax: +420 - 281 040 299
e-mail: orbit@merret.cz
www.orbit.merret.cz