



- linear output, fully adjustable in the range $0 \div 10V$ or $4 \div 20\text{ mA}$
- possibility to use the display
- possibility to use PIR detector
- range: $0 \div 65535\text{ lx}$
- device configuration via USB interface

The sensors are designed for sensing the intensity of indoor or outdoor lighting. The instrument may be equipped with a PIR detector to indicate the movement of people in the vicinity. The illumination sensor can be built into the sensor lid along with any PIR detector, or can be boxed in the bottom, where it is protected from direct sunlight. The electronics is placed on a printed circuit board inside a polycarbonate gray plastic head. The sensors are designed for direct wall mounting with two screws. Sensors must be protected from dirt, excessive dust or direct exposure to water! Device configuration is performed by connecting a standard USB mini B cable to PC using Windows free USB_SET application.

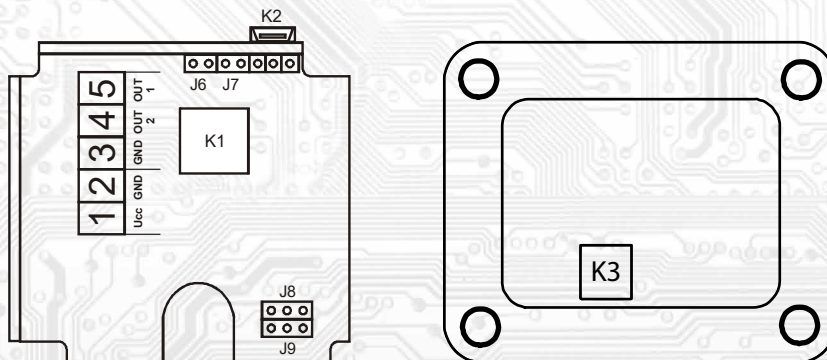
Basic technical parameters:

Supply voltage (Ucc)	15 to 30 VDC
Max. consumption (without load outputs)	15mA
Max. consumption (with load outputs)	55mA (OUT_1 = 20mA, OUT_2 = 20mA)
Resolution	1 lx
Max. range of light intensity	$0 \div 65535\text{ lx}$
Accuracy	$\pm 5\% \pm 5\text{ digits}$
Peak of the sensitivity spectrum	550 nm
IR sensitivity (850nm)	0,2 %
Max. range of PIR detector	5 m
Max. horizont./vertikal. detection angle PIR	$100^\circ / 82^\circ$
Load impedance of voltage outputs	$> 50k\Omega$
Load impedance of current outputs	$< (U_{cc} - 13) \times 50\text{ [\Omega]}$
Range of working temperature and humidity	$-20 \div 60^\circ\text{C} / 0 \div 90\% \text{RH}$ without condensation
Range of recommended storage temp. / RH	$10 \div 50^\circ\text{C} / 20 \div 60\% \text{RH}$
Protection type	IP65
Terminal board	COB (wires max. $1,5\text{ mm}^2$)
Cable gland	PG9 / 8 mm
Configuration and FW upgrade	USBset; freeware; www.regmet.cz

List of available types:

	lighting	lighting + PIR
sensor in lid	without LCD: PALNV111/F-N with LCD: PALNV111/F-D	without LCD: PALNV111PIR/F-N with LCD: CANNOT
sensor underneath	without LCD: PALNV111/B-N with LCD: PALNV111/B-D	without LCD: PALNV111PIR/B-N with LCD: CANNOT

Connection plan (fig.2):



K2...connector USB mini B

K3...connector of sensor in the lid (PAL.../F)

J6...device configuration

J7... reset

J9... output selection OUT 1 (light intensity) voltage/current

J8... output selection OUT 2 (PIR detector) voltage/current

Terminal 1..... +Ucc, positive pole

Terminal 2..... GND, negative pole

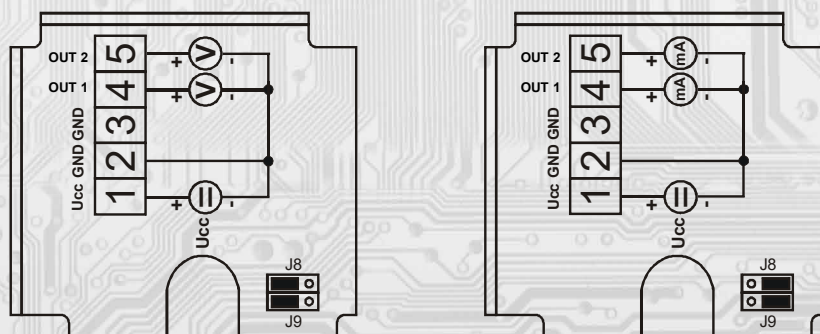
Terminal 3..... RS485 - common pole (GND)

Terminal 4..... output OUT 1 (light intensity)

Terminal 5..... output OUT 2 (PIR detector)

Terminal 2 a terminal 3 are galvanically connected.

Connection of outputs and power supply (fig.3)



HW configuration of outputs:

It is performed using J jumpers J8 and J9.

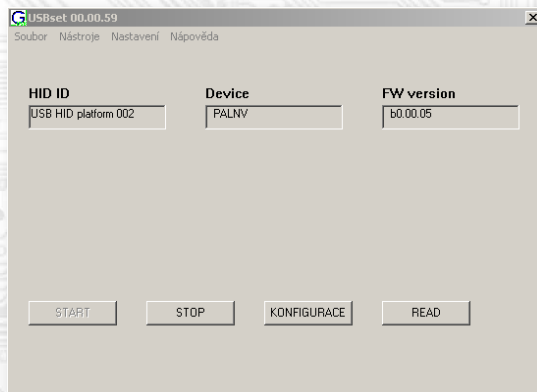
output signal OUT 1	output signal OUT 2	J9	J8
voltage	voltage	U1	U2
current	current	I1	I2
voltage	current	U1	I2
current	voltage	I1	U2

SW configuration of input:

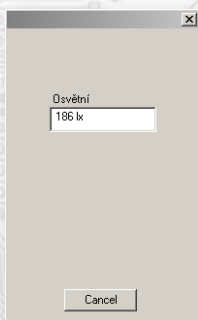
Using the USBset program.

SW configuration of sensor using the USBset program:

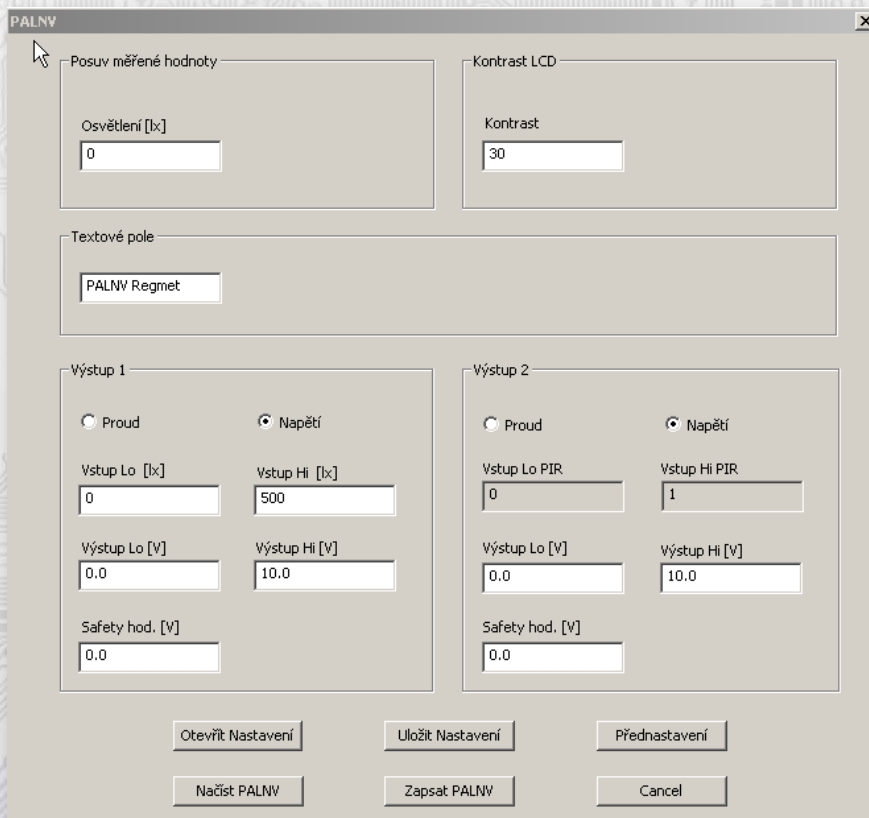
The configuration application USBset is freely available at producer's web pages. The controlled can be configured only when the jumper J6 is inserted before the connection of supply voltage (reset). The sensor is connected with PC using the cable of USB mini B type. With connected cable the USB communication has the priority over the line RS485.



With clicking on the "READ" button opens the window with the current input values.



With clicking on the button "SET" the configuration window gets opened.



With clicking on the button "READ" the conguration values from the flash memory of sensor are read.

The offset of the measured lighting value is used to enter the offset of the measured value.
For example, if the instrument appears to overmeasure by 10 lx, a value of -10 will be set and the instrument will display and operate with a value 10 lx lower than what is actually measured.

LCD contrast is used to change the contrast of the display LCD if it is part of the device.

Text field ...intended for the client's identification of the controller (title, location...).

Output 1 (lighting):

It is selected, whether the output should be voltage or current.

The range of the input signal is entered in the maximum range of 0 ÷ 65535 lx, it is also possible to inversely.

The specified range of the input signal is assigned the range of the output signal in the maximum range of 0 ÷ 10V or 0 ÷ 20mA, the inverse is also possible.

The safety value is used to enter a safe value to which the output is set after switching on, or resetting the device before it starts working correctly or in the event of a sensor failure.

Output 2 (PIR detector): **only, if it is fitted**

It is selected, whether the output should be voltage or current.

The range of the output signal is assigned in the maximum range of 0 ÷ 10V or 0 ÷ 20mA, it is also possible to inversely.

The safety value is used to enter a safe value to which the output is set after switching on, or resetting the device before it starts working correctly or in the event of a sensor failure.

After setting of required values and quantities the new configuration values are saved in the flash memory of the device by clicking on the button "Write"

The writing into the flash memory is conditioned by insertion of jumper J6 (authorisation for configuration values recording) before the clicking on the button "Write"

By clicking on the button "Cancel" the configuration windows gets closed.

After USB cable disconnection the jumper J6 is pulled out and the device is ready for operation.

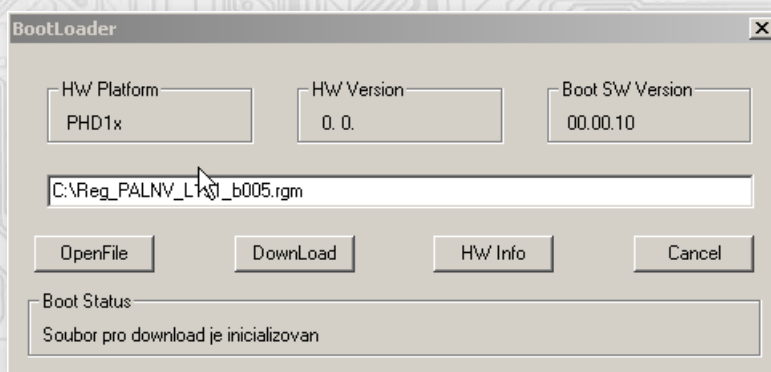
Factory default settings:

Lighting: 0 ÷ 500 lx = 0 ÷ 10V

PIR detector: 0 / 1 = 0 / 10V (there are 2 states - inactive and active, so when detected, a voltage of 10V appears on the output for approx. 3s)

Variation of the application part FW:

After the USBset program launching click on the Tools – BootLoader and the windows gets opened:



The work with application is conditioned by insertion of the jumper J6 (authorisation for configuration values recording).

Using the button "OpenFile" the new application FW is chosen and using the button "DownLoad" the FW variation gets started, being automatically controlled by PC and the device.

For the maximum simplicity and safety every device has unambiguous identification of HW platform. This designation describes HW topology and also defines what application FW can be sued for the specific type of HW. This information can be read through the button "HW info".

The application FW are distributed in data format ".reg ". In case of application variation the information on HW platform and HW version are always read after the connection of PC with the device. At the same time, the HW platforms descriptors and HW versions from the file ".reg " are read. Provided HW platform and HW version are not compatible, the FW variation cannot be done.

Provided the communication failure occurs during the application FW variation, for example due to the supply voltage drop, the application SW will not be functional. In such case the automatic launching of "bootload" process as well as the automatic reading of HW info will not work. The Bootloader in the device gets always activated after the reset, thus it is necessary to reset manually. Using the RESET jumper or the simple disconnection and subsequent connection of supply voltage.

Provided the automatic sequence of FW variation launching is damaged:

- switch off the device or connect the jumper at RESET pins
- launch the bootload process using the button "DownLoad"
- switch on the supply voltage or release the RESET jumper
- delay between the activation of button "DownLoad" and the switching on or by the RESET shall be shorter than 2s.

After the USB cable disconnection the jumper J6 is pulled out and the device reset is performed using the short shorting of RST jumper (J7).

The integrity check of content of memory:

The bootloader as well as the application are protected by control total sums. Provided the data integrity is broken, the content of FLASH memory MCU is damaged and the damaged program will not be launched.