



Sensors are intended for measuring air flow speed without aggressive additives in air conditioning ducts (PFLV12) or on the facade of the windward side of the house (PFLV11). The type PFLV1111 is used, for example, for automatic closing of shutters, drawing awnings,....

The output is a linear voltage or current signal fully configurable throughout 0 10V or 0 20 mA.

Type PFLVxxD also enables local display of measured values using a display built into the transparent cover of the sensor.

The flow speed sensor itself is located at the end of the plastic ABS stem. For an accurate measurement, the sensor must be placed parallel to the flowing air as shown on the cover of the device. As the sensor is open, contact with heavier particles must be prevented to avoid damage.

The electronics is located on a printed circuit board inside a gray polycarbonate plastic head. The sensor PFLV12 includes a plastic central holder used to attach the sensor to the wall of the air conditioning duct, the sensors PFLV111 are installed directly on the wall of the house (properly protected from rain) and the air flow along the wall is used to detect the wind.

Common chemically non-aggressive environment is suitable for operating conditions, where the sensors do not require maintenance, it is only convenient to regularly clean the sensor from impurities (dust, cobwebs, etc.). Device configuration is performed by connecting the sensor with a standard USB mini B cable to a Windows PC using a freeware application USB\_SET.

**List of available types:**

	without LCD	with LCD
Outside	<b>PFLV111-N</b>	<b>PFLV111-D</b>
Duct type	<b>PFLV12-N-L1</b>	<b>PFLV12-D-L1</b>

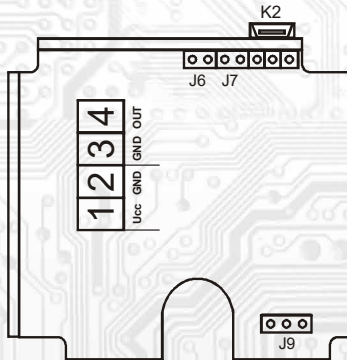
**Standard Length L1:**

180 mm  
240 mm

**Basic technical parameters:**

Supply voltage (Ucc)	15 to 30 VDC
Max. Input power	3 VA
Sensitivity	0,01 m/s
Max. measuring range	0 ÷ 20 m/s
Response speed	< 2s
Max. measuring error	± 0,5 m/s (± 5 % of range)
Temperature sensitivity	< 0.1 %/K
Settling time	≥ 20 minutes
Load impedance of voltage outputs	> 50kΩ
Load impedance of current output	< (Ucc - 13) x 50 [Ω]
Operating temperature range of the sensing part	-20 ÷ 80 °C
Range of recommended temperature	-30 ÷ 60 °C
Range of recommended humidity without condensation	0 ÷ 90 %RH
Range of recommended storage temp	10 ÷ 50 °C / 20 ÷ 60 %RH
Protection type of case	IP65
Protection type of sensor	IP00
Type of terminal block	COB (wires max. 1,5 mm <sup>2</sup> )
Cable gland / Max. cable	PG9 / 8 mm
Configuration and FW upgrade program	USB_SET; freeware; <a href="http://www.regmet.cz">www.regmet.cz</a>

### Connection plan (fig.1):



K2... connector USB mini B

J6... device configuration

J7... reset

J9... output selection voltage/current

Terminal 1..... + pole UCC

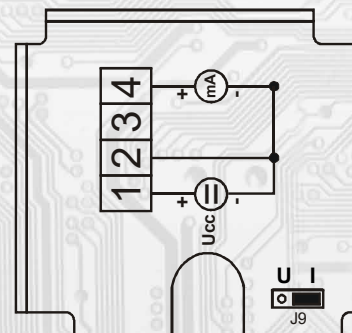
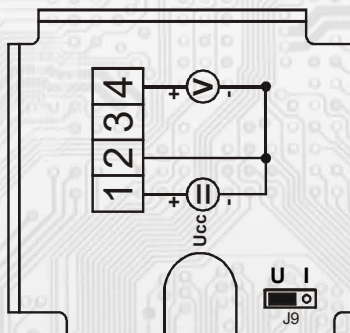
Terminal 2..... - pole GND

Terminal 3..... common pole outputs (GND)

Terminal 4..... output

Terminal 2 and 3 are galvanically connected

### Connection of input signals and power supply (fig.2)



### HW configuration of the output

Jumper J9 is used.

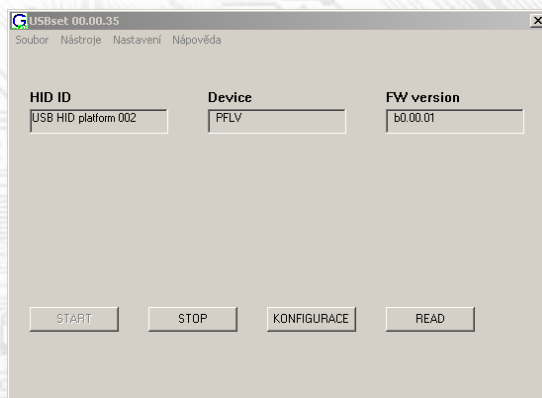
output signal	J9
voltage	U
current	I

### SW configuration

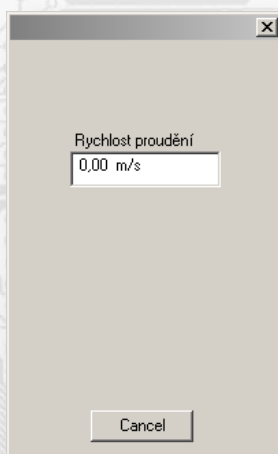
USB interface with the USBset program is used.

### SW configuration of sensor using the USBset program:

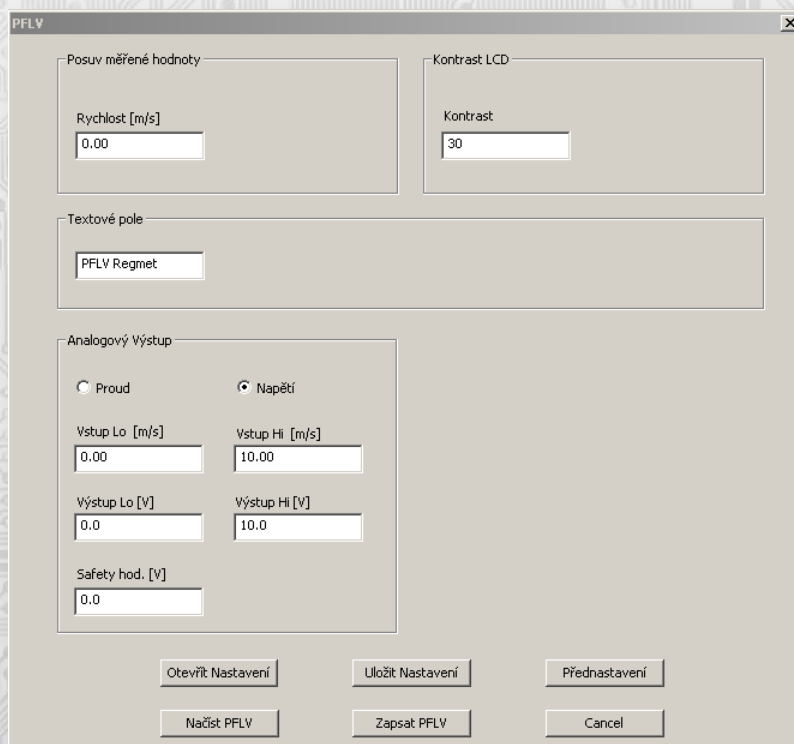
The configuration application USBset is freely available at producer's web pages. The controlled can be configured only when the jumper J6 is inserted before the connection of supply voltage (reset). The sensor is connected with PC using the cable of USB mini B type. With connected cable the USB communication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



By clicking on the button "READ" the configuration window with the current input values will be opened.



By clicking on the button "KONFIGURACE" the configuration window will be opened.



By clicking on the button "Načíst PFLV" the configuration values from the flash memory of sensor are read.

The offset of the measured value is used to enter the offset of the measured value.

For example, if the device appears to be over measuring by 1 m/s, an offset of -1.0 will be set and the device will display and operate with a value 1 m/s lower than what is actually measured.

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

The text field can be used as desired for customer identification of the device.

Analog output:

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 ÷ 20 m/s, it is also possible to inverse it.

The specified range of the input signal is assigned to 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 reset the device before it starts correctly to work or in the event of a sensor failure.

After setting the required values and quantities, clicking the "Zapsat PFLV" button will save the new configuration values to the sensor's flash memory.

The condition for writing to the flash memory is to insert jumper J6 (allowing writing of configuration values) before clicking this button.

Clicking the "Cancel" button will close the configuration window.

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

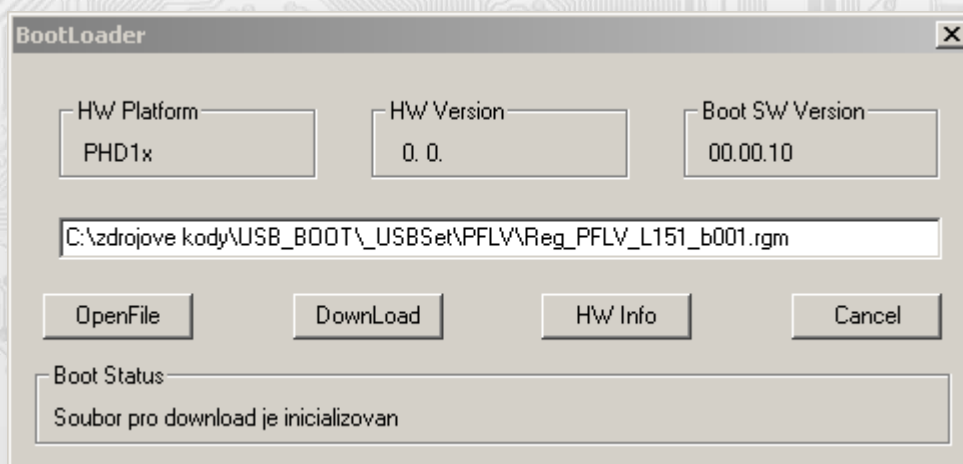
Factory default settings (if they are not the values requested by the customer):

0 ÷ 10m/s = 0 ÷ 10V

The sensor is therefore set to the values shown in the image of the configuration window.

Upgrade FW:

After starting the USBset program, clicking on Tools - BootLoader will open the window:



A condition for working with the application is the insertion of jumper J6 (allowing writing of configuration values).

With the "OpenFile" button, a new application FW is selected. With the "Download" button, the FW change is started - it is already controlled, automatically by PC and device.

For maximum simplicity and security, each device has a unique HW platform identification. This indication describes the HW

topology and it determines which application FW can be used for a given type of HW. This information can be read by using the "HW info".

Application FWs are distributed in the ".reg" data format. When changing the application after connecting the PC to the device, information about HW platform and HW version are always displayed. At the same time, the description of the HW platform and the HW version from the ".reg" file will be loaded. If the HW platform is not compatible with the HW version, there will be no FW change.

If a communication failure occurs when the application FW is changed, e.g. when the supply voltage drops, the application SW will not be working. In this case, the automatic start of the "bootloading" process will not work, nor it will be able to clean automatically

HW info. The bootloader in the device is always activated after a reset, so it is necessary to reset the device manually. Either using the RESET jumper or by simple disconnecting and then connecting the supply voltage.

If the automatic sequence of starting the FW change is broken:

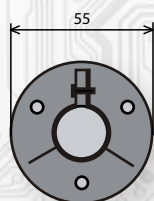
- Turn off the device or connect a jumper to the RESET pin
- Start the bootloading process using the "DownLoad" button
- Turn on the power supply or release the RESET jumper
- The delay between activating the "DownLoad" button and turning on or RESETing the device must be shorter than 2s.

After disconnecting the USB cable, jumper J6 is pulled out and the device is reseted by short-circuiting the RST jumper (J7).

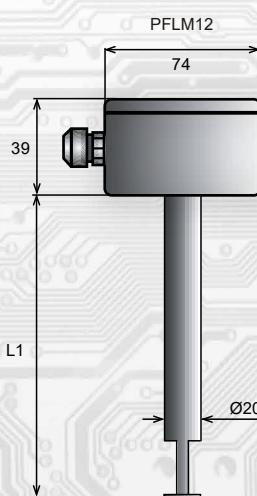
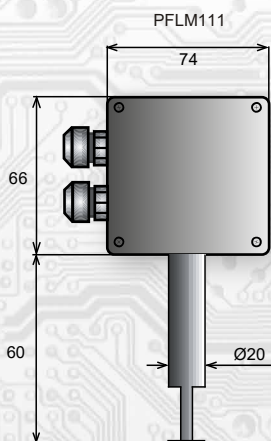
Checking the integrity of the memory contents:

Both the bootloader and the application are protected by checksums. If the data integrity is violated, the contents of the FLASH MCU memory will be damaged, the corrupted program will not run.

Central holder A  
pro PFLV12-x-xx



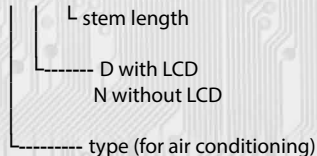
3 holes Ø 4,5 mm



Method of ordering:

The number of pieces and the type of sensor are indicated in the order.

Order example: 5 pcs of sensor PFLV12-D - 180



The factory default setting is  $0 \div 10 \text{ m/s} = 0 \div 10\text{V}$ .

If a different setting is specified in the order, the sensor will be set to these parameters at the time of production.