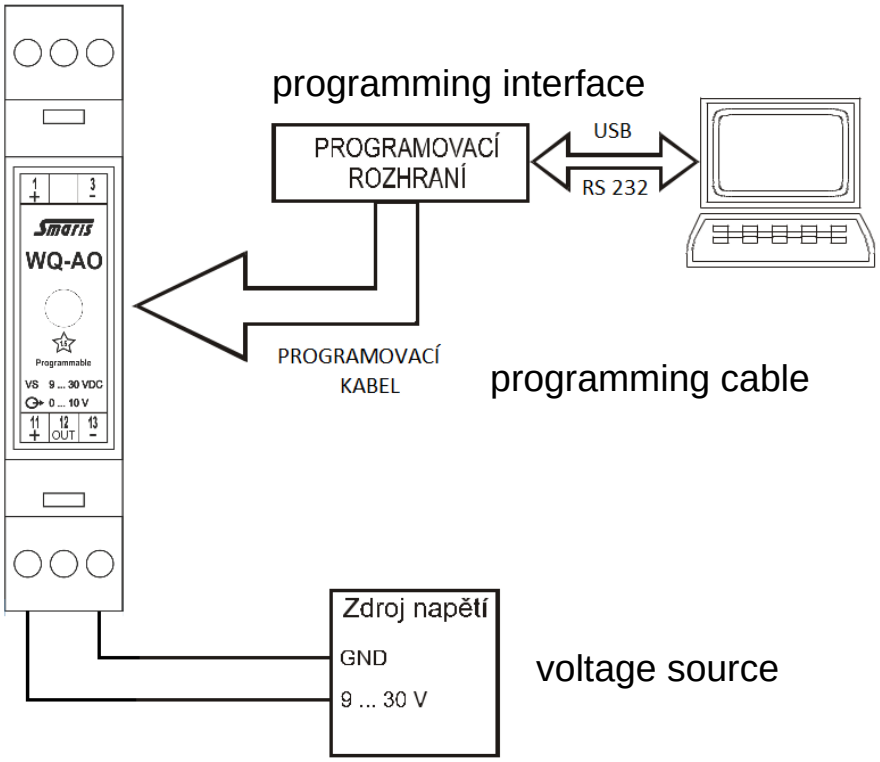
Smart Converter User Manual
WQ-AO

The intelligent WQ-AO converter is designed for measuring selected properties of aqueous solutions in industry (pH values, redox potential, amount of chlorine, oxygen, etc.). Individual parameters are set using the WQ-AO_uzivatel.exe program.



1. **Connect a suitable electrode, e.g. a combined glass electrode for pH measurement, to the WQ-AO converter.**

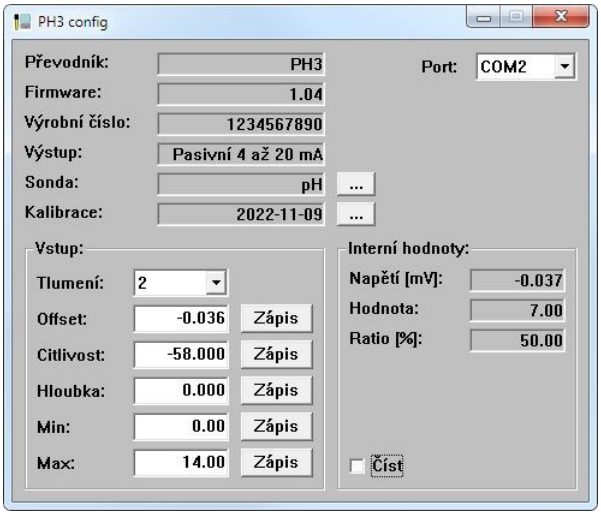
2. **Connect the converter to the PC using a programming adapter (USB or RS232).**

3. **Connect a 9 – 30 VDC supply voltage to the converter (19 – 30 VDC for active output).**

4. Run the WQ-AO_uzivatel.exe control program on the PC

Description of parts of the WQ-AO_uzivatel.exe program

In the upper right corner, select the serial port corresponding to the connected communication interface. When using a USB adapter, it may be useful to check which serial port the USB adapter is mapped to - control panel » device manager » Ports (COM and LPT). If connected correctly, the converter type, firmware version, serial number and values of all parameters will be loaded into the appropriate program fields.

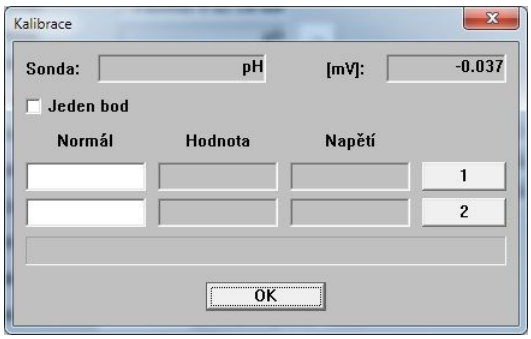


PROBE parameter:

If necessary, it is possible to change the probe type here. Along with the probe type, the default values for:
• date of last Calibration
• parameters Offset and Sensitivity
• extreme values of the measuring range Min and Max will be automatically written to the converter

CALIBRATION parameter:

In this section, you can perform precise calibration of the probe using the appropriate calibration solutions.



Calibration procedure:

1. Select one-point or two-point calibration using the “One Point” check box. For probes that can only be calibrated with one point, this option is automatically selected.

2. Fill in the exact values of the prepared calibration solutions (e.g. 4.01 for pH) in the “Normal” fields for individual calibration points.

3. Immerse the probe in the calibration solution and wait for the voltage to stabilize. This can be observed in the “[mV]” column.

4. Press the “1” or “2” button corresponding to the relevant calibration point and wait for the sampling to complete. This step can be repeated, e.g. in case of a large difference between the resulting “Voltage” and the continuously updated value “[mV]”.

5. In the case of a two-point calibration, repeat steps 3 and 4 for the second calibration solution.

6. Complete the calibration by pressing the “OK” button. The date of the last Calibration and the Offset and Sensitivity parameters will be automatically written to the converter.

INPUT:

In this section, you can manually edit the values of the operating parameters. The new value of each parameter must be written separately to the converter using the appropriate “Write” button. The “Damping” parameter is written automatically.

Damping: Filter time constant. Approximately 63% of the input signal step change is processed during this time. The default value is 2 seconds. In case of noisy input signals, set a higher value.

Offset: Voltage magnitude for pH 7.00 or voltage magnitude for zero value (other quantities).

Sensitivity: Voltage magnitude for a unit of quantity.

Depth: Hydrostatic pressure compensation for the oxygen probe, in meters.

Min: The value of the measured quantity for the lower nominal value of the output analog signal (e.g. pH 4.00 for an analog signal of 4 mA).

Max: The value of the measured quantity for the upper nominal value of the output analog signal (e.g. pH 9.00 for a 20 mA analog signal).

INTERNAL VALUES:

This part of the program displays selected internal values of the converter. You can activate automatic data update by checking the "Read" box.

Voltage [mV]: The average (filtered) value of the input voltage in millivolts.

Value: The value of the measured quantity in the appropriate units (e.g. pH 7.55).

Ratio [%]: Relative value of the analog output signal in percent.