Water quality SK80-WAQ-MES KNX-Sensor

SK80-WAQ-MES	SK80-WAQ
	
Measuring electronics with probes	Measuring electronics

The measuring system can be ordered with or without probes.

Article	Article number	Description
SK80-WAQ-MES	30802101	Measuring electronics with probes
SK80-WAQ	30801100	Measuring electronics without probes
Set of probes	91110020	1x pH-probe , 1x ORP-probe

Device description

The SK80-WAQ measuring system records the chemical values pH value (hydrogen ion concentration) and ORP (oxidation/reduction potential, also known as redox potential). The measuring electrodes supply voltages in the mV range, which are dependent on the chemical values. These voltages are amplified in an extremely high-impedance measuring amplifier (> 500GOhm), digitally converted and output on the KNX bus. There is galvanic isolation between the electrodes and the KNX bus, which prevents ring currents. Any commercially available pH and ORP electrodes can be used, provided that they are combination electrodes whose shielding can be connected together. An input for a temperature sensor (PT1000) and two potential-free contact inputs are optionally available. When the temperature sensor is used, the pH value is temperature compensated.

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

Table of Contents

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

Applications

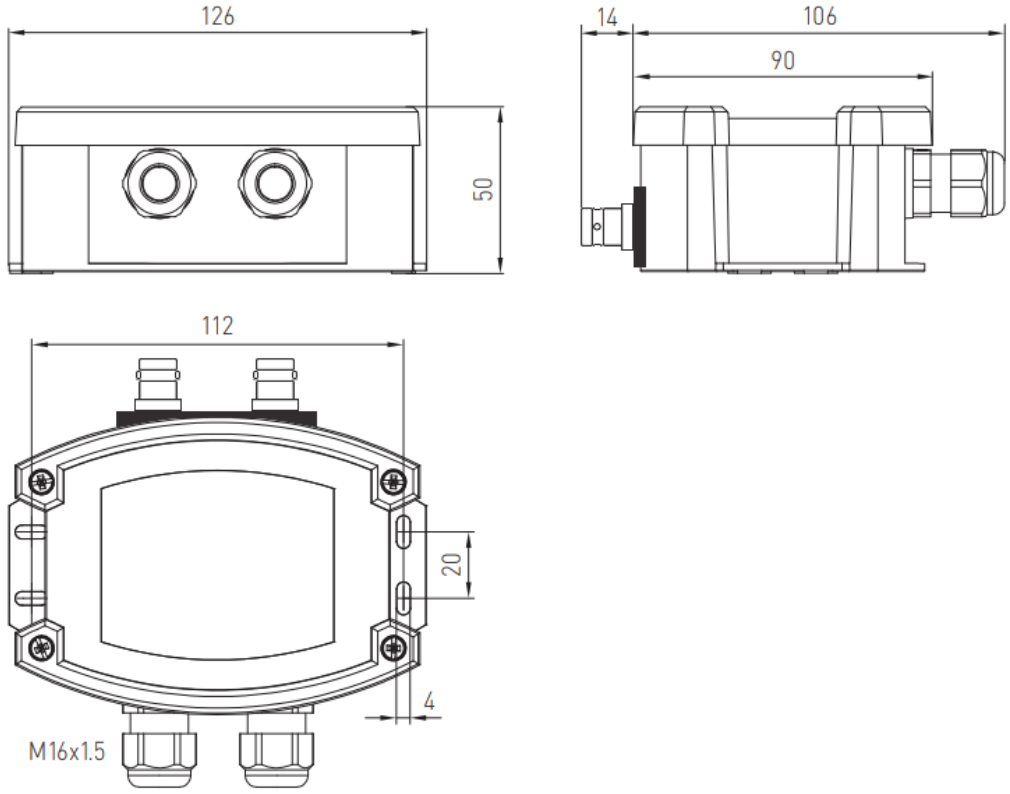
Monitoring and assessment of the water quality of swimming pools, aquariums, ponds and industrial water systems, control of disinfection systems.

Technical data

SK80-WAQ	
Supply voltage	KNX 21 .. 32V DC
KNX load	10mA
Operating/storage temperature Bus Coupler	-25 .. +60°C / -25 .. +80°C
Ambient humidity	0 .. 100% non-condensing
Dimensions	see drawing
ETS application	Arc_S8.knxprod / S8-WAQ
Protection class Bus Coupler	IP54/65
Sensor PT1000	
Measuring range Depending on the measuring resistor	0 .. +80°C
Resolution / Accuracy	± 0,01°C / ± 0,3°C
pH-probe HI2114P	
Measuring range pH	0 .. 13
Resolution / Accuracy	± 0,01°C / ± 0,3°C
Temperature range	0 .. +80°C
Thread	3/4" x 16UNF / PG 13,5
ORP-probe HI3214P	
Measuring range ORP	0 .. 2000 mV
Resolution / Accuracy	± 0,01°C / ± 0,3°C
Temperature range	0 .. +80°C
Thread	3/4" x 16UNF / PG 13,5

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Drawing



Inside view

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Instructions for use and care of probes

Use

- Screw in the electrodes with PG 13.5 thread hand-tight only.
  Avoid using tools to screw the electrodes in.
- The electrodes must be installed in a bypass, a direct connection can lead to distorted measurement results.
- The pH probe is also suitable for salt water.
- We have no information on the use of the ORP probe in salt water.

Regular maintenance is essential for the reliable and long-lasting function of your probes.
Please note the following information:

Storage

- The electrodes must never dry out.
- Always store the probes in a 3-molar KCL solution in the supplied soaking cap.
- Never store in distilled water, this can permanently damage the probes.

Cleaning

- Clean the probes regularly by rinsing them with distilled or tap water.
- Avoid cleaning with abrasive materials or alcohol.

Calibration

- Calibrate the pH electrode regularly, ideally after every cleaning.
  Only use fresh buffer solutions (pH 7.00 and pH 4.00).
- Calibration of the ORP probe is not necessary in most cases.

Lifetime

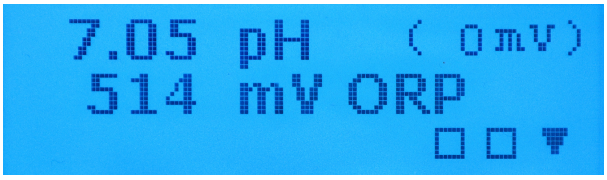
- The typical service life of a probe (combination electrode) with proper handling and care is
  - Use at room temperature: 1-3 years
  - Use at 60-80°C: several months

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

Displays on the device

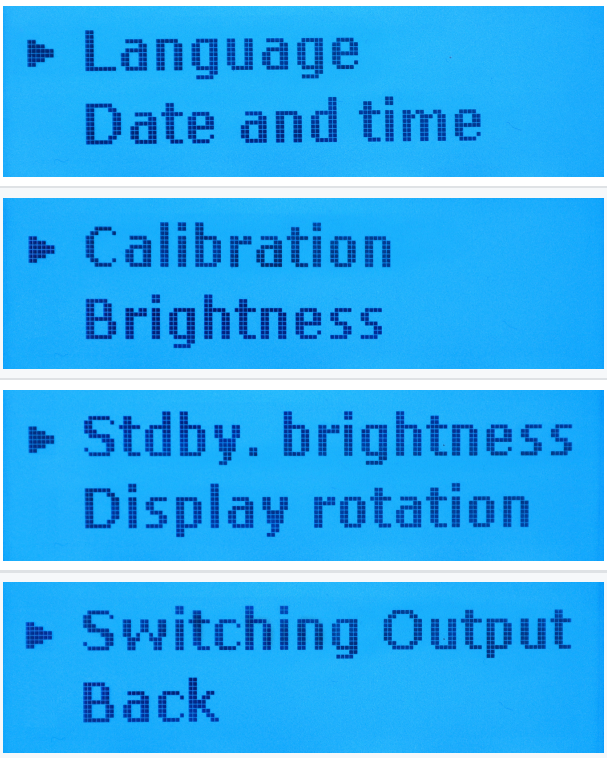
The current values are displayed on the device and output on the KNX bus.

LCD display normal view



- current pH value
- current ORP value
- current temperature
- left switching input inactive ☐ active ☒
- right switching input inactive ☐ active ☒
- switching output inactive ▼ active ▲

LCD display settings
(Local settings)



Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Operation via the buttons:

- Pressing the button (o) opens the settings.
- A short press of the button (o) enters the next menu item, jumps to the next digit or accepts the current value.
- Long press of the button (o) exits the current menu item without changing it or goes to the previous digit.
- The +/- buttons select the previous/next menu item or increment/decrement the current digit.

> Changes to the parameters must be confirmed via a dialogue (Apply/Cancel).

The following settings can be made using the operating buttons:

- Language
  - German
  - English
  - Spanish
- Date/Time

  > The date and time are only used for the display and the timer function.
- Calibration

  > Calibration of the pH probe (see commissioning)
- Brightness
  - Brightness of the display during operation
    0 - 5 - 10 - 20 - 40 - 70 - 100 %
- Standby brightness
  - Brightness of the display in standby mode
    0 - 5 - 10 - 20 - 40 - 70 - 100 %
- Rotate display
  - Display is rotated by 180°

  *Switching output

  > Not available as standard
- back
  - Back to normal view

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

Commissioning

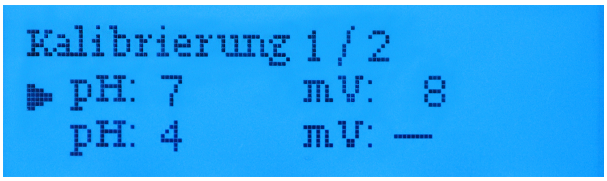
- Check electrodes for mechanical damage before commissioning.
- Salt formation on the probe is not a defect.
- Carefully remove the watering cap by turning it and rinse the electrode with tap water.
- The electrodes are now ready for use.

Calibration of the pH probe

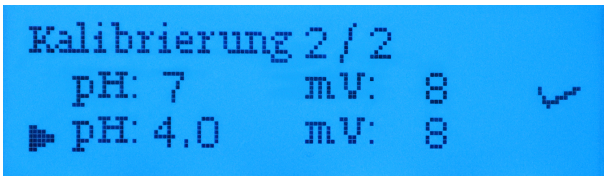
> Resources required: pH7 and pH4 calibration solutions

Open the menu item 'Calibration'

Immerse the pH probe in the pH7 calibration solution and wait until the value in mV remains stable.

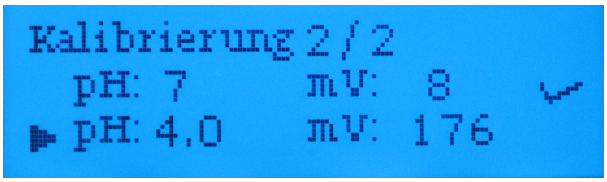


Press the (o) button to confirm

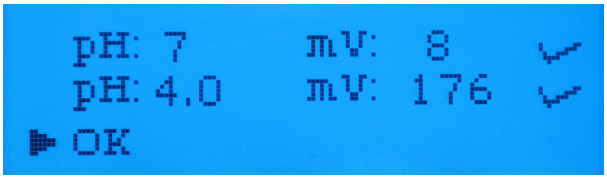


Rinse the probe with tap water.

Immerse the pH probe in the pH4 calibration solution and wait until the value in mV remains stable.



Press the (o) button to confirm



Confirm the calibration with the (o) button.

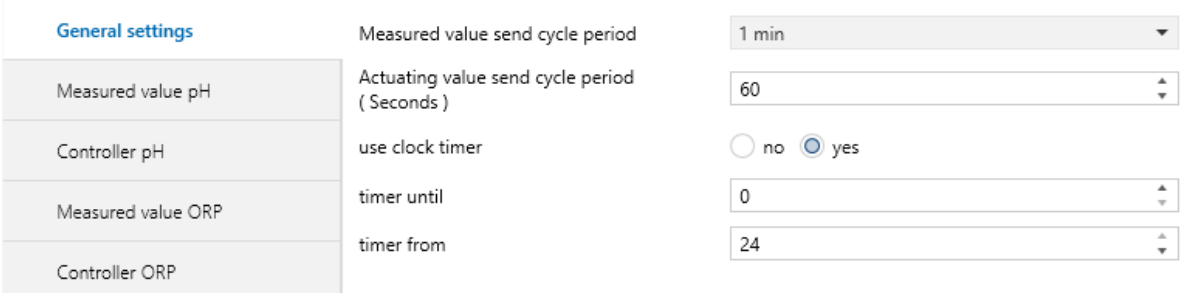
> If the following appears in the display, the pH probe should be replaced.
> "**OK Slope < 40mV/pH**" or "**OK Slope > 70mV/pH**"

Select Cancel or Accept calibration.

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

ETS setting

General settings



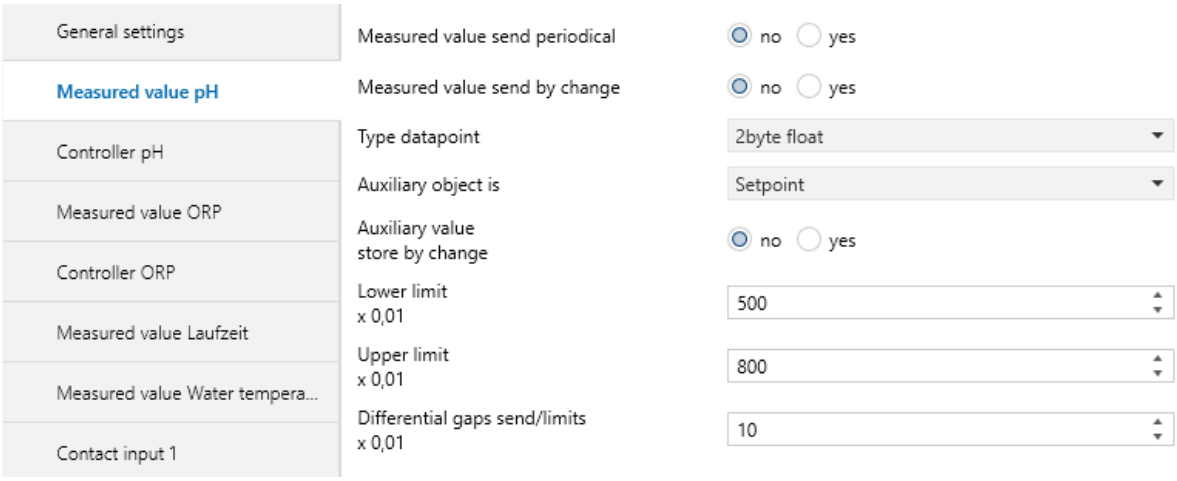
Parameter	Setting
Measured value send cycle period	1 .. 120 min
Actuating value send cycle period (Seconds)	10 .. 250
use clock timer	no / yes
timer until	0 .. 24 clock
timer from	0 .. 24 clock

If the timer is used, the controllers are active in the periods between **'Timer from'** to **'Timer until'**.
The prerequisite is that the **'Use timer'** parameter in the **'Controller'** parameter field is activated.

The device loses the date and time in the event of a power failure.
The date and time must be set again.
It therefore makes sense to connect objects **58:Time** and **59:Date** to a time server.

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

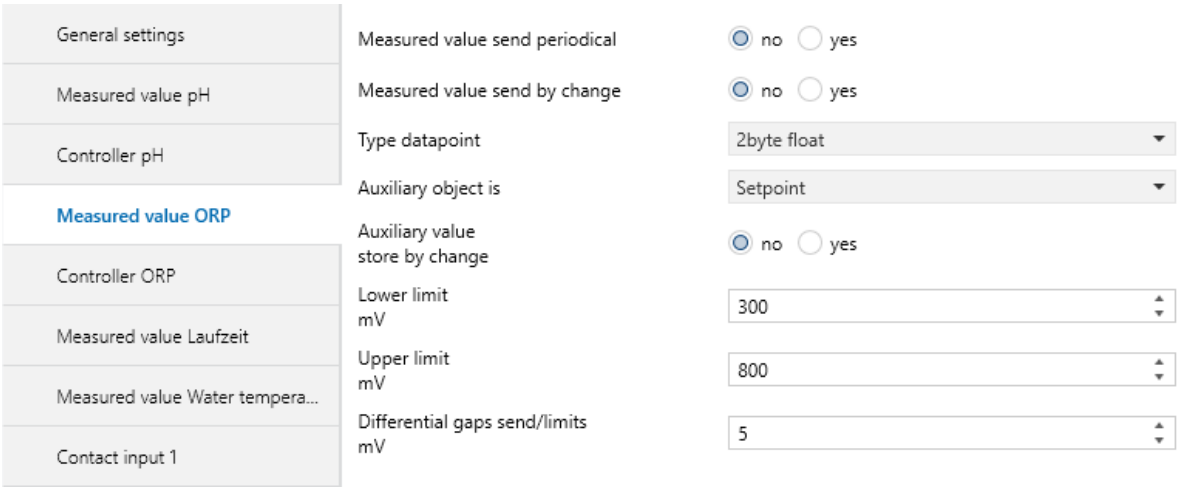
Measured value pH



Parameter Measured value pH	Settings / Description
Measured value send periodical	no / yes
Measured value send by change	no / yes
Type datapoint	KNX data type for measured value
Auxiliary object is	- Setpoint - Upper limit - Lower limit Parameter that can be changed via the auxiliary object.
Auxiliary value store by change	no / yes
Lower limit x 0,01	0 .. 1400 If the measured value is below this limit, the object ‘5:lower limit pH’ is set. Note any changes due to auxiliary size.
Upper limit x 0,01	0 .. 1400 If the measured value exceeds this limit, the object ‘4:upper limit pH’ is set. Note any changes due to auxiliary size.
Differential gaps send/limits x 0,01	0 .. 1400 Is symmetrically above the limit values as hysteresis.

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Measured value ORP

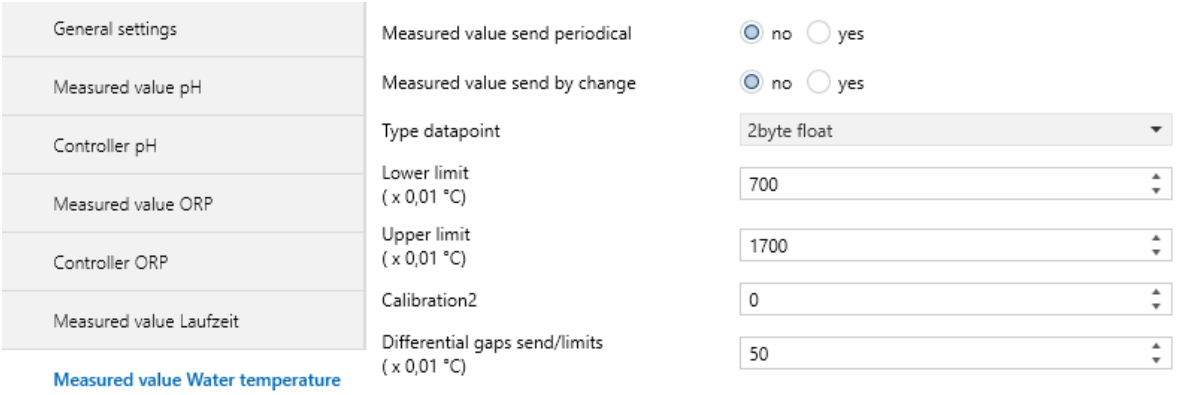


Parameter Measured value ORP	Settings / Description
Measured value send periodical	no / yes
Measured value send by change	no / yes
Type datapoint	KNX data type for measured value
Auxiliary object is	- Setpoint - Upper limit - Lower limit Parameter that can be changed via the auxiliary object.
Auxiliary value store by change	no / yes
Lower limit mV	-1200 .. 1200 If the measured value is below this limit, the object ‘12:lower limit ORP’ is set. Note any changes due to auxiliary size.
Upper limit mV	-1200 .. 1200 If the measured value exceeds this limit, the object ‘11:upper limit ORP’ object is set. Note any changes due to auxiliary size.
Differential gaps send/limits mV	-1200 .. 1200 Is symmetrically above the limit values as hysteresis.

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Measured value Water temperature

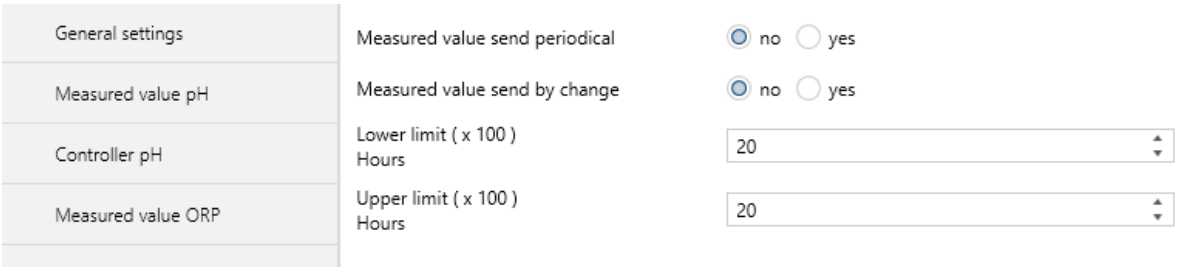
> The sensor for the water temperature must be installed in the same medium as the pH and ORP probes and is used to compensate for the temperature-dependent pH value.



Parameter Measured value Water temperature	**Settings / Description**
Measured value send periodical	no / yes
Measured value send by change	no / yes
Type datapoint	KNX data type for measured value
Lower limit (x 0,01 C°)	-9999 .. 9999 If the measured value is below this limit, the object ‘26:lower limit Temperature’ is set.
Upper limit (x 0,01 C°)	-9999 .. 9999 If the measured value exceeds this limit, the object ‘25:upper limit Temperature’ is set.
Calibration2 (x 0,01 C°)	-32768 .. 32767 With long sensor cables, the measured values can be distorted by the cable resistance. The error can be corrected with this parameter.
Differential gaps send/limits (x 0,01 C°)	0 .. 1000 Is symmetrically above the limit values as hysteresis.

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Runtime



Parameter Measured value Term	Settings / Description
Measured value send periodical	no / yes
Measured value send by change	no / yes
Lower limit (x 100) Hours	0 .. 9999 If the measured value is below this limit, the object ‘19:lower limit Term’ is set.
Upper limit (x 100) Hours	0 .. 9999 If the measured value exceeds this limit, the object ‘18:upper limit Term’ is set.

Control for the running time of the probes in hours.

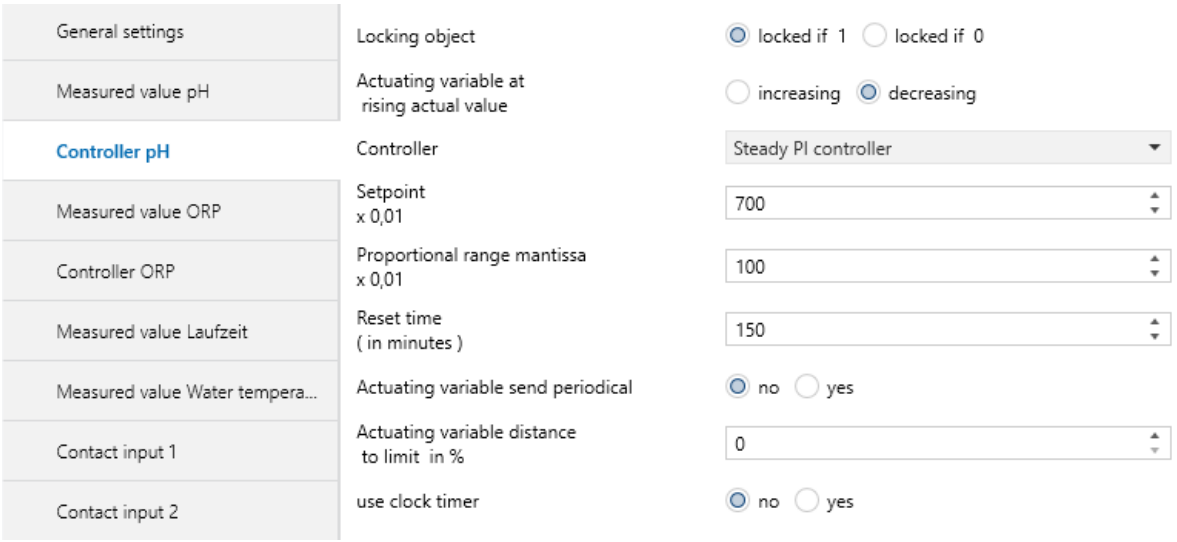
The runtime can be reset in two ways:

- when recalibrating the pH probe
- when the device is reset

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Controller variants for the pH value

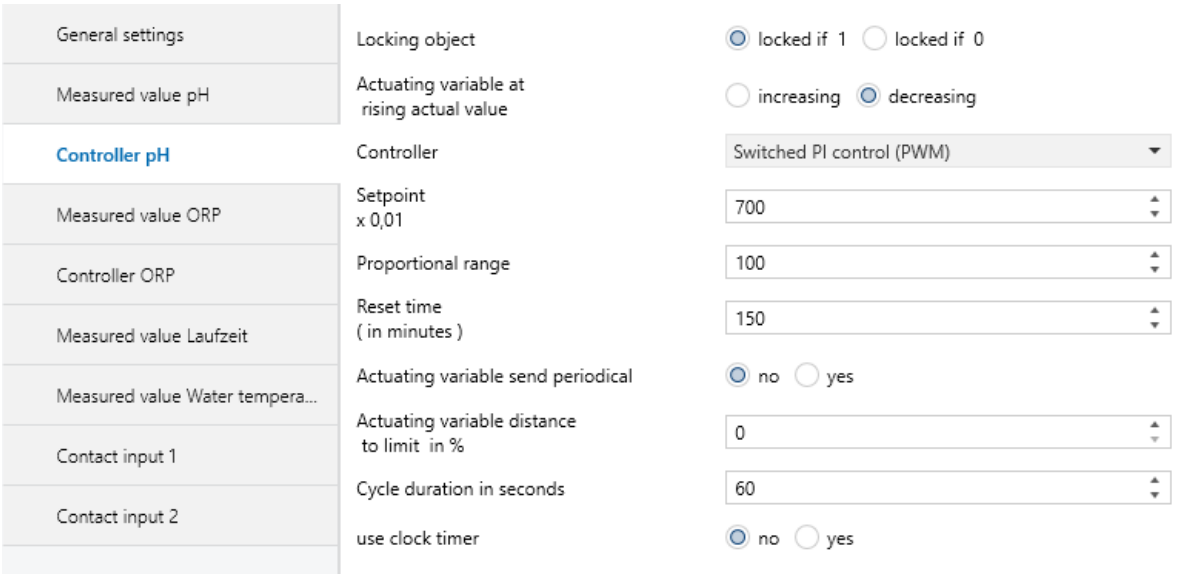
pH value : Steady PI controller



Parameter Steady PI controller	Settings / Description
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Steady PI controller
Setpoint x 0,01	0 .. 1400 Note any changes due to auxiliary size.
Proportional range mantissa x 0,01	0 .. 1400
Reset time (in minutes)	0 .. 255
Actuating variable send periodical	no / yes
Actuating variable distance to limit in %	0 .. 50
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

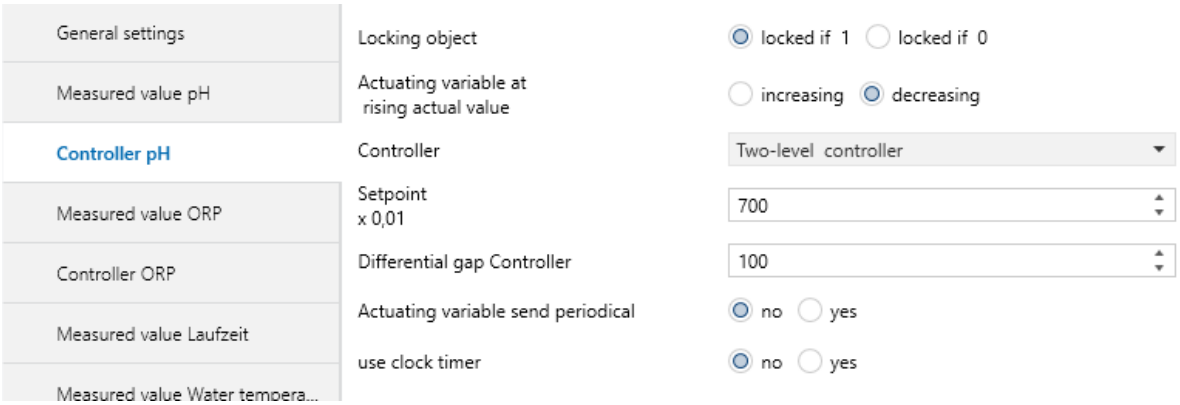
pH value : Switched PI control (PWM)



Parameter Switched PI control (PWM)	Settings / Description
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Switched PI control (PWM)
Setpoint x 0,01	0 .. 1400 Note any changes due to auxiliary size.
Proportional range x 0,01	0 .. 1400
Reset time (in minutes)	0 .. 255
Actuating variable send periodical	no / yes
Actuating variable distance to limit in %	0 .. 50
Cycle duration in seconds	0 .. 65535
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

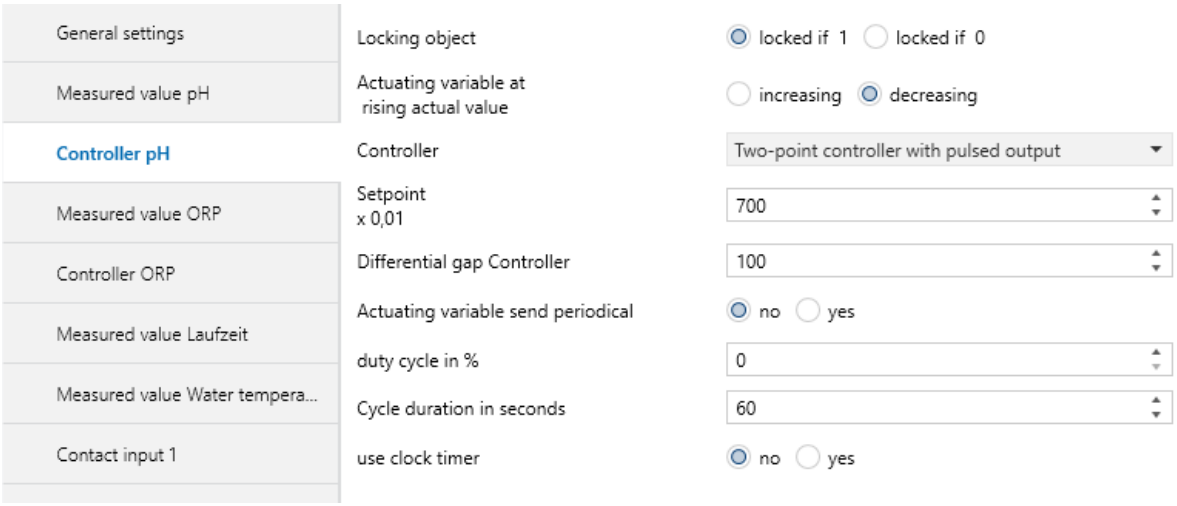
pH value : Two-level controller



Parameter Two-level controller	Settings / Description
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Two-level controller
Setpoint x 0,01	0 .. 1400 Note any changes due to auxiliary size.
Differential gap Controller x 0,01	0 .. 1400 The switching point hysteresis is symmetrically above the setpoint.
Actuating variable send periodical	no / yes
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

pH value : Two-point controller with pulsed output

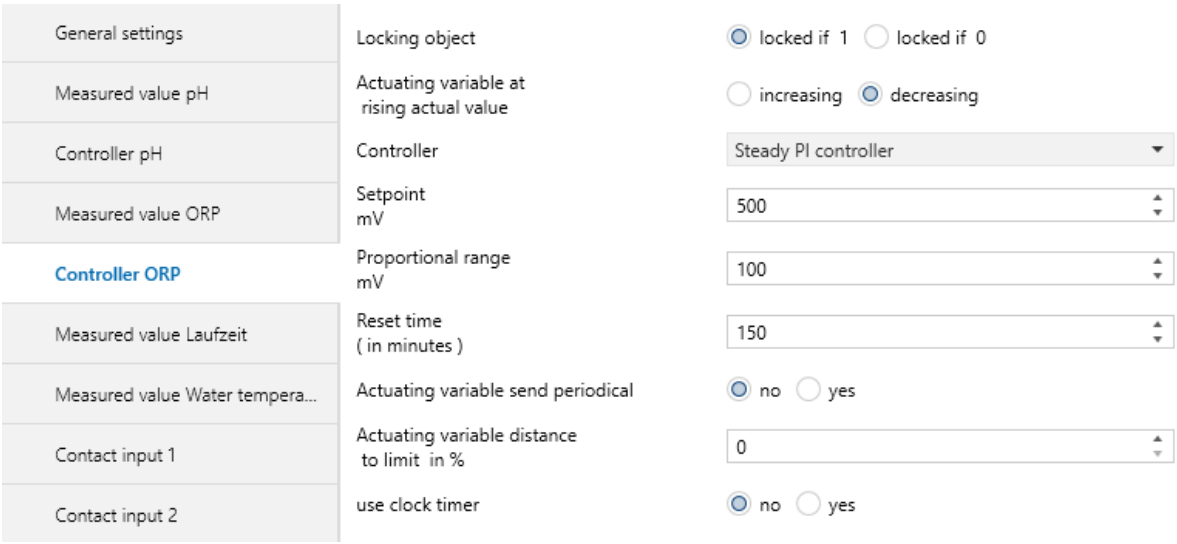


Parameter Two-point controller with pulsed output	**Settings / Description**
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Two-point controller with pulsed output
Setpoint x 0,01	0 .. 1400 Note any changes due to auxiliary size.
Differential gap Controller x 0,01	0 .. 1400 The switching point hysteresis is symmetrically above the setpoint.
Actuating variable send periodical	no / yes
duty cycle in %	0 .. 50
Cycle duration in seconds	0 .. 65535
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Controller variants for the ORP value

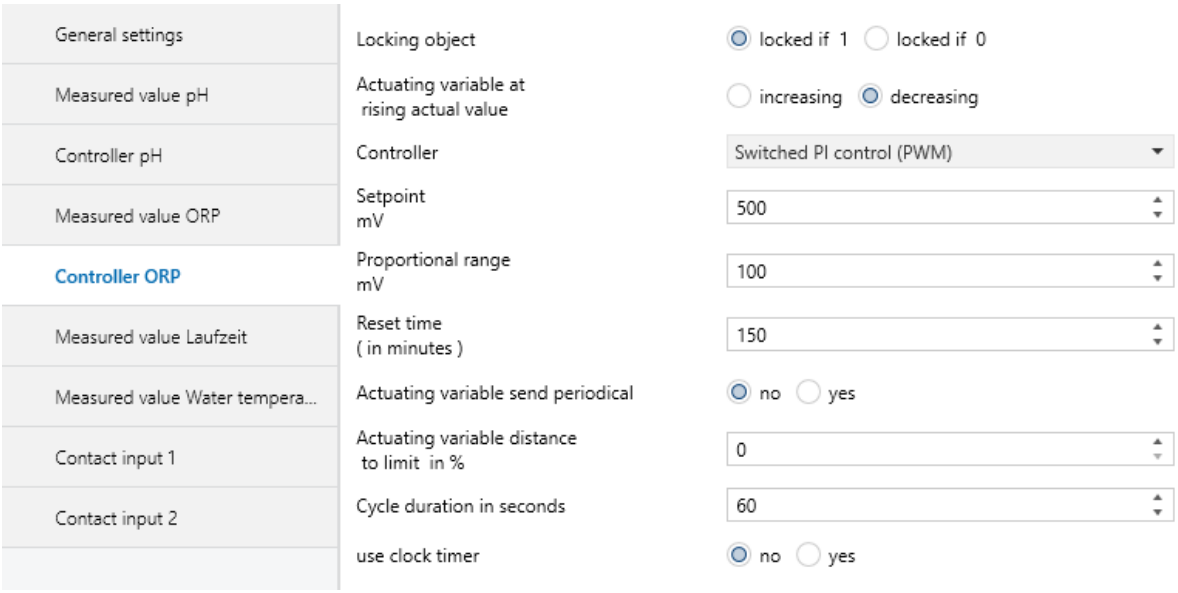
ORP value : Steady PI controller



Parameter Steady PI controller	Settings / Description
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Steady PI controller
Setpoint mV	-1200 .. 1200 Note any changes due to auxiliary size.
Proportional range mV	-1200 .. 1200
Reset time (in minutes)	0 .. 255
Actuating variable send periodical	no / yes
Actuating variable distance to limit in %	0 .. 50
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

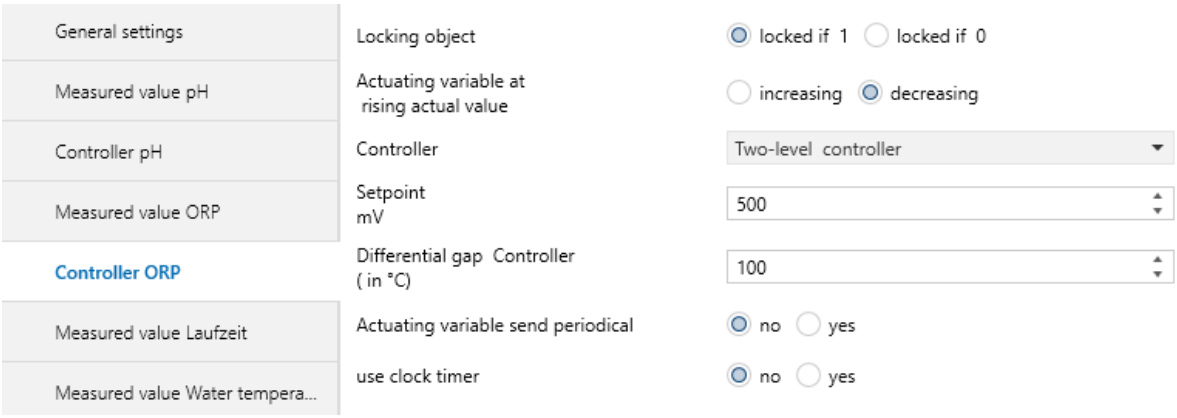
ORP value : Switched PI control (PWM)



Parameter Switched PI control (PWM)	Settings / Description
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Switched PI control (PWM)
Setpoint mV	-1200 .. 1200 Note any changes due to auxiliary size.
Proportional range mV	-1200 .. 1200
Reset time (in minutes)	0 .. 255
Actuating variable send periodical	no / yes
Actuating variable distance to limit in %	0 .. 50
Cycle duration in seconds	0 .. 65535
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

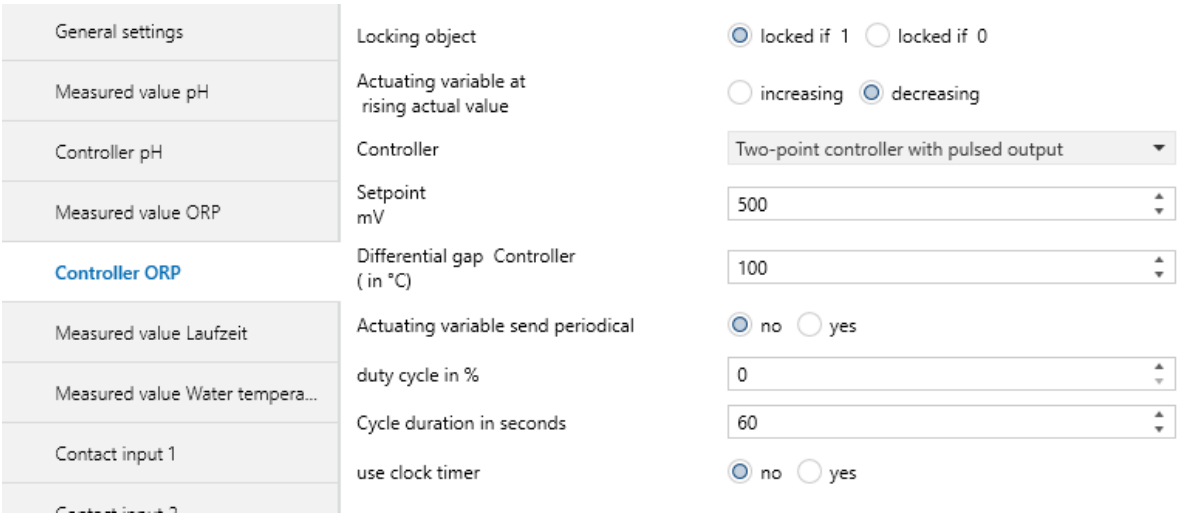
ORP value : Two-level controller



Parameter Two-level controller	Settings / Description
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Two-level controller
Setpoint mV	-1200 .. 1200 Note any changes due to auxiliary size.
Differential gap Controller (in mV)	.. 1400 The switching point hysteresis is symmetrically above the setpoint.
Actuating variable send periodical	no / yes
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

ORP value : Two-point controller with pulsed output



Parameter Two-point controller with pulsed output	**Settings / Description**
Locking object	1 / 0 Locks the controller at ‘1’ or ‘0’
Actuating variable at rising actual value	increasing / decreasing Control direction
Controller	Two-point controller with pulsed output
Setpoint mV	-1200 .. 1200 Note any changes due to auxiliary size.
Differential gap Controller (in mV)	0 .. 1200 The switching point hysteresis is symmetrically above the setpoint.
Actuating variable send periodical	no / yes
duty cycle in %	0 .. 50
Cycle duration in secunds	0 .. 65535
use clock timer	no / yes The time is set in the ‘General settings’ parameter field

Arcus-EDS GmbH
www.arcus-eds.de
Rigaer Str. 88 10247 Berlin
sales@arcus-eds.de
Tel.: +49(0)30 25933914
Fax.: +49(0)30 25933915

Notes

Use of controllers

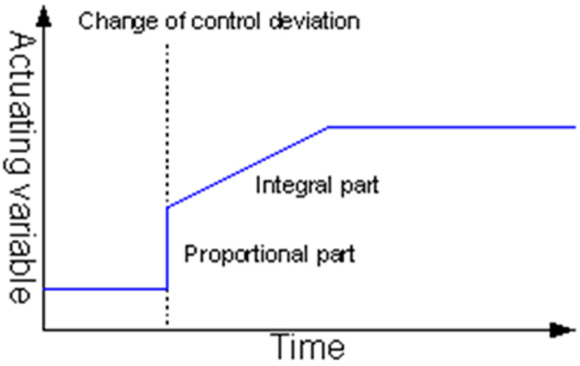
> In applications with very large control paths - i.e. when there is a considerable delay between the change in a control value and the measurable response of the system - conventional control quickly reaches its limits. In such cases, simple P or PI controllers in particular often react too late or with excessive correction, which can lead to instabilities, oscillations or inefficient behaviour.
> In such cases, a **time-controlled countermeasure** can be more sensible and robust. Instead of reacting continuously to a measured value, the control takes place at fixed intervals or according to defined schedules. This is particularly advantageous if the system behaviour is well known and relatively constant.

Controller

The control can be carried out via PI or two-point control, also with pulsed outputs. The pulsed two-point controller operates with a constant duty cycle, which is fixedly parameterized as is the period duration. The duty cycle of the pulsed PI controller is variable and depends on the manipulated variable
(Pulse width modulation). The controller calculates the control variable to be output every second. SIt can always be read out in real time and is output cyclically by the continuous PI controller (Value can be parameterized). The integral component regulates a control deviation to 0 over time.

Continuous PI control

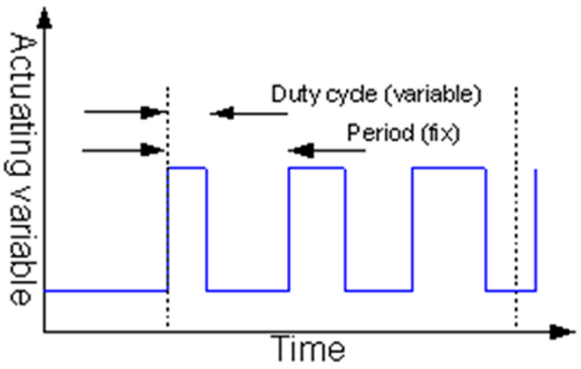
A PI control is an algorithm that consists of a proportional and an integral component. By combining these two components, a fast yet accurate adjustment of the manipulated variable can be achieved.



Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

Switched PI controller (PWM)

The control is analogous to the PI controller. The manipulated variable is output in pulsed form. In PWM control, the parameterized period duration determines the transmission interval. This results in a permanent switching on and off within the period, whereby a constant valve position is achieved on average. The touch ratio is determined indirectly via the reset time (integration time).



General rules for setting the PI parameters

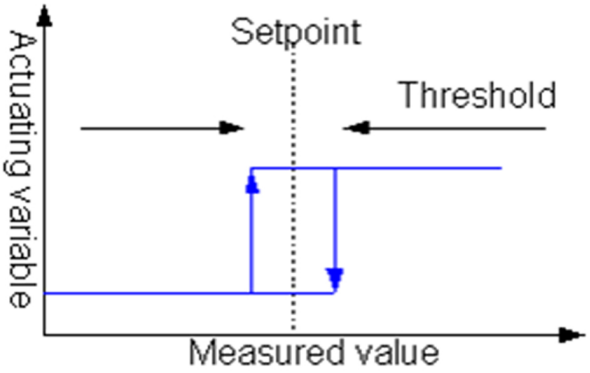
The reset time must be significantly greater than the time constant of the controlled system.
The proportional band corresponds to the gain of the control loop.
The smaller the proportional band, the greater the gain.

Parameter specification	**Effect**
lower proportional band	Quick adjustment to the setpoint Large overshoot during setpoint compensation (possibly also continuous oscillation)
high proportional band	Slow correction of the control deviation No or little overshoot
short reset time (Integration time)	Fast correction of control deviations Danger of continuous vibrations
long reset time (Integration time)	Slow correction of control deviations Low risk of over- or continuous vibrations

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

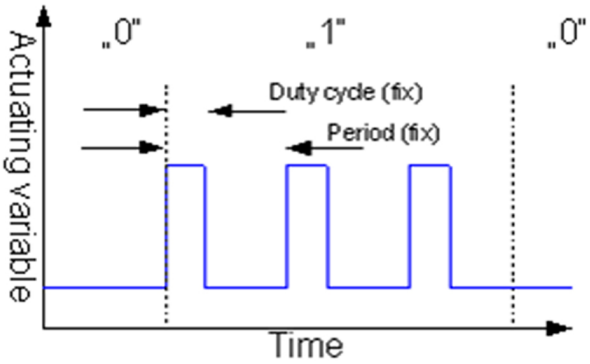
Two-point controller

The two-point control is a very simple type of control. As soon as the actual value deviates from the setpoint (± half the switching difference), a switch-on or switch-off object is sent to the bus. Make the switching differential large enough to keep the bus load low. Configure the switching differential small enough to avoid extreme actual value fluctuations. The two-point controller is parameterized via the setpoint and the switching differential.



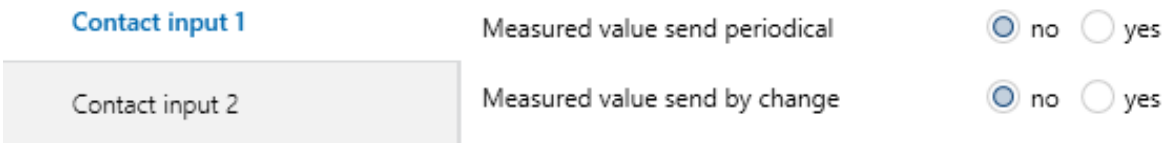
Two-point controller with pulsed output

The control is analogous to the two-point controller. The manipulated variable is output in pulsed form. With a duty cycle of 40% and a period of 10 minutes, the object is repeatedly switched on for 4 minutes and off for 6 minutes.



Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

Switching outputs



The potential-free contact inputs ‘S1’ and ‘S2’ can be used as signalling signals on the KNX bus.

The contact objects 30 and 37 are ‘Off’ in the open state and ‘On’ in the closed state

Object status pH / ORP

The status objects ‘8: pH’ and ‘15: ORP’ are used to monitor channel statuses.

Description	Bit-No.	Hexadecimal	Dezimal
Upper limit value exceeded	0	$01	1
Lower limit value undershot	1	$02	2
manipulated variable unequal NULL	2	$04	4
Lock active	3	$08	8
Auxiliary variable is stored	4	$10	16
Timer active	5	$20	32

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

ETS Objects

Number	Name	Object Function	Length	Data Type
0	Input, calibration	Calibration object	1 byte	counter pulses (0..255)
1	Input, calibration	Calibration value	1 byte	counter pulses (0..255)
2	Output, measured value pH	Measured value	2 bytes	temperature (°C), temperature (°C)
3	Input, auxiliary object pH	Auxiliary value	2 bytes	temperature (°C), temperature (°C)
4	Output, upper limit pH	Exceeding limit	1 bit	boolean
5	Output, lower limit pH	Undercut limit	1 bit	boolean
6	Output, controller pH	Manipulated variable	1 bit	switch, switch
7	Input, enable/lock pH	Enable / disable	1 bit	switch
8	Output status pH	Status	1 byte	
9	Output, measured value ORP	Measured value	2 bytes	voltage (mV), voltage (mV)
10	Input, auxiliary object ORP	Auxiliary value	2 bytes	voltage (mV), voltage (mV)
11	Output, upper limit ORP	Exceeding limit	1 bit	boolean
12	Output, lower limit ORP	Undercut limit	1 bit	boolean
13	Output, controller ORP	Manipulated variable	1 bit	switch, switch
14	Input, enable/lock ORP	Enable / disable	1 bit	switch
15	Output status ORP	Status	1 byte	
16	Output, measured value Term	Measured value	2 bytes	pulses
17	Input, auxiliary object Term	Auxiliary value	2 bytes	pulses
18	Output, upper limit Term	Exceeding limit	1 bit	boolean
19	Output, lower limit Term	Undercut limit	1 bit	boolean
23	Output, measured value Temperature	Measured value	2 bytes	temperature (°C), temperature (°C)
25	Output, upper limit Temperature	Limit	1 bit	boolean
26	Output, lower limit Temperature	Limit	1 bit	boolean
30	Output, measured value S1	Port S1	1 bit	switch
37	Output, measured value S2	Port S2	1 bit	switch
58	Equipment time	Date	3 bytes	time of day
59	Equipment date	Time	3 bytes	date

> The objects **0:Input, calibration object** and **1:Input, calibration value** have no function.
> Calibration is carried out via the display.
> The object **17:Input auxiliary object Term** also has no function.

In Case of Bus Voltage Recurrence

All changes made via the KNX bus are retained if the device has been parameterized accordingly. The measurement and controller values start with their current values (for PI controllers with an integral component of 0). The ETS parameter settings are retained.

Discharge Program and Reset Sensor

To delete the programming (project planning) or to reset the module to the delivery status, it must be disconnected from the power supply (disconnect the KNX bus voltage). Now press and hold the programming button while reconnecting the KNX bus voltage and wait until the programming LED lights up (approx. 1-2 seconds). Now you can release the programming button again and the module is ready for a new configuration.
If you release the programming button too early, repeat the procedure.

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915

Imprint

Editor: Arcus-EDS GmbH, Rigaer Str. 88, 10247 Berlin
Responsible for the content: Hjalmar Hevers, Sascha Bergmann

Liability

The selection of the devices and the determination of the suitability of the devices for a certain intended use are only in the buyer's responsibility. For this there is none liability or warranty assumed. The information in the catalogs and data sheets is not an assurance of special properties, but result from experience and measurements. Liability for damage caused by incorrect operation/project planning or malfunctions of the devices is excluded. Rather, the operator/projector must ensure that incorrect operation, misconceptions and malfunctions cannot cause any further damage.

Safety regulations

Danger! Installation and assembly of electrical devices may only be carried out by an electrical specialist. Compliance with the corresponding safety regulations of the VDE, TÜV and the responsible Energy supply companies must be ensured by the buyer/operator of the system. No guarantee is assumed for defects and damage caused by improper use of the devices or by not observing the operating instructions.

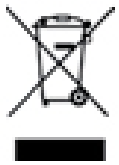
Warranty

We provide warranty within the scope of the legal provisions. In the event of a malfunction, please contact us and send the device with an error description Our company address mentioned below.

Manufacturer

Arcus-EDS GmbH
Rigaer Str. 88
10247 Berlin

Disposal



The symbol of the crossed -out garbage bin on the device or the packaging means that the product at the end of his service life may not be disposed of with other general waste.

Registered trademarks

The CE sign is a free traffic sign that turns exclusively to the authority and none Assurance of properties.

Registered trademark of the Konnex Association

Arcus-EDS GmbH
Rigaer Str. 88 10247 Berlin
Tel.: +49(0)30 25933914
www.arcus-eds.de
sales@arcus-eds.de
Fax.: +49(0)30 25933915