PS Automation
Gesellschaft für Antriebstechnik

We care for actuation.

Operating Instructions

PC Software
PSCS.2 for PSQ-S / AMS.2

Version 2021/02/02

Subject to changes!

Content

1. System requirements

To operate the software PSCS.2 the following computer requirements have to be met:

- Operating system: Windows 7 or Windows 10
- Storage place: approx. 10 MB
- Interfaces: USB

2. Scope of delivery

PSCS.2 package includes the data cable with a special adapter to connect to the actuator as well as a memory stick with the software.

3. Licence agreement

During installation of the software appears a licence agreement. Please read carefully and confirm with OK, if you agree to all points.

4. Functions

The computer software PSCS.2 serves for

- parameterization
- diagnostic
- commissioning
- local control

for smart actuators of PS Automation series PSQ-S und AMS.2.

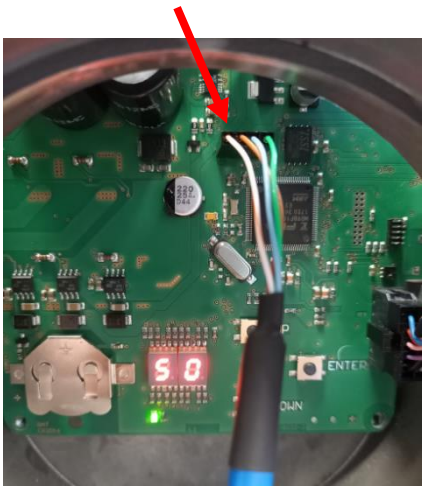
5. Installation

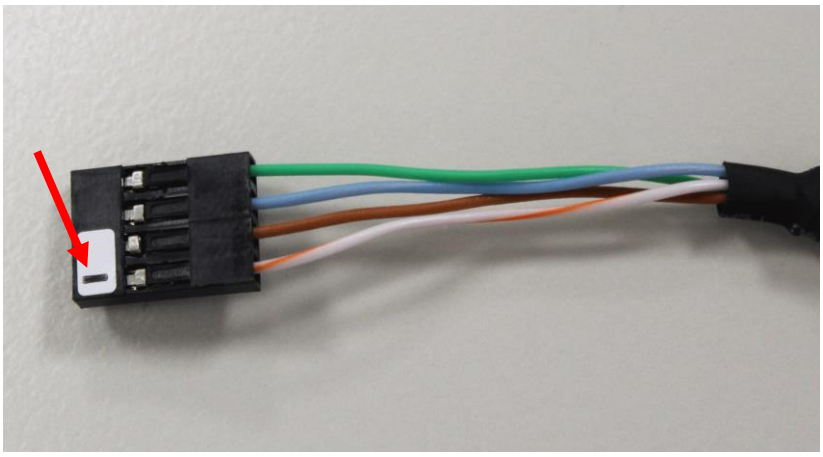
5.1 Software installation

For software installation use the file „PSCS.2_Setup_Vx.exe“. The software is supplied with the data cable and also available on our website, see “Downloads” – “Software” – “Software PSCS.2”.
Store the setup file on your drive and start the application. An “Install Shield” will guide you through the installation process. You need admin rights to install the software!

5.2 Connecting the data cable

Use the supplied data cable to connect the USB port of your computer with the communication interface of the actuator.

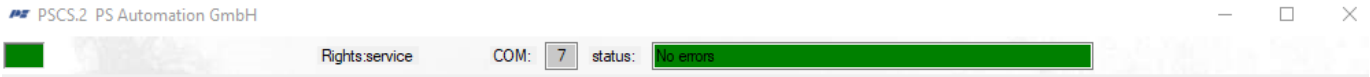




Switch on the power supply of the actuator. Open the Windows Device Manager on your computer and search for the COM port which has been assigned to the driver. Configurate the COM port, see chapter 7.4 settings.

6. Status display

The programme connects automatically with the actuator. On the left side of the status display is a green coloured icon indicating successful connection.



COM indicates the number of the selected interface. To adjust the interface, see chapter 7.4.
The displayed user rights depend on the user login, see chapter 7.5. The user rights define the type of tiles which are displayed on the entry page as well as restrictions. “Status” indicates the operating status of the actuator.

7. Tile menu

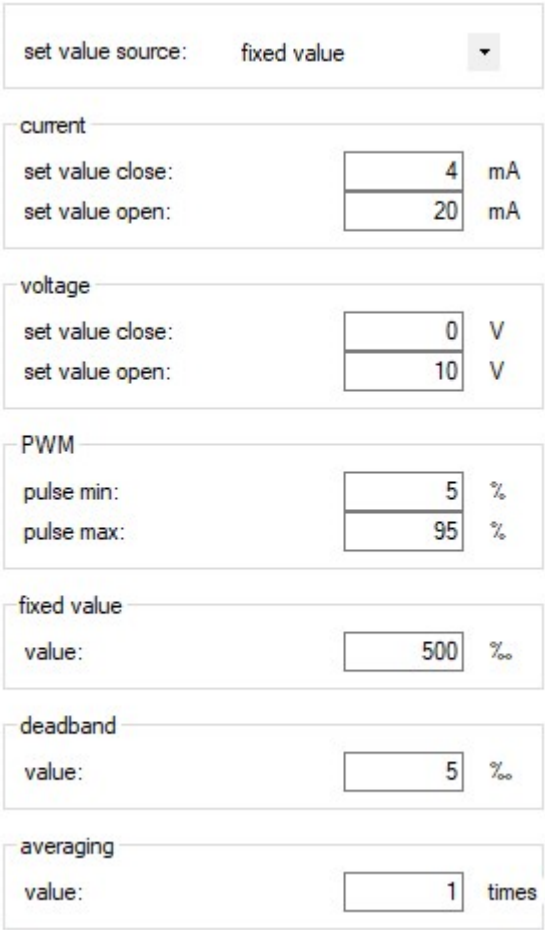
7.1 Parameter

7.1.1 Change

7.1.1.1 Inputs / Outputs

7.1.1.1.1 Set value A

Selection of the set value for position regulation by an external controller.



Set value source

Selection of the set value source.

Current

Current selects the set value as analogue current signal in the range 0 mA to 20 mA.

Voltage

Voltage selects the set value as analogue voltage signal in the range 0 V to 10 V.

PWM

In order to use a PWM signal as Run command, the binary input BA must be parameterized as PWM .

Fixed value

Fixed value, e.g. for use in combination with the process controller in the range 0-1000 ‰

Dead band

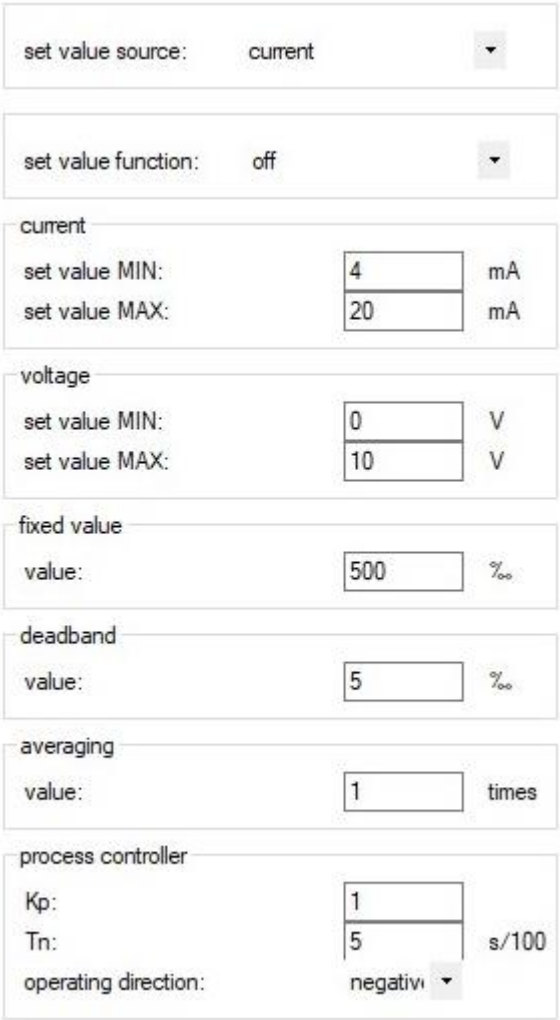
Setting the trigger threshold in the range of 5-100 ‰ of the max. set value.

Averaging

Averaging of the set value in the range of 1 to 64 times.

7.1.1.1.2 Set value B

Selection of the set value B that can be used for optional functions.



Set value source

Selection of the set value source

Set-value function

<u>Off</u>

Set value B is off

<u>Process controller</u>

Activation of the integrated process controller

<u>Rotational speed regulator</u>

Activation of the integrated rotational speed regulator via set value B, enabling the actuator speed to be continuously adjusted between min. 25% and max. 100%.

Current

Current selects the set value as analogue current signal in the range 0 mA to 20 mA.

Voltage

Voltage selects the set value as analogue voltage signal in the range 0 V to 10 V.

PWM

In order to use a PWM signal as Run command, the binary input BA must be parameterized as PWM .

Fixed value

Fixed value, e.g. for use in combination with the process controller in the range 0-1000 ‰.

Dead band

Setting the trigger threshold in the range of 5-100 ‰ of the max. set value.

Averaging

Averaging of the set value in the range of 1 to 64 times.

7.1.1.1.3 Process controller

Kp

Amplification factor

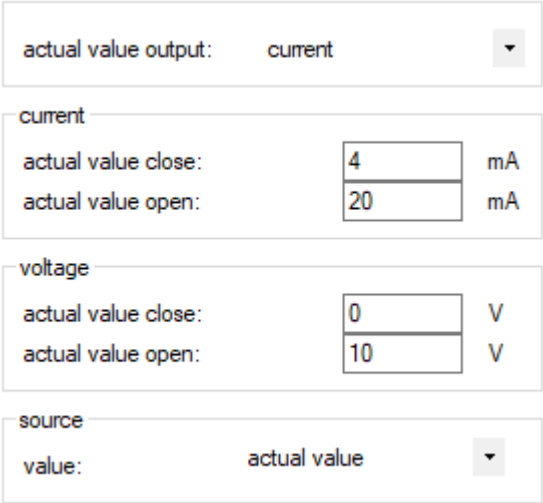
Tn

Delay time

Working direction

Working direction of the process sensor positive / negative

7.1.1.1.4 Actual value



Actual-value output

Active feedback signal of the valve position

Current

Actual-value current can be selected in the range 0 mA to 20 mA.

Voltage

Actual-value voltage can be selected in the range 0 V to 10 V.

Source

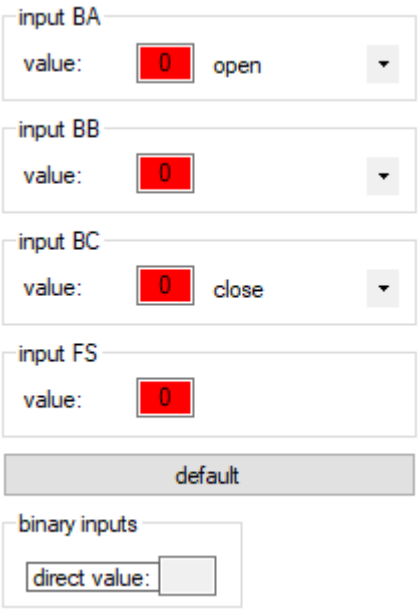
Selection of the actual-value source.

7.1.1.1.5 Binary input

The actuator has galvanically isolated binary multi-voltage input ports, BA/BB have a common neutral line connection COM. BC is galvanically isolated from BA/BB.

If a voltage is present at a binary input port, the actuator drives to the parameterized position regardless of the analogue or digital set value applied.

The prioritization is implemented from BA (highest priority) to BC (lowest priority). Exception when parametrizing BA PWM.



BA

Selection of the function for the binary input

BB

Selection of the function for the binary input

BC

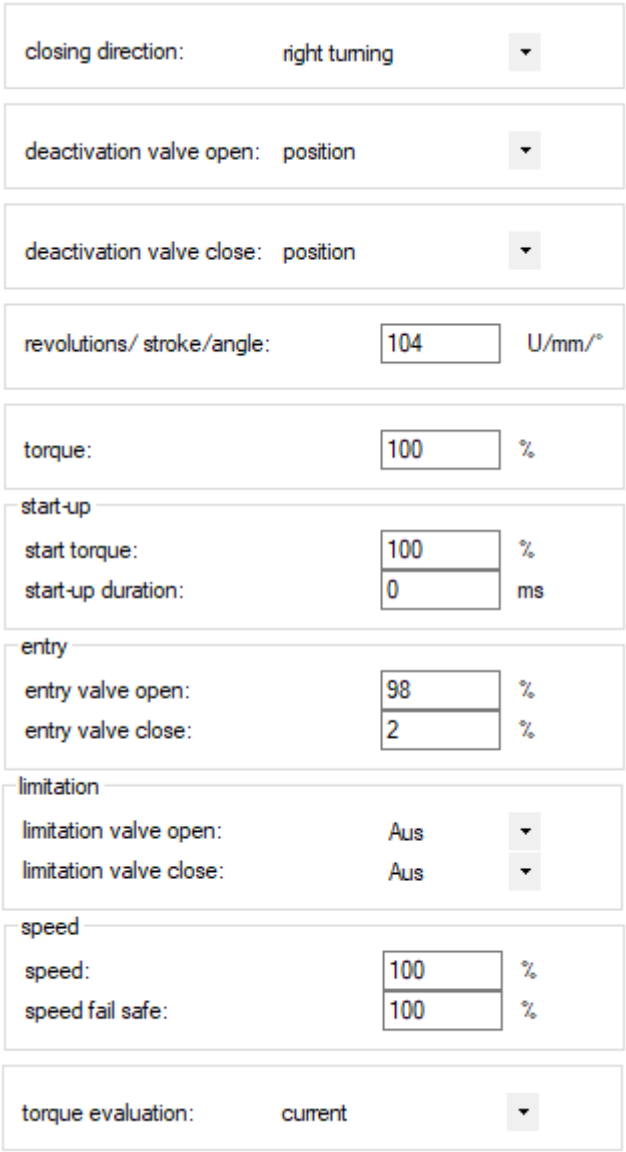
Selection of the function for the binary input.

FS

Display of the fail-safe function in combination with PSCP.

7.1.1.2 Valve adaption

7.1.1.2.1 Valve adaption



Close direction

Selection of the close direction of the actuator.

Cut-off valve OPEN: “Position” or “Torque”

Cut-off in the open position of the valve.

Cut-off valve CLOSE

Cut-off in the closed position of the valve.

Angle

Valve travel in degrees. Adjustable angle: min. 10° and max. 108°.
Note: For automatic commissioning with two torque dependent end positions, this value is calculated by the actuator.

Torque

The operation torque can be adjusted between 30% and 100% of the actuator nominal torque.

Torque increase

The torque increase can be adjusted between 30% and 120% of the actuator nominal torque. The torque increase is only active, if the torque increase time is adjusted to more than 0 ms. Please note that the torque increase has to be adjusted separately from the torque.
The time during which the torque increase is active: range 0-2000 ms.

Shut off

Shut-Off Valve OPEN

Shut-off range 80-100%, which will be used to drive to the end position during a torque shut-off.

Shut-Off Valve CLOSE

Shut-off range 0-20%, which will be used to drive to the end position during a torque shut-off.

Limiting

Limit valve OPEN

End position limit 80-100%, which will not be exceeded after set-up.
OFF: No limit active.

Limit valve CLOSE

End position limit 0-20%, which will not be exceeded after set-up.
OFF: No limit active.

Speed

Global rotational speed limiting as upper limit of the characteristic curve for rotational speed as well as the rotational speed, which will used during fail-safe operation regardless of the characteristic curve for rotational speed or the rotational speed regulator.

Torque control

Current

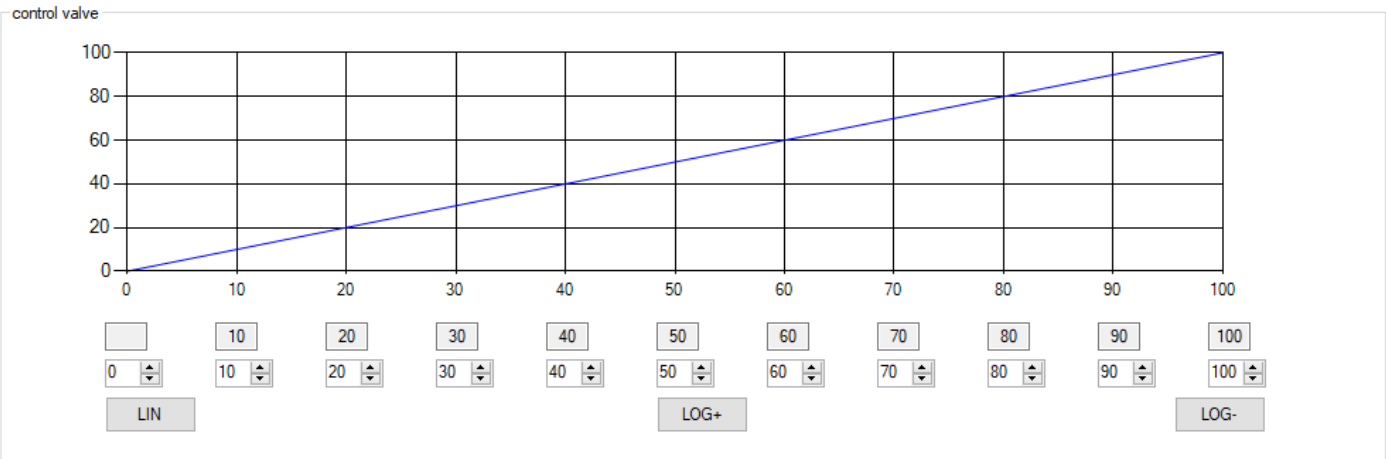
Evaluation of the motor current for torque measurement.

Sensor

Evaluation of a sensor for torque measurement.

7.1.1.2.2 Valve curve

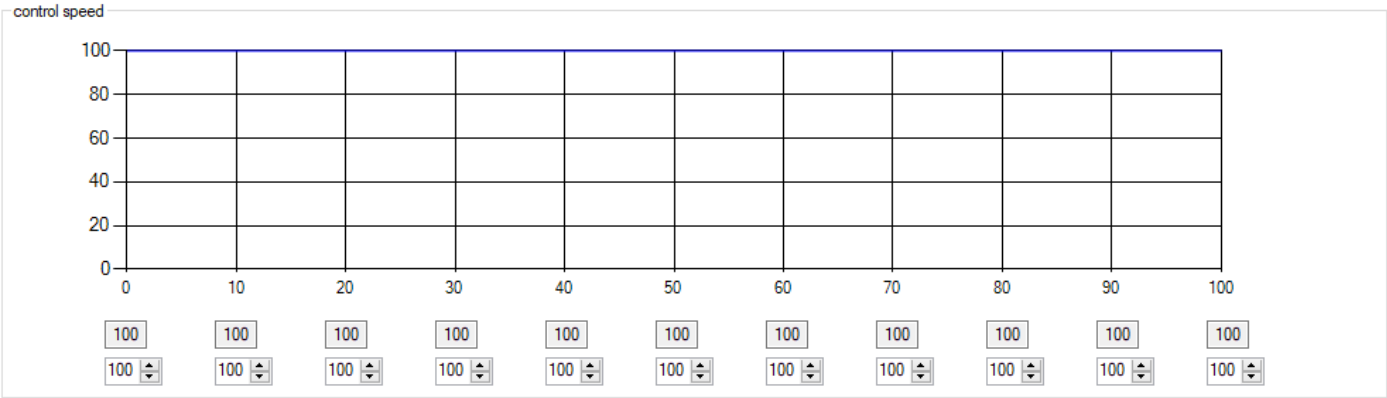
The relationship between the command variable and the valve position/characteristic can be adapted by means of characteristic curve. There are 11 grid points available for this. A linear relationship is set as standard when shipped.



There are additionally three pre-allocated characteristic curves available LIN / LOG+ /LOG-.

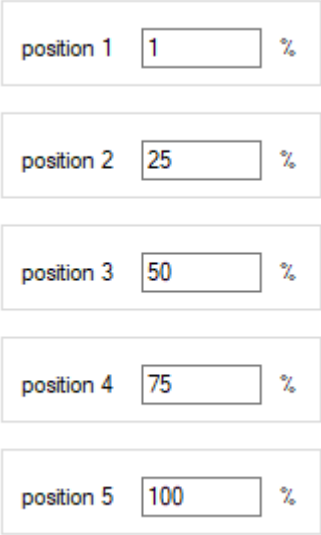
7.1.1.2.3 Speed curve

The rotational speed of the actuator can be parameterized with 11 grid points between the minimum rotational speed and the global rotational speed limit, enabling individual settings to be implemented for gentle valve actuation. A straight-line relationship depending on the global rotational speed limit is set as standard, refer to the chapter 7.1.1.2.1. “Valve adaptation”. The rotational speed can be adjusted between 25% and 100%.



7.1.1.2.4 Intermediate positions

The set intermediate positions can be selected with the safety functions or binary inputs and the actuator drives to these positions.
Setting the Positions 1-5 in the range 0-100%:



7.1.1.3 Commissioning

The actuator can automatically determine the valve end positions depending on the shut-off set or they can be set manually.

7.1.1.3.1 Automatic

If at least one valve end position is set to torque, the commissioning can be automatically carried out.
The actuator runs through the stroke range of the valve with reduced speed in the parameterized direction valve OPEN and/or valve CLOSE. If a torque is detected, the actuator saves this position.

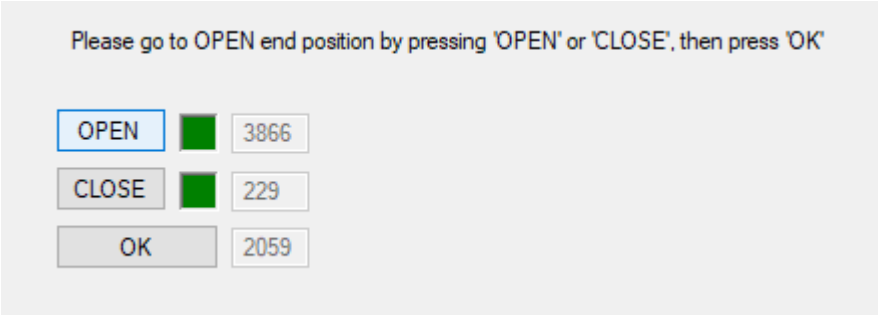
If both end positions have been parameterized to torque, the actuator automatically determines the intermediate angle.

If only one end position has been parameterized to torque, the actuator adds the pre-adjusted angle from the recognized torque position. In doing so, the actuator does not check whether the parameterized angle is too large for the remaining range.

The commissioning is started with "start automatic commissioning".

7.1.1.3.2 Manual

If both valve end positions are set to position, the commissioning must be carried out manually.



Note: The end position calculated on the basis of the angle during the automatic valve compensation can be adjusted with this setting. After that the angle will be recalculated.

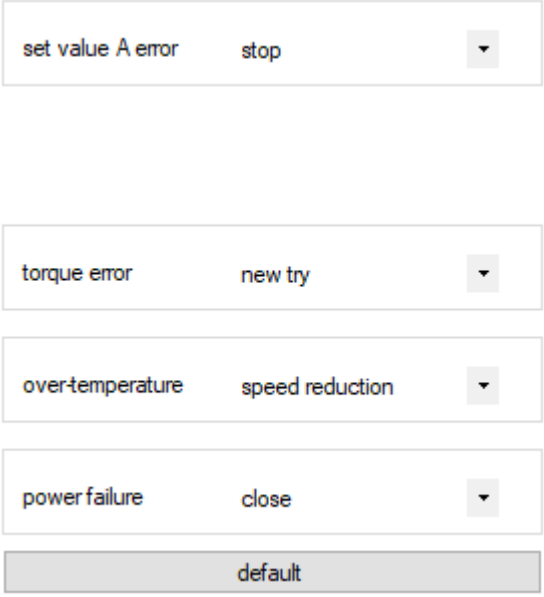
Setup Manual-OPEN

Driving to the Position with Open / Close. In order to save press "OK".

Setup Manual-CLOSE

Driving to the Position with Open / Close. In order to save press "OK".

7.1.1.4 Safety



7.1.1.4.1 Error of the Set value A

If the analogue set value lies 50% below the value of the minimum set value, one of the following safety functions can be carried out:

- OPEN
- CLOSE
- Stop
- Position 1
- Position 2

- Position 3
- Position 4
- Position 5

Note: The function is deactivated, if a set value range of 0-20 mA or 0-10 V has been selected.

7.1.1.4.2 Torque error

If the maximum torque is reached in the direction of an end position outside the shut-off for a certain time, the following safety functions can be selected:

- Stop
- Retry

With the "Retry" setting, the actuator tries twice to overrun a detected blockage with maximum torque. If this does not work, the actuator stops and reports a torque error.

7.1.1.4.3 Overtemperature

If the temperature monitoring system reaches the 70°C warning threshold, the following safety functions can be selected:

- Rotational-speed reduction
- OPEN
- CLOSE
- Stop
- Position 1
- Position 2
- Position 3
- Position 4
- Position 5

Note: If "Rotational speed reduction" is selected, the actuator continues to run with the lowest rotational speed possible. If the temperature reaches the shut-off threshold 75°C during continued operation, the actuator stops.

7.1.1.4.4 Loss of supply voltage

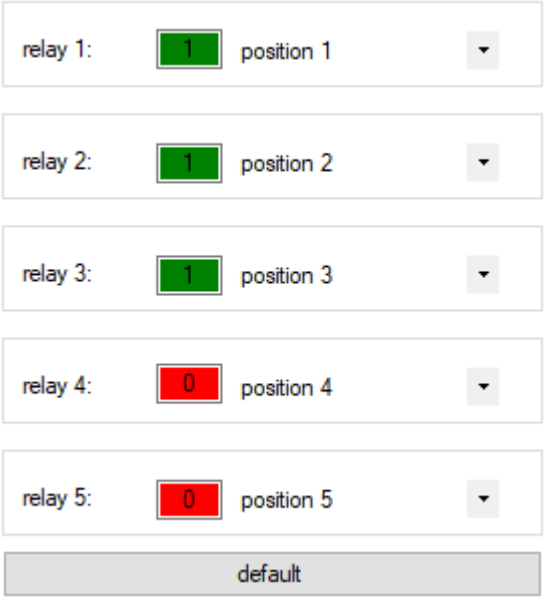
In case of a failure of the supply voltage, one of the following safety functions can be selected:

- OPEN
- CLOSE
- Stop
- Position 1
- Position 2
- Position 3
- Position 4
- Position 5

Attention**:** The function requires that the PSCP option is installed in the actuator!

7.1.1.5 Signal relays

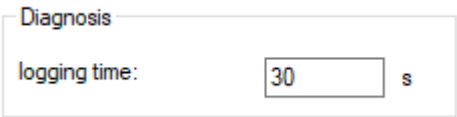
5 potential-free signal relays with NC and NO contacts are available for reporting the events. The events can be assigned with the checkboxes.



The actual switching state of the signal relay is indicated with Red 0 /Green 1.

7.1.1.6 Diagnosis

The recording rate for time logging can be set between 10 and 3600 seconds, see chapter 7.3.4.2.



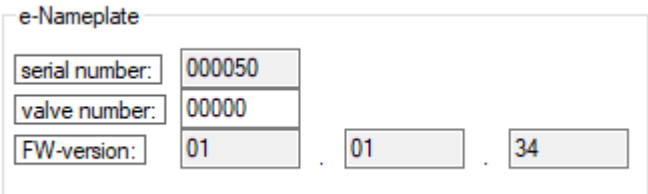
7.1.1.7 Settings

7.1.1.7.1 Language

Changeover of the menu language for the PSC.3 parameter menus and message texts.

7.1.1.7.2 eLabel

The eLabel provides specific actuator data.
The valve number between 0 and 999999 can be entered by the customer in the numeric form.

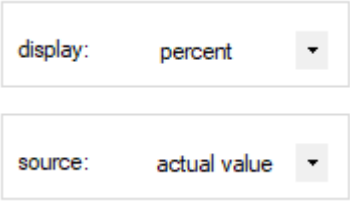


7.1.1.7.3 Clock

Setting menu for the time/date. The clock is used to make accurate timestamps when recording messages during logging.
The clock has a battery backup and continues to run in the event of a mains power failure.
Click “time setting" to apply the actual time and date.

7.1.1.7.4 Display LCD

Parameterization of the Local control PSC.3.



Display

Display of the actuator position in % (percent) or in ° (angle).

Source

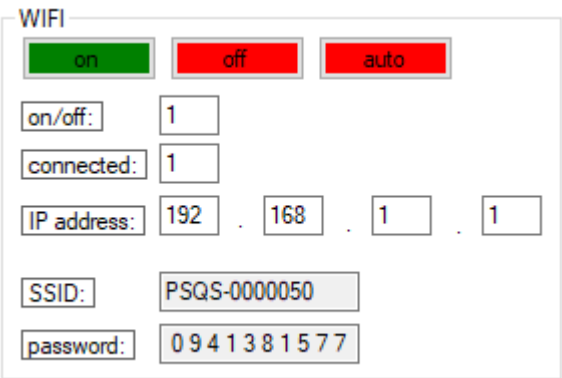
Source of the display is the actuator position / actual value or the actual process value.

7.1.1.7.5 WIFI

ON: Wi-Fi is switched on permanently.
OFF: Wi-Fi is switched off.
Auto: Wi-Fi switches OFF automatically if no one is logged on at the actuator or if there is no activity for a defined period of time. This prevents the actuator having a permanent Wi-Fi connection.

IP address: IP address of the actuator can be changed
SSID: SSID of the actuator wireless network
Password: password to connect with the actuator

Important: If WIFI and LAN are used simultaneously, please assign a different address on a computer for WIFI to avoid address conflicts, for example use 192.168.1.x for LAN and 192.168.2.x for WIFI.



7.1.1.8 Fieldbus

Parameter menu for fieldbus-specific addresses and settings.

7.1.2 Parameter export

Export of a complete parameter data set from the actuator to a storage medium

File: AMS2.x_[serial number]_[date_time]_PA.csv

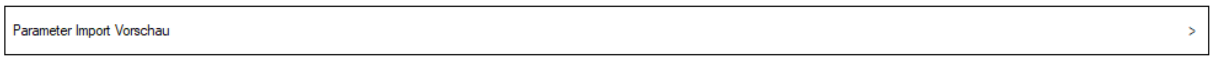
7.1.3 Parameter import

Import of a complete parameter data set from a storage medium into the actuator.

File: AMS2.x_[serial number]_[date_time]_PA.csv

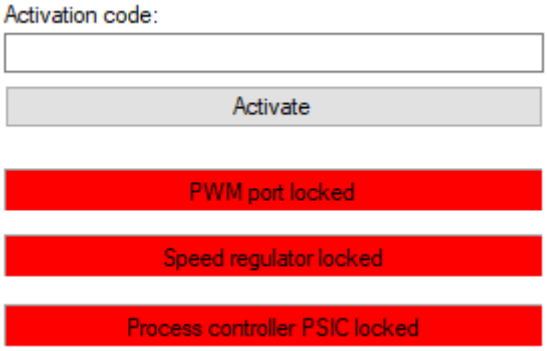
7.1.4 Parameter import preview

Import of a complete parameter data set from a storage medium for preview. The parameter data set is not transfered to the actuator.



7.1.5 Activation

Optional functions can be activated with an activation code.



Please contact your sales team.

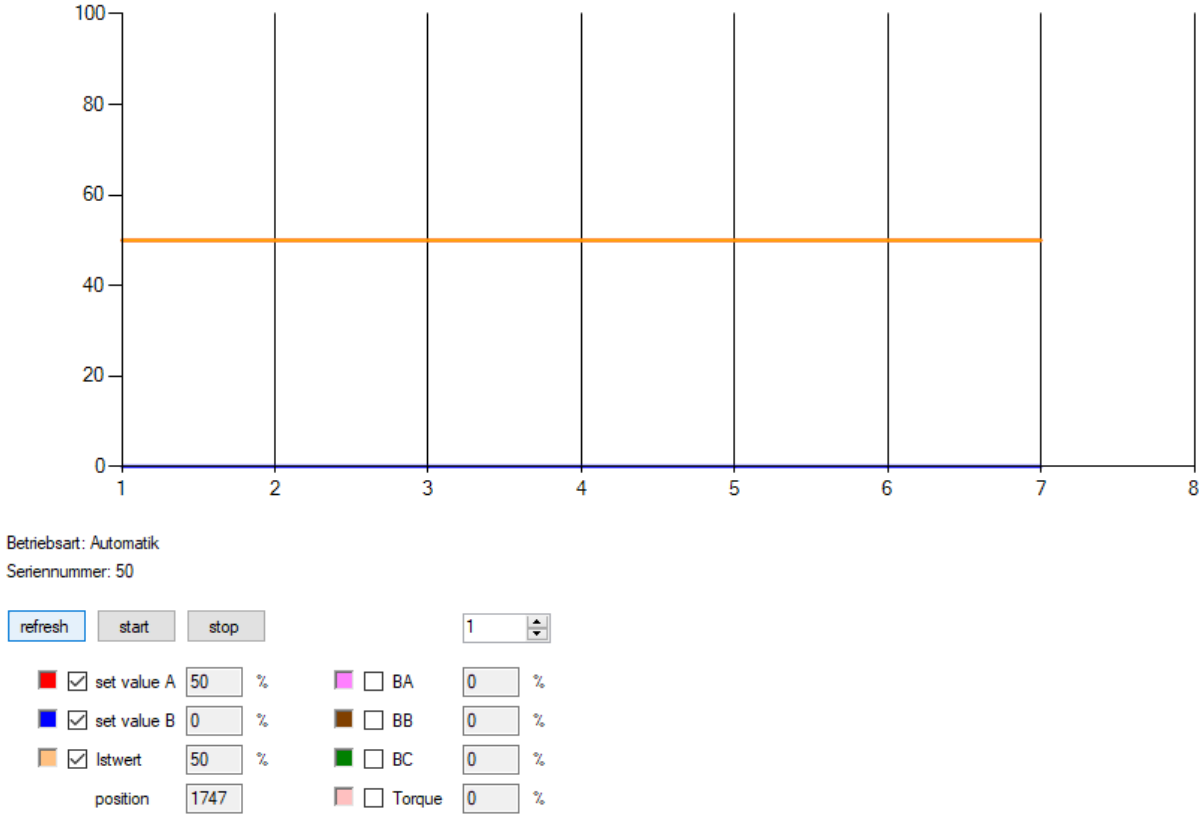
7.2 Local control

Local control of the actuator. The actuator can be driven between the saved valve positions by closing / opening. Display of the actuator position next to the buttons.

7.3 Diagnosis

7.3.1 Live View

Chart on input / output signals and parameterization of the process controller.



To show the chart tick the checkbox in front of the respective display value. The recording rate can be set between 0.5 and 10 seconds, see drop down button „Recording-interval“.

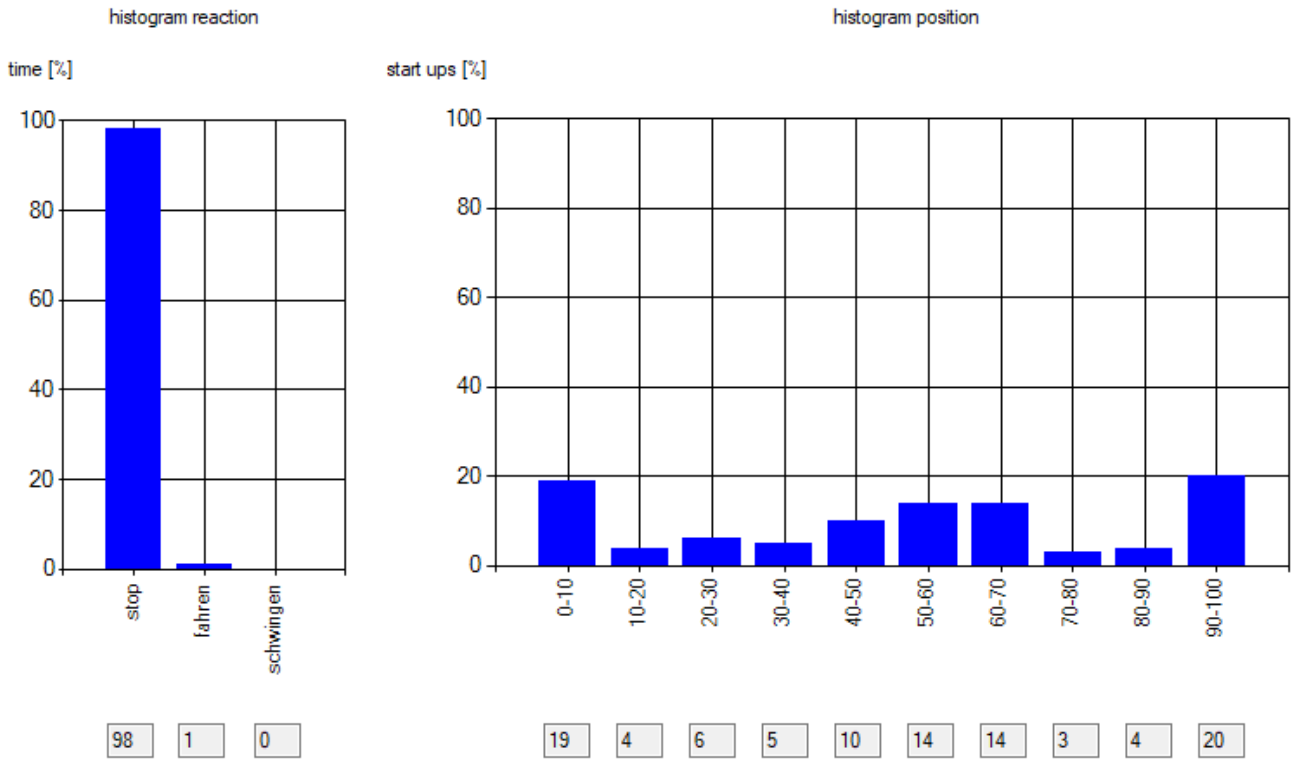
7.3.2 Count Log

Indication of the diagnosis counter:

serial number:	0000050	
operating time:	42	h
start ups	482	
turned on:	33	
driving angle:	14400	°

Operating time: total operation time in hours.
Start up’s: total number of start-ups.
Turned on: counts, how often the actuator was switched on.
Driving angle: total number of all driven angular degrees.

7.3.3 Histogram



7.3.3.1 Reaction histogram

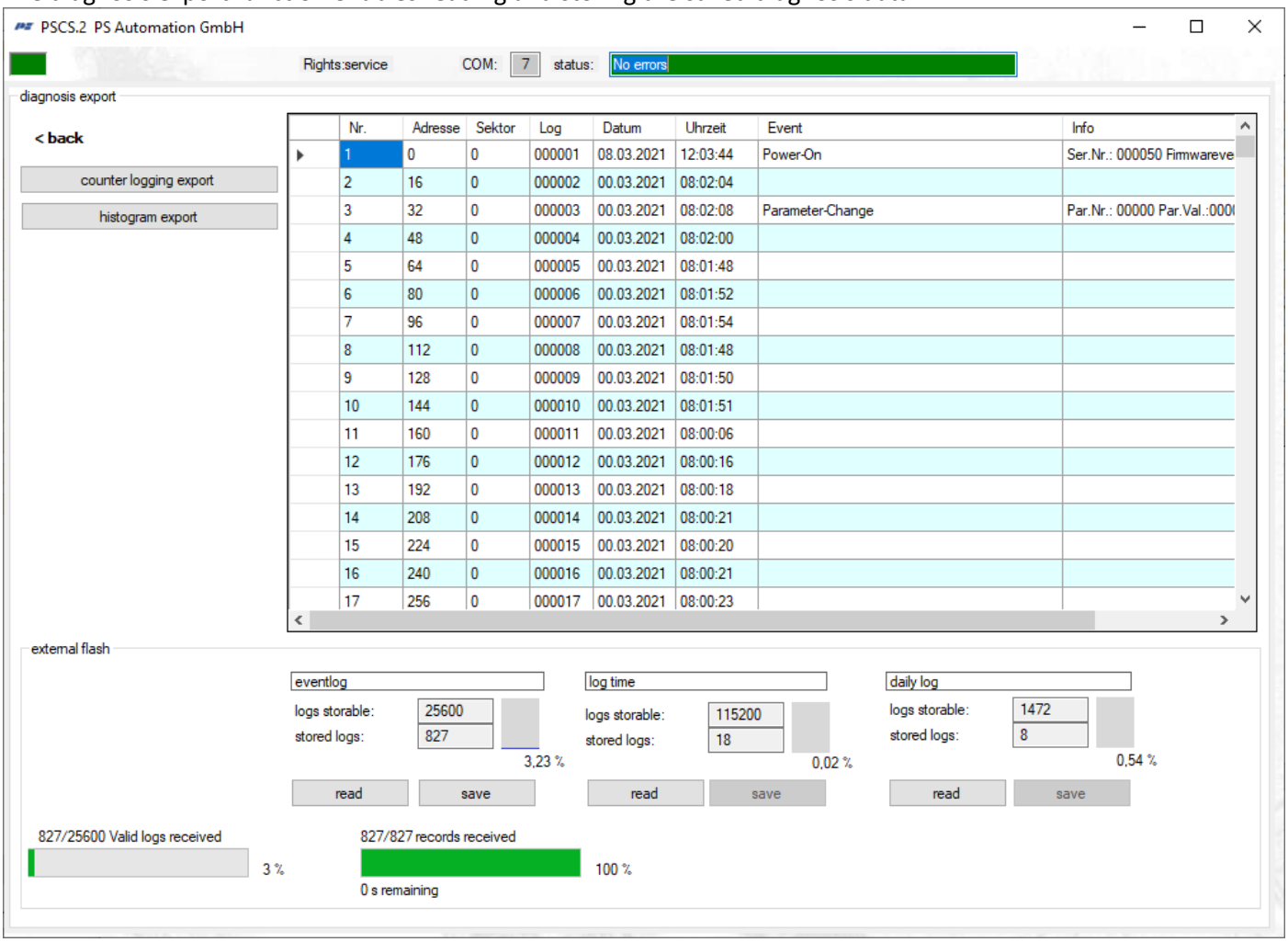
The histogram shows how long the actuator stops, drives or oscillates in relation to the total operation time.

7.3.3.2 Position histogram

The histogram shows how often the actuator stops in a certain position in relation to the total number of start-ups.

7.3.4 Diagnosis Export

The diagnosis export function enables reading and storing the saved diagnosis data.



The recorded data are listed in a table with time and date and can be stored as *.csv file.

Note: Please check the clock settings for accurate recording, see chapter 7.1.1.7.3.

7.3.4.1 Event Log

The actuator saves maximum 25600 logs that occur during operation:

- Power-On
- Parameter-Change
- Sysmode, selector switch
- Error records
- Valve setup started/event
- WIFI connected/disconnected
- Signal relays

file: AMS2.x_[Serialnumber]_[Date_Time]_DE.csv

7.3.4.2 Time Log

At adjustable intervals the actuator cyclically saves maximum 153000 logs of the current condition as well as of set value/actual value, see chapter 7.1.1.6.

file: AMS2.x_[Serialnumber]_[Date_Time]_DY.csv

7.3.4.3 Daily Log

Every 24 hours the actuator automatically saves the condition of the internal operating counter and calculates the histograms.
file: AMS2.x_[Serialnumber]_[Date_Time]_DD.csv

7.3.4.4 Count Log Export

Export of the actual count values.

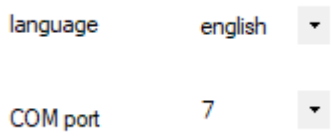
file: AMS2.x_[Serialnumber]_[Date_Time]_DZ.csv

7.3.4.5 Histogram Export

Export of the actual histogram values.

file: AMS2.x_[Serialnumber]_[Date_Time]_DH.csv

7.4 Settings



7.4.1 Language

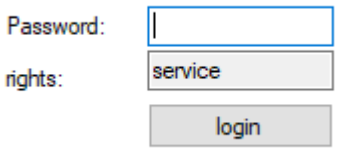
Setting the language.

7.4.2 COM-Port

Select the COM port used in connection with a data cable.

7.5 User

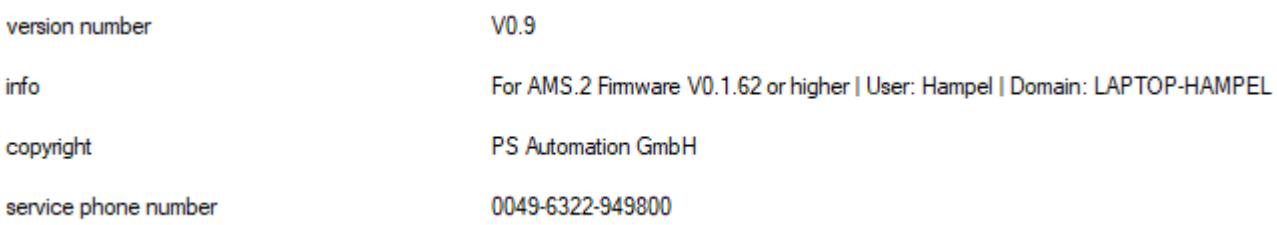
User administration. Not all functions are available without logging in.
If you are not logged in, you can only view parameters but you cannot modify them. This is indicated in the respective menu with a padlock.



Please contact your sales team.

7.6 Help

Release notes



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