

## Electromotive actuators for valves

SAV..



### Actuators with 40 mm stroke and 1600 N force

- SAV31.. Operating voltage AC 230 V, 3-position control signal
- SAV61.. Operating voltage AC/DC 24 V, positioning signal 0...10V, 4...20 mA with position feedback, forced control, characteristic changeover
- SAV61../MO operating voltage AC/DC 24 V  
RS-485 for Modbus RTU communication
- SAV81.. Operating voltage AC/DC 24 V, 3-position control signal
- For direct mounting on valves; no adjustments required
- Manual adjuster, position and status indication (LED)
- Optional functions with auxiliary switches, potentiometer, function module, stem heating

## Application

Electromotive actuators to operate Siemens 2-port and 3-port valves, types V..F22.., V..F32.., V..F42.., V..F43.., and V..F53.. with 40 mm stroke as control and safety shut-off valves in heating, ventilation and air conditioning systems.

## Features

| Function                                         | Description                                                                                                                                                                                                                  | Type                   |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 3-position control                               | A 3-position signal controls the actuator via connection terminals Y1 or Y2. The desired position is transmitted to the valve.                                                                                               | SAV31..,<br>SAV81..    |
| Modulating control                               | The positioning signal range (DC 0...10 V / DC 4...20 mA / 0...1000 Ω) corresponds to the positioning range (closed...open, or 0...100% stroke) in a linear manner.                                                          | SAV61..                |
| Positioning signal and characteristic changeover | Setting with DIL switch.<br>Factory setting: <ul style="list-style-type: none"> <li>Characteristic curve: log = Equal percentage (switch set to Off)</li> <li>Positioning signal: DC 0...10 V (switch set to Off)</li> </ul> |                        |
| Position feedback U                              | Signal returned to acquire the position via input.                                                                                                                                                                           | SAV61..,<br>SAV61../MO |
| Forced control (Z-mode)                          | Forced control helps override automatic mode and is implemented via higher control.                                                                                                                                          |                        |
| Calibration                                      | Carry out during initial commissioning. The actuator drives to the top or bottom end position; the measured values are saved.                                                                                                |                        |
| Valve seat detection                             | The actuators have power-dependent seat detection. After calibration, the exact valve stroke is stored in the actuator's memory.                                                                                             |                        |
| Foreign body detection                           | After clogging is detected, three attempts are made to get past clogging. If unsuccessful, the actuator continues to follow the positioning signal only within a limited range, and the LED flashes red.                     | SAV61../MO             |
| Modbus RTU (RS-485), not galvanically isolated   | Setpoint 0...100 % valve setting<br>Actual value 0..100% for valve position<br>Override control Open / Close / Min / Max / Stop<br>Setpoint monitoring and backup mode                                                       |                        |

## Type summary

| Type                      | Item NO.         | Stroke | Positioning force | Operating voltage  | Positioning signal                       | Spring return time | Positioning time | LED | Manual adjustment <sup>3)</sup> | Comment |    |
|---------------------------|------------------|--------|-------------------|--------------------|------------------------------------------|--------------------|------------------|-----|---------------------------------|---------|----|
| SAV31.00 <sup>1)</sup>    | S55150-A112      | 40 mm  | 1600 N            | AC 230 V           | 3-pos.                                   | -                  | 120 s            | -   | Push and fix                    | -       |    |
| SAV61.00 <sup>2)</sup>    | S55150-A110      |        |                   | AC 24 V<br>DC 24 V | DC ...10 V<br>DC 4...20 mA<br>0...1000 Ω |                    |                  | yes |                                 | 4)      |    |
| SAV61.00U <sup>2)</sup>   | S55150-A110-A100 |        |                   |                    | Modbus RTU                               |                    |                  |     |                                 |         | 5) |
| SAV61.00/MO <sup>1)</sup> | S55150-A141      |        |                   |                    | 3-pos.                                   |                    |                  | -   |                                 | -       |    |
| SAV81.00 <sup>1)</sup>    | S55150-A111      |        |                   |                    |                                          |                    |                  |     |                                 |         |    |
| SAV81.00U <sup>2)</sup>   | S55150-A111-A100 |        |                   |                    |                                          |                    |                  |     |                                 |         |    |

<sup>1)</sup> Approbation: CE

<sup>2)</sup> Approvals: CE, UL

<sup>3)</sup> Not designed for continuous operation.

<sup>4)</sup> Position feedback, forced control, characteristic changeover

<sup>5)</sup> Position feedback, forced control

## Scope of delivery

Actuators, valves and accessories are supplied in individual packs.

## Accessories / spare parts

### Electrical accessories

| Type       | Auxiliary switch<br>ASC10.51 | Potentiometer<br>ASZ7.5 | Function module<br>AZX61.1 | Stem heating<br>element<br>ASZ6.6 |
|------------|------------------------------|-------------------------|----------------------------|-----------------------------------|
| Item NO.   | S55845-Z103                  | S55845-Z106             | S55845-Z107                | S55845-Z108                       |
|            | Max. 2                       |                         |                            | Max. 1                            |
| SAV31..    | Max. 2                       | Max. 1                  | -                          |                                   |
| SAV61..    |                              | -                       | Max. 1                     |                                   |
| SAV61../MO |                              |                         | -                          |                                   |
| SAV81..    |                              | Max. 1                  | -                          |                                   |

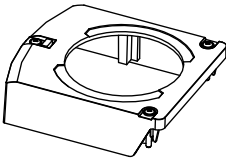
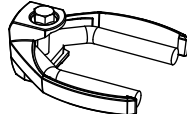
### Mechanical accessory

| Type     | Weather shield ASK39.1 |
|----------|------------------------|
| Item NO. | S55845-Z109            |

## Ordering (example)

| Type     | Order number | Designation   | Number of pieces |
|----------|--------------|---------------|------------------|
| SAV81.00 | S55150-A111  | Actuator      | 1                |
| ASZ7.5   | S55845-Z106  | Potentiometer | 1                |

## Spare parts

| Product no. / SSN |                                                                                   |                                                                                     |
|-------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 8000060843        | Housing cover                                                                     | Screw (valve stem coupling)                                                         |
|                   |  |  |
|                   |                                                                                   | U-bracket                                                                           |
|                   |                                                                                   |  |

## Device combinations

### 2-port valves VV.. (control or safety shutoff valves)

| Valve type             |        | DN        | PN class | k <sub>vs</sub><br>[m³/h] | Data sheet |
|------------------------|--------|-----------|----------|---------------------------|------------|
| VVF22..                | Flange | 40...100  | 6        | 16...160                  | N4401      |
| VVF32..                |        | 40...150  | 10       | 16...400                  | N4402      |
| VVF42..                |        |           | 16       |                           | 160...360  |
| VVF42..K               |        | 100...150 |          | 50...400                  |            |
| VVF43..                |        | 65...150  |          |                           |            |
| VVF43..K <sup>1)</sup> |        | -         |          |                           |            |
| VVF53..                |        | 40...150  | 25       | 16...400                  | N4405      |
| VVF53..K <sup>1)</sup> |        | -         |          |                           |            |

<sup>1)</sup> Combination not permissible

### 3-port valves VX.. (Control valves for functions "mixing" and "distribution")

| Valve type |        | DN       | PN class | k <sub>vs</sub><br>[m <sup>3</sup> /h] | Data sheet |
|------------|--------|----------|----------|----------------------------------------|------------|
| VXF22..    | Flange | 40...100 | 6        | 16...160                               | N4401      |
| VXF32..    |        | 40...150 | 10       | 16...400                               | N4402      |
| VXF42..    |        |          | 16       |                                        | N4403      |
| VXF43..    |        | 65...150 | 25       | 63...400                               | N4404      |
| VXF53..    |        | 40...150 |          | 16...400                               | N4405      |

#### Product documentation

| Title                                                | Contents                                                                                                                                                                              | Document ID  |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Actuators SAX..., SAY..., SAV..., SAL... for valves  | Basic documentation:<br>Detailed information on stroke actuators including Modbus types<br>Stroke actuators for valves with 20/40 mm stroke and rotary actuators for butterfly valves | CE1P4040en   |
| Electromotive actuators for valves SA..., Modbus RTU | Datasheet:<br>Modbus communication profiles                                                                                                                                           | A6V101037195 |
| Mounting instructions<br>G..161../MO and S..6/MO     | Mounting instructions:<br>Mounting and installation instructions for Modbus actuators                                                                                                 | A5W00027551  |
| Valve Actuator DIL Switch characteristic overview    | Commissioning / configuration:<br>Depictions, description of actuator and valve characteristics by DIL switch setting (English)                                                       | A6V12050595  |

Related documents such as the environmental declarations, declarations of conformity, etc., can be downloaded from the following Internet address:

[www.siemens.com/bt/download](http://www.siemens.com/bt/download)

#### Notes

#### Safety

|  <b>CAUTION</b> |                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | <b>National safety regulations</b><br>Failure to comply with national safety regulations may result in personal injury and property damage. <ul style="list-style-type: none"> <li>Observe national provisions and comply with the appropriate safety regulations.</li> </ul> |

## ⚠ WARNING



### Risk of burns from hot actuator brackets

The actuator brackets on heating plants can also become hot from the contact with the hot valve during operation. The temperature of the actuator bracket can reach 100 °C.

When servicing the actuator:

- Switch off the pump and disconnect power supply.
- Close the shut-off valves in the piping network.
- Allow the piping to cool off.

## Engineering

### SAV31.. / SAV81..

3-position actuators must be controlled by a controller, see Connection diagrams.

### SAV61..

Up to 10 actuators can drive in parallel on a controller output with a rating of 1 mA. Modulating actuators have an input impedance of 100 kΩ.

### SAV61../MO

The Modbus converter is designed for analog control at 0...10 V.



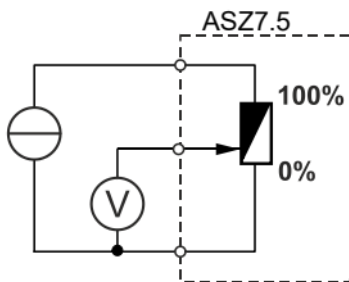
Keep the analog signal setting on the actuator as is (switch 1 to OFF); adjustment not permitted.

### ASZ7.5

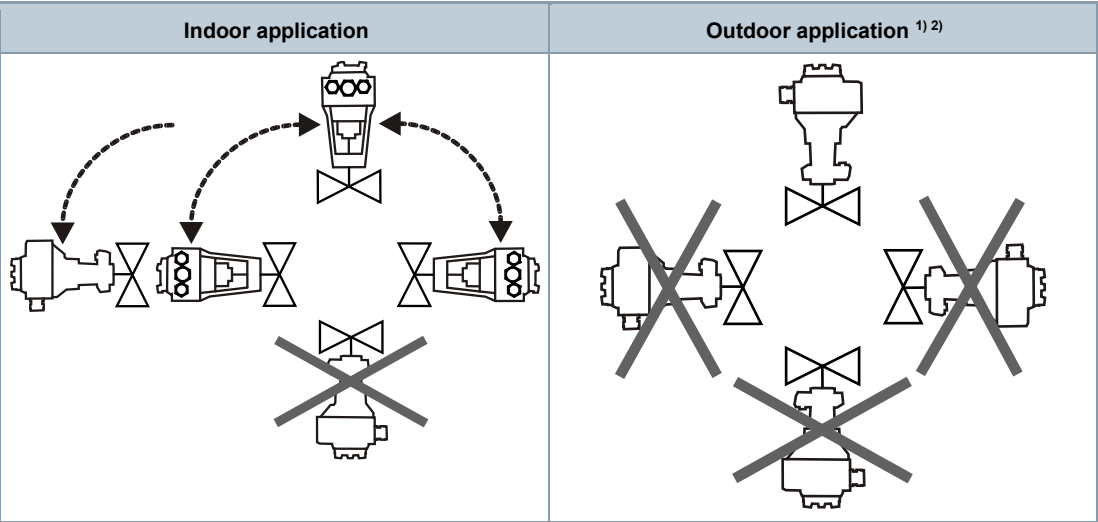
Actuators with a DC 0...9.8 V feedback signal are recommended for the combination SIMATIC S5/S7 and position feedback.

Signal peaks in potentiometer ASZ7.5 may result in error messages on Siemens SIMATIC. This is not the cause, however, when combined with Siemens HVAC controllers. The reason is the higher resolution and faster reaction time on SIMATIC.

Use the potentiometer as voltage divider on the 3-wire connection. Powering the potentiometer over the wiper may shorten the life cycle of the potentiometer. Signal peaks increase in frequency and scope over the lifespan in this operating mode.



Mounting positions

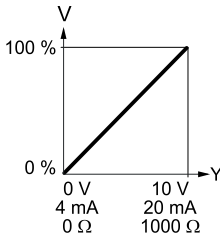
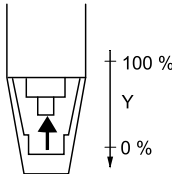


- 1) Requires weather shield ASK39.1. Housing protection class remains IP 54.
- 2) SAV61../MO is not intended for outdoor use.

Operation

Control action

On valves where the stem retracts to the close position, "direct acting" means that the value is fully closed at positioning signal  $Y = 0\text{ V}$  or  $Z = 0\text{ }\Omega$  (i.e. 0 %).

|                                                                                     |                               |                                                                                       |                        |
|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|------------------------|
|  |                               | <b>Direct acting</b>                                                                  |                        |
|                                                                                     |                               |  |                        |
|                                                                                     |                               | Positioning<br>signal Y                                                               | DC 0...10 V, 4...20 mA |
|                                                                                     |                               | Positioning<br>signal Z                                                               | 0...1000 Ω             |
| Y, Z                                                                                | Positioning signal            |                                                                                       |                        |
| V                                                                                   | Volume flow                   |                                                                                       |                        |
| _____                                                                               | Control action: Direct acting |                                                                                       |                        |

Maintenance

Actuators are maintenance-free.

## Disposal



This symbol or any other national label indicate that the product, its packaging, and, where applicable, any batteries may not be disposed of as domestic waste. Delete all personal data and dispose of the item(s) at separate collection and recycling facilities in accordance with local and national legislation.

For additional details, refer to [Siemens information on disposal](#).

## Warranty

The application-specific technical data is guaranteed only in combination with the Siemens products listed in the 'Device combinations' section. If third-party products are used, any guarantee provided by Siemens will be invalidated.

## Technical data

| Power supply                                                      |         |                                                                                                                                                                                                                               |
|-------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage                                                 | SAV31.. | AC 230 V $\pm$ 15 %                                                                                                                                                                                                           |
|                                                                   | SAV61.. | AC 24 V $\pm$ 20 % / DC 24 V + 20 % / - 15 %<br>(SELV / PELV)                                                                                                                                                                 |
|                                                                   | SAV81.. |                                                                                                                                                                                                                               |
| Frequency                                                         |         | 45...65 Hz                                                                                                                                                                                                                    |
| External supply line fusing (EU)                                  |         | <ul style="list-style-type: none"><li>• Non-renewable fuse 6...10 A slow</li><li>• Circuit break max. 13 A, tripping characteristic B, C, D to EN 60898</li><li>• Power source with current limitation of max. 10 A</li></ul> |
| Typical switch-on current <sup>1)</sup><br>(3-position actuators) | SAV31.. | 2.3A                                                                                                                                                                                                                          |
|                                                                   | SAV81.. | 4.5A                                                                                                                                                                                                                          |

| Functional data                                          |                                                                                      |
|----------------------------------------------------------|--------------------------------------------------------------------------------------|
| Positioning times (with the specified nominal stroke)    | The positioning time may vary depending on the type of valve<br>(Type summary [► 3]) |
| SAV31..., SAV61..., SAV81..                              | 120 s                                                                                |
| Positioning force                                        | 1600 N                                                                               |
| Nominal stroke                                           | 40 mm                                                                                |
| Working stroke range at which the actuator is calibrated | 15...43 mm                                                                           |
| Permissible media temperature (valve fitted)             | -25...130 °C<br>At 150 °C, installed horizontally                                    |



| Signal inputs          |                                     |                                       |
|------------------------|-------------------------------------|---------------------------------------|
| Positioning signal "Y" | SAV31..., SAV81..                   | 3-pos.                                |
|                        | SAV31.. Voltage                     | AC 230 V ± 15 %                       |
|                        | SAV81.. Voltage                     | AC 24 V ± 20% / DC 24 V + 20% / - 15% |
|                        | SAV61.. (DC 0...10 V) current draw  | ≤ 0.1 mA                              |
|                        | Input impedance                     | ≥100 kΩ                               |
|                        | SAV61.. (DC 4...20 mA) current draw | DC 4...20 mA ± 1%                     |
|                        | Input impedance                     | ≤ 500 Ω                               |

| Power consumption at 50 Hz |                  |               |                |             |              |
|----------------------------|------------------|---------------|----------------|-------------|--------------|
| Type                       | Item NO.         | Operating [W] | Operating [VA] | Standby [W] | Standby [VA] |
| SAV31.00                   | S55150-A112      | 4.1           | 7.2            | 1.3         | 2.3          |
| SAV61.00                   | S55150-A110      | 4.0           | 9.5            | 1.7         | 4.4          |
| SAV61.00U                  | S55150-A110-A100 | 4.0           | 9.5            | 1.7         | 4.4          |
| SAV61.00/MO                | S55150-A141      | 4.5           | 10.2           | 2.2         | 5.8          |
| SAV81.00                   | S55150-A111      | 4.0           | 6.9            | 1.5         | 2.7          |
| SAV81.00U                  | S55150-A111-A100 | 4.0           | 6.9            | 1.5         | 2.7          |

| Communication          |                      |                                                |
|------------------------|----------------------|------------------------------------------------|
| Communication protocol | Modbus RTU           | RS-485, not galvanically isolated              |
|                        | Number of nodes      | Max. 32                                        |
|                        | Address range        | 1...245 / 255                                  |
|                        | Factory setting      | 255                                            |
|                        | Transmission formats | 1-8-E-1 / 1-8-O-1 / 1-8-N-1 / 1-8-N-2          |
|                        | Factory setting      | 1-8-E-1                                        |
|                        | Baud rates (kbaud)   | Auto / 9.6 / 19.2 / 38.4 / 57.6 / 76.8 / 115.2 |
|                        | Factory setting      | Auto                                           |
|                        | Bus termination      | 120 Ω electronically switchable                |
|                        | Factory setting      | Off                                            |

| Parallel connection |                                       |
|---------------------|---------------------------------------|
| SAV61..             | ≤ 10 (depending on controller output) |

| Forced control       |                       |                                 |
|----------------------|-----------------------|---------------------------------|
| Z positioning signal | SAV61..               | R = 0...1000 $\Omega$ , G, G0   |
|                      | R = 0...1000 $\Omega$ | Stroke proportional to R        |
|                      | Z connected to G      | Max. stroke 100 % <sup>2)</sup> |
|                      | Z connected to G0     | Max. stroke 0 % <sup>2)</sup>   |
|                      | Voltage               | Max. AC 24 V $\pm$ 20 %         |
|                      |                       | Max. DC 24 V + 20 % / - 15 %    |
|                      | Power consumption     | $\leq$ 0.1 mA                   |

| Position feedback |                       |                           |
|-------------------|-----------------------|---------------------------|
| U                 | Voltage range SAV61.. | 0...10 V DC               |
|                   | Load impedance        | > 10 k $\Omega$ resistive |
|                   | Load                  | Max. 1 mA                 |

| Connection cable           |             |                                                                                      |
|----------------------------|-------------|--------------------------------------------------------------------------------------|
| Wire cross-sectional areas |             | 0.13...1.5 mm <sup>2</sup> , AWG 24...16 <sup>3)</sup>                               |
| Cable entries              | SAV.. (EU)  | 2 entries $\varnothing$ 20.5 mm (for M20)<br>1 entry $\varnothing$ 25.5 mm (for M25) |
|                            | SAV..U (US) | 3 entries $\varnothing$ 21.5 mm for 1/2" tube connection                             |
|                            | SAV61../MO  | Fixed connection cable 0.9m                                                          |
|                            |             | Number of cores 5 x 0.75 mm <sup>2</sup>                                             |

| Degree of protection and class         |                      |                                     |
|----------------------------------------|----------------------|-------------------------------------|
| Housing from vertical to horizontal    |                      | IP 54 as per EN 60529 <sup>4)</sup> |
| Device protective class per EN 60730-1 | SAV31.. AC 230 V     | II                                  |
|                                        | SAV61.. AC / DC 24 V | III                                 |
|                                        | SAV81.. AC / DC 24 V |                                     |

| Environmental conditions                     |                           |                                             |
|----------------------------------------------|---------------------------|---------------------------------------------|
| Operation per IEC 60721-3-3                  | Climatic conditions       | Class 3K5                                   |
|                                              | Mounting location         | Indoors (weather-protected) <sup>4)</sup>   |
|                                              | Temperature, general      | -5...<55 °C                                 |
|                                              | Humidity (non-condensing) | 5...95 % r.h.                               |
| Transport per IEC 60721-3-2                  | Climatic conditions       | Class 2K3                                   |
|                                              | Temperature               | -25...70 °C                                 |
|                                              | Humidity                  | 5...95 % r.h.                               |
| Storage per IEC 60721-3-1                    | Climatic conditions       | Class 1K3                                   |
|                                              | Temperature               | -15...55 °C                                 |
|                                              | Humidity                  | 5...95 % r.h.                               |
| Max. media temperature when mounted on valve |                           | 130 °C<br>At 150 °C, installed horizontally |

| Directives and standards                     |              |                                                                                            |
|----------------------------------------------|--------------|--------------------------------------------------------------------------------------------|
| Product standard                             |              | EN 60730-x                                                                                 |
| Electromagnetic compatibility (field of use) |              | For residential, commercial, and industrial environments                                   |
| EU conformity (CE)                           |              | See EU declaration of conformity CE1T4503xx <sup>5)</sup>                                  |
| UK conformity (UKCA)                         |              | See UK declaration of conformity A5W00197822A-001 <sup>5)</sup>                            |
| RCM compliance                               | AC 230 V     | See RCM declaration of conformity 8000078495 <sup>5)</sup>                                 |
| EAC compliance                               |              | Eurasian compliance for all SAV..                                                          |
| UL, cUL                                      | AC 230 V     | -                                                                                          |
|                                              | AC / DC 24 V | UL 873 <a href="http://ul.com/database">http://ul.com/database</a> ;<br>File number E35198 |

| Environmental compatibility                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product environmental declarations 71 7331 0522 <sup>5)</sup> and A6V101083254 <sup>5)</sup> include data on environmentally friendly product design and testing (RoHS compliance, material composition, packaging, environmental benefits, disposal). |

| Dimensions             |
|------------------------|
| See Dimensions [ ► 18] |

| Accessories                                                     |                          |                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Potentiometer ASZ7.5 <sup>6)</sup><br>0...1000 $\Omega \pm 5\%$ | Voltage                  | DC 10 V                                                                                                                                                                                                                           |
|                                                                 | Current rating           | <4 mA                                                                                                                                                                                                                             |
| Auxiliary switch ASC10.51 <sup>6)</sup>                         | Switching capacity       | AC 24...230 V, 6 (2) A, potential free                                                                                                                                                                                            |
| External fusing of supply line                                  |                          | <ul style="list-style-type: none"> <li>• Non-renewable fuse 6...10 A slow</li> <li>• Circuit break max. 13 A, tripping characteristic B, C, D to EN 60898</li> <li>• Power source with current limitation of max. 10 A</li> </ul> |
| US installation, UL & cUL                                       |                          | AC 24 V class 2, 5 A general purpose                                                                                                                                                                                              |
| Stem heating element ASZ6.6                                     | Operating voltage        | AC / DC 24 V $\pm 20\%$                                                                                                                                                                                                           |
|                                                                 | Power draw               | 50 VA, 30 W                                                                                                                                                                                                                       |
|                                                                 | Switch-on current (cold) | Max. 8.5 A (max. temperature 85 °C/185 F)                                                                                                                                                                                         |

<sup>1)</sup> Switching time for RMS value of the sine wave at nominal voltage

<sup>2)</sup> Observe acting direction of DIL switches

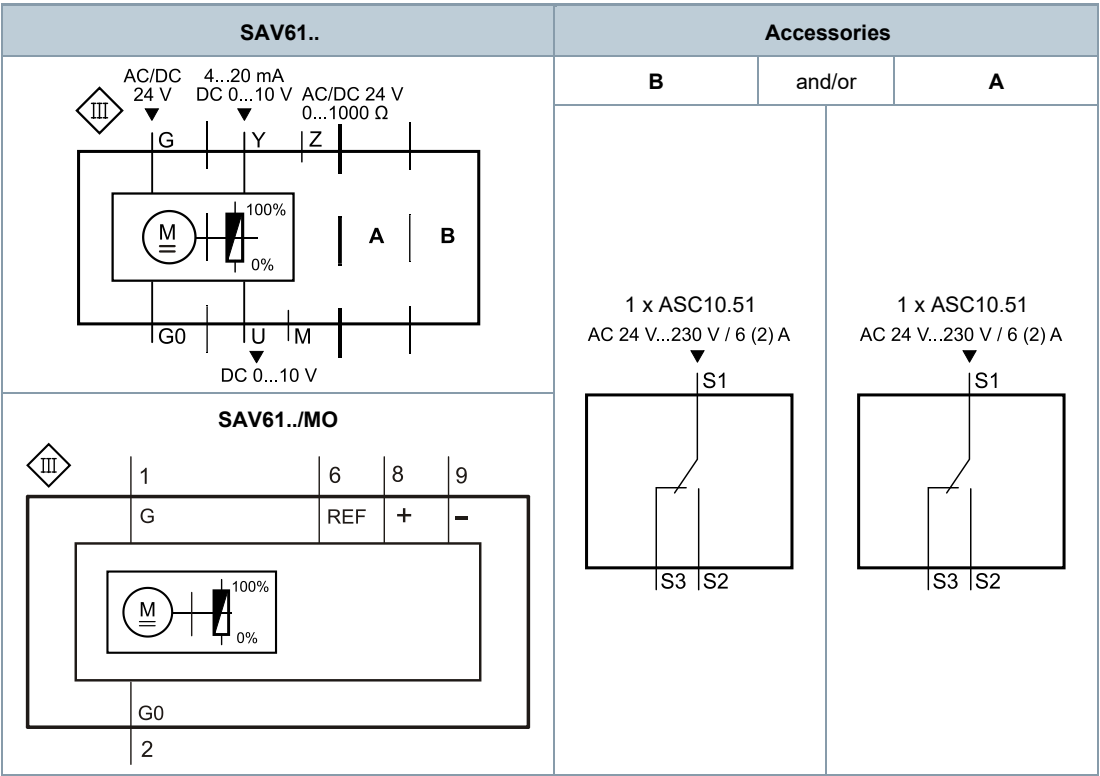
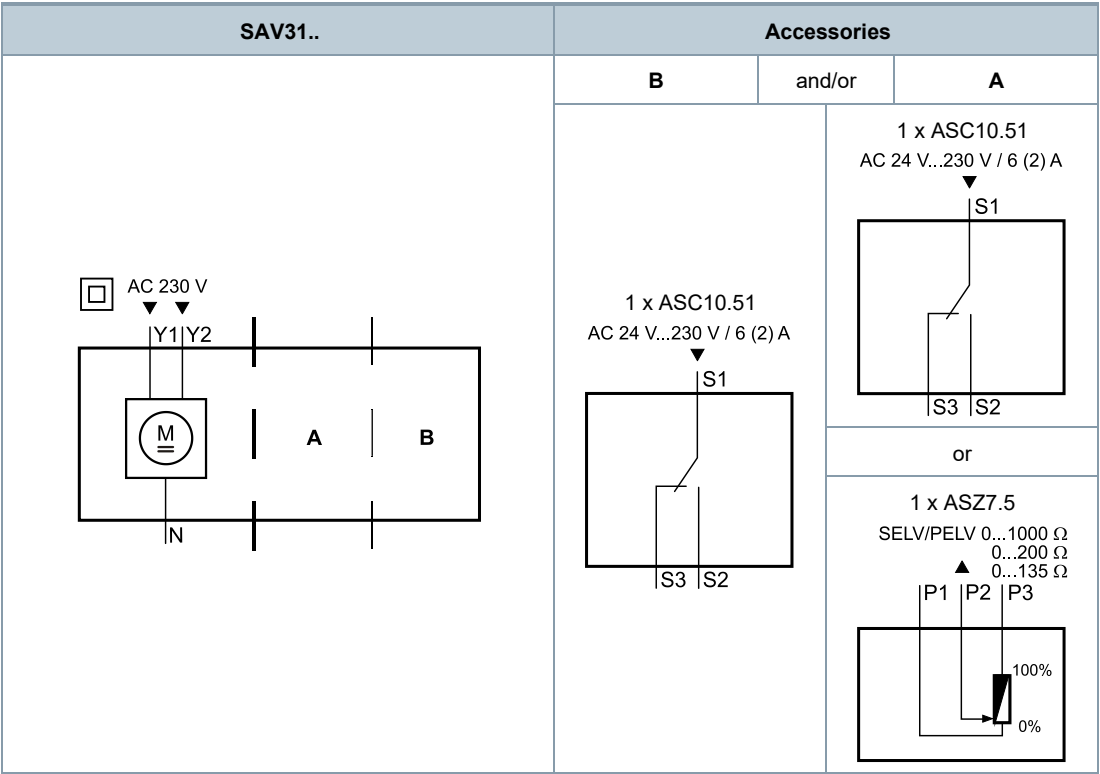
<sup>3)</sup> AWG = American wire gauge

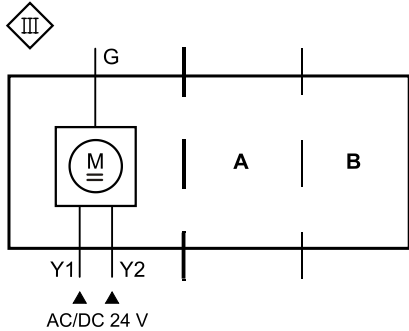
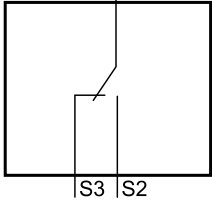
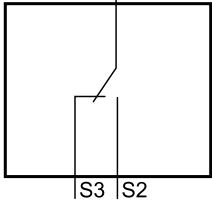
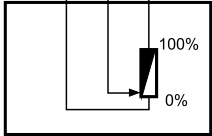
<sup>4)</sup> For outdoor operation, always use weather shield ASK39.1, housing protection class IP 54 remains as is. SAV61.../MO is not intended for outdoor use.

<sup>5)</sup> Documents can be downloaded at <http://www.siemens.com/bt/download>

<sup>6)</sup> UL-approved components 

Internal diagrams



| SAV81..                                                                           | Accessories                                                                                                                          |        |                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                   | B                                                                                                                                    | and/or | A                                                                                                                                                                                                                                                                                                                                                                |
|  | <p>1 x ASC10.51<br/>AC 24 V...230 V / 6 (2) A</p>  |        | <p>1 x ASC10.51<br/>AC 24 V...230 V / 6 (2) A</p>  <p>or</p> <p>1 x ASZ7.5<br/>SELV/PELV 0...1000 <math>\Omega</math><br/>0...200 <math>\Omega</math><br/>0...135 <math>\Omega</math></p>  |
|                                                                                   |                                                                                                                                      |        |                                                                                                                                                                                                                                                                                                                                                                  |

### SAV31..

| SAV31..     | AC 230 V                                    | 3-position |
|-------------|---------------------------------------------|------------|
| <b>N</b> —  | System neutral (SN)                         |            |
| <b>Y1</b> — | Positioning signal (actuator stem extends)  |            |
| <b>Y2</b> — | Positioning signal (actuator stem retracts) |            |

### SAV61..

| SAV61..     | AC / DC 24 V                                                                 | DC 0...10 V / 4...20 mA / 0...1000 Ω |
|-------------|------------------------------------------------------------------------------|--------------------------------------|
| <b>G0</b> — | System neutral (SN)                                                          |                                      |
| <b>G</b> —  | System potential (SP)                                                        |                                      |
| <b>Y</b> —  | Positioning signal for DC 0...10 V / 4...20 mA                               |                                      |
| <b>M</b> —  | Measuring neutral                                                            |                                      |
| <b>U</b> —  | Position feedback DC 0...10 V - (reference potential is measuring neutral M) |                                      |
| <b>Z</b> —  | Control signal override control                                              |                                      |

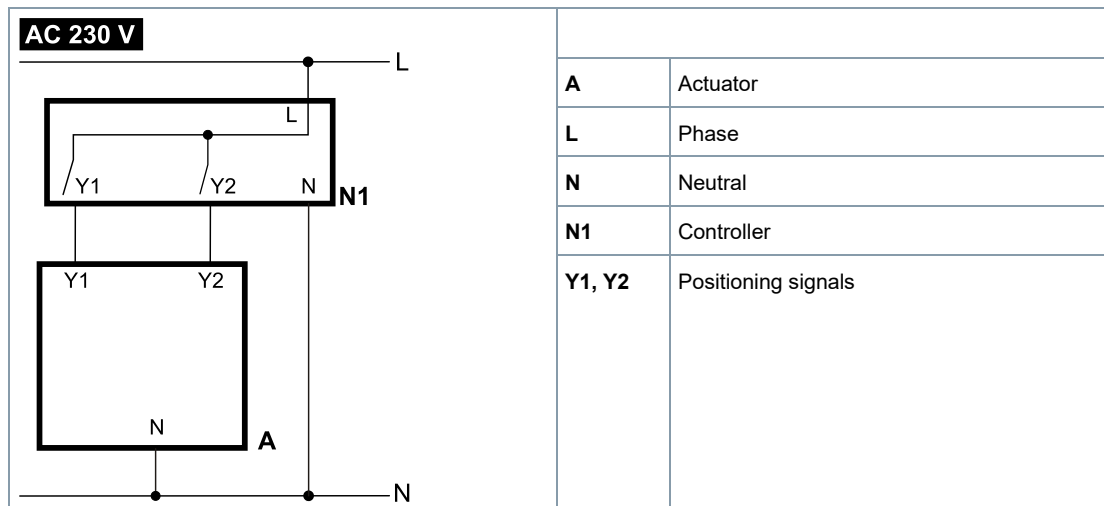
### SAV61../MO

|              | AC / DC 24 V                            | Modbus RTU connection cable |
|--------------|-----------------------------------------|-----------------------------|
| <b>G0</b> —  | System neutral (SN)                     | black                       |
| <b>G</b> —   | System potential (SP) AC 24 V / DC 24 V | red                         |
| <b>REF</b> — | Reference line (Modbus RTU)             | purple                      |
| <b>+</b> —   | Bus + (Modbus RTU)                      | gray                        |
| <b>-</b> —   | Bus - (Modbus RTU)                      | pink                        |

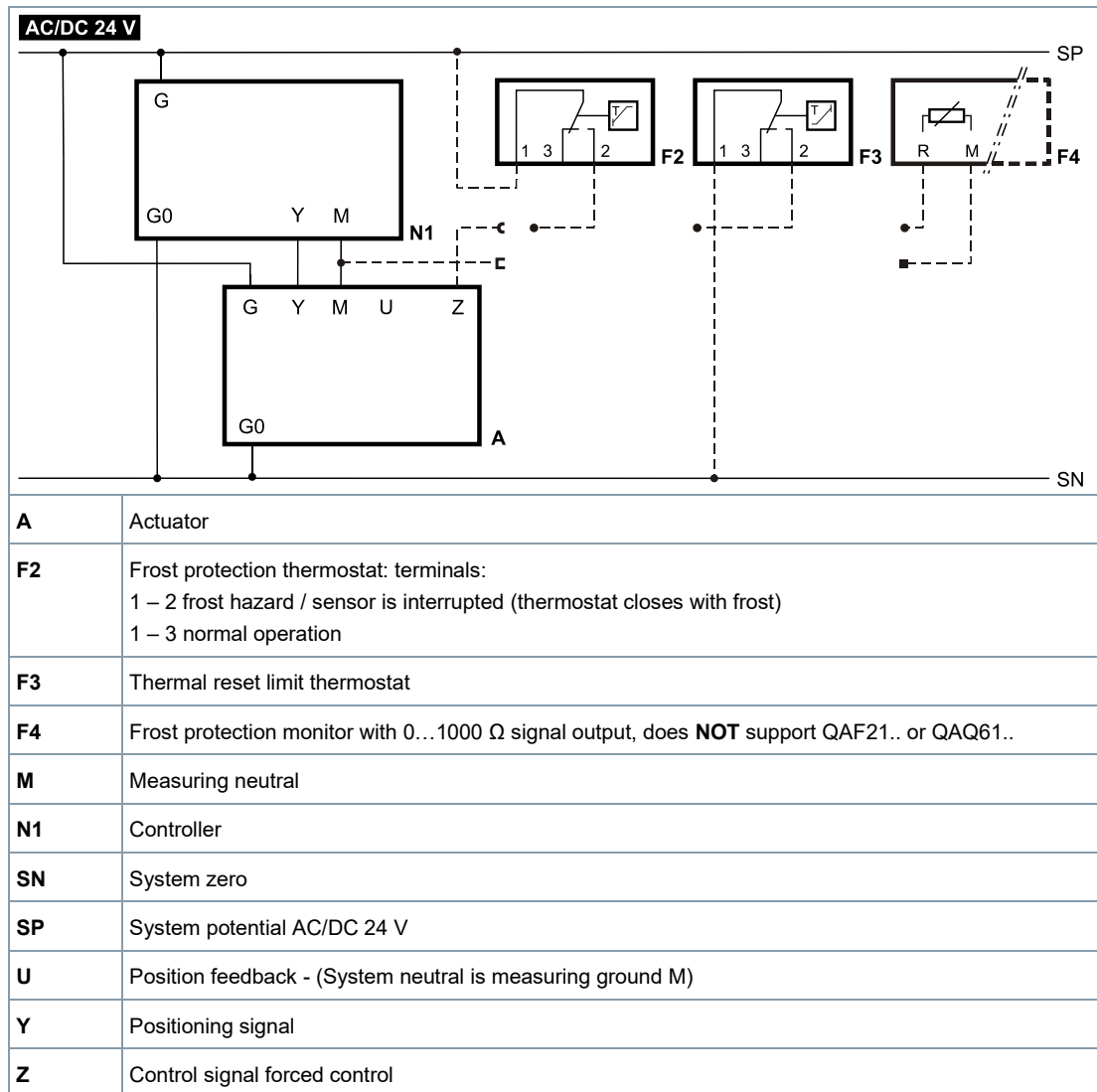
### SAV81..

| SAV81..     | AC / DC 24 V                                | 3-position |
|-------------|---------------------------------------------|------------|
| <b>G</b> —  | System potential (SP)                       |            |
| <b>Y1</b> — | Positioning signal (actuator stem extends)  |            |
| <b>Y2</b> — | Positioning signal (actuator stem retracts) |            |

### SAV31..

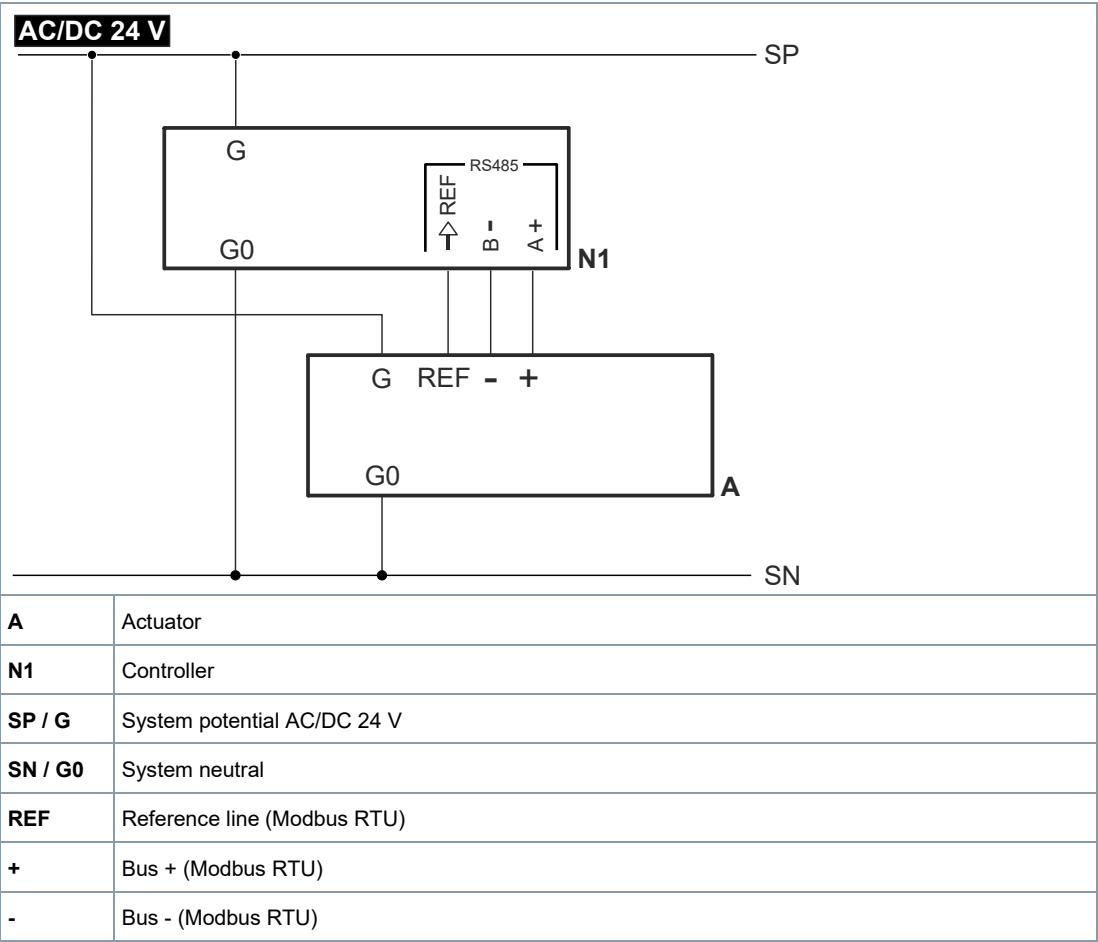


### SAV61..

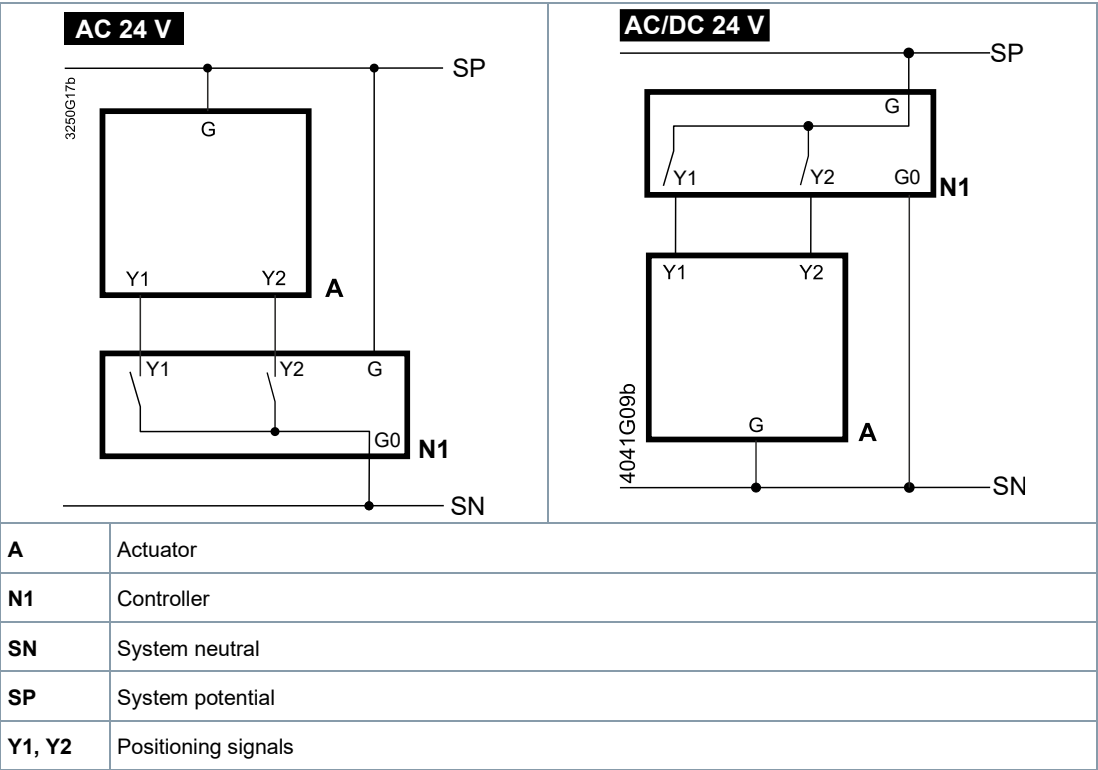


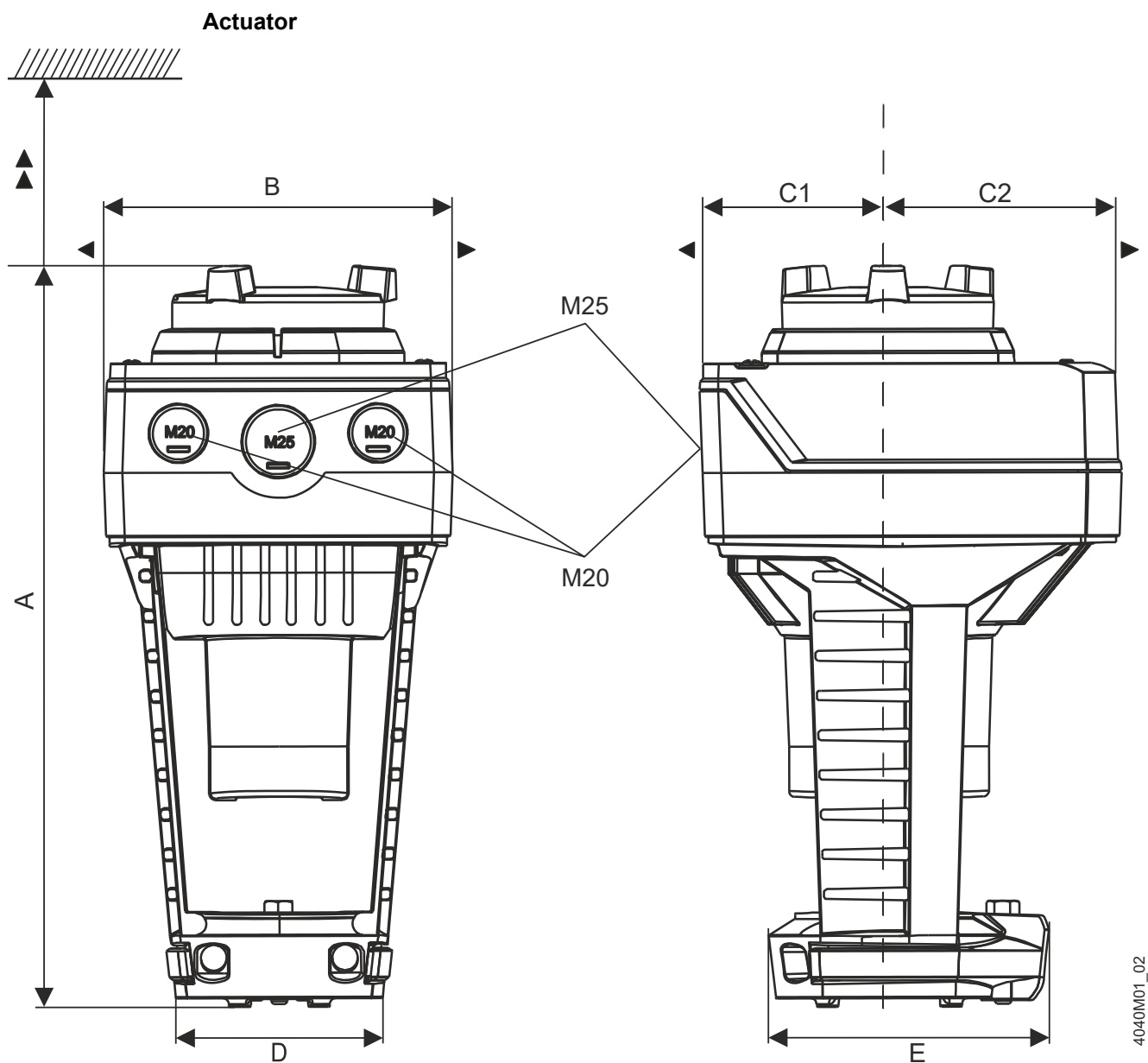


SAV61../MO



SAV81..



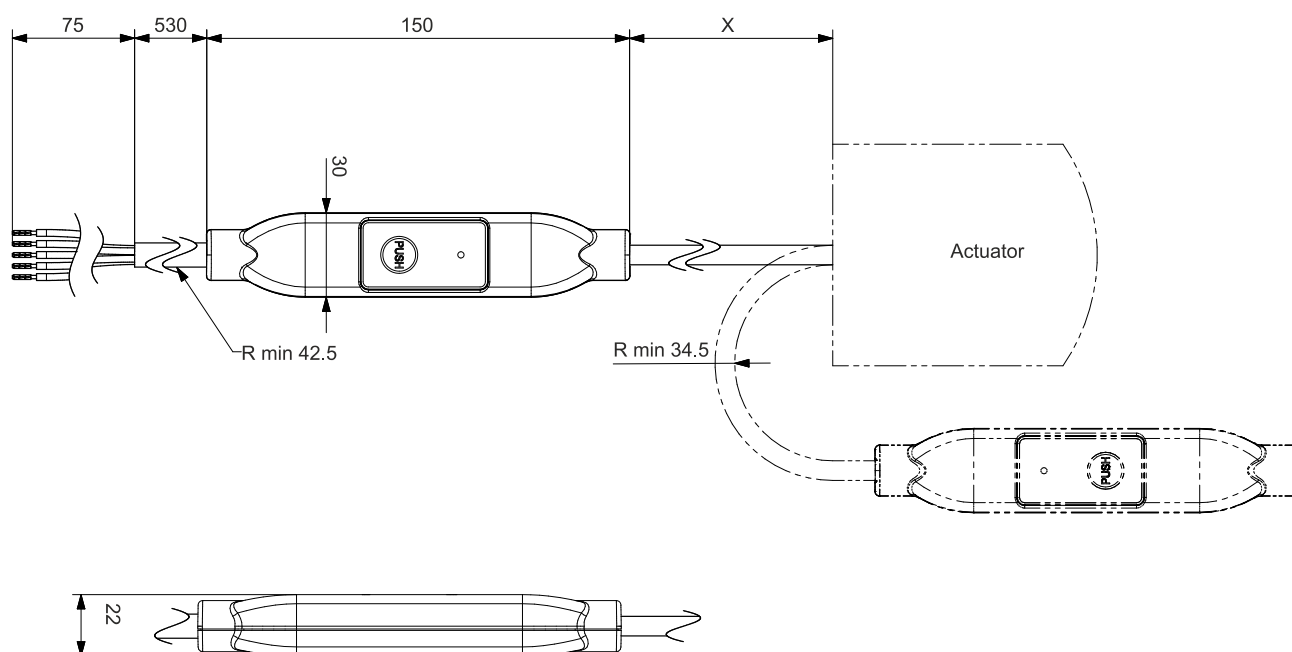


| Type                    | A    | B   | C   | C1  | C2  | D  | E   | ▶   | ▶▶  | kg    |
|-------------------------|------|-----|-----|-----|-----|----|-----|-----|-----|-------|
|                         | [mm] |     |     |     |     |    |     |     |     | [kg]  |
| SAV..(U <sup>1)</sup> ) | 265  | 124 | 150 | 68  | 82  | 80 | 100 | 100 | 200 | 1.920 |
| SAV../MO <sup>2)</sup>  |      |     |     |     |     |    |     |     |     | 2.070 |
| With ASK39.1            | 290  | 154 | 300 | 200 | 100 | -  |     |     |     | 2.150 |

<sup>1)</sup> SAV..U: For ½" tube connections (Ø 21.5 mm)

<sup>2)</sup> Device has fixed connection cable – left cable entry occupied

## External Modbus converter



Dimensions in mm

| Type       | X    | kg                 |
|------------|------|--------------------|
|            | [mm] | [kg]               |
| SAV61../MO | 250  | 0.15 <sup>1)</sup> |

<sup>1)</sup> Included in total weight.

## Revision numbers

| Type        | Valid from rev. no. |
|-------------|---------------------|
| SAV31.00    | ..C                 |
| SAV61.00    | ..B                 |
| SAV61.00U   | ..B                 |
| SAV61.00/MO | ..A                 |
| SAV81.00    | ..D                 |
| SAV81.00U   | ..B                 |

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