

# SAEx 25.1 – SAEx 40.1

## Electrical data multi-turn actuators for open-close duty with 3-phase AC motors

### Short-time duty S2 - 15 min, 230 V/50 Hz

| Multi-turn actuator |                    |                  | Motor          |   |             |  |   |                                     |       |                                    |                                 |           |
|---------------------|--------------------|------------------|----------------|---|-------------|--|---|-------------------------------------|-------|------------------------------------|---------------------------------|-----------|
| Type                | Output speed [rpm] | Max. torque [Nm] | Motor type     | Nominal power <sup>1)</sup> P <sub>N</sub> [kW] | Speed [rpm] | Nominal current <sup>2)</sup> I <sub>N</sub> [A] | Max. current <sup>3)</sup> I <sub>max</sub> [A] | Starting current I <sub>A</sub> [A] | cos φ | Overcurr. prot. device setting [A] | AUMA power class for switchgear |           |
|                     |                    |                  |                |   |             |  |   |                                     |       |                                    | Contactors                      | Thyristor |
| SAEx 25.1           | 4                  | 2,000            | ADX0 90-8/130  | 1.1   | 700         | 12   | 16  | 29                                  | 0.48  | 12                                 | A2                              | B3        |
|                     | 5.6                |                  |                |   |             | 12   | 17  | 29                                  | 0.48  | 12                                 | A2                              | B3        |
|                     | 8                  |                  | ADX0 90-4/130  | 3.0   | 1,400       | 12   | 19  | 66                                  | 0.80  | 12                                 | A2                              | –         |
|                     | 11                 |                  |                |   |             | 12   | 21  | 66                                  | 0.80  | 12                                 | A2                              | –         |
|                     | 16                 |                  | ADX0 90-2/130  | 4.0   | 2,800       | 17   | 28  | 100                                 | 0.78  | 17                                 | A2                              | –         |
|                     | 22                 |                  |                |   |             | 17   | 35  | 100                                 | 0.78  | 17                                 | A2                              | –         |
|                     | 32                 |                  | ADX0 132-4/140 | 7.5   | 1,400       | 38   | 69  | 207                                 | 0.65  | 38                                 | A4                              | –         |
|                     | 45                 |                  |                |   |             | 38   | 83  | 207                                 | 0.65  | 38                                 | A4                              | –         |
| 63                  | ADX0 132-2/180     | 15               | 2,800          | 52  | 104         | 328  | 0.90  | 52                                  | A4    | –                                  |                                 |           |
| 90                  |                    |                  |                | 52  | 121         | 328  | 0.90  | 52                                  | A4    | –                                  |                                 |           |
| SAEx 30.1           | 4                  | 4,000            | ADX0 112-8/140 | 2.2   | 700         | 19   | 26  | 62                                  | 0.58  | 19                                 | A2                              | –         |
|                     | 5.6                |                  |                |   |             | 19   | 28  | 62                                  | 0.58  | 19                                 | A2                              | –         |
|                     | 8                  |                  | ADX0 112-4/110 | 5.5   | 1,400       | 22   | 35  | 104                                 | 0.77  | 22                                 | A3                              | –         |
|                     | 11                 |                  |                |   |             | 22   | 40  | 104                                 | 0.77  | 22                                 | A3                              | –         |
|                     | 16                 |                  | ADX0 112-2/140 | 7.5   | 2,800       | 31   | 48  | 207                                 | 0.78  | 31                                 | A4                              | –         |
|                     | 22                 |                  |                |   |             | 31   | 52  | 207                                 | 0.78  | 31                                 | A4                              | –         |
|                     | 32                 |                  | ADX0 160-4/160 | 15  | 1,400       | 76   | 100   | 345                                 | 0.63  | 76                                 | A5                              | –         |
|                     | 45                 |                  |                |   |             | 76   | 116   | 345                                 | 0.63  | 76                                 | A5                              | –         |
| 63                  | ADX0 160-2/215     | 30               | 2,800          | 112   | 138         | 639  | 0.88  | 112                                 | A6    | –                                  |                                 |           |
| 90                  |                    |                  |                | 112   | 173         | 639  | 0.88  | 112                                 | A6    | –                                  |                                 |           |
| SAEx 35.1           | 4                  | 8,000            | ADX0 132-8/150 | 4.0   | 700         | 35   | 52  | 121                                 | 0.44  | 35                                 | A4                              | –         |
|                     | 5.6                |                  |                |   |             | 35   | 60  | 112                                 | 0.44  | 35                                 | A4                              | –         |
|                     | 8                  |                  | ADX0 132-4/140 | 7.5   | 1,400       | 38   | 83  | 207                                 | 0.65  | 38                                 | A4                              | –         |
|                     | 11                 |                  |                |   |             | 38   | 95  | 207                                 | 0.65  | 38                                 | A4                              | –         |
|                     | 16                 |                  | ADX0 132-2/180 | 15  | 2,800       | 52   | 104   | 328                                 | 0.90  | 52                                 | A4                              | –         |
|                     | 22                 |                  |                |   |             | 52   | 121   | 328                                 | 0.90  | 52                                 | A4                              | –         |
| 32                  | ADX0 160-2/214     | 20               | 2,800          | 69  | 138         | 449  | 0.90  | 69                                  | A5    | –                                  |                                 |           |
| 45                  |                    |                  |                | 69  | 164         | 449  | 0.90  | 69                                  | A5    | –                                  |                                 |           |
| SAEx 40.1           | 4                  | 16,000           | ADX0 160-8/165 | 7.5   | 700         | 52   | 95  | 161                                 | 0.50  | 52                                 | A4                              | –         |
|                     | 5.6                |                  |                |   |             | 52   | 100   | 161                                 | 0.50  | 52                                 | A4                              | –         |
|                     | 8                  |                  | ADX0 160-4/160 | 15  | 1,400       | 76   | 121   | 345                                 | 0.63  | 76                                 | A5                              | –         |
|                     | 11                 |                  |                |   |             | 76   | 150   | 345                                 | 0.63  | 76                                 | A5                              | –         |
|                     | 16                 |                  | ADX0 160-2/215 | 30  | 2,800       | 112  | 173   | 639                                 | 0.88  | 112                                | A6                              | –         |
|                     | 22                 |                  |                |   |             | 112  | 225   | 639                                 | 0.88  | 112                                | A6                              | –         |
| 32                  | ADX0 160-2/215     | 30               | 2,800          | 112   | 276         | 639  | 0.88  | 112                                 | A6    | –                                  |                                 |           |

#### Notes on table

|                                   |  |
|-----------------------------------|--|
| 1) Nominal power P <sub>N</sub>   | Mechanical power output at motor shaft at running torque of multi-turn actuator (corresponds to approx. 50 % of maximum torque).<br>The consumed electrical power can be calculated using the following formula:<br>$P = U \times I \times \cos \varphi \times \sqrt{3}$ |
| 2) Nominal current I <sub>N</sub> | Current at running torque  |
| 3) Max. current I <sub>max</sub>  | Current at maximum torque  |

#### Notes on installation and sizing

|            |  |
|------------|--|
| Motor data | Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given. |
|------------|--|

| Thermoswitches/PTC thermistors | <p>To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings.</p> <p><b>Actuators without integral controls (AUMA NORM):</b><br/>Thermoswitches or PTC thermistors have to be considered within the external controls (refer to terminal plan).</p> <p><b>Note: Failure to connect thermoswitches or PTC thermistors shall void the warranty for the motor. According to EN 60079-14, a thermal overcurrent protection device (e.g. motor protection switch) must be installed for explosion-proof actuators in addition to the thermoswitches. PTC thermistors additionally require a suitable tripping device in the controls.</b></p> <p><b>Rating of the thermoswitches</b></p> <table border="1" data-bbox="454 472 1182 584"> <thead> <tr> <th colspan="2">AC current</th> <th colspan="2">DC current</th> </tr> </thead> <tbody> <tr> <td colspan="2">250 V, 50 – 60 Hz</td> <td>60 V</td> <td>1.0 A</td> </tr> <tr> <td>cos <math>\varphi</math> = 1</td> <td>2.5 A</td> <td>42 V</td> <td>1.2 A</td> </tr> <tr> <td>cos <math>\varphi</math> = 0.6</td> <td>1.6 A</td> <td>24 V</td> <td>1.5 A</td> </tr> </tbody> </table> <p><b>Actuators with AMExC or ACEXC integral controls:</b><br/>Thermal motor protection is already integrated.</p>  | AC current       |   | DC current   |  | 250 V, 50 – 60 Hz |          | 60 V | 1.0 A    | cos $\varphi$ = 1 | 2.5 A | 42 V | 1.2 A  | cos $\varphi$ = 0.6 | 1.6 A  | 24 V | 1.5 A  |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
|--------------------------------|---|------------------|---|--|--|-------------------|----------|------|----------|-------------------|-------|------|--------|---------------------|--------|------|--------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|--------|----|-------|--------|--------|------------------|---|----------|----|-----|----|-------|----|------|
| AC current                     |   | DC current       |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| 250 V, 50 – 60 Hz              |   | 60 V             | 1.0 A   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| cos $\varphi$ = 1              | 2.5 A   | 42 V             | 1.2 A   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| cos $\varphi$ = 0.6            | 1.6 A   | 24 V             | 1.5 A   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| Mains voltage, mains frequency | <p>Permissible variation of mains voltage: <math>\pm 10\%</math><br/>Permissible variation of mains frequency: <math>\pm 5\%</math></p>   |                  |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| Switchgear sizing              | <p>For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used.</p> <p><b>Actuators without integral controls (AUMA NORM):</b><br/>Switchgear are supplied by the customer. We recommend specification of switchgear suitable for their rated operating power/motor power in compliance with the assigned AUMA power class.<br/>Switchgear assignment to AUMA power classes:</p> <table border="1" data-bbox="454 954 1418 1451"> <thead> <tr> <th rowspan="2">AUMA power class</th> <th rowspan="2">Reversing contactor<br/>Rated operating power acc. to EN<br/>60947-4-1<br/>Utilization category AC-3</th> <th colspan="2">Reversing contactor<br/>Motor power<br/>according to UL/CSA at</th> </tr> <tr> <th>480 V AC</th> <th>600 V AC</th> </tr> </thead> <tbody> <tr> <td></td> <td>400 V AC</td> <td></td> <td></td> </tr> <tr> <td>A1</td> <td>4.0 kW</td> <td>5.0 hp</td> <td>5.0 hp</td> </tr> <tr> <td>A2</td> <td>7.5 kW</td> <td>10 hp</td> <td>10 hp</td> </tr> <tr> <td>A3</td> <td>15 kW</td> <td>20 hp</td> <td>25 hp</td> </tr> <tr> <td>A4</td> <td>30 kW</td> <td>60 hp</td> <td>60 hp</td> </tr> <tr> <td>A5</td> <td>55 kW</td> <td>75 hp</td> <td>100 hp</td> </tr> <tr> <td>A6</td> <td>75 kW</td> <td>100 hp</td> <td>125 hp</td> </tr> </tbody> </table><br><table border="1" data-bbox="454 1245 959 1451"> <thead> <tr> <th rowspan="2">AUMA power class</th> <th rowspan="2">Thyristor<br/>Rated operating current acc. to EN<br/>60947-4-2<br/>Utilization category AC-53a</th> </tr> <tr> <th>400 V AC</th> </tr> </thead> <tbody> <tr> <td>B1</td> <td>6 A</td> </tr> <tr> <td>B2</td> <td>8.5 A</td> </tr> <tr> <td>B3</td> <td>16 A</td> </tr> </tbody> </table> <p><b>Actuators with AMExC or ACEXC integral controls:</b><br/>Required switchgear in power classes A1 – A3 or B1 – B3 are already integrated in AMExC or ACEXC controls. For switchgear of power classes A4 – A6, a control box is additionally required.<br/>For actuators with AMExC integral actuator controls and installed switchgear in AUMA power class A3, an optional thermal overcurrent protection device cannot be directly integrated within the AMExC. An additional control box is required. However, ACEXC actuator controls can be used instead of AMExC controls. When opting for ACEXC controls, the additional control box can be omitted.</p> | AUMA power class | Reversing contactor<br>Rated operating power acc. to EN<br>60947-4-1<br>Utilization category AC-3 | Reversing contactor<br>Motor power<br>according to UL/CSA at |  | 480 V AC          | 600 V AC |      | 400 V AC |                   |       | A1   | 4.0 kW | 5.0 hp              | 5.0 hp | A2   | 7.5 kW | 10 hp | 10 hp | A3 | 15 kW | 20 hp | 25 hp | A4 | 30 kW | 60 hp | 60 hp | A5 | 55 kW | 75 hp | 100 hp | A6 | 75 kW | 100 hp | 125 hp | AUMA power class | Thyristor<br>Rated operating current acc. to EN<br>60947-4-2<br>Utilization category AC-53a | 400 V AC | B1 | 6 A | B2 | 8.5 A | B3 | 16 A |
| AUMA power class               | Reversing contactor<br>Rated operating power acc. to EN<br>60947-4-1<br>Utilization category AC-3   |                  |   | Reversing contactor<br>Motor power<br>according to UL/CSA at |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
|                                |   | 480 V AC         | 600 V AC  |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
|                                | 400 V AC  |                  |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| A1                             | 4.0 kW  | 5.0 hp           | 5.0 hp  |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| A2                             | 7.5 kW  | 10 hp            | 10 hp   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| A3                             | 15 kW   | 20 hp            | 25 hp   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| A4                             | 30 kW   | 60 hp            | 60 hp   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| A5                             | 55 kW   | 75 hp            | 100 hp  |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| A6                             | 75 kW   | 100 hp           | 125 hp  |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| AUMA power class               | Thyristor<br>Rated operating current acc. to EN<br>60947-4-2<br>Utilization category AC-53a   |                  |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
|                                |   | 400 V AC         |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| B1                             | 6 A   |                  |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| B2                             | 8.5 A   |                  |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |
| B3                             | 16 A  |                  |   |  |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |    |       |        |        |                  |   |          |    |     |    |       |    |      |