1 general information

1.1 Please read the following instructions carefully before making any installation of the actuator.

1.2 Damages caused from the non-observance of these instructions are not covered in the warranty.

1.3 This documentation must be kept in dry place and available for use.

1.4 The installation and maintenance of electric actuator must be made only by qualified personnel.

1.5 Before proceeding to the electrical connections, please make sure the ground wiring system works correctly.

1.6 Please always check that supply voltage is included between the ones indicated on the label on the exterior of the actuator.

1.7 Before making any maintenance on the actuator, always make sure to shut off the power supply.

2 general technical features

<table>
<thead>
<tr>
<th>feature</th>
<th>specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>device</td>
<td>electrical actuator</td>
</tr>
<tr>
<td>construction</td>
<td>electronic control integrate device</td>
</tr>
<tr>
<td>protection class</td>
<td>IP65</td>
</tr>
<tr>
<td>ambient temperature</td>
<td>-20...+55°C</td>
</tr>
<tr>
<td>max. switching capacity limit switch</td>
<td>max. 1A/250VAC-1A/30VDC (ohmsche Last)</td>
</tr>
<tr>
<td>connection conductor cross-section</td>
<td>0.5...1,5mm²</td>
</tr>
<tr>
<td>max. tightening torque clamp screws</td>
<td>0,5Nm</td>
</tr>
<tr>
<td>max. tightening torque cover screws</td>
<td>2,5Nm</td>
</tr>
<tr>
<td>protection class against electric shock</td>
<td>class II according to DIN EN 61140</td>
</tr>
<tr>
<td>connecting cable</td>
<td>PG11</td>
</tr>
<tr>
<td>continuous operation without interruption</td>
<td>max. 120s</td>
</tr>
<tr>
<td>protection class against electric shock</td>
<td>class II according to DIN EN 61140</td>
</tr>
<tr>
<td>level of pollution</td>
<td>III according to DIN EN 60664-1</td>
</tr>
<tr>
<td>overvoltage category</td>
<td>III according to DIN EN 60664-1</td>
</tr>
<tr>
<td>product in conformity to the standards</td>
<td>Directive 2014/35/EU (low voltage directive), Directive 2014/30/EU (electromagnetic compatibility)</td>
</tr>
</tbody>
</table>

3 maintenance

3.1 This electric actuator does not need maintenance of any sort. The internal lubrication is sufficient for the whole life of the actuator.

3.2 To get a good cleaning of the external parts, we suggest to use a light detergent with low level of chemical aggressiveness.

3.3 In case of damage or a problem in operation, we recommend that you send the actuators back to our site for inspection.

3.4 warning: The manufacturer of this product declines all responsibility and warrantee on the actuators repaired from any third party.

4 transport and stocking

4.1 Electric actuators of this design are supplied in paperboard boxes which are of solid construction for a normal transport.

4.2 The stocking of the material needs a dry place.

4.3 Please take also care that the product must be protected from temperature changes.
5 technical characteristics

5.1 The actuator is supplied with integrated heating which will be permanently active with external voltage.

5.2 malfunction - abnormal working condition

1. An electronic torque limiter ensures to shut off the actuator in case the actuator requires a torque over the one for which it has been projected.

2. 100...240VAC - versions are automatically switched off in case the torque exceeds the maximum one foreseen. After dispatching the overload, the electrical power supply of the actuator must be switched off. After that a restart is possible.

3. 12/24V AC/DC - versions are automatically switched off in case the torque exceeds the maximum one foreseen. The electrical power supply of the motor is taken off. This status keeps the electric actuator steady until a new impulse will be processed.

6 electrical data

<table>
<thead>
<tr>
<th>type</th>
<th>voltage</th>
<th>current consumption [A]</th>
<th>nominal torque [Nm]</th>
<th>duty cycle (S3)</th>
<th>weight [kg]</th>
<th>operating time [Sek.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB015-L-12</td>
<td>12V/50-60Hz/12VDC</td>
<td>1,2</td>
<td>15</td>
<td>AC50% / DC75%</td>
<td>1,4</td>
<td>10</td>
</tr>
<tr>
<td>VB015-L-24</td>
<td>24V/50-60Hz/24VDC</td>
<td>0,6</td>
<td>15</td>
<td>AC50% / DC75%</td>
<td>1,4</td>
<td>10</td>
</tr>
<tr>
<td>VB015-H</td>
<td>100-240V/50-60Hz</td>
<td>0,3-0,19</td>
<td>15</td>
<td>75%</td>
<td>1,4</td>
<td>10</td>
</tr>
</tbody>
</table>

7 field of application

7.1 The described electric actuators have been designed and tested to operate ball and butterfly valves or industrial used dampers.

7.2 Actuators are available in standard version with a rotation angle of 0° to 90°. On request we can supply actuators with rotation 0° to 180°. If applications other than above mentioned are needed, do not hesitate to contact us.

8 valve automation

8.1 The mechanical assembling between the electric actuator and the item to be automated (for example: the valve) can be done by direct mounting or by a mounting kit. In both cases you can verify the right alignment and the correct dimensions of the part to transmit the power in order to avoid axial stress which can damage valve and actuator.

8.2 All electric actuators of this design are in conformity according to EN ISO 5211-DIN 3337.

8.3 In order to automate the valve properly, it is necessary to use an electric actuator which has a torque range of at least 25% over the maximum valve torque.

8.4 While installing the valve and actuator assembly, do not use the electric actuator as handle when moving the motorized valve. Thus the actuator could be damaged.

9 electrical connection

9.1 The connection has been done directly into the internal part of the actuator. Therefore the cables can pass through one of the two external glands PG11 (IP68). It is then necessary to open the upper cover in order to locate the terminal-block and the correct electronic supply.

9.2 Please pay attention to the cabling and setting phases of electromechanical limit switches in order to avoid that fluids or other substances do not get in touch with any electronic part. Before assembling the upper cover please make sure that the o-ring is seated in the proper groove and there are no others which could compromise the perfect tightness of the cover.

9.3 warning: These electric actuator can be operated in any position, except hanging down. Nevertheless, we do not suggest applications where glands are positioned upper side down. In this position a perfect tightness on glands is not guaranteed.

In case the assembling of the electric actuator and the electrical connection are not performed successively, make sure that all cable ports are closed.

10 opening the actuator

10.1 Remove position indicator (B) by loosening the screws (C).

10.2 Loose the mounting screws (D) to remove the upper cover (A).

10.3 Raise up the cover (A) carefully to avoid a damaging of the internal electric parts.

10.4 Insert the electric supply cable (diam. 6mm to 9mm) through the designated inputs (E) (PG11).

10.5 Proceed to connect the cable in its proper terminal-block (F) by looking at the wiring diagram (please also review the tag you find inside the cover) according to the different voltage.
11 The following figure shows the wiring diagram (it also can be found as tag inside the cover) to be followed for the proper cabling to the actuators. When the limit switches are activated, the motor is stopped.

<table>
<thead>
<tr>
<th>position</th>
<th>description</th>
<th>information</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>heating</td>
<td>standard</td>
</tr>
<tr>
<td>L</td>
<td>torque limiter</td>
<td>standard</td>
</tr>
<tr>
<td>MC</td>
<td>end position response open</td>
<td>standard - max. 1A/240VAC-1A/30VDC</td>
</tr>
<tr>
<td>MO</td>
<td>end position response close</td>
<td>standard - max. 1A/240VAC-1A/30VDC</td>
</tr>
<tr>
<td>MCL</td>
<td>connection</td>
<td>actuator closing</td>
</tr>
<tr>
<td>MOP</td>
<td>connection</td>
<td>actuator opening</td>
</tr>
</tbody>
</table>

12 electrical connection 12 or 24V AC

12.1 The signal cable of "closing" (clockwise rotation) (signal of phase) must be connected to the input 1 of the terminal-block (F).
12.2 The signal cable of "opening" (counter-clockwise rotation) must be connected to the contact (2) of the terminal-block (F).
12.3 The signal cable "common" (0V) must be connected to the contact (3) of the terminal-block (F).
12.4 The earth cable must be connected to the designated place on the metallic body of the actuator.
12.5 Connect the power supply of the heating resistor contact (4) of the terminal-block (F) as shown in the connection plan.

13 electrical connection 12V or 24V DC

13.1 Connect contact (1) with contact (2) (terminal-block F).
13.2 Connect the contact (1) to the contact (4) for supplying the heater.
13.3 The signal cable of "opening" (clockwise rotation) must be connected to the positive pole (1) and the negative pole to contact (3) of terminal-block (F).
13.4 The signal cable of "closing" (counter-clockwise rotation) must be connected to the negative pole (1) and the positive pole to contact (3) of terminal-block (F).

Note: This electric actuator has a double insulation. This type of system does not need a ground wiring system if supplied at 12VDC respectively 24VDC.
14 electrical connection 100...240V AC

14.1 The supply voltage (100 ... 240 V AC) must be connected to the contacts (5, 6) of the terminal-block (F).

14.2 The signal cable of “closing” (clockwise rotation) (signal of phase) must be connected to the input 1 of the terminal-block (F).

14.3 The signal cable of “opening” (counter-clockwise rotation) must be connected to the contact (2) of the terminal-block (F).

14.4 The signal cable of “opening/closing” must be connected to the contact (3) of terminal-block (F).

14.5 The resistors are handled automatically and do not require additional wiring.

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Note: This electric actuator has a double insulation. This type of system does not need a ground wiring system if supplied at 100V...240VAC.

15 Connection of signals auxiliary wires to the limit switches

15.1 There are 2 auxiliary contacts of limit switches (free contacts). They are available on the terminal-block “G”, which gives signals to the end user.

15.2 Between the contacts

1. (7) and (8) to get the signal of closing.
2. (10) and (11) with version 100...240 V AC to get the signal of opening.
3. (11) and (12) with version 12/24 V AC/DC to get the signal of opening.

16 Adjustment of actuator stroke

16.1 The procedures to adjust the actuator stroke are as follows:

1. Take care there is not electrical supply.
2. Remove the upper cover of the actuator (see “Opening the actuator”).
3. Take care that the device to be automated (example: valve) is in “OPEN” position.
4. The electric actuator has two camsholder discs. The upper one (2) orders the micro limit switch to control “open” and “closed” position. The lower one (1) orders the auxiliary limit switch used to give the signal of “opening” and “closure”. For each camsholder there is a black cam (opening rotation) and a zinc plated cam (closure rotation), the two cams are tightened by a screws (3).
Adjustment of actuator stroke

<table>
<thead>
<tr>
<th>rotation angle combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>black cam</td>
</tr>
<tr>
<td>index 1</td>
</tr>
<tr>
<td>index 1</td>
</tr>
<tr>
<td>index 2</td>
</tr>
<tr>
<td>index 2</td>
</tr>
</tbody>
</table>

Th three screws of the cam must be unfastened to gather the desired angular position of the cam. The angular position and its corresponding index should be changed before the screws tightened again.

17 Closing the actuator
17.1 After making the proper connection, please proceed to the assembling of cover (A), by paying close attention not to hit any electronic parts.
17.2 Re-assemble again the visual position indicator "B", by being fixed in position "Open" with the screw (C).
17.3 Make sure that all cables are secured and tightened by mounting gland "E".
17.4 Finish the closing of the cover "A" by tightening the fasteners "D". Tighten the screws not until inspecting the correct fit of the o-ring between cover and body.

18 manual emergency override
18.1 This electric actuator has an external handwheel "B" with position indicator, by which is possible to operate manually the closing and opening operations. The manual operation operates by switching the external handle "H" to the position "MAN".
18.2 After the handle is locked it is possible to make a manual operation by working on the handwheel.
18.3 To return to the automatic position please turn the handle "H" to position "AUTO".

warning: The handwheel must only be operated with the power off!

The latest instructions can be found under [www.stasto.eu](http://www.stasto.eu) in our STASTO Store.

Illustrations are for information only and are non-binding.
All designs, configurations, measurements and materials are subject to change without prior notice.