SR 03 PCU ACTUATORS
ASSEMBLING AND MAINTENANCE INSTRUCTIONS

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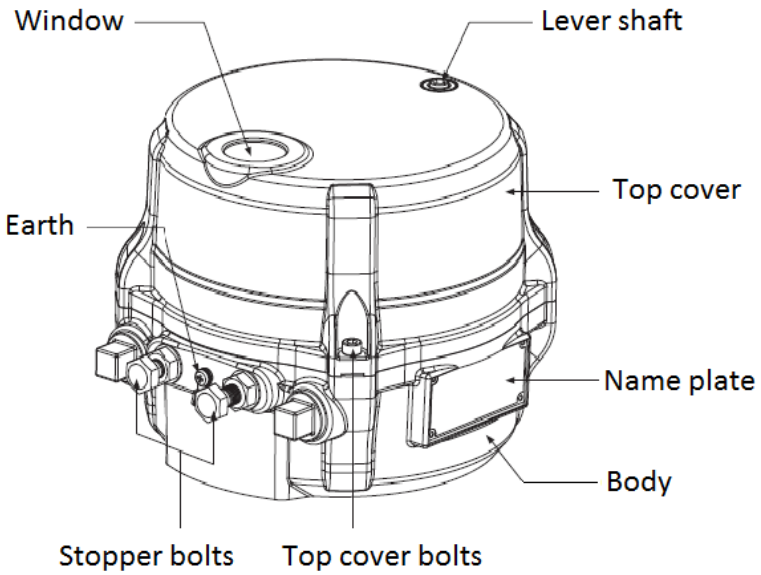
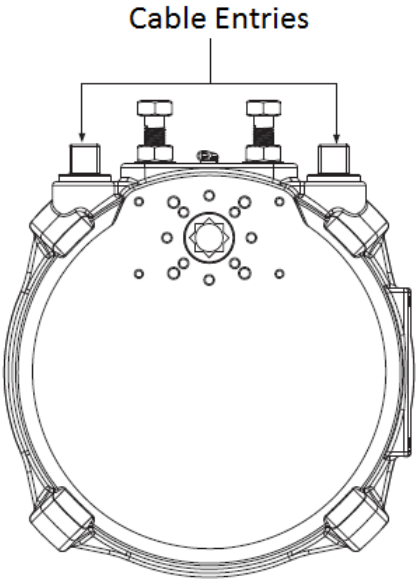
SR 03 PCU





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SECTORIEL S.A.
45, rue du Ruisseau
38290 SAINT QUENTIN-FALLAVIER – FRANCE
Tél : +33 4 74 94 90 70 - Fax : +33 4 74 94 13 95
www.sectoriel.com / Email : sectoriel@sectoriel.fr

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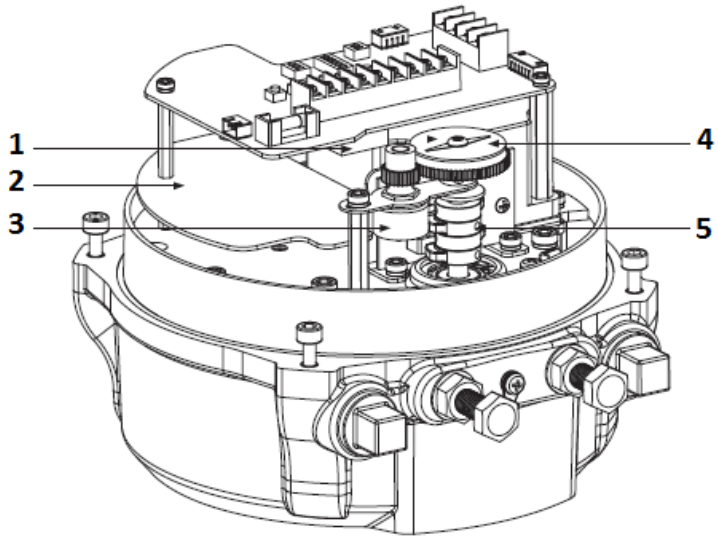
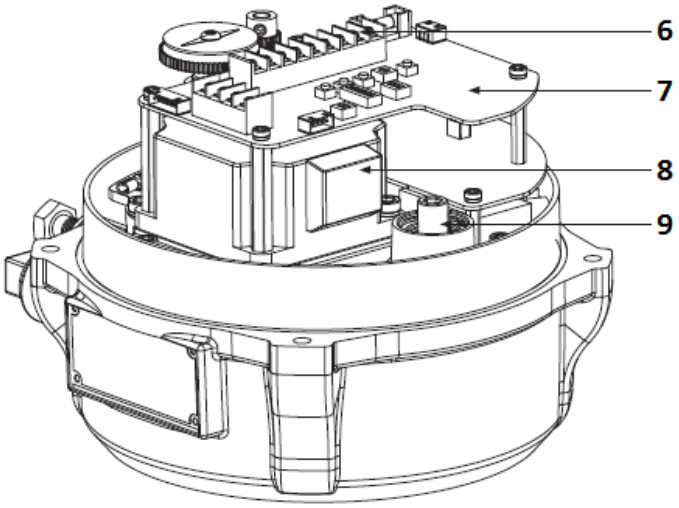


N°	Désignation
1	Heater
2	Power board
3	Potentiometer
4	Indicator
5	Limit switch
6	Terminal
7	Control board
8	BLDC motor
9	Declutch gear



1. DESCRIPTION

1.1 Electric actuator for motorising 90° turn valves.
1.2 The full features of this device are given in sheet FT23070.
1.3 Before operating this device, read the present instructions carefully.

2. GUARANTEE

2.1 Before any contact with our services, identify the type of actuator.
2.2 SECTORIEL actuators have a 12-month guarantee from the delivery date. Parts recognized as defective by an assessment at our facility, will be replaced at our expense. Complaints generated by incorrect use or a modification of the actuator cannot be taken into account.

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3. VERIFICATIONS AND ACCEPTANCE

3.1 At acceptance, check that:
- the packaging is in good condition.
- the actuator is as ordered.
- the equipment is not damaged.

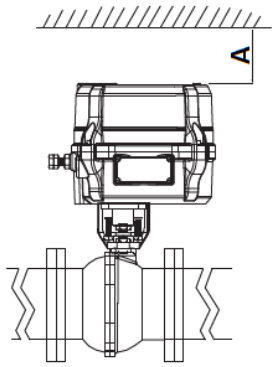
3.2 It is recommended to install the actuator as soon as accepted and not to leave it unused. If the equipment has to be stored, it has to be in a dry place protected from weather.

4. PRECAUTIONS FOR OPERATION

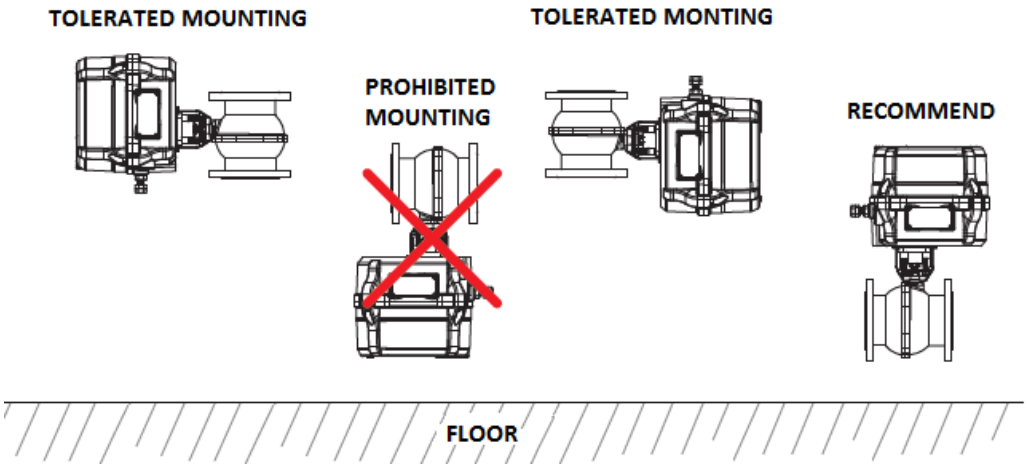
4.1 Before installing, make sure that the installation is completely depressurized and brought to ambient temperature.
4.2 In a zone classified as explosive, install only model SA05X.
Do not install this actuator in a marine environment and do not immerse it.
4.3 The actuator must not be electrically powered during the installation and maintenance of the valve on the pipework, and of the actuator on the valve.
4.4 Before proceeding to the electrical connection, check the supply voltage of the actuator.
4.5 Do not mount the actuator in series or in parallel with other electrical motors. If need be use relays.
4.6 Do not mount the actuator on valves with higher torque than the nominal torque of the actuator.
4.7 **Under normal operation: These motors have to be electrically controlled for opening or closing. Spring driven return only takes places in case of power supply cut-off.**

5. INSTALLATION ET UTILISATION

5.1 Install the actuator on the valve (already done for units assembled in our workshops)
5.2 Perform the electrical wiring as shown in the diagram below.
5.3 Adjust the switch stops (already done for units assembled in our workshops).
5.4 View the valve's movement using the indicator light on the cover.
5.5 Mounting



Model	A (mm)
SR03	130



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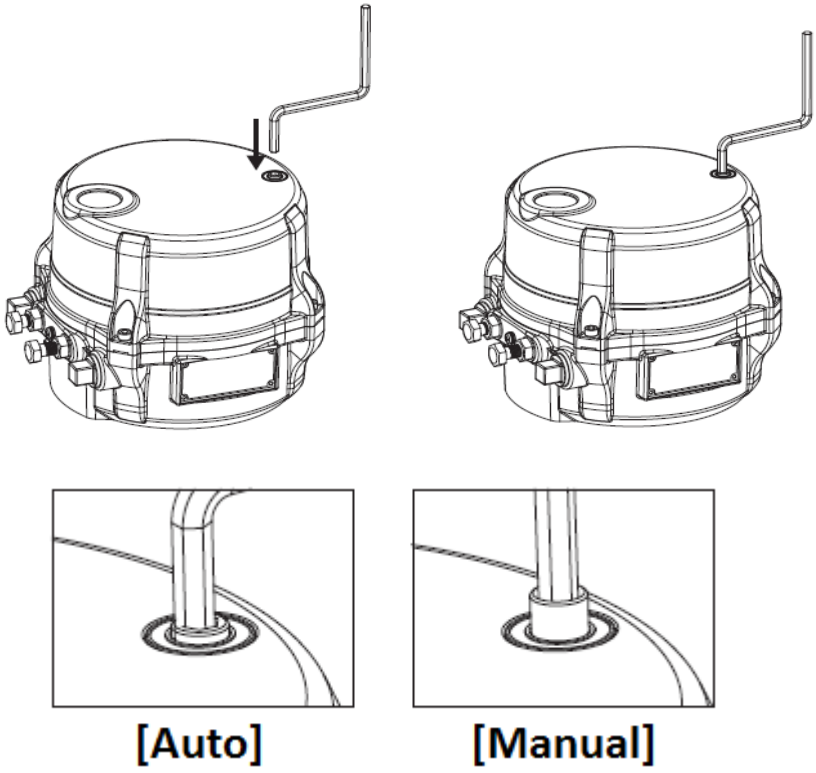
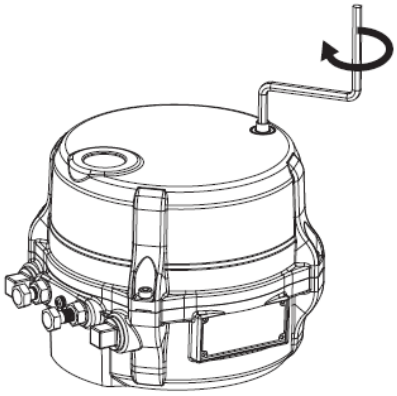
6. MANUAL INTERVENTION

CAUTION : Before any manual intervention, cut off the power supply, otherwise the SR actuator provided with an electromagnetic clutch, can be damaged.

6.1 Put the hex wrench into the manual socket and turn to CW.
The lever shaft pops up and manual operation is available.



6.3 Put the lever shaft and turn the wrench to CCW it is switched to auto mode.



6.4 The declutch gear should go down to its original positon to restore the limit setting to factory set and pop up using the hex wrench when resetting the limit positions.

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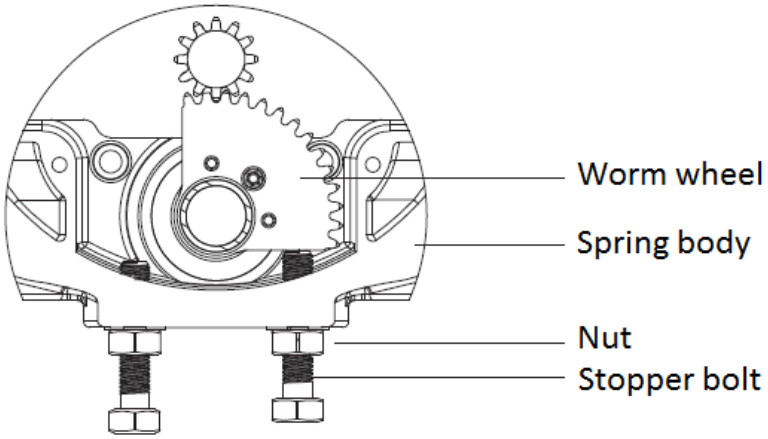
7. STOP ADJUSTMENT

The return spring of the actuator becomes active in case of emergency stop (a power cut, e.g.)
In this case, spring stops have to be adjusted, using stop screws.
The SR actuator is protected when the stops are properly adjusted.
(carry out the adjustment of stops (screws) before adjusting the limit switches).

7.1 Manually place the actuator in the closed position after attaching it on top of the valve.
7.2 If the stops are incorrectly adjusted, the valve will not be in the fully closed position. In this case,
Adjust the stops to reach the fully closed position. Tighten the stops screws once the adjustment performed.

NOTA : Do not touch the adjustment already performed at the facility.

7.3 Adjust the stops in the same way as the stops in the closed position.



CAUTION : When the limit switch reaches the stop, the actuator works normally. Return to the initial position when the actuator goes into fault.

The actuator works properly if the cams switch the limit switches before the stop plate reaches the screw. If the actuator does not work properly, adjust the stop screws again.

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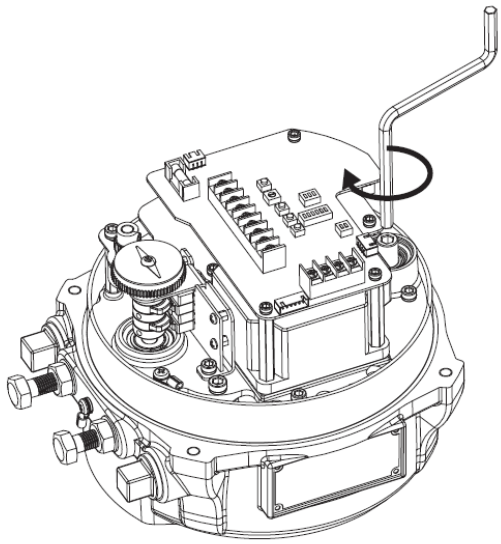
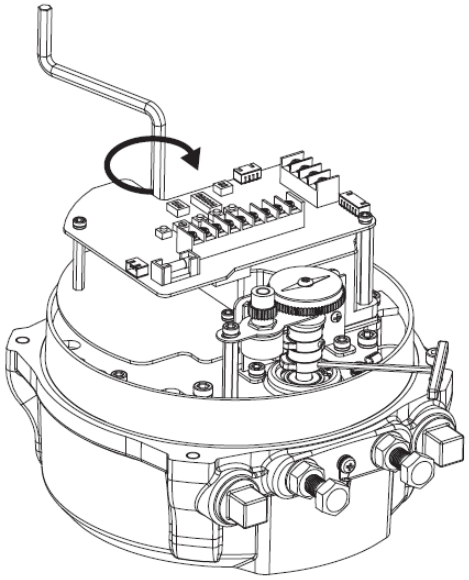
8. SWITCH SETTING

Limit setting when electrical power isn't supplied.





8.1 Put the hex wrench into the declutch gear and turn to CW. The declutch gear pops and manual operation is available. The actuator remains the last position during the manual operation without holding the wrench. Adjust limit cams with the hex wrench after mounting with the valve.
8.2 The declutch gear should go down to its original position to restore the limit setting to factory set and pop Up using the hex wrench when resetting the limit positions.

Be sure to push the ASCN button to save the setting after limit setting.

Limit setting when electrical power is supplied

8.3 Position the declutch gear to the auto mode before limit setting.
8.4 Push the ZERO and SPAN buttons at the same time and check if the POWER and FAULT lamps turn on.
8.5 Limit setting by ZERO (closing) / SPAN (opening) buttons.
8.6 Push the ZERO and SPAN buttons to change into the auto / manual mode mentioned here is the setting mode on the BLDC board. In the auto mode : Power lamp (lighting) / fault lamp (flickering)
8.7 Push the declutch gear and turn to CCW to position to the auto mode with the hex wrench after finishing the setting.

Be sure to push the ASCN button to save the setting after limit setting.

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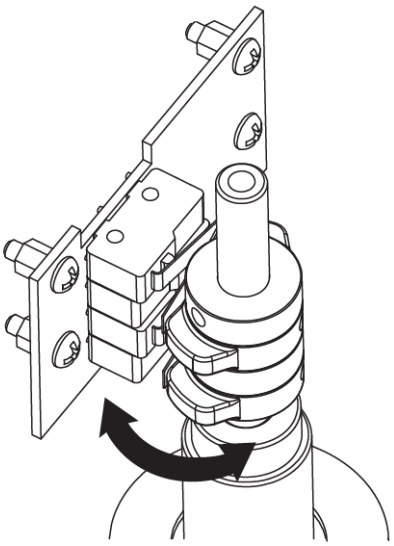
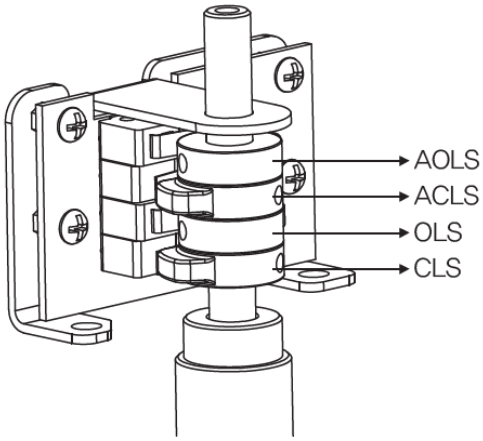
Closing/opening limit switch

8.1 The cams ate attached to the drive stem.
8.2 Clockwise rotation = valve closing. The micro-switch closes the actuator.
8.3 Anti-clockwise rotation = valve opening. The micro-switch stops the actuator.



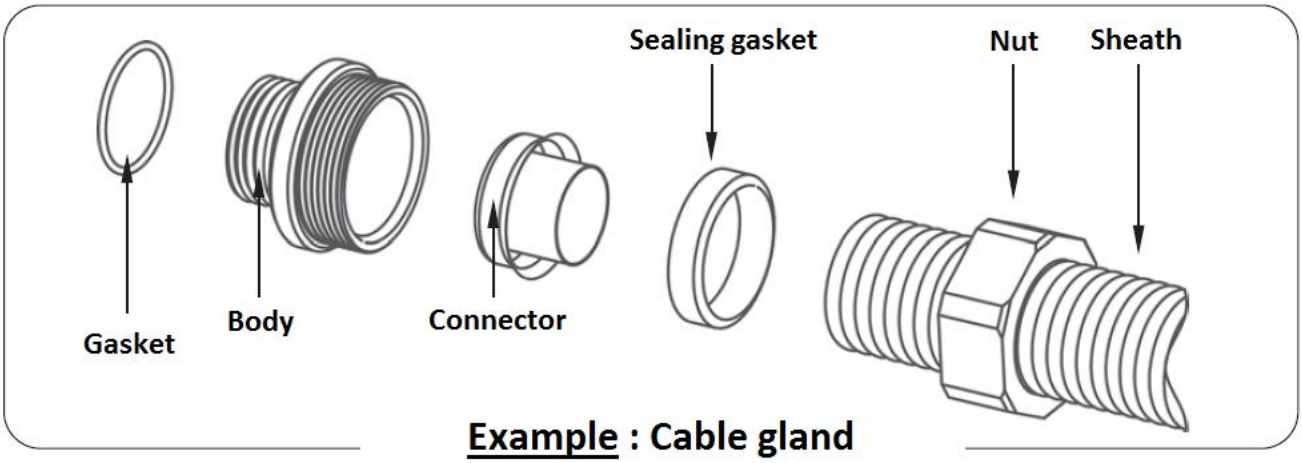


AOLS :	Dry contact open limit switch
ACLS :	Dry contact close limit switch
OLS :	Open limit switch
CLS :	Close limit switch

9. CONNEXION

The two inlet cables of the SR actuator are connected using an M20 x 1.5 connection.

9.1 The unused cable inlets must be plugged.
9.2 Standard cable glands and version for shielded cable can be used.
It is recommended to fit a glued (resin) sealing gasket on the actuator's connections once the wiring is completed. This is to prevent humidity and water from penetrating inside.



Example : Cable gland

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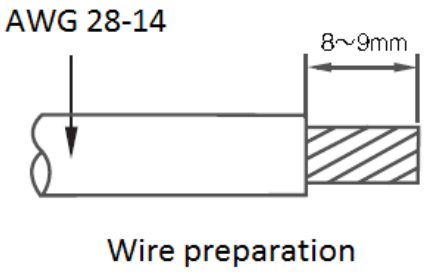
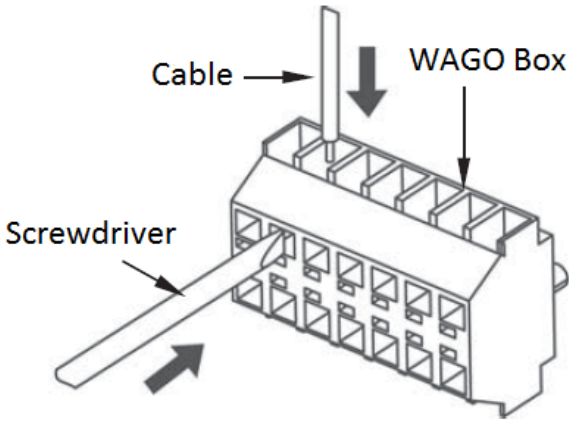
10. ELECTRICAL WIRING

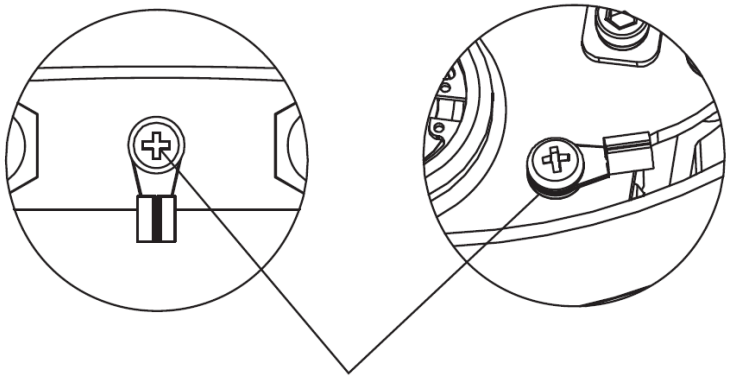
10.1 Separate the cover from the actuator's body. Unscrew the four bolts.
10.2 Before any electrical connection, check that the electrical diagram provided corresponds to the rating plate.
10.3 Check that the mains voltage corresponds to the voltage mentioned on the rating plate.
10.4 The SR actuator series has a WAGO terminal box which is easy to wire and is protected against vibrations. Use an AWG 28-4 standard cable.



Wire preparation



10.5 Insert a screwdriver as shown above, press and insert the wire.
10.6 Check that the actuator's earthing is compliant indoors (body) and outdoors (body). Use a wire of identical cross-section 4.5 ~ 5 mm² for earthing the SR actuator.



Interior and exterior grounding

10.7 Each actuator has to be actuated by their own individual relays to prevent the voltage from coming back and possible damage to other actuators.

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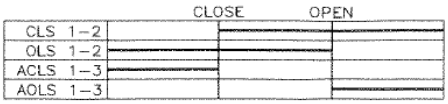
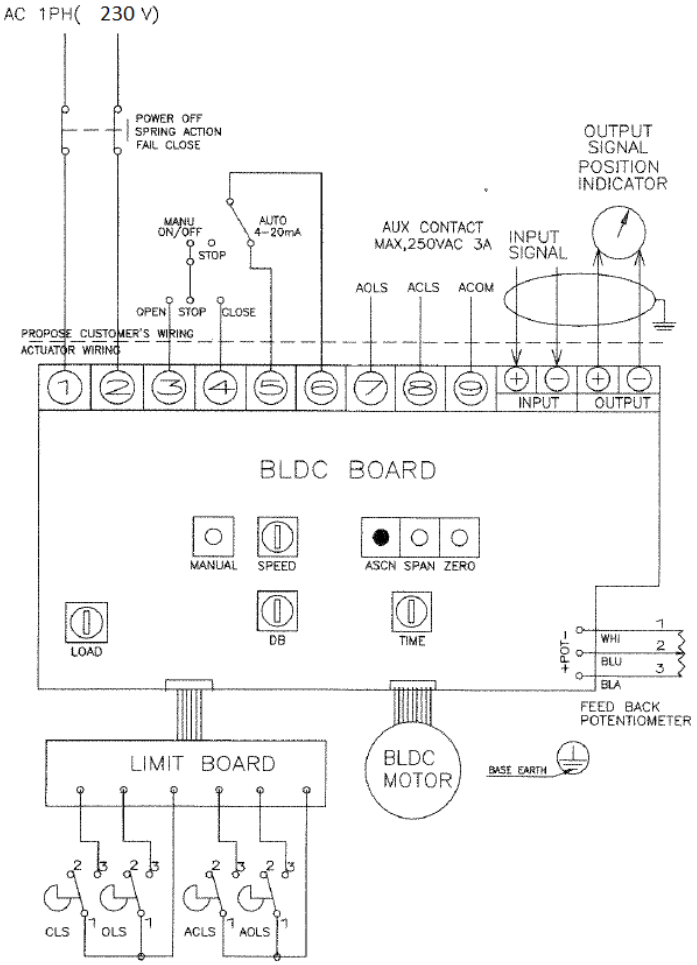
11. SCHEMA DE CABLAGE

Wiring for 230Vac 50Hz voltage

1	Common
2	Phase
3-6	Manual opening command
4-6	Manual closing command
5-6	Fonctioning 4-20 mA
6	Manual and automatic command
7	Opening auxiliary common
8	Closing auxiliary command
9	Auxiliary common

CLS : CLOSE LIMIT SWITCH (250VAC 3A)
OLS : OPEN LIMIT SWITCH (250VAC 3A)
ACLS : AUX. CLOSE LIMIT SWITCH (250VAC 3A)
AOLS : AUX. OPEN LIMIT SWITCH (250VAC 3A)





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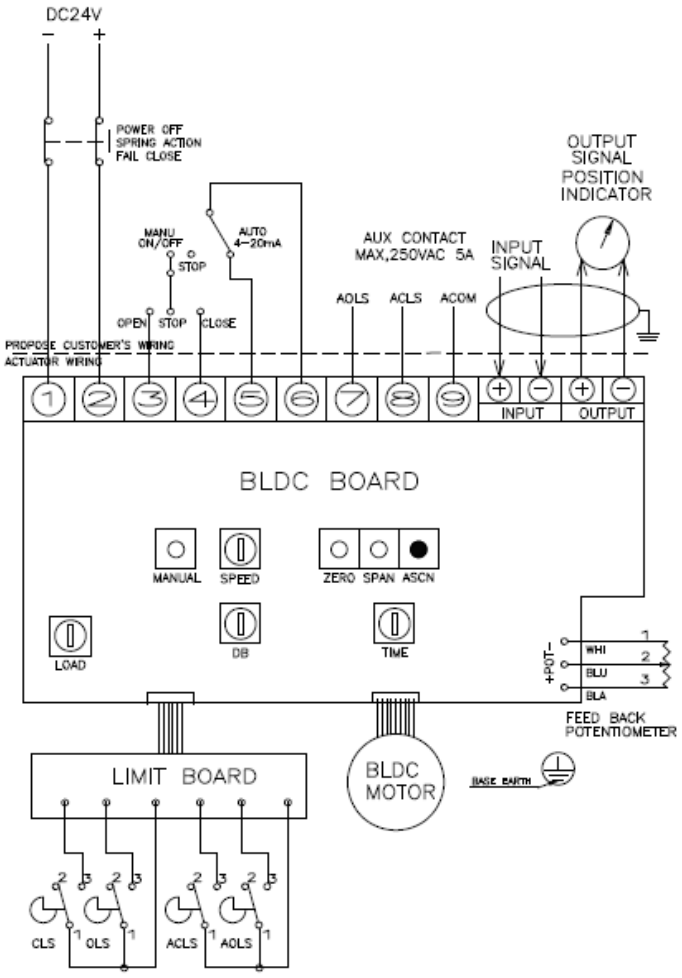
Wiring for 24Vcc voltage

1	Common
2	Phase
3-6	Manual opening command
4-6	Manual closing command
5-6	Fonctioning 4-20 mA
6	Manual and automatic common
7	Opening auxiliary command
8	Closing auxiliary command
9	Auxiliary common

CLS : CLOSE LIMIT SWITCH (250VAC 5A)
OLS : OPEN LIMIT SWITCH (250VAC 5A)
ACLS : AUX. CLOSE LIMIT SWITCH (250VAC 5A)
AOLS : AUX. OPEN LIMIT SWITCH (250VAC 5A)

	CLOSE	OPEN
CLS 1–2		
OLS 1–2		
ACLS 1–3		
AOLS 1–3		



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12. FAULT DIAGNOSTIC

If the actuator does not work properly, check all mechanisms, and look for alignment problems and electrical problems. (See table below)

<table>
<tr><th colspan="2">PROBLEM</th><th>CAUSE</th><th>SOLUTIONS</th></tr>
<tr><td colspan="2">The manual control does not engage</td><td>Blocked worm drive and stop mechanism</td><td>Turn the wheel again from left to right</td></tr>
<tr><td colspan="2">In manual mode, the actuator does complete its open or closed cycle</td><td>Gear box problem or broken rings</td><td>Disassemble the actuator and replace the gear boxes, damaged stop screw.</td></tr>
<tr><td rowspan="7">Normal operation, remote control</td><td>The actuator does complete its open or closed cycle</td><td>Fault on the limit switch or on the stop mechanism</td><td>Reset of the limit switch or on the stop mechanism</td></tr>
<tr><td rowspan="6">The actuator does not work under remote control</td><td>Power cut</td><td>Power cut diagnostic</td></tr>
<tr><td>Disconnected wires or cut-off circuit</td><td>Replace the faulty wires</td></tr>
<tr><td>Damaged motor or condenser</td><td>Replace the motor or the condenser</td></tr>
<tr><td>Too high motor temperature</td><td>Motor cycle stop</td></tr>
<tr><td>Wiring problem</td><td>Check the electrical diagram and the cable connection</td></tr>
<tr><td>Blocked gear boxes</td><td>Unblock the gear boxes</td></tr>
<tr><td colspan="2" rowspan="2">When the actuator continues to turn even after the cams engage the limit switches</td><td>Fault on the limit switch Disconnection or cut-off circuit.</td><td rowspan="2">Replace the limit switch. Reconnect the cut circuit</td></tr>
<tr><td>Phase inversion</td></tr>
</table>

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38290 SAINT QUENTIN-FALLAVIER – FRANCE
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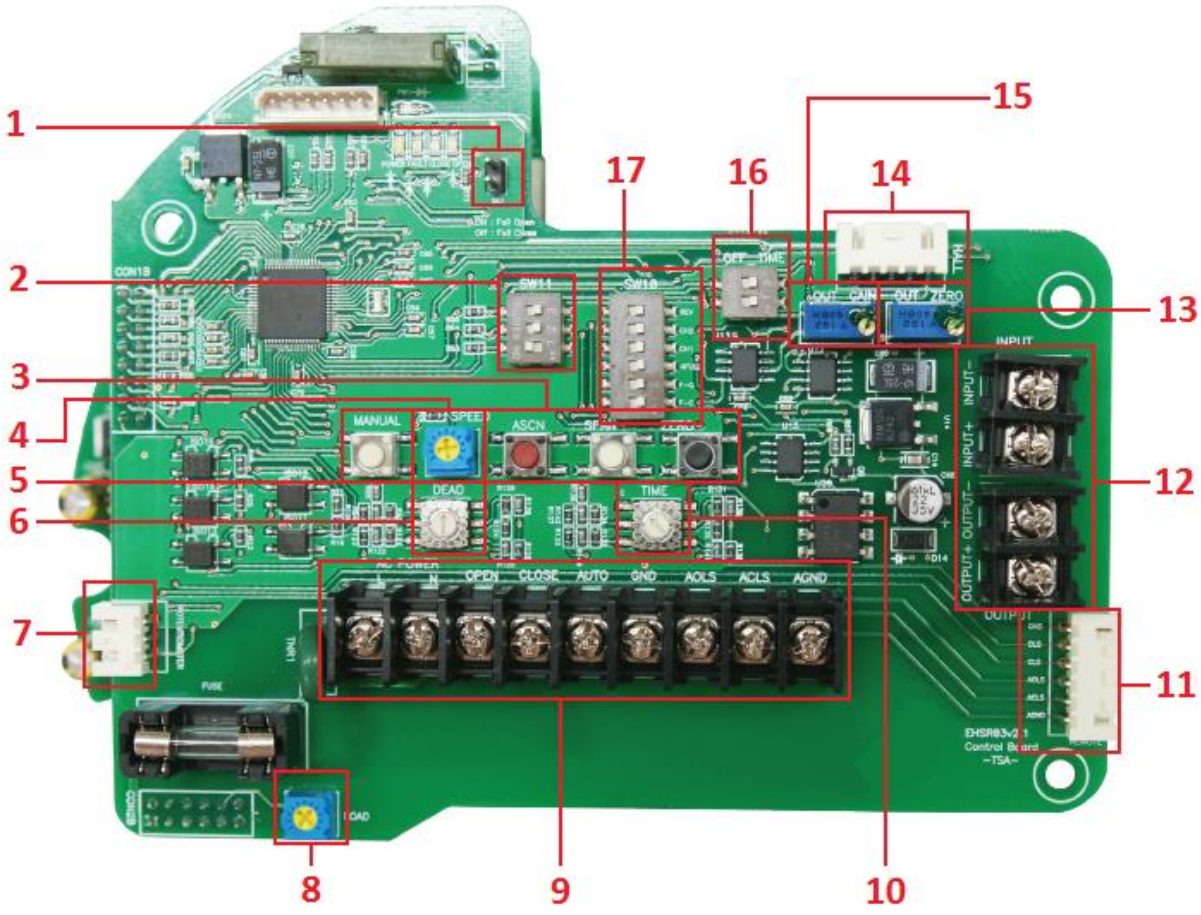
13. CONTROL BOARD

N°	Désignation	N°	Désignation
1	⚠ **Do not touch the factory setting**	10	Time delay
2	Input setting switch	11	Limit switch connector
3	Auto scan / Span / Zero button	12	Input / Output
4	Speed volume	13	⚠ **Do not touch the factory setting**
5	Manual button	14	Motor connector
6	Dead band	15	⚠ **Do not touch the factory setting**
7	Potentionmeter connector	16	Fail speed setting switch
8	Load volume	17	Control DIP switch
9	Terminal		



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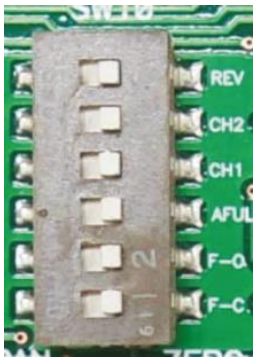
CONTROL DIP SWITCH

1	**F - C**	Fail close	
2	**F - O**	Fail open	
3	**AFULL**	**3.8 ~ 4.3** : Input fully Close	
		19.7 ~ 20.2 : Input fully open	
4	**CH1**	Discretion setting	
5	**CH2**	Manual setting	
6	**REV**	Reverse action	

1 - Fail close :
When there is no input signal, the actuator auto manically turns to a full close positon.

2 - Fail open :
When there is no input signal, the actuator auto manically turns to a full open positon.

3 - AFULL :
- If the input signal is at 3.8 ~ 4.3mA , the actuator turns to a full close position.
- If the input signal is at 19.7 ~ 20.2mA , the actuator turns to a full open position.

4 - CH1 : Optional modulation

- It is used when the user voluntarily changes the input signal.
  Example : When setting to 6~18mA Input.

- **CH1 ON** → Input 6mA and press ZERO button.
  - Input 18mA and press SPAN button. → CH1 OFF.
  - Input and check if the device operates normally.

5 - CH2 : Optional modulation using manual lever

- If is used when the user controls the actuator using the manual lever.
  Example : When controlling using the manual lever.

- **CH2 ON** → Put the actuator at Full Close.
  → Press the ZERO button→ Put the actuator at Full Open.
  → Press the SPAN button→ CH2 OFF.
  → Input and check if the device operates normally.

6 - REV :
- It is used when the actuator operates in the inverse direction.
- When REV is on and at 4mA, the actuator turns to a full open position, and to a full close position when at 20mA.

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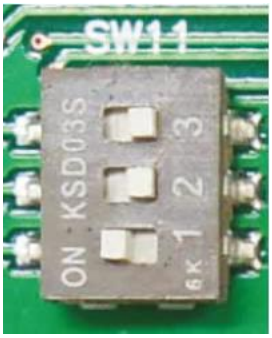
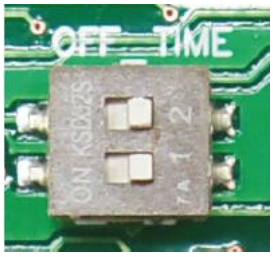
DIP SWITCH for INPUT Setting

	S/W		
Input	**1**	**2**	**3**
4 - 20 mA	ON	OFF	OFF
2 - 10 V	OFF	ON	OFF
0 - 5 V	OFF	OFF	ON
0 - 10 V	OFF	ON	ON
1 - 5 v	OFF	OFF	OFF



Fail Speed Setting

	S/W	
Fail Speed	**1**	**2**
4 sec	OFF	OFF
7 sec	ON	OFF
10 sec	ON	ON



ZERO / SPAN / ASCN Button

ZERO	Close manual control button / Input module button
SPAN	Open manual control button / Input module button
ACSN	AUTO SCAN BUTTON (ACTUATOR automatic control button) delivered from the factory the resistance value of potentiometer may can be changed if the user modifies its limit setting. Please make sure to press the autoscan button for at least 2 seconds before operating proportional control. Check the input and output are correct. (Standard : In/Ouptut 4 – 20 mA)

Actuator SPEED Setting : (Between 10 to 35 secondes)

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