

ELECTRIC ACTUATOR MOD. VB030-350 MAINTENANCE AND INSTALLATION INSTRUCTIONS OF VALBIA ELECTRIC ACTUATORS

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1.0 Warnings

Please read the following instructions before making any installation of the actuator

The damages caused from the non-observance of these instructions are not covered in the warranty.

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

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

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

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

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

Valbia s.r.l. reserves the right to change the data and the characteristics of this manual at any time and with no notice in the scope of a constant updating of technological improvement.

2.0 General data

DOCUMENTATION	UNIT		VALUE	
Object of device	-		Electric actuator	
Construction type	-		Electronic control integrate device	
Protection level of cover	-		IP65-IP67	
Cover type (UL50)			-	
Ambient temperature range	°C	°F	-20°C ÷ 55°C	-4°F ÷ +131°F
Rated voltage used and nature (auxiliary contacts)	V		250 Vac / 30 Vdc	
Rated current and load (auxiliary contacts)	A		1 A @ 250Vac - 1 A @ 30 Vdc (resistive load)	
Section of connections clamps' conductors	mm ²		0,5 - 1,5	
Maximum torque of clamps screws' tightening	Nm	Lb.In	0,8	7
Maximum torques of cap screws' tightening	Nm	Lb.In	2,5	22,15
Protection class against electric shock	-		Class I	
Blocking way of cables	-		Glandes PG11	
Restriction of continue operation time (internal restrictions)	sec.		120	
Action type	-		Type 1	
Level of pollution	-		Level III	
Category of overvoltage	-		III	

Product in conformity to the Community norm 73/23 CEE (LVD), 89/336/CEE (EMC), 93/68/CEE (CE Mark).

se 60°C/75°C copper (CU) conductor and wire size 14 AWG, stranded or solid

he terminal tightening torque of (7) Lb.In.

2.1 Technical characteristics

ere below are some technical characteristics of Valbia electric actuators:

They have heating resistors which come to force when, with actuator supplied, the motor is not working and the temperature inside the actuator goes down to 25°C / 77°F.

A safety system must be in place to shut off the actuator in case the motor works past over the allowable operation time value or when the actuator requires a torque over the one for which it has been projected (torque limiter).

On the internal electronic plate, a warning light (LED) is displayed to note the anomalous working conditions.

The LED displays two different signals: one to indicate the signal for the failure of the triggering operation and another one to indicate the maximum time of working.

Failure of the triggering operation: when the torque limiter comes to force for 3 consecutive times on the same operation, the LED will make a short flash with a longer turnoff time.

Working maximum time: this is indicated by two short flashes of LED with a longer turnoff time.

2.2 Supply data elec./consumption

MOD.	VB030		VB060		VB110		VB190		VB270		VB350	
Nominal torque (Nm)	30		60		110		190		270		350	
Nominal torque (Lbs.in)	266		530		975		1680		2390		3100	
Nominal tension (H Version)	100-240 V ac											
Current absorbed (H Version)	0,3-0,2A		0,6-0,3A									
Absorbed power(H Version)	30-48 VA		60-72VA									
Nominal tension (L Version)	12V dc	24V ac/dc	12V dc	24V ac/dc	12V dc	24V ac/dc	12V dc	24V ac/dc	12V dc	24V ac/dc	12V dc	24V ac/dc
Current absorbed (L Version)	2,0A	1,0A	3,6A	1,8A	20,A	1,0A	3,6A	1,8A	3,6A	1,8A	3,6A	1,8A
Absorbed power (L Version)	24VA		44VA		24VA		44VA		44VA		44VA	
Frequency	50/60 Hz											
Rotation time 0°-90° (sec)	8		9		27		27		50		50	

3.0 Field application

VALBIA electric actuators have been designed and tested to operate ball and butterfly valves, dampers for industrial sector. Actuators are available in standard version with rotation 0°-90°.

On request we can supply actuators with rotation 0°-180° and/or 0°-270°.

For applications other than that above are needed please contact the VALBIA engineering.

4.0 electrical connection

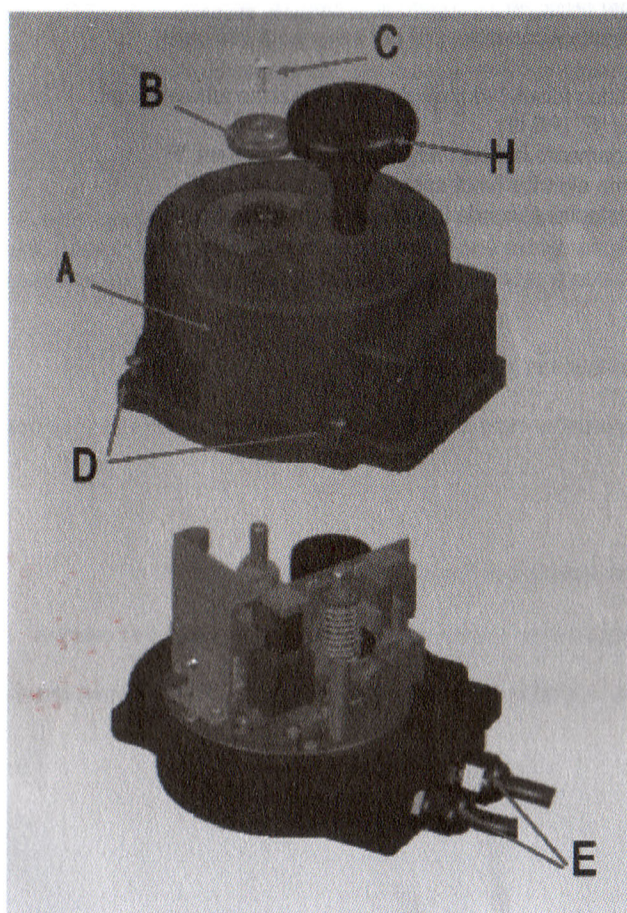
The connection has be done directly into the internal part of the actuator, by passing the cable through one of the two external glands PG11 (IP68). It is then necessary to open the upper cover in order to locate the terminal-block and the correct electronic supply.

Please pay attention to the cabling and setting phases of electromechanical limit switches in order to avoid that fluids or other substance 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 other obstructions which could compromise the perfect tightness of cover.

ATTENTION: Valbia electric actuators can work in any position, anyhow we do not suggest application where glandes are positioned up side-down, because this position could not guarantee a perfect tightness on glandes.

In case the assembling of electric actuator and the electrical connection of itself are scheduled to be made in two different moments then please take care of the right closure of the glandes entrance.

4.1 Opening of actuator (fig.1)



- Remove position indicator (B) by loosening the screws (C).
- Screw the fasteners (D) to remove the upper cover (A).
- Raise up the cover (A) carefully to avoid to damage the internal electric parts.
- Turn in the electric supply cable (diam. 6 ÷ 9 mm / 0,24÷0,35 inch) by the properly glands (E) (PG11).
- 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 (fig. 4).

Fig.1 External view of actuator

4.2 Electrical connection for models supplied with 12-24V AC/DC (fig. 2 and 4)

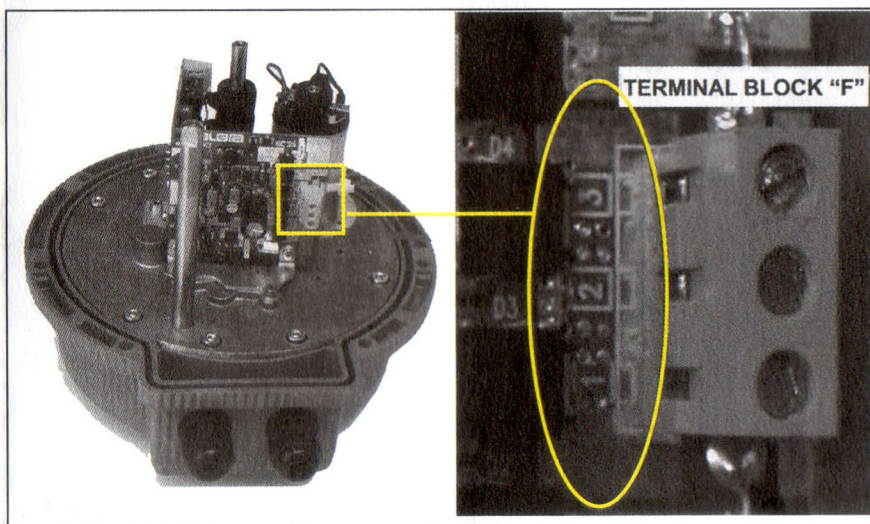


Fig.2 Plate for supply low tension and particular of terminal-block "F"

- The signal cable of "closing" (clockwise rotation) (+12V / +24V) must be connected to the contact (1) of the terminal-block (F).
- The signal cable of "opening" (counter-clockwise rotation) (+12V / +24V) must be connected to the contact (3) of the terminal-block (F).
- The signal cable "common" (0V) must be connected to the contact (2) of the terminal-block (F).
- The cable of "earth" must be connected to the "faston" put on metallic body of the actuator.

NOTE: the ground wiring system, even if it is not obligatory for device at 12-24V, avoids the eventual accumulation of static charge which could damage or caused malfunctioning of electronic parts.

4.3 Electrical connection for model supplied with 100-240 V AC 50/60 Hz (fig. 3)

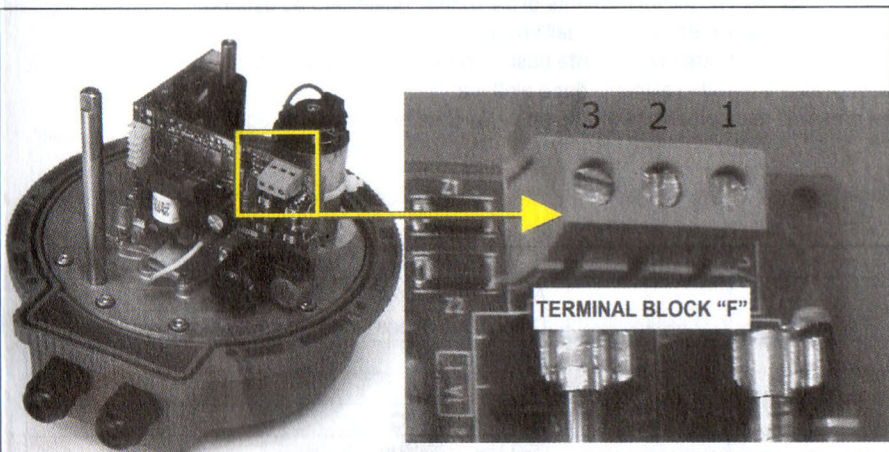


Fig.3 Plate for supply 100-240Vac/dc and particular of terminal-block "F"

- The signal cable of "closing" (clockwise rotation) (signal of phase) must be connected to the input 1 of terminal-block (F)
- The signal cable of "opening" (counter-clockwise rotation) (signal of phase) must be connected to the contact (3) of terminal-block (F)
- The signal cable "neutral" must be connected to the contact (2) of terminal block (F).
- The cable of "earth" must be connected to the "faston" put on the metallic parts on the actuator.

The ground wiring system is obligatory.

4.4 Connection of signals auxiliary wires to the limit switches (fig.4)

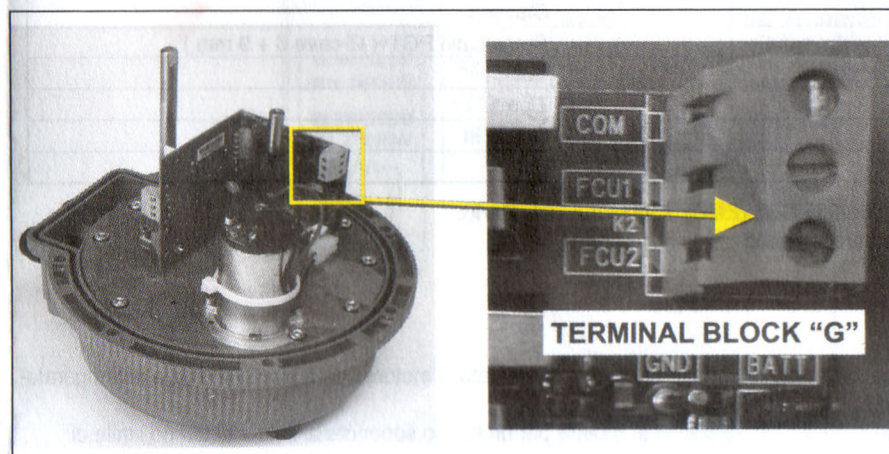


Fig.4 Plate of checking and particular of terminal-block "G"

There are 2 auxiliary contacts of limit switches (free contacts) available on the terminal-block "G", which connect to give signals to the end user.

- To connect to the terminal-block "G" between the contacts:
- "FCU1" and "COM" to get the signal of closing.
- "FCU2" and "COM" to get the signal of opening.

4.5 Wiring diagram (fig.5)

The following figure shows the wiring diagram (also it is, as tag, inside the cover) to be followed for the proper cabling to the actuators. When the limit switches POS1 and POS2 are pressed they stopped the motor and so the opening and closing operation.

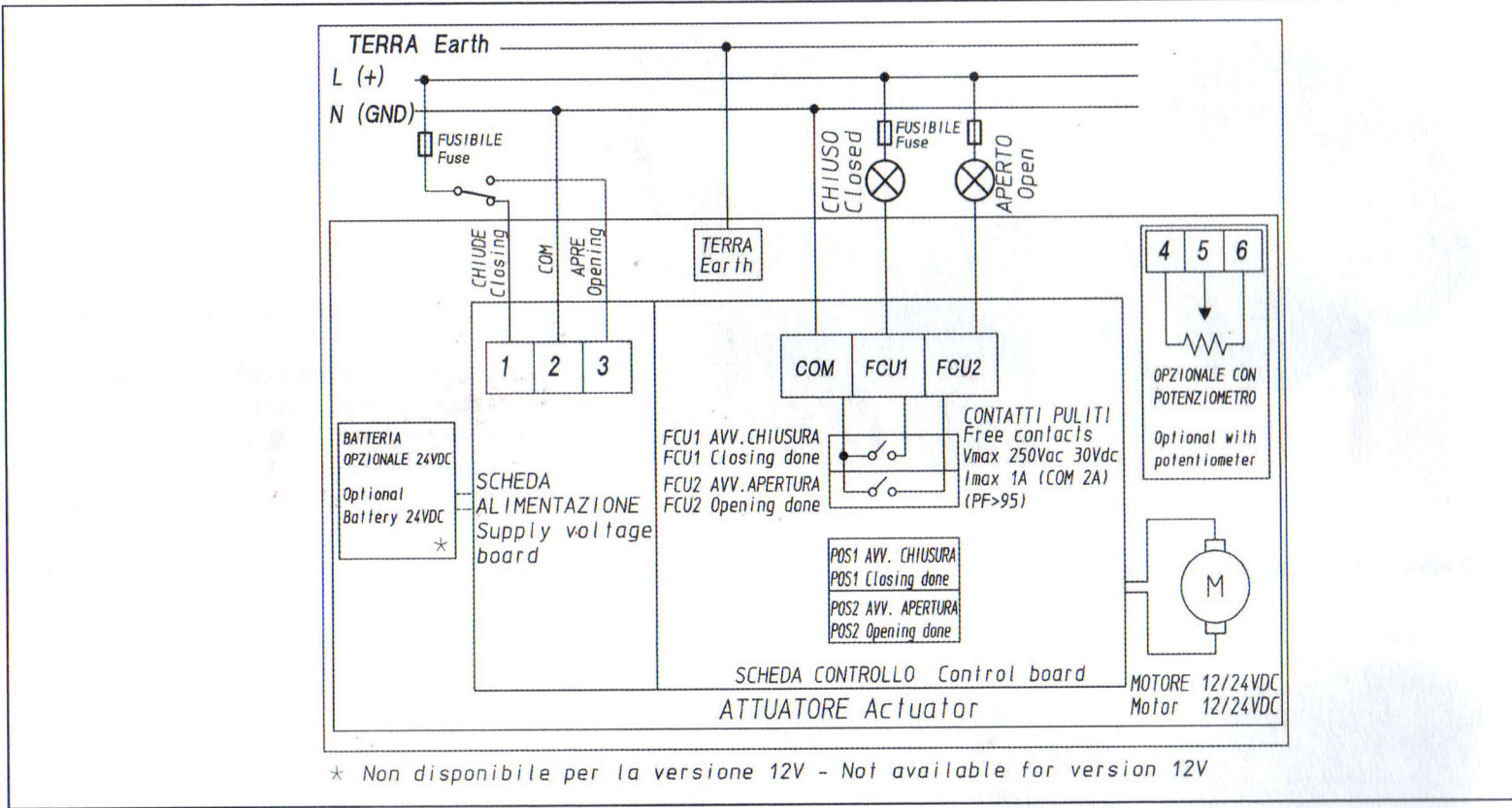


Fig. 5 wiring diagram of connecting actuators

4.6 Adjustment of actuator stroke (fig. 6)

The end of the electric actuator stroke (in opening or closing) is when the cams (the ones in black colour) push the electromechanical limit switches on the plate of checking.

The signal of opening or closing is when the cams (the ones in blue colour) push the auxiliary electromechanical limit switches on the plate of checking.

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 instructions point 4.0)
3. Take care that the device to be automatised (example: valve) is on "OPEN" position
4. Loose the bolt which fixes the cam 1 (black colour) and turn until it pushes the limit switch POS2, then proceed to fix the cam by tightening the bolt.
5. Loose the bolt which fixes the cam 3 (blue colour) and turn until it pushes the limit switch FCU2, then proceed to fix the cam by tightening the bolt.
6. Loose the bolt which fixes the cam 2 (black colour) and turn until it pushes the limit switch POS2, then proceed to fix the cam by tightening the bolt
7. Loose the bolt which fixes the cam 4 (bleu colour) and turn until it pushes the limit switch FCU1, then proceed to fix the cam by tightening the bolt.

N.B. Please take care of the conditions of the limit swithes by using a tools of electrical continuity.

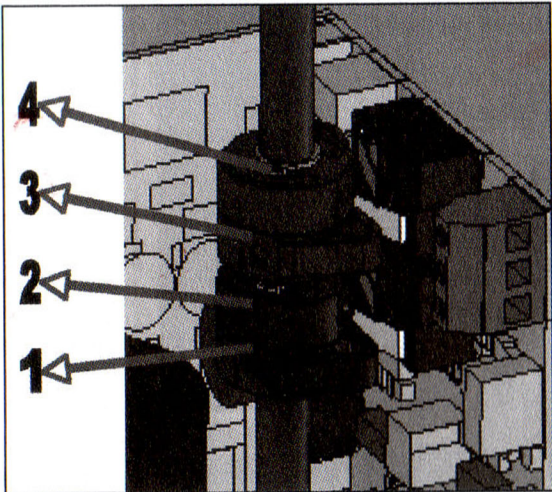


Fig. 6. cam of limit switches

4.7 Actuator closing (fig.1)

- After making the proper connection, please proceed to the assembling of cover "A", by paying close attention not to hit any electronic parts.
- Re-assemble the position indicator "B" on "OPEN" blocking it by screw "C".
- Make sure that the tightening of cables is secure, by screwing the gland "E".
- Finish the closing of cover "A" by screwing in the fasteners "D".

5.0 Emergency operation

All the VALBIA electric actuators have an external handwheel "H", which can manually operate the closing and opening positions.

The manual operation operates by putting in a pressure on the top of handwheel and by making a small rotation in order to connect the stem to the handwheel.

After engaging the manual operation you can make desired the position you wish by keeping pressure on, and turning the handwheel.

Attention: do not operate the manual override when the actuator is working.

5.1 Working in emergency with battery (Optional)

For the models which have the battery (option) is possible to set up the actuator so that, in case of failure supply, actuator carry out automatically one of the following actions:

- Complete the operation: the motor continues the stroke up to the reach of the limit switch.
- Open: an eventual opposite operation is interrupted.
- Close: an eventual opposite operation is interrupted.

Working with battery is enabled only if supply absence lasts at least 5 seconds, during this lapse the motor is steady.

Working by battery will be stopped at the end of the action expected and actuator will start functioning again only after the recovering of the net tension.

Unless concluded, the working can not be interrupted by an eventual recovering of the net tension.

6.0 Maintenance

These electric actuators do not need of any format maintenance.

The internal lubrication is sufficient for the whole life of the actuator.

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

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

Valbia s.r.l. declines all responsibility and warranty on our actuators repaired from any third party.

7.0 Valve automation

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.

Both the 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.

All Valbia electric actuators are in conformity of norm EN ISO 5211-DIN 3337.

In order to have a right automation of the valve, is necessary to use a Valbia electric actuators whose range has a torque of at least 25% over the valve maximum torque.

Do not raise up or moved the motorized valve by using the electric actuator as point of grip or hold.

8.0 Transport and stocking

Valbia electric actuators are supplied in paperboard boxes which are of solid construction for a normal transport.

Please handle and keep with care the cover until the moment of the installation of the actuator.

The stocking of the material needs a dry and well ventilated place.

Please take care also that it must be protected from temperature changes.