a BANDINI INDUSTRIE company





# **BL230-BL233**

CE

BL230 - (13200) BL233 - (13300) Electromechanical linear operator INSTRUCTIONS FOR INSTALLATION

### BL230-BL233



- This product has been tested in Gi.Bi.Di. verifying the perfect correspondence of the characteristics to the current directives.
  - Gi.Bi.Di. S.r.l. reserves the right to modify the technical data without prior notice depending on the product development.

↑ PLEASE READ CAREFULLY THIS MANUAL BEFORE PROCEEDING WITH THE INSTALLATION.

#### INTRODUCTION

The BL230-BL233 operator for swing gates is an electromechanical device that transmits motion to the gate by means of a worm screw.

It is locked when the motor is not running, and it is therefore not necessary to install locks for leafs up to 2.5 m.

#### **INSTALLATION WARNINGS**

- Before proceeding with installation, fit a magnetothermal or differential switch with a maximum capacity of 10 A
  upstream of the system. The switch must guarantee omnipolar separation of the contacts with an opening
  distance of at least 3 mm.
- Keep all the materials contained in the packaging away from children, since they pose a potential risk.
- The manufacturer declines all responsibility for improper functioning of the automated device if the original components and accessories suitable for the specific application are not used.
- After installation, always carefully check proper functioning of the system and the devices used.
- This instruction manual addresses professionals qualified to install "live equipment" and therefore requires good technical knowledge and installation in compliance with the regulations in force.
- · Maintenance must be carried out by qualified personnel.
- · Before carrying out any cleaning or maintenance operation, disconnect the control unit from the mains.
- This product has been designed and constructed exclusively for the use indicated in this documentation. Any other use may cause damage to the product and be a source of danger.
- · Check the intended end use and take all the necessary safety precautions.
- Use of the product for purposes different from the intended use has not been tested by the manufacturer, therefore any work is carried out on full responsibility of the installer.
- · Mark the automated device with visible warning plates.
- Warn the user that children or animals should not play or stand near the gate.
- Appropriately protect the danger points, for example, using a sensitive frame.
- Check proper installation of the earthing system: connect all the metal parts of doors, gates, etc. and all the system components to an earth terminal.
- Exclusively use original spare parts for any maintenance or repair operations.
- Do not modify any components of the automated device unless expressly authorised by Gi.Bi.Di..
- Use suitable cable clamps to ensure that the wiring is properly connected mechanically and such that an IP44 degree of protection is maintained.

#### WARNINGS FOR THE USER

In the event of an operating fault or failure, cut the power upstream of the control unit and call Technical Service.

Periodically check functioning of the safety devices.

Any repairs must be carried out by specialised personnel using original and certified materials.

The product may not be used by children or persons with reduced physical, sensorial or mental capacities, or lacking experience and knowledge, unless appropriately instructed.

Do not access the circuit board for adjustments and/or maintenance.



#### CAUTION: IMPORTANT SAFETY INSTRUCTIONS

It is important to follow these instructions in order to safeguard persons. Keep this instruction booklet.

#### ELECTRICAL EQUIPMENT

Set up the electric system as shown **[1a] [1b]** referring to the electric system regulations and other national regulations in force. Keep the mains power connections clearly separated from the service connections (photocells, sensitive frames, control devices, etc.).

#### The main components are:

- ① Antenna: screened coaxial cable.
- Electronic equipment housing.
- ③ Electric lock: cable with 2 cores 1 mm<sup>2</sup> (2x1).
- ④ Key selector; cable with 3 cores 0.5 mm<sup>2</sup> (3x0.5).
- (5) 220 230 Vac Operators [1c]: Power supply: cable w/ 4 cores - 1,5 mm<sup>2</sup> (4x1,5): grey = COMMON; brown = POWER SUPPLY; black = POWER SUPPLY; yellow/green = EARTH
- ⑥ Omnipolar magnetothermal switch with minimum contact opening of 3 mm. 220-230VAC/50-60 Hz power line to the device: cable with 3 cores - 1.5 mm<sup>2</sup> (3x1.5) (adhere to the regulations in force).
- ② 220V Warning system flashing light: cable with 2 cores 1.5 mm<sup>2</sup> (2x1,5).
- ⑧ Shunt boxes.
- Photocell transmitter: cable with 2 cores 0.5 mm<sup>2</sup> (2x0.5).
- 10 Photocell receiver: cable with 4 cores 0.5 mm<sup>2</sup> (4x0.5).



#### CAUTION:

It is important that an omnipolar magnetothermal switch, with a minimum contact opening of 3 mm, is fitted upstream of the control unit.

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#### **TECHNICAL DATA**

Operator	BL230	BL233		
Туре	non-reversible electromechanical with worm screw			
Supply voltage	220/230 V 50-60 Hz			
Power absorbed	150 W (~1000 N)			
Current absorbed	0.8 A (~1000 N)			
Max power absorbed	300 W max			
Max current absorbed	1.5 A max			
Electric motor	4 poles 1400 rpm			
Thermic	140°C			
Breakaway capacitor	12.5 μF			
Max thrust / traction force	3000 N (electronically adjustable)			
Operating temperature	-20°C +60°C			
Frequency of use	40% (~20°C)			
Effective travel	380 mm	500 mm		
Protection class	IP 44			
Maximum gate length	3.5 m	5 m		
Limit switches	2 limit switches (open / close)			

#### **PRELIMINARY WARNINGS**

Make sure that the gate structure conforms with current standards and that gate movement is linear and friction free.

#### Preliminary checks:

- Make sure that the gate structure is sufficiently sturdy. In any case, the actuator must operate on a reinforced point on the gate.
- · Make sure that the gates move manually without effort over their entire travel.
- Make sure that gate opening and closing locator stops are installed (1) [1a].
- If the gate is not a new installation, check the wear status of the hinges and all components; repair or replace defective or worn components.

The reliability and safety of the automation device are directly affected by the status of the gate structure.

#### INSTALLATION DIMENSIONS



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BL230	90°	170	160	740	120	62	330
BL230	90°	180	180	740	120	62	360
BL230	110°	130	150	740	90	62	340
BL233	90°	220	200	860	150	62	420
BL233	90°	240	240	872	150	62	477
BL233	110°	180	200	870	120	62	428



## CORRECT OPERATION OF THE SYSTEM REQUIRES THAT THE INDICATED DIMENSIONS ARE OBSERVED.

If it is not possible to maintain the dimensions indicated in the table, different measurements should be calculated with reference to the following items:

- For  $\beta = 90^{\circ} \rightarrow A + B = Cu$
- For  $\beta > 90^{\circ} \rightarrow A + B < Cu (\beta \max 110^{\circ})$
- Dimension A must always be greater than the sum of dimensions D+d1.
- In the event of very thick gates, with consequent difficulties in maintaining dimension D, it is possible to
  increase dimension D; it is also advisable to increase dimension A by the same amount, in any case
  observing the rules indicated above.
- The difference between A and B must not exceed 50 mm; greater differences cause a non-constant door movement (drive/thrust force and movement speed vary during operation).

#### **OPERATOR INSTALLATION**

- Verify and mark the most suitable securing centre for the front bracket of the operator [2].
- Use a level to mark the point on the pillar for securing the rear bracket [2].
- Identify a securing centre for the rear bracket in relation to dimensions A-B and E [3].

## WARNING: if there are large pillars or walls, a niche should be prepared to ensure that dimensions A, B and E are observed [4].

Securing the rear bracket:

- welding for metal pillars; (check the thickness of the column and if less than 5 mm fit a support plate of suitable dimensions so that the welds are made on the edge of the column; see [5].
- if the pillar is in cement, the bracket can be fixed with plugs or masonry by means of an appropriate extension [6].
- Take the operator and move the lead screw fully forwards as far as the block, then back of by 5-10 mm; this operation can also be performed manually by releasing the operator (see release device).
- Fix the front bracket onto the operator [7].
- Place the door in the closed position in relation to the mechanical stops and secure it with a clamp.
- Fit the operator on the rear bracket using the pin supplied [8].
- Place the front bracket at the point previously marked at stage 1 and use a level to check the flatness of the operator; mark the point for exact securing of the front bracket [2] [3].
- Remove the operator from the rear bracket.
- Remove the front bracket of the operator.
- Fix the front bracket at the point marked.

Securing the front bracket:

- welding for metal gates; (check the thickness of the tubular element where the bracket is to be welded; if less than 5 mm, fit a support plate of suitable dimensions so that the welds are made on the edge of the tubular unit **[9]**.
- for gates in non-metal materials, a 5 mm shim plate is required. With n°4 holes, weld the bracket to the centre of the plate and secure everything with 8 mm through screws **[10]**.
- Release the operator (see release device).
- · Fit the operator on the brackets.
- Open and close the door manually, performing complete opening and closing travel. Movement must be smooth and the lead screw, for both opening and closing, should not reach the mechanical block. If this is not the case, review brackets positioning.
- Make the electrical connections between the operator and the control unit with reference to the diagram [1c], using 1,5 mm<sup>2</sup> cores.

It is advisable to leave a free cable length of at least 40/50mm. To facilitate electrical connections, the operator can be temporarily turned upside-down.

#### LIMIT SWITCH ADJUSTMENT

- · Isolate the power supply to the system.
- Back off the screw retaining the front adapter [13a] and then slide it out [13b].
- Slide out the aluminium micro-switch cover profile [13c].
- Slacken the screw locking the limit switch, move the limit switch into the required position and tighten the limit switch lock screw [13d].

#### **RELEASE DEVICE**

#### MANUAL OPERATION

If the gate had to be operated manually because of a power failure or malfunction of the automation, move the protection tab **[12a]**, insert the specific key supplied into the lock, turn the key clockwise or anticlockwise by 90° **[12b]** and pull the release lever upwards **[12c]**.

If the lever is completely pulled, the operator remains free without having to hold the lever with the hand **[12d]**.

Manually perform the door opening or closing operation.

To prevent the door moving because of wind or if it is not balanced, it is advisable, after having performed the emergency manual manoeuvre, to re-lock the operator by lowering the lever until it is fully inserted in its seat, turn the key clockwise or anticlockwise by 90° as shown in **[12b]**, then remove the key (the key can only be removed when it is in a certain position), then slightly move the door until it locks.

#### ELECTRIC LOCK ASSEMBLY

If an electric lock had to be fitted, refer to [11a] [11b]:

- $\textcircled{} 1 Electric \ \text{lock}$
- 2 Electric lock securing plate
- ③ Mouth
- ④ Mouth locator
- ⑤ Latch
- ⑥ Through cylinder (optional)
- ⑦ Gate

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#### **FINAL CHECKS**

Power up the system and perform a complete opening and closing cycle, checking:

- · Smooth doors movement;
- · Correct operation of the safety devices;
- · Good seal of the securing brackets;
- · The power supply cable moves freely;
- The overall gate system must conform with EN 12453 and EN 12445 regulations.

For more details and information about reference regulations, you can visit the Internet site: www.gibidi.com

#### MAINTENANCE

Perform periodic controls of the gate structure and in particular:

- · Make sure the hinges function perfectly;
- Verify correct door balancing. Excessive door slant increases wear of the operator counterweight/ counterspring securing bracket.
   The test is performed by releasing the operator and checking that the doors do not move on their own;
- · Verify correct operation of the safety devices;
- · Release the operator and make sure there are no friction points over the entire travel;
- Make sure that there is no dirt or litter in the worm screw, otherwise clean and then lubricate the worm screw with lubricant grease.

Periodically verify the correct adjustment of the operator thrust force and the efficiency of the release system used for manual operation (see relative paragraph).

The safety devices installed on the system must be checked every six months.





### **CE** Declaration of conformity

The manufacturer:

GI.BI.DI. S.r.I.

Via Abetone Brennero, 177/B, 46025 Poggio Rusco (MN) ITALY

declares that the products:

#### ELECTROMECHANICAL LINEAR OPERATORS BL230

are in conformity with the following EEC Directives:

• EMC Directive 2004/108/CE and subsequent amendments;

and that the following harmonised standards have been applied:

• EN61000-6-1; EN61000-6-3

Date 04/07/2011

Managing Director Oliviero Arosio

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