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# **BARR500**

BARR500 - (524 - 526)

Electromechanical barriers INSTRUCTIONS FOR INSTALLATION

CE



## INTRODUCTION

The new 24 VDC automatic electromechanical barrier for easy system control with booms of up to 6 metres and highspeed opening. With a contemporary design and new technological solutions, BARR500 is the right answer to all these requirements. Designed for easy adaptation to the EN 12453 standards.

### INSTALLATION WARNINGS

- Before proceeding with installation, fit a magnetothermal/differential switch with a maximum capacity of 10A
  upstream of the system. The switch must guarantee omnipolar separation of the contacts with an opening
  distance of at least 3mm.
- 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.
- Verify the end purpose of the product and take all the necessary safety precautions.
- Use of the products for purposes different from the intended use has not been tested by the manufacturer and is therefore 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 dangerous 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.



### WARNING: IMPORTANT SAFETY INSTRUCTIONS.

It is important to follow these instructions in order to safeguard people. Incorrect installation or improper use of the product may lead to serious harm to people. Keep this instruction booklet and read it carefully before starting installation.

## 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 good 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 without experience and knowledge.

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

### **ELECTRICAL SETUP**

#### Electric system setup

Set up the electric system as shown in Fig. 1 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 of the automated device are:

- 1 24V flashing light; 0.75 mm<sup>2</sup>2-core (2x0.75) cable
- 2 Antenna; screened coaxial cable
- 3- Key selector; 0.5 mm<sup>2</sup> 3-core (3x0.5) cable
- 4 Photocell receiver; 0.5 mm<sup>2</sup> 4-core (4x0.5) cable
- 5 Photocell transmitter; 0.5 mm<sup>2</sup> 2-core (2x0.5) cable
- 6- Omnipolar magnetothermal/differential switch with minimum contact opening of 3 mm
- 220-230VAC/50-60 Hz power line to the device; 1.5 mm<sup>2</sup> 3-core cable (3x1.5) (adhere to the regulations in force)
- 7 Electronic control unit container; 3x1.5 mm<sup>2</sup> cable
- 8 24VDC operator:
  - -1.5 mm<sup>2</sup>2-core (2x1.5) power cable RED = + BLACK = -

for a maximum cable length of 6 m, beyond which the cable cross-section needs to be increased

- 9- 8K2 sensitive edge; 0.5 mm<sup>2</sup> 2-core (2x0.5) cable
- 10 230VAC boom light; min. 1.5 mm<sup>2</sup> 2-core (2x1.5) cable

#### Use appropriate cable ducts.

It is good practice to separate the 230V power cables from the accessory connection cables and it is therefore advisable to use at least two tubes to run the cables through.

WARNING: It is important to fit an omnipolar magnetothermal/differential switch with a minimum contact opening of 3 mm on the power line upstream of the control unit.

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#### **TECHNICAL DATA**

OPERATOR	BARR524	BARR526			
Electric motor	24Vdc 1600 RPM 24Vdc 3350 RPM				
Supply voltage	220/230Vac, single	e-phase, 50-60Hz			
Motor power supply	24Vdc	24Vdc			
Power absorbed	MAX 150W	MAX 200W			
Operating temperature	-20°C +60°C	-20°C +60°C			
Degree of protection	IP 44				
Limit switch	2 limit switches (open/close)	2 limit switches (open/close)			
Operating frequency (%Fu) at 20°C	50%	60%			
Maximum boom length	6m	2m			
Opening time to 90°	5s 1.8s				
Operating temperature	-20°C +60°C				
Load-bearing structure protection	n Cataphoresis				
Load-bearing structure coating	RAL 7040 polyester				
Load-bearing structure dimensions	i 1117x325x255				
Operator weight	45 Kg (as sold)				
Formula to calculate the	%Fu= <u>A + C</u> x100				
operating frequency	A = Opening time C = Closing time P = Overall pause time A + C + P = Time between two openings	C + P			

#### Maximum operating curve

The operating time based on the desired operating frequency can be derived from the graphs (2) and (3).

#### NOMENCLATURE

Referring to figure 4.

- 1- Upright
- 2- Foundation plate
- 3- Spring
- 4- Balancing device with Cable
- 5 Electric motor
- 6- Reduction gear
- 7 Adjustable limit switch disc
- 8- Electronic control unit container
- 9- Hall-effect sensor
- 10 Boom
- 11 Spring adjustment nuts

### DIMENSIONS

Referring to Figures 5, 6 and 7.

## PRELIMINARY WARNINGS

- There must not be obstacles of any kind in the range of action of the operator.
- The foundation plinth must be laid in an area free of cables and ducts and such as to guarantee adequate hold of the plinth.
- Check that there is an efficient earth plate for connection of the upright.
- Carry out the installation far enough away from the road so that it does not constitute a danger for circulation.
- The motorized boom entrance is mainly intended for vehicle passage; if possible, make a separate entrance for pedestrians.
- It is advisable to post clearly visible warning signs at the automated entrance (inside and out) and, if necessary, indicate that pedestrians are not allowed to pass through.
- If you have any doubts about the safety of the installation, suspend work and contact your dealer.
- Check for any medium- and high-voltage overhead cables in the place of installation and respect the minimum overhead clearance.

# FOUNDATION PLATE EMBEDDING

Ensure that the foundation plate is positioned in such a way as to guarantee proper operation of the operator and easy access for the subsequent installation phases or future maintenance.

- 1 Assemble the foundation plate (8).
- 2- Lay a foundation plinth (9) including one or more tubes of adequate diameter to run the cables through. Check that the foundation plate is level using a spirit level.

# **OPERATOR INSTALLATION**

- 1 Undo the six side screws to remove the front cover (10).
- 2- Position the operator on the foundation plate and secure it with the four nuts and washers provided on the foundation plate (11).

Define whether the installation is RIGHT or LEFT (12).

3- Once you have defined the installation as right of left, if necessary, move the balancing device which will house the spring/s (not provided with the operator). In case of left installation, the balancing device is on the left.

In case of right installation, the balancing device is on the right.

The operator is always supplied with the balancing device fastened on the right, therefore in the case of right installation, the balancing device does not have to be moved.

Follow the RIGHT-LEFT Boom Conversion procedure to move the balancing device.

# **RIGHT-LEFT BOOM CONVERSION**

- 1- Unscrew the two locking grub screws 1 (13) and the two long grub screws 2 (13) that act as mechanical end stop.
- 2- Release the operator with the wrench 3 (13) provided acting on the release rod 4 (13).

If the Cable of the balancing device is not yet visibly loosened, manually act on the operator output shaft with the aid of the boom coupling 1 (14) turning it in the appropriate direction to obtain the desired result.

- 3- Using a screwdriver remove the radial snap ring 1 (15) that fastens the balancing device bushing.
- 4- Slide the rod of the balancing device in the slot on the plate until reaching the new position (16).
- 5- Refit the radial snap ring 1 (17) to fasten the balancing device bushing.

Turn the operator output shaft with the aid of the coupling (14) to align the Cable with the rod.

- 6- Using a small screwdriver, remove the plastic caps 1 (18) that cover the large holes on the rear of the upright.
- 7- With the caps removed you can see the coupling between the end-stop grub screw 2 (13) and the mechanical end-stop on the operator (19).

The opening mechanical end-stop is always visible through the hole 2 (20) opposite the spring; the closing mechanical end-stop is always visible through the hole 1 (20) on the spring side.

8- Turn the operator output shaft with the aid of the coupling 1 (14) until you identify the opening and closing mechanical end-stops and screw down the two long grub screws until their ends touch the mechanical end-stop (21).

At this stage, not yet having installed the boom, it is pointless to try and do a fine adjustment; this will be done later when the boom has been fitted (see the section **MECHANICAL END-STOP ADJUSTMENT**).

# BOOM SUPPORT COUPLING INSTALLATION

- 1- Check that you have the correct couplings for the type of boom used.
- 2- Release the operator if not yet done (see the section MANUAL MANOEUVRE).
- 3- Loosely fit the coupling 2 (22) on the splined shaft 1 (22) in any position; no alignment is required at this stage.
- 4- Turn the coupling **2 (22)** in the closing direction of the boom until reaching the mechanical end-stop.
- 5- Remove the coupling 2 (22) previously fit.

The boom can now be installed in two ways:

6- Fit the coupling 2 (22) on the grooved shaft 1 (22) in horizontal position and fasten it with the countersunk head screw 3 (22).

7- Fit the boom 4 (22) on the coupling 2 (22) and then the coupling cover 5 (22) and fasten the assembly with the screws 6 (22).

### Or

- 6- Separately fit the boom on the coupling 2 (22) and then the coupling cover 5 (22) and fasten the assembly with the screws 6 (22).
- 7- Then fit the whole assembly on the splined shaft 1 (22) and fasten it with the countersunk head screw 3 (22).

Note: Make sure that the countersunk head screw 3 (22) is securely tightened.

## SPRING INSTALLATION

The BARR524 and BARR526 barriers are supplied without springs, which must be chosen based on the length of the boom and the accessories fitted on the boom.

Once you have chosen the right springs for the specific installation, follow these simple instructions:

- 1- Release the operator (see the section MANUAL MANOEUVRE)
- 2- Move the boom into vertical position by hand.
- 3- Lock the operator.
- 4- Using an Allen wrench, undo the screw 1 (23) that secures the balancing device to the Cable and using an appropriate screwdriver remove the radial snap ring 2 (23) from the bushing.
- 5- Remove the balancing device **3 (23)** from its seat in order to fit the springs.
- 6 There are two types of spring kit: with one spring or with two springs. The spring guide tube 1 (24) is always provided and must always be used and fitted first on the rod 6 (24) of the balancing device followed by the spring or springs 2 and 3 (24). If fitting two springs, first fit the small one 2 (24).
- 7- Reassemble the balancing device screwing the nut 4 (24) onto the rod 6 (24) for the height of the nut.
- 8 Lubricate the spring/s with adhesive grease spray.
- 9- Refit the balancing device in its seat using the screw 1 (24) and the radial snap ring 2 (24).
- 10- Screw the nut 4 (24) and the locknut 5 (24) onto the rod 6 (24).

# **BALANCING DEVICE ADJUSTMENT**

- 1- Ensure that the spring fitted is suitable for the boom used in the specific installation (see Table 25b)
- 2- Release the operator.
- 3- Move the boom to 45° and gently let it go.
- 4- If the boom tends to rise or fall, the spring load needs to be adjusted.
- 5- Move the boom into vertical position by hand.
- 6- Lock the operator.
- 7- Unscrew the locknut 3 (25)
- 8- Screw down the nut 1 (25) holding the hexagonal fork 2 (25) firm with a wrench.
- 9- Release the operator.
- 10- Move the boom to  $45^{\circ}$  and gently let it go.
- 11- If the boom remains stationary go to step 12 otherwise repeat the operation from step 8.
- 12- Screw down the locknut 3 (25).

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# 25b

OPTIONALS AVAILABLE FOR BOOM OUTLINE 100x66 mm		Boo	om lenght (	m)					
	2	2,5	3	3,5	4	4,5	5	5,5	6
Boom	Α	Α	Α	В	В	С	D	D	Е
Boom + Lights	Α	Α	Α	В	С	С	D	E	E
Boom + Edge	Α	Α	В	В	С	D	E	E	F
Boom + Edge + Lights	Α	Α	В	В	С	D	E	F	F
Boom + End Foot	Α	Α	В	В	С	D	E		
Boom + End Foot + Lights	Α	Α	В	В	С	D	E		
Boom + End Foot + Edge	Α	Α	В	С	D	E	E		
Boom + End Foot + Edge + Lights	Α	В	В	С	D	E	F		
Boom + Rack	Α	Α	В	В	С	D	E	E	F
Boom + Rack + Lights	Α	Α	В	В	С	D	E	F	F
Boom + Rack + End Foot	Α	В	В	С	D	E	E		
Boom + Rack + End Foot + Lights	Α	В	В	С	D	E	F		
Articulated boom		В	В	В	С				
Articulated boom + Lights		В	В	С	D				
Articulated boom + Edge		В	В	В	D				
Articulated boom + Edge + Lights		В	В	С	D				
Articulated boom + End Foot		В	В	С	D				
Articulated boom + End Foot + Lights		В	В	С	D				
Articulated boom + End Foot + Edge + Li	ghts	В	В	С	D				

#### OPTIONALS AVAILABLE FOR BOOM OUTLINE 80x40 mm Boom lenght (m)

	2	2,5	3	3,5	4	4,5	5	5,5	6
Boom	А	Α	Α	Α	В	В	В	С	D
Boom + Edge	Α	Α	Α	В	В	С	С	D	E
Boom + End Foot	Α	Α	Α	В	В	В	С	С	D
Boom + Edge + End Foot	Α	Α	В	В	В	С	D	D	E
Boom + Rack	Α	Α	Α	В	В	С	D	D	E
Boom + Rack + End Foot	Α	Α	В	В	В	С	D	D	Е

#### SPRING REFERENCE LIST

Α	AJ01210	1400 N
В	AJ01220	3100 N
С	AJ01230	4300 N
D	AJ01240	5700 N
E	AJ01250	7400 N
F	AJ01330	8500 N

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# **MECHANICAL END-STOP ADJUSTMENT**

The mechanical end-stops can be adjusted by acting on the two grub screws accessible through the holes 1 and 2 (26) in the support plate of the control unit container.

To access the two long adjustment grub screws, completely unscrew the two short grub screws that lock the long grub screws.

Referring to figure **26**, the grub screw **1** acts as closing mechanical end-stop, while the grub screw **2** as opening mechanical end-stop.

Tightening the grub screw 1 you anticipate the moment it will meet the mechanical end-stop of the operator during closing stopping its motion (the boom will close less).

Loosening the grub screw 1 you delay the moment it will meet the mechanical end-stop of the operator during closing stopping its motion (the boom will close more).

**Tightening** the grub screw **2** you anticipate the moment it will meet the mechanical end-stop of the operator during opening stopping its motion (the boom will open less).

Loosening the grub screw 2 you delay the moment it will meet the mechanical end-stop of the operator during opening stopping its motion (the boom will open more).

It is advisable to make the adjustments by tightening/loosening the grub screws 1-2 turns at a time to prevent undesired and excessive effects.

It is advisable to use LOCTITE 243 (light) to guarantee stability of the long grub screws.

Remember to refit the short grub screws.

The mechanical end-stops must be after the end of motion to which the electrical limit switches are adjusted (obligatory), therefore, the mechanical end-stops must be positioned slightly beyond the actual desired point of end of motion.

# CONTROL UNIT INSTALLATION

- · Check that the power supply voltage and frequency are compatible with the control unit.
- Do not solder the ends of the cables that will be fitted in the terminal boards of the control unit.
- The control unit is housed in a plastic container 1 (27) and is secured on the upright of the operator with four screws 2 (27).
- At least one hole must be made in one of the four pierceable areas 3 (27) to run the cables through.
- It is recommended to use appropriate cable ducts.
- The control unit container must be closed with the cover 4 (27) using the screws 5 (27).
- Refer to the control unit manual for the electrical connections, use and programming.
- Figure 28 shows the cables leading from the operator.

# ELECTRICAL LIMIT SWITCH ADJUSTMENT

The electrical limit switches must always be adjusted with the operator disconnected from the mains.

Remove the front cover to access the limit switch unit composed of:

- A fixed stainless steel disc 1 (29) that must not be moved.
- Two black plastic magnet holders 2 (29) which can be moved by loosening the screws 3 (29).
- The two magnets that control the opening movement are fitted on one holder and the two that control the closing movement on the other.
- Four magnets, two to control the opening movement and two to control the closing movement. The magnets are prefitted on the holders.
- The magnets act on the Hall-effect sensor prefitted on the operator 4 (29).

Two magnets prefitted on each individual holder 2 (29) are oriented in the same direction as polarization. To distinguish the direction of polarization, the magnet that controls closing has a visible red face. One holder 2 (29) will thus have two uncoloured magnets and one holder 2 (29) two coloured magnets.

Using appropriately set up Gi.Bi.Di. control units, the first magnet that passes across the Hall-effect sensor determines the start and the second magnet the end of the deceleration motion (30). Refer to the control unit instructions.

The holder has various holes to house the magnet; the distance between one hole and the next is equivalent to  $5^{\circ}$  of the boom movement. A maximum deceleration angle of  $25^{\circ}$  during both opening and closing can be obtained (30).

# MANUAL MANOEUVRE (RELEASE)

# Before, during and until subsequent locking, the power to the system must be cut.

- 1- Carry out the manoeuvre with the power cut.
- Access the Allen wrench provided by removing the panel 1 (31).
   To remove the panel use a screwdriver of adequate size and insert it in the slot in the panel tilting it to the right until releasing the catch (32).
- 3- Remove the panel, take the Allen wrench 1 (33) out of its seat and use it to turn the release rod 2 (33). The direction of rotation is indifferent; after turning about 180° you will hear a click indicating that the operator has been released. The operator remains unlocked in this condition until you act on it again with the Allen wrench.

# WARNING: when the operator is released, the boom may rise on its own up to $45^\circ$ .

You can now move the boom.

To relock the operator, turn the release rod further.

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# **BOOM SUPPORT COUPLING UNINSTALLATION**

If the spring is fitted and you think that the operator will need to be released after removing the boom coupling, first follow the **Balancing device detachment** procedure.

- 1- The boom must be in horizontal position.
- 2- Undo the hexagonal head screws 6 (22) that close the coupling cover.
- 3- Remove the coupling cover 5 (22) and the boom 4 (22).
- 4- Loosen the countersunk head screw 3 (22).

5- Use an extractor of adequate size to remove the coupling from the grooved shaft, using the head of the countersunk head screw 3 (22) as pivoting point.

It is strongly unadvisable to try and remove the coupling in any other way.

WARNING: If the spring is fitted it is compressed when the coupling is in horizontal position; therefore, do not carry out the release manoeuvre without the boom fitted.

# **BALANCING DEVICE DETACHMENT**

- 1- Release the operator (see the section MANUAL MANOEUVRE).
- 2- Move the boom into vertical position by hand.
- 3- Lock the operator.
- 4- Release the spring preload by acting on the nut 1 (25) holding the hexagonal fork 2 (25) firm with a wrench.
- 5- Using an Allen wrench undo the screw 1 (23) that secures the balancing device to the Cable

# ACCESSORIES AVAILABLE

Some accessories increase the total weight of the boom and hence affect the choice of spring/s to be used.

### FORK SUPPORT (34)

The fork support is particularly useful for booms of more than 3 m long, as it prevents external forces from bending the boom.

### FOOT (35)

The function of the foot is similar to that of the fork support with the advantage that it is raised together with the boom and is not an obstruction when the boom is in vertical position. The foot is recommended for booms of not more than 4 m long.

### **MOVABLE RACK (36)**

The movable rack is useful to enhance visibility of the boom that closes the gateway.

### SPLIT BOOM KIT (37)

The split boom is useful for gateways where there is limited vertical manoeuvring space.

#### **BOOM LIGHTS (38)**

Two light tubes can be fitted on the standard boom profile to enhance boom visibility.

Figure **38** shows the correct way to install the light tube. The power cable **(1)** runs through the hollow section of the boom where it is connected to the light tube **(3)** which in its turn is housed in the seats cut into the profile until terminating at the same side as the power cable **(2)**.

It is recommended to use joints and terminals specifically for the light tube used.

#### SENSITIVE EDGE

The standard profile allows fitting a sensitive edge type 8K2 without requiring further supports.

#### FLASHLIGHT (39)

Signalling system integrated in the boom cabinet.

#### **UNLOCKING WITH EUROPEAN KEY (40)**

Allows accessing the unlocking system using a key with European cylinder.

#### BOOM COUPLING COVERS AND BOOM END COVERS (41)

These are particularly useful to arrange the boom accessory wiring (lights and sensitive edge) and an attractive finish.

## MAINTENANCE

Maintenance must be performed by the installer and/or by qualified persons.

Every 6 months or 100,000 manoeuvres it is advisable the inspect the system:

- Visually inspect the operator and clean it if necessary.
- Check that the boom is properly aligned.
- Check proper functioning of the electrical limit switches and mechanical end-stops.
- Check the efficiency of the release system.
- Check that the spring/s are properly adjusted.
- Lubricate the spring/s with adhesive grease spray.
- Check that the boom coupling is securely fastened on the splined output shaft.
- · Check the state of wear of the self-lubricating plastic bushing of the balancing device.
- Check the condition of the drive Cable and lubricate it.
- Check that the gearmotor is secured to the cabinet.
- · Check the integrity of the connection cables.
- Check the efficiency of the batteries (if present).

### MALFUNCTIONING

In the event of any malfunction, cut the power to the system and call in a qualified technician (installer).



# **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 BARRIERS BARR524-526

Are in conformity with the following CEE Directives:

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

and that the following harmonised standards have been applied:

• EN61000-6-1, EN61000-6-3

Data 25/02/2015

The legal Representative Michele Prandi

# **EXTRAORDINARY MAINTENANCE**

Date:		Installer company stamp:
Technician sig	n:	
Date	Notes	Technician sign

Date:		Installer company stamp:		
Technician sig	n:			
Date	Notes	Technicia	in sign	

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NOTE	

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NOTE



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

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