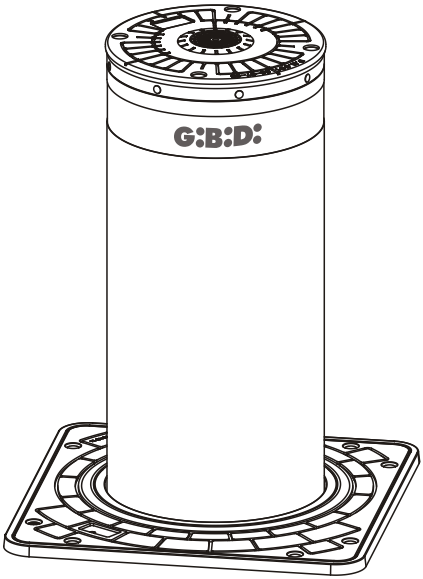

:DPT260

CE

DPT260

Automatic bollards
FITTING, OPERATION AND
MAINTENANCE INSTRUCTIONS

UK

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WARNING: IMPORTANT SAFETY REGULATIONS.

It is important to follow these instructions carefully to ensure safety of persons and belongings. A faulty installation or an incorrect operation of the product may cause serious damages to people and belongings.

These instructions are for experts only, for someone who is able to complete fitting, operation and maintenance in full safety conditions.

1 - NOTES ON INSTALLATION

- Read carefully this manual before starting the installation and save it for future reference.
- Packaging materials (plastic, polystyrene, etc…) must be kept out of reach of children, because potentially dangerous.
- This product have been designed and manufactured only for the use shown in this documentation. Any other use, different from what expressly indicated could damage the integrity of the product and/or be potentially dangerous.
- Gi.Bi.Di S.r.l. is not responsible for any damage caused by improper or different use than that for which the automated system was intended.
- Do not install the device in an explosive area: the presence of gas or inflammable fumes is a serious danger for safety.
- The installation must be performed in compliance with the law in force.
- In the extra-UE countries make also reference to the national law.
- Gi.Bi.Di. S.r.l. is not responsible for any non-compliance with the correct installation procedure of GiBiDi products and accessories, as well as for any deformation that can occur while using.
- Before performing any operation on the installation, disconnect the main power supply.
- Place a 0.03A magnetothermic differential switch with an opening distance between contacts equal to or greater than 3 mm to power the control unit.
- The main power supply line of the control unit must be directly connected to the main switch set inside the control unit. Use approved anti-flame cable. The dimension of the main power supply line must be evaluated by the installer according to the quantity of bollards (500W each bollard) and the distance from the output place, in order to grant a proper supply (230V +/-10% per each moving bollard).
- Check that there is a suitable earthing and place/connect an earthing line to the terminal PE in the control unit.
- Every bollard is equipped with a safety pressure switch. The pressure switch operates the inversion every time it detects a mass of at least 40 Kg on the head of the bollard while rising. In any case it is recommended to check the activation level every six months.
- Each installation should have: a light signaling such as the flashing light integrated in the head of the bollard – an acoustic buzzer that signals the bollard in movement – a traffic light (red – green) for each direction of transit – a signpost for each direction of transit.
- For the maintenance use only original GiBiDi spare parts.
- Gi.Bi.Di. S.r.l is not responsible in terms of safety and good operation of GiBiDi products, in case of use of nonoriginal GiBiDi spare parts.
- Do not perform any modification to the parts composing GiBiDi system.

UK

- The installer must provide to the customer all the information related to the manual lowering of the bollards in case of need.
- Do not allow people and children to stop close to the bollards during operation.
- Keep radio transmitters and any other control devices out of the reach of children in order to avoid any unintentional operating of the bollards.
- The transit is allowed only with the bollards completely down.
- The customer must avoid any repair or direct intervention and must address to qualify and authorized personnel.
- Do not throw the exhausted batteries in the garbage but dispose them in the proper containers to allow recycling.
- The bollards are packed on euro pallet. Use specific equipment or forklift for movement; handle with care.
- GiBiDi bollards are manufactured with IP 66 or superior protection class and can be stocked everywhere, also outdoor. It is however recommended to stocked the bollards in close or covered places.
- Pilomat bollards are designed to resist to transport and stocking effects in a range between -25°C and +55°C and for a determined time (less than 24 hours) at +70°C.
- The bollards do not require any availability of spare parts: Gi.Bi.Di. S.r.l warehouse can send any spare parts in quick times.
- In case of maintenance or repair of the bollards, be sure to avoid any inappropriate rising control. To avoid problems, disconnect the controls through the appropriate switch set in the control unit.

Any procedure not explicitly stated in these instructions is forbidden.

2 - DISPOSAL

The trash container symbol shown on the product label, on the product or in the instructions indicates that the product, at the end of its life, must be disposed separately from other waste products.

The end user must therefore bring the item to an authorised electronic waste disposal centre, or return it to the dealer when new equivalent product is purchased.

Proper separate collection for recycling, treatment or compatible environmental disposal contributes to avoid negative effects on the environment and health, moreover it favours reuse and recycling of the materials the product is made of.

Improper disposal of the product is subject to fines.

UK

3 - BOLLARD DATASHEET

Bollard	DPT280
Moving cylinder material	S235JR steel X5CrNi18-10 stainless steel (AISI 304) X5CrNiMo17-12-2 stainless steel (AISI 316)
Moving cylinder diameter	273 mm
Moving cylinder height	600 mm
Moving cylinder normal steel thickness	6 mm
Moving cylinder stainless steel thickness	AISI 304: 6 mm - AISI 316: 4 mm
Moving cylinder normal steel finish	Anti-corrosion treatment Grey anthracite standard painting *(optional: other RAL colour on request)*
Moving cylinder stainless steel finish	Anti-corrosion treatment - Grey anthracite standard painting or brushing
Other moving cylinder finish	Ribs on cylinder's surface *(optional)*
Reflecting adhesive strip	Standard - height 55 mm
Rising speed	15 cm/s
Lowering speed	25 cm/s
Manual emergency lowering	Standard *(optional: automatic lowering if power failed)*
Safety reversal pressure switch	Standard
Connection line to control unit	Standard 10 m (max. lenght 80 m - with heating resistance max. 50 m)
Hydraulic pump for movement	Built-in into the bollard
Hydraulic pump absorption	230V +/- 10% - 2.2A (max. 3.4A)
Hydraulic pump thermal protection	Standard intervention threshold 120°C - automatic recovery 80°C
Protection class	IP67
Type of use	Intensive - 2,000 movements/day
Life average - MCBF	3,000,000 movements
Impact resistance (without deformation)	40,000 J
Breakout resistance	250,000 J
Nominal operating temperature	from -40°C to +70°C (for temp. lower than -10°C use the heating resistance)
Relative humidity operation range	from 10% to 80%
Max. altitude in operation	1,500 m above s.l.
Operation maximum noise	60 dB
Weight included 10m connection line and pit	120 Kg
Weight of the pit	43 Kg

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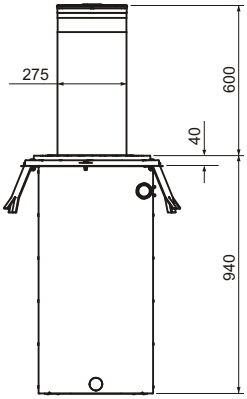
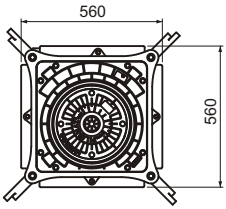
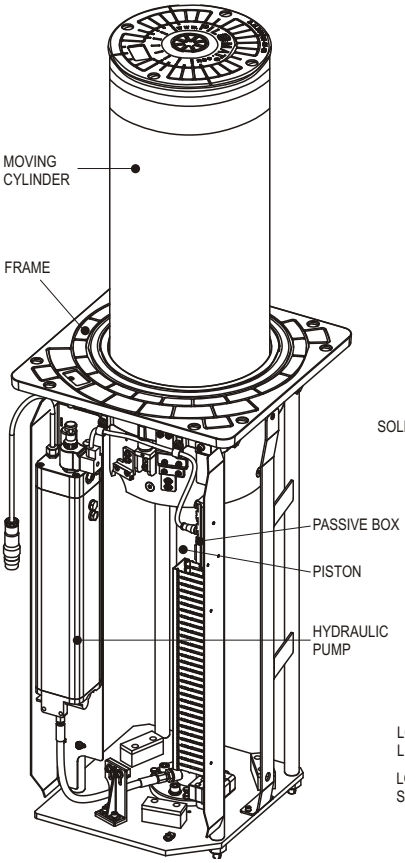
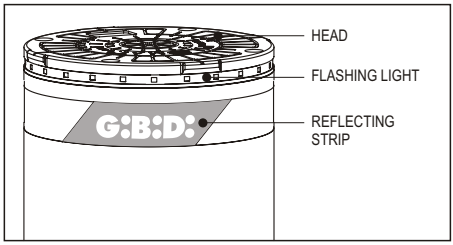
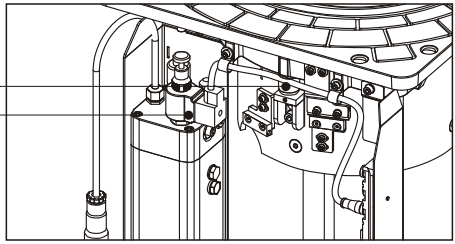


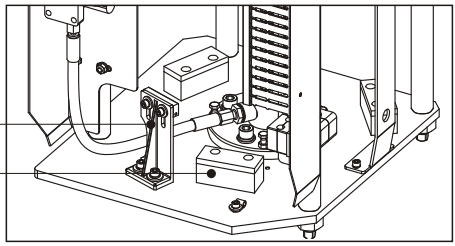


4 - BOLLARD COMPONENTS









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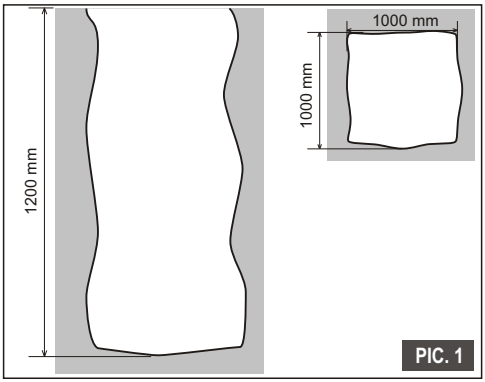
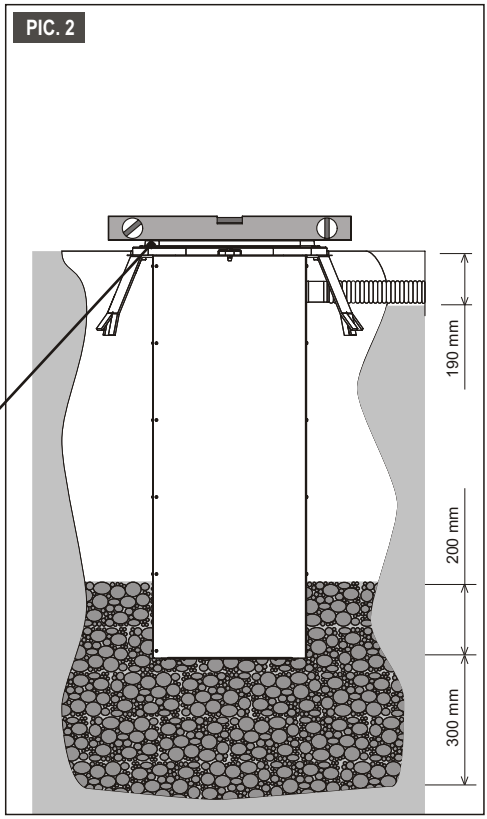
5 - INSTALLATION PROCEDURE



PIC. 1



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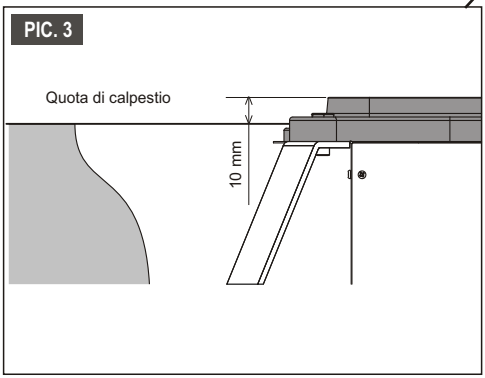

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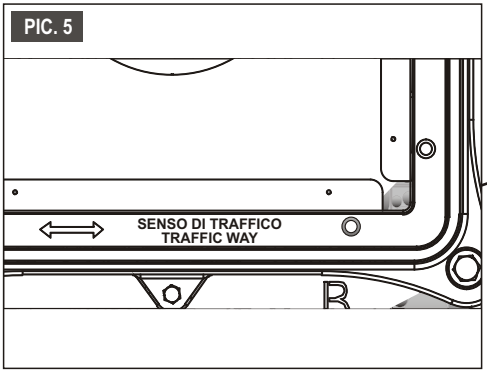

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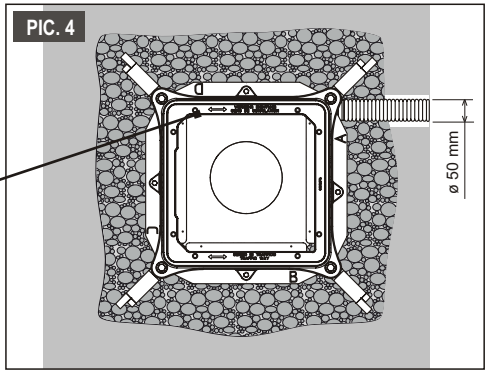

PIC. 4

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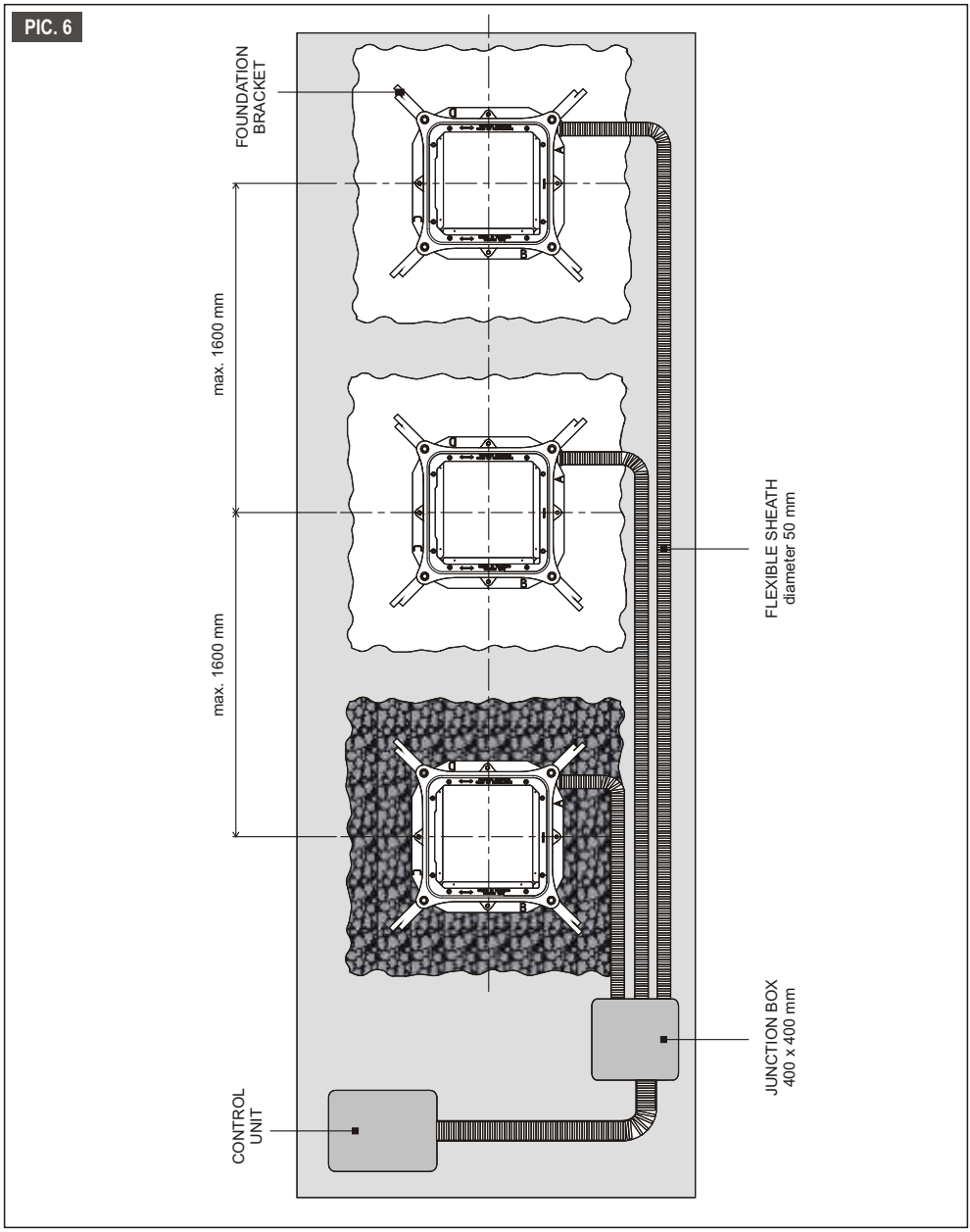
5 - INSTALLATION PROCEDURE

PIC. 6



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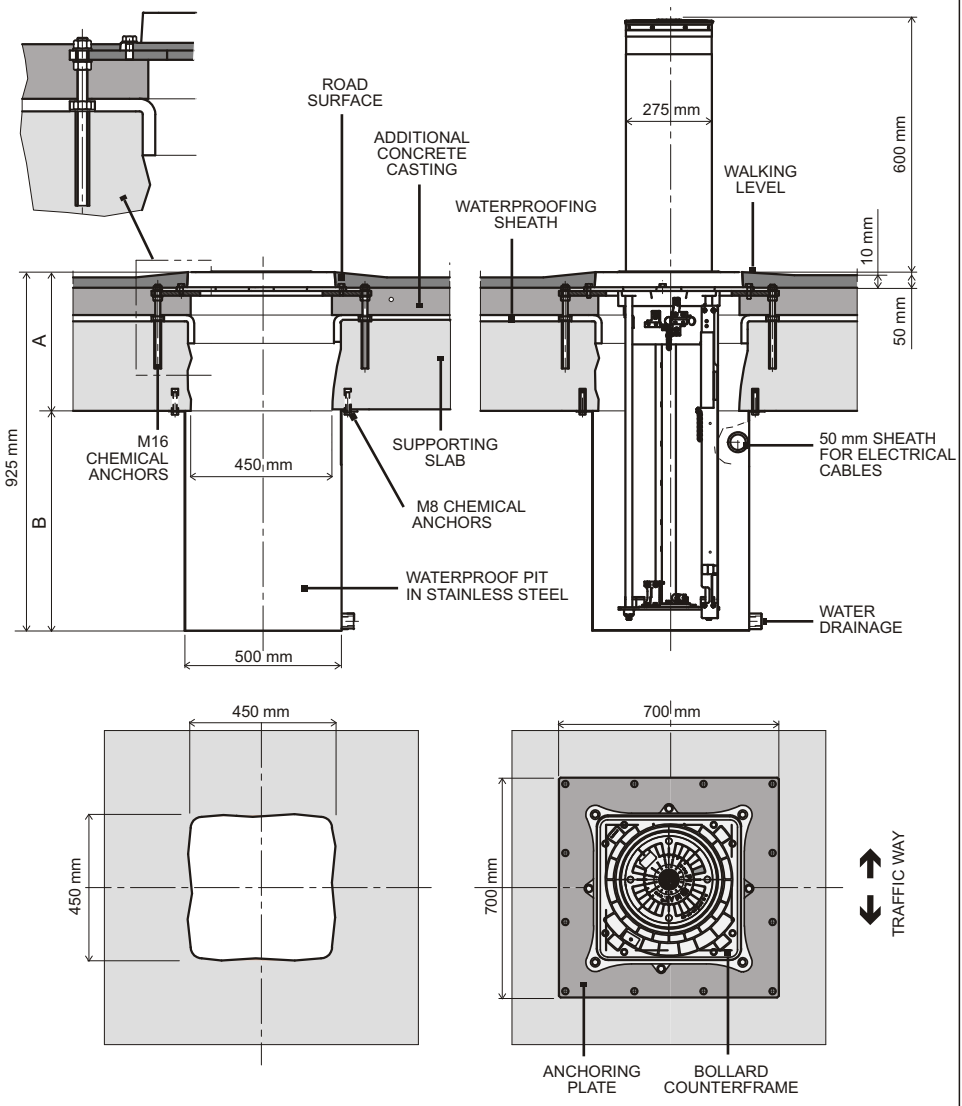
5 - INSTALLATION PROCEDURE

PIC. 7

“A” dimension is the sum of the different thicknesses of which the slab is made of.



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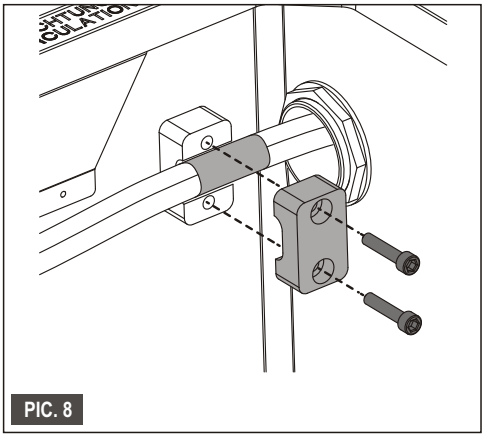
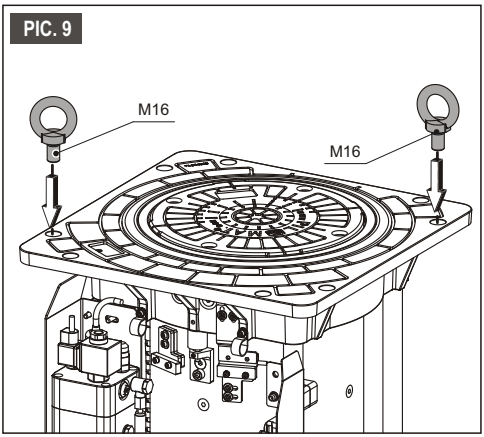
5 - INSTALLATION PROCEDURE



PIC. 8

PIC. 9



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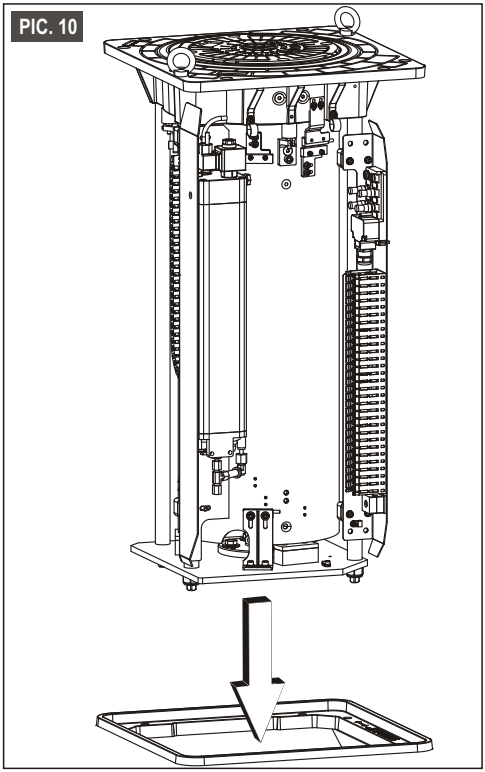
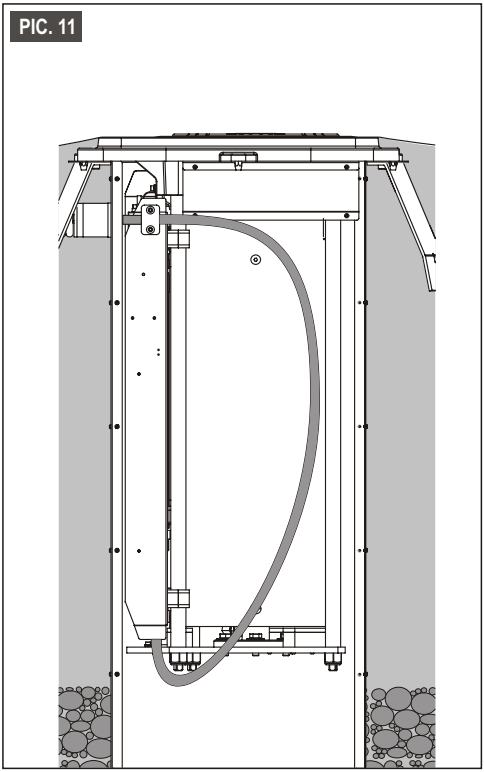


PIC. 11



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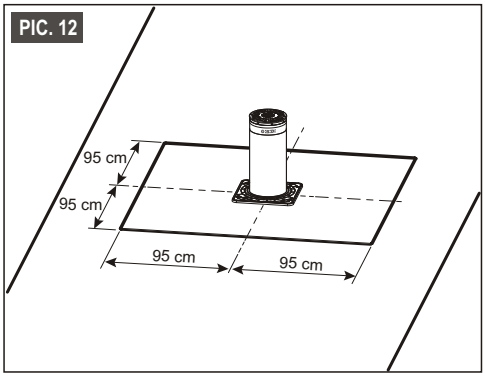
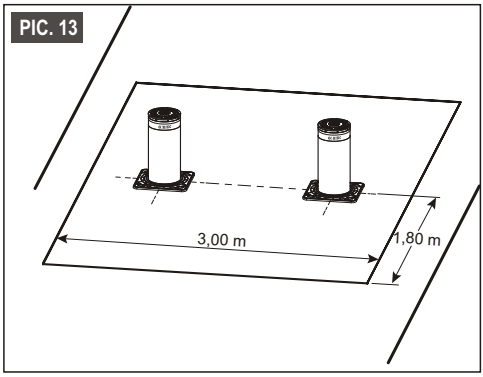
5 - INSTALLATION PROCEDURE

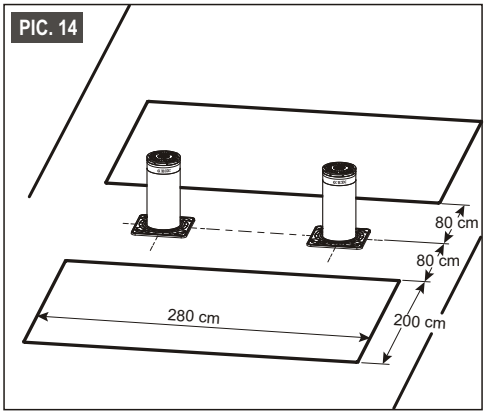
PIC. 12



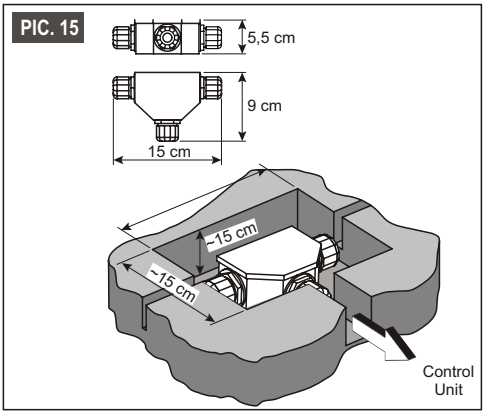
PIC. 13



PIC. 14



PIC. 15



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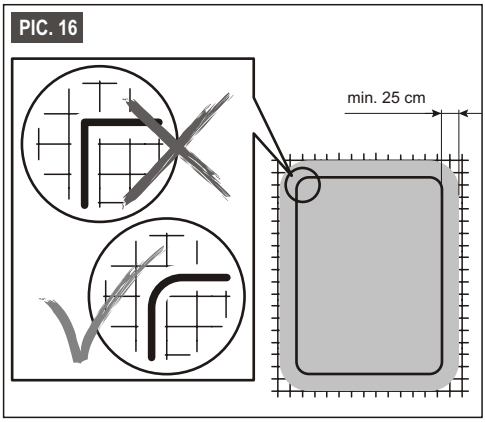
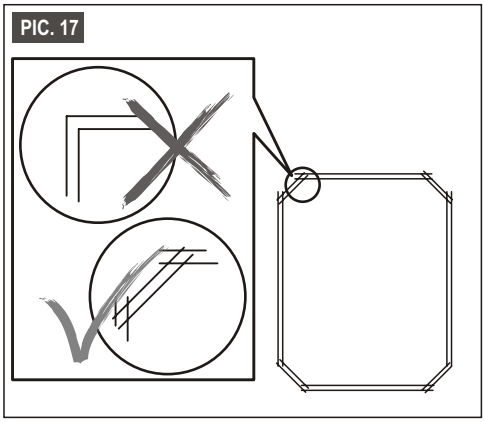


PIC. 17



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5.1 - TESTS BEFORE INSTALLATION

Premise

The bollards and the related pits are usually shipped already assembled.
Bollards, control unit and eventual accessories are usually packed on Europallet.
The use of a fork lifter or similar is recommended for pallets movement..

Subsoil check

Before proceeding with the installation of the pits, ensure that the laying point of the bollards respects the following characteristics:

1. Absence of aquifer in the subsoil.
2. Absence of pipes or elettrical cables.
3. Presence of an efficient earthing system.

In case bollards are laid on an inclined area, it is necessary to install, before the bollards and in the immediate surroundings, a drainage channel complete with covering grid (to avoid rainwater infilitrations in the pits due to incline).

5.2 - SOIL PERMEABILITY

An important factor in the installation of bollards, prior to the assessment of the permeability of soil in relation to the drainage of rainwater, is that it should determine in advance whether the permeability of the ground covered by the installation is within acceptable parameters.

To confirm the practise of soil permeability, it is recommended that before the installation, the excavation is carried out at about 40 litres of water per m2, and ensuring that it flows into the ground at about 30 minutes.

If the result should be negative, build a water drainage system by using a 50mm pipe connected to the sewer system. As an alternative, connect the pipe to a “pit for rainwater collection” placed at a greater depth than the bollard pit, equipped with an immersion pump and a float for the automatic operation command.

UK

5.3 - LAYING OF THE PIT

1. Dig an excavation of about mm 1000 x 1000 section and of 1200mm depth **(PIC. 1)**.
2. Ensure that the soil has a good permeability (read the specific procedure at chapter 5.2).

   NOTE: it is recommended to read chapter 5.1 "tests before installation".
3. Add gravel for approx. 300mm (grain diameter from 8mm to 20mm approx.), make sure to vibrate and to compact it accurately to avoid any future ground settling **(PIC. 2)**.
4. Lay the metallic pit equipped with counterframe and brackets, paying attention to:
   - Arrange the pits according to the transit direction as indicated on the counterframe **(PIC. 5)**.
   - Check that the pits are correctly plumbed **(PIC. 2)**.
   - Ensure that the counterframe is 10mm higher than walking level (in order to limit rainwater infiltrations into the pit). To arrange the pit at the suitable height, add or remove gravel under the pit **(PIC. 3)**.
5. In case of installation with multiple pits, ensure that they are all well alligned and oriented in the same direction **(PIC. 6)**.
6. Add gravel all around the pit for about 200mm to avoid any obstruction of the drainage holes, placed at the bottom of the pit, during the concrete casting.
7. Lay a flexible sheath of 50mm diameter from each pit to the control unit for the electrical connection of the bollards **(PIC. 2 and 4**).

   WARNING! If the distance between pits and control unit is more than 10m, purchase the bollards equipped with electrical connection lines of the suitable length (standard length 10m – optional: up to 80m).
8. In case an "immersion pump" is needed (as described in chapter 5.2), lay a 50mm diameter sheath from the "pit for rainwater collection" to the control unit and connect the drainage pipe to the sewer system or similar. Take into account the installation of a non-return valve or similar, to avoid any flow back into the pit.
9. Arrange correctly the brackets supplied with the pits **(PIC. 4)**.
10. Cast concrete all around the pits until 100mm under the walking level (evaluate this quota according to the type of road surface).

    NOTE: it is recommended to cast concrete in two steps to avoid the lifting of the pits due to flotation in liquid concrete. It is also recommended to vibrate the concrete to compact it properly.
11. Lay any additional pipe from the control unit to the installation point of the accessories (i.e. inductive loops, traffic lights, consolle, etc.). Prearrange the electrical connection and the earthing to the control unit.
12. Once the concrete has solified, carry out the road surface finish.

All the pipelines shall be laid in full compliance with the regulations in force.

UK

5.4 - LAYING BOLLARDS ON SLAB

In case of laying on slab **(PIC. 7**) it is necessary to purchase the specific "kit for installation on slab". The instructions are as follows:

1. Mark the laying point of each bollard, then remove the road surface/concrete casting for about mm 1000 x 1000. Remove the waterproofing sheath in the middle of the laying point for about mm 500 x 500; take into consideration the consecutive restoration.
2. At the moment of purchasing, communicate the thickness of the slab in order to let the manufacturer produce a stainless steel waterproof pit of a suitable length (see **PIC. 7 ref. A and B)**.
3. In the center of the laying point remove the slab by drilling a through hole of about mm 450 x 450.
4. Place the counterframes equipped with anchoring plate in the center of the through hole. Secure it by means of 12 M16 chemical anchors (supplied by the building contractor) complete with supplementary nuts for the proper leveling of the counterframe/anchoring plate with respect to the walking level (to limit rainwater infiltrations into the pit, arrange the counterframe approx. 10mm higher than the walking level).
5. Restore the waterproofing sheath, the additional concrete casting and the road surface.
6. By means of 8 M8 chemical anchors (supplied by the contractor), secure the stainless steel waterproof pits to the ceiling of the basement.
7. Lay the pipes for the electrical cables from the bollards to the control unit.
8. Lay the pipes for rainwater drainage from the waterproof pits to the drainage area.
9. Lay the additional pipes from the control unit to the installation point of the accessories (i.e. inductive loops, traffic lights, consolle, etc.). Prearrange the electrical connection and the earthing to the control unit.

All the pipelines shall be laid in full compliance with the regulations in force.

5.5 - LAYING OF THE BOLLARD

1. Lay the bollards in the immediate surroundings of the pit.
2. Lay the connection cables of each bollard in the flexible sheath and drive them until the control unit.
3. Secure the electrical cables inside the pit by means of the specific cable clamp. The cables must be fasten at the point indicated by the blue sticker **(PIC. 8)**.

   WARNING! Make sure to secure the cables as described above. Fastening the cables in different positions may cause a faulty operation of the bollard.
4. Secure two M16 hooks (not supplied) into the specific threaded holes **(PIC. 9)**.
5. Lift the bollard by means of chains/belts, paying attention to hang them accurately to the hooks; then lay the bollard into the pit **(PIC. 10)**.
6. Make sure that the connection cables are arranged according to the suggested shape **(PIC. 11)**.
7. Once the bollard is inside the pit, remove the hooks and secure the bollard by means of the screws supplied; then apply the plastic caps supplied on the top of the screws.
8. Carry out the electrical connections to the control unit as described in chapter 6.2.

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5.6 - LAYING OF INDUCTIVE LOOPS

If the system is set on automatic mode (bollards rise only after the occurred transit of a vehicle) it is necessary to install inductive loops to detect metallic masses (vehicles).

Inductive loops are suitable for two different applications:

- "Limited" protection of the bollards **(PIC. 12 - PIC. 13)**. In this case a single inductive loop is installed around the bollards, it avoids the raising in case a vehicle is over the bollards or in the immediate surroundings.
- "Extended" protection of the bollards **(PIC.14)**. In this case two inductive loops are installed, one before and one beyond the bollards; a vehicle in motion is detected about 3m before the bollards and the detection is enabled up to 3m beyond the bollards. This function let the system detect in advance any other vehicle in transit and avoid any eventual accident.

Notes on the installation:

1. Standard inductive loops are 9,60m long (usually m 1,80 x 3,00); therefore it is possible to take into account other dimensions.
2. The inductive loop is made of a special cable of 9mm diameter and it is suitable for the direct laying into the ground, without any sheath nor protection.
3. It is essential to check the presence of electro-welded meshes into the ground. If this is the case, you shall remove the mesh for about 25cm beyond the perimeter of the inductive loops **(PIC. 16**).
4. Inductive loops shall be laid with "rounded corners" **(PIC. 16 - PIC. 17)**.
5. Inductive loops shall be laid approx. 7cm under walking level. In presence of cobblestones or similar, of 10mm thickness or greater, it is necessary to flatten out that material in order to allow the laying of the loops at the suggested depth. As an alternative, it is possible to lay the inductive loop between one cobble and onother like a "Greek fret".
6. Inductive loops are supplied with a junction box **(PIC. 15)** which is connected to to the control unit through a line for signal transmission. This line is made of a special insensitive cable which has a standard length of 15m (it is possible to purchase lines of greater lengths).
7. Inductive loops can also detect an outbound vehicle and therefore carry out the automatic lowering of the bollards.

UK

6 - ELECTRICAL CONNECTIONS

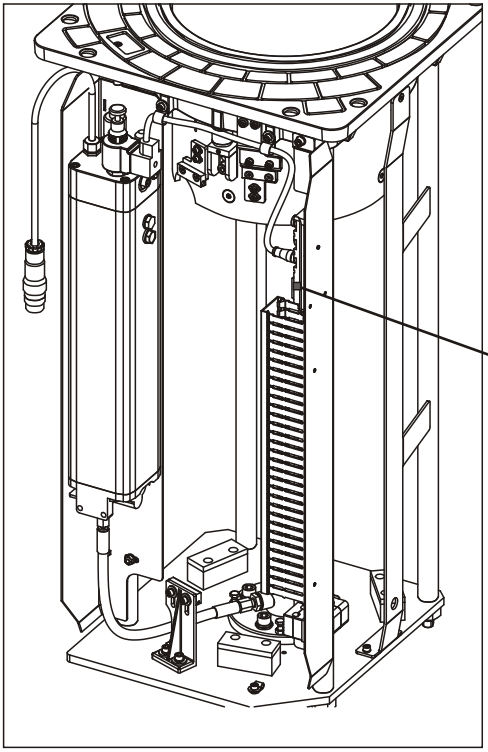
6.1 - BOLLARD WIRING

In order to connect all the electrical devices, a passive box with six connections is installed on the bollard frame. The wires of these devices are marked out by different colours.

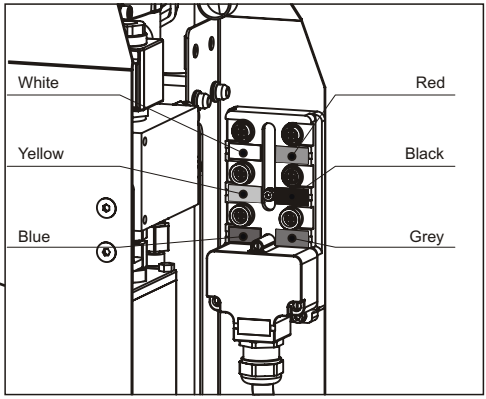
For the correspondence see the wiring diagram **(PIC. 19)**.

No.	Colour	Device
1	BLUE	FLASHING LIGHT – BUZZER (optional)
2	GREY	SOLENOID VALVE FOR LOWERING*
3	YELLOW	SAFETY PRESSURE SWITCH
4	BLACK	LIMIT SWITCH BOLLARD DOWN
5	WHITE	LIMIT SWITCH BOLLARD UP (optional)
6	RED	HEATING RESISTANCE (optional)

* Standard solenoid valve: N.C. = in absence of power supply the bollard remains in up position
Optional solenoid valve: N.O. = in absence of power supply the bollard automatically lowers (gravity effect).



PIC. 18



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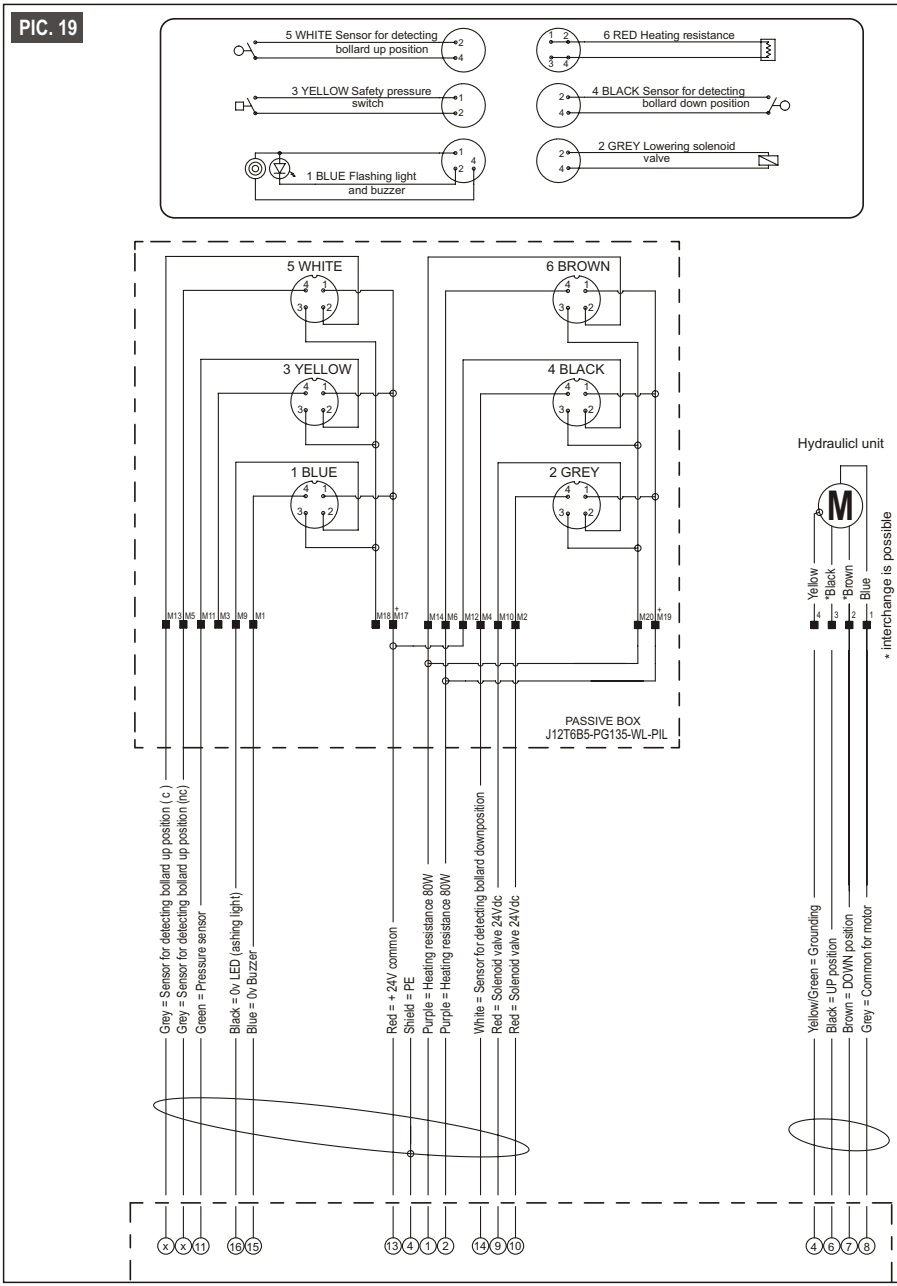
6.1 - BOLLARD WIRING

PIC. 19



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6.2 - CONTROL UNIT

The control unit is supplied in a metallic housing to wall.

The housing has usually an IP56 or IP66 protection class. Whether possible, indoor installation is recommended, as an alternative, ensure to protect it from bad weather and direct sun exposure.

The dimension of the housing may vary according to the system configuration (see chart “Housing dimension” - chapter 6.4).

In case of need, other housings for control unit are available as optional, such as: floor housing with rectangular base, cylindrical floor column with diameter 275mm, etc.

6.3 - CONTROL UNIT DATASHEET

Electronic circuit	microprocessore with specific management software
Standard housing for control unit	to wall
Protection class	IP66
Power supply	230V +/- 10% - 50/60 Hz
Control unit protection	Magnetothermal differential switch 1P + N - 6kA
Service transformer	24V - Standard power 100 VA
Quantiy of bollards connected to control unit (bollards connected to a unique control unit always move in synchro. It is not possible to move them individually)	The control unit has no configuration limits, since for each installation there is one master unit, connected to the first bollard, and a slave unit for each additional bollard
Permitted ambient temperature	from -15°C toa +60°C
Relative humidity function range	from 10% to 80%

6.4 - HOUSING DIMENSION

Configuration	Material	IP class	Dimensions
SP1 - system with 1 bollard	ABS	IP 56	400 x 300 x h. 130 mm
SP2 - system with 2 bollards	Steel	IP 66	500 x 400 x h. 200 mm
SP3 - system with 3 bollards	Steel	IP 66	600 x 400 x h. 200 mm
SP4 - system with 4 bollards	Steel	IP 66	700 x 500 x h. 200 mm
SP5 - system with 5 bollards	Steel	IP 66	700 x 500 x h. 200 mm

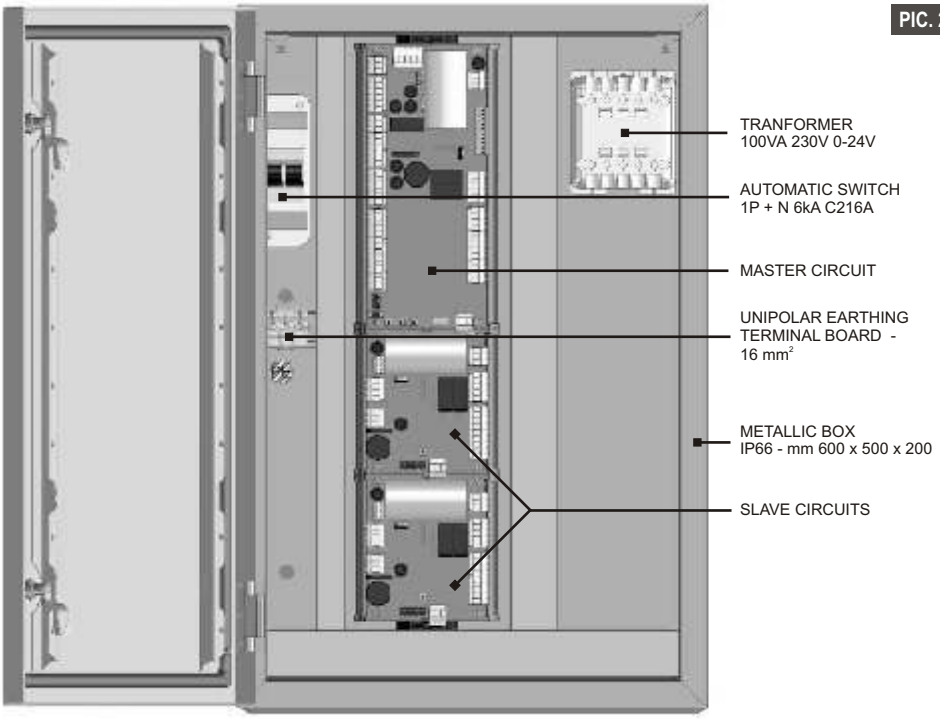
Note 1: dimensions listed in the table above refers to control units with standard configuration; dimensions may change if bollards are equipped with optional items such as timer programmer, transformer for heating resistance, etc..

Note 2: please contact Gi.Bi.Di. S.r.l. for more information about control units for installations with more than 5 bollards (i.e. control unit for 8 bollards).

UK

6.5 - EXAMPLE OF CONTROL UNIT

PIC. 20



EXAMPLE OF CONTROL UNIT FOR 3 GI.BI.DI. DPT260 BOLLARDS

6.6 - CONTROL UNIT WIRING

1. Lay the wall box.
2. Lay and connect the 230V main power supply line.*
3. Lay and connect the earthing line.
4. Lay and connect the electric connection lines to every single bollard.
5. Lay and connect any additional lines, e.g.: push-button panel - inductive loops - traffic lights - etc .
6. Before running a functional test consult the instructions related to the electric connections provided with the system.

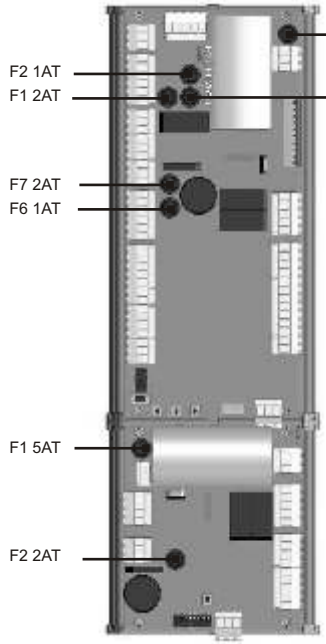
* The main power supply line of the control unit must be directly connected to the main switch set inside the control unit. The dimension of the main power supply line must be evaluated by the installer according to the quantity of bollards (500W each bollard) and the distance from the output place, in order to grant a proper supply (230V +/-10% per each moving bollard).

UK

7 - CONTROL UNIT

7.1 - MASTER AND SLAVE CIRCUIT

PIC. 21



7.2 - PROTECTION FUSES MASTER - SLAVE

Master	Slave	Typology	Protection
F1		2A delayed	Protection transformer 230V - 24 VAC supply
F2		1A delayed	Protection timer programming supply
F3		2A delayed	Protection traffic lights supply
F5	F1	5A delayed	Protection optional accessories supply (terminals 1-2-3 / 31-32-33
F6		1A delayed	Protection safety devices supply
F7	F2	2A delayed	Logic protection

7.3 - MASTER PUSH BUTTONS

Button	Function
RESET	Resets the program (in case of crash)
START	Operates a rising and lowering control or a lowering control depending on dip switch 1 settings
PROG	Allows to modify some setting parameters of the system (230V +/-10% per each moving bollard)

UK

7.4 - MASTER TERMINAL CONNECTIONS

Terminal	Contact	Connected device	LED
1-2-3		Through terminals 31-32-33. Protected by F5 fuse	
4		Earthing for hydraulic pump motor	
5		None	
6-7-8		Outlet 230V power supply for hydraulic pump (common terminal 8)	
9-10		Outlet 24V power supply for solenoid valve	L7
11-12	N.C.	Inlet for pressure switch or upper limit switch	L1
13		Common: Limit switch - Acoustic buzzer - Flashing light	
14	N.O.	Inlet for lower limit switch	L2
15		Outlet 24V power supply for acoustic buzzer	L3
16		Outlet 24V power supply for flashing light	L4
17		Common: Limit switch - Acoustic buzzer - Flashing light	
20-21	N.C.	Inlet for safety devices (example: inductive loops detector)	L14
22-23		Outlet 24V power supply for safety devices (example: inductive loops detector)	
24-25	N.O.	Start control inlet (lowering control or step-step)	L13
26-27	N.O.	Inlet control from radio receiver (lowering control or step-step)	L13
28-30		Outlet 24V power supply for radio receiver	
29-30		Outlet 12V power supply for radio receiver	
31-32-33		Through terminals 1-2-3. Protected by F5 fuse	
34-39		Inlet/outlet for transformer connection	
40-41-42		Outlet 230V for traffic light connection (40= red - 41= green - 42= common)	
43-44-45		Outlet 230V for traffic light connection (40= red - 41= green - 42= common)	
46-47-48		Outlet for traffic light signal (neutral exchange)	
49-50	N.C.	Inlet for breaking glass button - emergency automatic lowering (only for GiBiDi devices equipped with automatic lowering - NO 230V)	
51-52		Inlet for 230V power supply	
53		None	
54		Inlet for earthing	
55-59		Inlet/outlet for yearly/weekly progremmer connection	
60-61	N.O.	Inlet for future functions or customizations	LIN
62-63		Outlet for future functions or customizations	L5
64-65	N.O.	Inlet for lowering control (common terminal 65)	L12
65-66	N.O.	Inlet for rising control (common terminal 65)	L11
67-68-69		CAN-BUS connection slave circuits (67= CANH - 68= CANL - 69= 0V)	

UK

7.5 - LEDs DESCRIPTION - MASTER

LED	Colour	Function	On	Off
L1	RED	Inlet for pressure switch or upper limit switch	Pressure switch / limit switch enabled	Pressure switch / limit switch disabled
L2	RED	Inlet for lower limit switch	Limit switch enabled (device in low position, gate open)	Limit switch disabled
L3	YELLOW	Outlet for acoustic buzzer	Outlet enabled (fixed or flashing, depending on setting)	Outlet disabled
L4	YELLOW	Outlet for flashing light	Outlet enabled (fixed or flashing, depending on setting)	Outlet disabled
L5	YELLOW	Outlet for terminals 62 - 63 for customizations	Outlet enabled	Outlet disabled
L6	YELLOW	Outlet for hydraulic pump power supply - rising	Rising phase enabled	Rising phase disabled
L7	BLUE	Outlet for lowering solenoid valve	Solenoid valve enabled	Solenoid valve disabled
L8	YELLOW	Outlet for hydraulic pump power supply - lowering	Lowering phase enabled	Lowering phase disabled
L9	YELLOW	Outlet for hydraulic pump power supply - in motion	Device in motion enabled	Device in motion disabled
L10	YELLOW	Outlet for traffic light (green)	Outlet enabled green light ON	Outlet disabled red light ON
L11	RED	Inlet for rising control	Inlet enabled	Inlet disabled
L12	RED	Inlet for lowering control	Inlet enabled	Inlet disabled
L13	RED	Inlet for Start control, Lowering control or Step-Step	Inlet enabled	Inlet disabled
L14	RED	Inlet for safety devices	Safety devices disabled	Safety devices enabled
L16	YELLOW	Outlet for device in motion	One flash each time a rising/lowering phase starts, if parameter 16/2 is set (lowering of GiBiDi device only in presence of solenoid valve), L16 stays ON until the complete lowering	
LIN	RED	Inlet for terminals 60 - 61 for customizations	Inlet enabled	Inlet disabled
24V	GREEN	Power supply 24VDC	Power supply enabled	Power supply disabled
12V	GREEN	Power supply 12VDC	Power supply enabled	Power supply disabled
5V	GREEN	Power supply 5VDC	Power supply enabled	Power supply disabled
LA LB LC	YELLOW	LED programming	Specific LED for master circuit programming (read the specific document)	

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7.6 - SLAVE TERMINAL CONNECTIONS

Terminal	Contact	Connected device	LED
1-2-3		Through terminals 26-27-28. Protected by F5 fuse	
4		Earthing for hydraulic pump motor	
5		None	
6-7-8		Outlet 230V power supply for hydraulic pump (common terminal 8)	
9-10		Outlet 24V power supply for solenoid valve	L7
11-12	N.C.	Inlet for pressure switch or upper limit switch	L1
13		Common: Limit switch - Acoustic buzzer - Flashing light	
14	N.O.	Inlet for lower limit switch	L2
15		Outlet 24V power supply for acoustic buzzer	L3
16		Outlet 24V power supply for flashing light	L4
17		Common: Lower limit switch - Acoustic buzzer - Flashing light	
18-19-20		Inlet 24V power supply from transformer	
22-23		Inlet 230V power supply	
24		None	
25		Inlet for earthing	
26-27-28		Through terminals 1-2-3. Protected by F5 fuse	
67-68-69		CAN-BUS connection slave circuits (67= CANH - 68= CANL - 69= 0V)	

UK

7.7 - LEDs DESCRIPTION - SLAVE

LED	Colour	Function	On	Off
L1	RED	Inlet for pressure switch or upper limit switch	Pressure switch / limit switch enabled	Pressure switch / limit switch disabled
L2	RED	Inlet for lower limit switch	Limit switch enabled (device in low position, gate open)	Limit switch disabled
L3	YELLOW	Outlet for acoustic buzzer	Outlet enabled (fixed or flashing, depending on setting)	Outlet disabled
L4	YELLOW	Outlet for flashing light	Outlet enabled (fixed or flashing, depending on setting)	Outlet disabled
L6	YELLOW	Outlet for rising GiBiDi device	Rising phase enabled (gate being closed)	Rising phase disabled
L7	BLUE	Outlet for solenoid valve	Solenoid valve enabled	Solenoid valve disabled
L8	YELLOW	Outlet for lowering GiBiDi device	Lowering phase enabled (gate being opened)	Lowering phase disabled
L9	YELLOW	Outlet for GiBiDi device in motion	Device in motion enabled	Device in motion disabled
L16	YELLOW	Outlet for start movement	One flash each time it starts rising/lowering	
24V	GREEN	Power supply 24VDC	Power supply enabled	Power supply disabled
5V	GREEN	Power supply 5VDC	Power supply enabled	Power supply disabled
LA	YELLOW	CAN/BUS error	If flashing: CAN-BUS connection error	Regular connection
LB	YELLOW	Error in GiBiDi device outlets	If flashing: one or more outlets in short circuit	Regular outlets connection
LC	YELLOW	Service switch on master circuit enabled (low position)	If flashing: button for step-step movement enabled only for the device connected	Movement button disabled

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7.8 - DIP SWITCH FUNCTIONALITIES

Preliminary remarks:

on the MASTER circuit there are 5 DIP SWITCHES; for a proper positioning of the DIP SWITCH refer to the chart below:

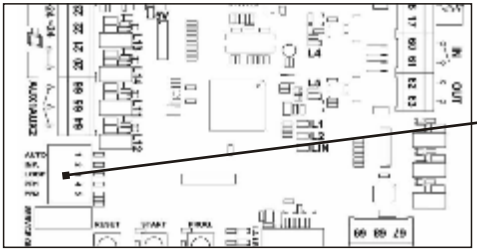
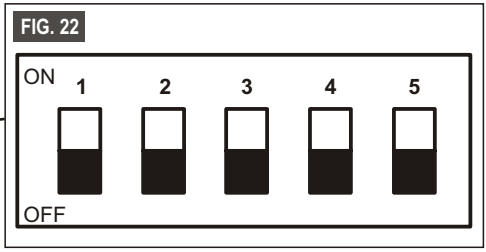


FIG. 22



OFF Position	DIP	ON Position
AUTOMATIC RISING FUNCTION The bollard is normally up - after a control it lowers, waiting for the transit of a vehicle – once the vehicle has crossed (safety devices enabled and subsequently disabled), the system automatically performs the rising procedure and the bollard returns to up position. If within 30s since the bollard is down no transit occurs, the system automatically performs the rising procedure and the bollard returns to up position. **This function is available only if the system is equipped with safety devices and traffic lights.**	**1 - AUTO**	**STEP/STEP FUNCTION** The bollard after the first control, from up position moves to down position – after another control the bollard returns to up position (step-step function).
CONTROLS ENABLED Controls for the operation of the bollard connected to terminals 24/25 - 26/27 - 58/59 are enabled.	**2 - INP**	**CONTROLS DISABLED** Movement commands of GiBiDi device, connected to terminals 24/25 - 26/27 - 58/59 are disabled. This function is usually set by the technician during maintenance to prevent unexpected commands.
SAFETY DEVICES ENABLED The inlet for safety devices, connected to terminals 20/21, is enabled for operation with the safety devices connected to the system. If safety devices are not connected the system does not allow the rising.	**3 - LOOP**	**SAFETY DEVICES DISABLED** The inlet for safety devices, connected to terminals 20/21, is disabled. Even without safety devices the system allows the rising.

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PRESSURE SWITCH AS RISING LIMIT SWITCH ENABLED At the final stage of the rising the pressure switch works as limit switch in order to complete the rising procedure of the bollard.	**4 - PR1**	**PRESSURE SWITCH AS RISING LIMIT SWITCH DISABLED** At the final stage of the rising the pressure switch is not used as limit switch; the rising procedure ends depending on the preset time.
INVERSION PRESSURE SWITCH ENABLED During the rising, if the pressure switch detects a weight greater than 40Kg, the bollard stops and returns to the down position.	**5 - PR2**	**INVERSION PRESSURE SWITCH DISABLED** The function is excluded and then during the rising the check on weight is disabled; in presence of weights the device does not return to down position.

8 - OPERATION MODES

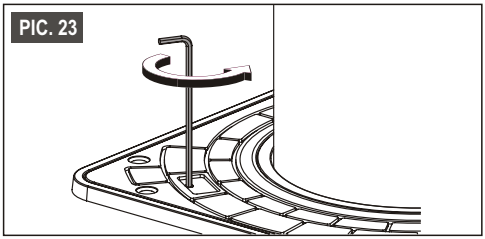
8.1 - MANUAL LOWERING

In case of power failure the bollards go down automatically only if they are equipped with the automatic lowering device. On the contrary, if bollards are not equipped with this device, in case of power failure they will remain in up position and it will be necessary to perform a manual emergency lowering.

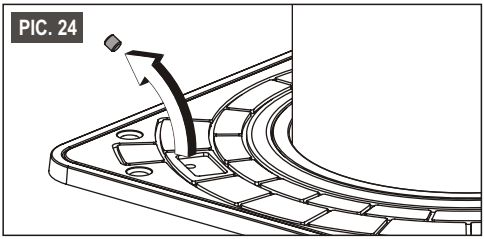
To perform the manual emergency lowering:

1. Unfasten and remove the dowel placed on the frame of the bollard by means of the specific socket head screw (provided). **(PIC. 23 and PIC. 24)**
2. Insert the socket head screw down to the button for the manual lowering **(PIC. 25)**.
3. By pushing the socket head screw the bollard will go down; keep the socket head screw pressed until the complete lowering of the bollard **(PIC. 26)**.
4. **F**asten the dowel.

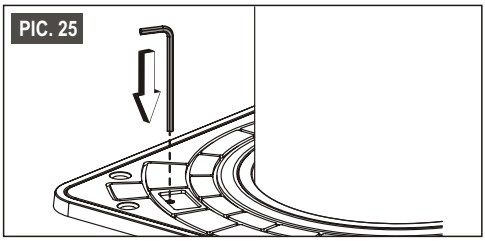
PIC. 23



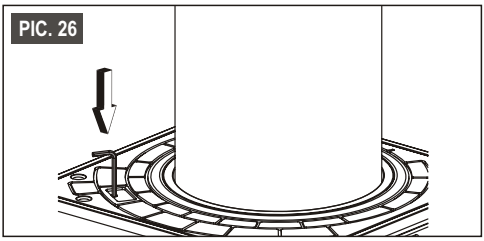
PIC. 24



PIC. 25



PIC. 26



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8.2 - STEP-STEP MODE

The basic configuration for an installation with automatic bollards set on step-step mode includes:

- **One or more automatic bollards** equipped with integrated **flashing light** and acoustic **buzzer** (evaluate if flashing light and buzzer are necessary according to the configuration).
- A **control unit** equipped with radio receiver and transmitters (quantity to be defined).
- A safety inductive detector with **one or two inductive loops**.

Automatic bollards normally stand in up position to prevent transit, integrated flashing lights keep on flashing.

After giving a control by transmitter, at the same time bollards start lowering and buzzers start ringing until bollards are completely down and allows for the transit. When bollards are in down position (the position is detected by a sensor placed on each bollard) the control unit makes the traffic light and buzzer turns off.

After the vehicle has passed the crossing, another control is necessary for closing it again. After giving a rising control, flashing lights and acoustic buzzers are enabled then, after one second, bollards starts rising.

If a vehicle stops close to the bollards or even over the bollards, inductive loops prevent the rising.

If another vehicle stops on the inductive loops while bollards are rising, loops interrupt the rising phase and make bollards go back to down position.

If a pedestrian steps on a bollard during the rising phase, the safety pressure switch detects the presence of a weight and immediately interrupts the rising phase and makes the bollards lower to down position (inversion control by safety pressure switch).

After several inversion controls, by loops or pressure switch, bollards lower to down position and another rising control is necessary for closing the crossing.

When the rising phase is completed, flashing lights keep on flashing, acoustic buzzers turn off and inductive loops are temporarly excluded, as a consequence if a vehicle comes close to the crossing, bollards stay in up position to avoid the transit (bollards lower after giving a control only).

In case of temporary power failure bollards stay in up position to prevent the transit. In case of need, manually lower the bollards **(as described in chapter 8.1)**.

The system can be equipped with emergency rechargeable accumulators to allow the normal operation also in case of power failure.

The operation of acoustic buzzers can be excluded at night only if the system is equipped with a timer programmer.

If bollards are installed in areas where minimum temperatures are considerable during winter, they can be equipped with an heating resistance which avoids the formation of ice between cylinder and crown device, allowing for the proper operation of the system.

If bollards are installed close to impluvium areas, they can be equipped with waterproof pits complete with immersion pump for the automatic discharge of rainwater, allowing for the proper operation of the system.

UK

8.3 - AUTOMATIC RISING MODE

The basic configuration for an installation with automatic bollards set on automatic rising mode includes:

- **One or more automatic bollards** equipped with automatic lowering device if power failed, integrated **flashing light** and acoustic **buzzer**.
- A **control unit** equipped with radio receiver and transmitters (quantity to be defined).
- A safety inductive detector with **two inductive loops**.
- One **traffic light** for each traffic way (a red sector - a green sector).

Automatic bollards normally stand in up position to prevent transit, the red sector of the traffic lights is turned on and flashing lights keep on flashing.

After giving a control by transmitter, at the same time bollards start lowering and buzzers start ringing until bollards are completely down and allows for the transit. When bollards are in down position (the position is detected by a sensor placed on each bollard) the control unit makes the green sector of the traffic lights turn on, and at the same time flashing lights and buzzers turn off.

Warning! it is not possible the condition:
AUTOMATIC BOLLARD NOT DOWN AND GREEN SECTOR ON.

If a vehicle stops close to the bollards or even over the bollards, both inductive loops (one before and one beyond the bollards) prevent the rising.

When a vehicle stops over the crossing, inductive loops are enabled since they detect the presence of a vehicle. After the vehicle has passed the crossing inductive loops return to normal condition, to confirm that no vehicle is close to the bollards; as a consequence the red sector turns on to signal closed crossing, at the same time flashing lights and buzzers turn on and after 4 seconds bollards start rising.

If another vehicle stops on inductive loops while bollards are rising, loops interrupt the rising phase and make bollards go back to down position (inversion control by inductive loop). Wether this situation occurs, before crossing it is necessary to wait for the green sector to turn.

If a pedestrian steps on a bollard during the rising phase, the safety pressure switch detects the presence of a weight and immediately interrupts the rising and makes the bollards lower to down position (inversion control by safety pressure switch).

After several inversion controls, by loops or pressure switch, the situation is as described above, when bollards are in down position green sector turn on; instead red sector turns on when the vehicle has passed the crossing, then bollards start rising. If another vehicle stops over the loops, they give a lowering control, etc... .

If a vehicle, after giving a lowering control, does not cross, bollards keep down position for 30 seconds (green sector on) then start rising as described above.

When the rising phase is completed, flashing lights keep on flashing, buzzers turn off, red sector turns on and inductive loops are temporarely excluded, as a consequence if a vehicle comes close to the crossing bollards stay in up position to avoid the transit (bollards lower after giving a control only).

In case of temporary power failure, since bollards are equipped with automatic lowering device, automatically lower due to gravity and allow the transit. When power supply is restored and the control unit has verified that loops are in normal condition, bollards start rising.

The system can be equipped with emergency rechargeable accumulators which allow the normal operation also in case of power failure.

The control unit can be equipped with a weekly/yearly timer programmer the automatic management of lowering/rising. This device is suggested for the management of loading/unloading time slots in a limited access area. The operation of a system managed by a timer programmer respects the situations described above.

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The operation of acoustic buzzers can be excluded at night only if the system is equipped with a timer programmer.

If automatic bollards are installed in areas where minimum temperatures are relevant during winter, they can be equipped with an heating resistance which prevents ice formation between the cylinder and the fixed side crown, allowing for the proper operation of the system.

If automatic bollards are installed in an impluvium area, they can be equipped with a waterproof pit with automatic immersion pump for the discharge of rainwater, allowing for the proper operation of the system.

UK

9 - MAINTENANCE

The following instructions are exclusively intended for competent / qualified persons with suitable training, specialist knowledge and practical experience sufficient to correctly and safely fit, test, and carry out maintenance on a bollard system.

In order to ensure the correct function and a constant safety level, perform the following inspections and test on the bollard system, safety devices and connected accessories every six months.

Operation	Procedure
Cleaning of the pit with fouled impurities removal. (A001)	Check visually the conditions of the pit and, if necessary, clean it by means of a professional vacuum cleaner for liquids and solids. Remove all the impurities deposited (usually sand, dirt, gravel and similar).
Cleaning of the drainage holes placed at the bottom of the pit. (A002)	In the 4 corners at the bottom of the pit there are 4 holes for rainwater outflow in the ground below. By the time these holes may be partially or completely clogged, as a consequence the drainage may be restricted or blocked. In order to keep an adeguate drainage, use a drill machine of suitable length (approx. 15mm) and drill in the 4 holes, driving the tip into the gravel below for about 10cm. In this way any deposit that obstructs the outflow will be removed.
Overall cleaning of the bollard and possible painting touches on the moving cylinder. (A003)	Check visually the status of bollard and, if necessary, clean the entire system by means of a pressure washer (with hot water if possible). Clean the bollard when it is in down position. Rise the bollard and clean the central inner part. It is recommended (where possible) to clean the sliding area between the moving cylinder (moving part) and the frame (fixed part). Check visually the aesthetic of the moving cylinder and, if necessary, refresh the cylinder's painting.
Bollard lubrication. (A004)	When the bollard is dry and the moving cylinder is in high position perform the lubrication of the central sliding guide (external part of the piston on which the moving cylinder slides) and, as far as possible, of the piston rod. The use of OIL WITH TEFLON is recommended, because of its quality of long-lasting permanence.
Check of the lower support bases. (A005)	When the cylinder is in down position, it leans against 3 lower support bases. The bases are made of alluminium and the upper part of vulcanized hard rubber; check the hard rubbers integrity (they may wear out due to the passage of vehicles) and replace them if they are worn.
Check the proper position of the magnetic contact and magnet. (A006)	Lower the bollard to down position then check that the magnetic contact, placed in the lower part of the frame, and the magnet, placed on the moving cylinder, are properly alligned.

UK

Check of possible oil leaks throughout the hydraulic system. (A007)	Check visually that there are no oil leaks in the hydraulic pump, pipes and fittings. Verify the complete tightening of all the hydraulic fittings using an hexagonal wrench of the proper size.
Check of the oil level in the hydraulic pump and possible topping up. (A008)	When bollard is in down position check the oil level in the pump through the transparent spyhole; oil level must fill at least half of the transparent spyhole. If the oil level is lower top it up. Read the chapter 10: SPECIFIC OPERATIONS.
Check of the pressure in the hydraulic system. (A009)	**ATTENTION: this check must be performed when the hydraulic pump is "cold"** (not to be carried out after several consecutive movements which may cause the oil heating in the hydraulic system). When bollard is down, connect the pressure gauge to the pressure outlet in the hydraulic system (this is possible starting from 2008 models, on the contrary in older versions there is no pressure outlet). Rise the bollard and at the same time check that the pressure is included in a range between 10 and 15 bar. When bollard is up check that the pressure ranges from 35 and 45 bar; after 5 minutes check that it is still above 30 bar. If the pressure drops quickly, make sure that there are no oil leaks in the hydraulic system, check the lowering solenoid valve or replace the block valve of the hydraulic unit. Read the chapter 10: SPECIFIC OPERATIONS.
Check of the safety reversal managed by the pressure switch when the bollard is rising (reversal caused by the detection of approx. 40Kg on the bollard). (A010). **ATTENTION: when bollards are equipped with E.F.O circuit the reversal function is not enabled.**	The hydraulic system is equipped with an hydraulic pressure switch which analyzes the pressure in the system; when the bollard is rising and the pressure switch detects a pressure increase (usually caused by the detection of a weight corresponding to 40 kg or more on the bollard e.g: a person) the bollard stops and goes back to down position. Check the proper functionality of the safety reversal managed by the pressure switch using a sample weight (e.g: a barrel filled with 40 l of water). Otherwise adjust or replace the pressure switch. Read the chapter 10: SPECIFIC OPERATIONS.
Check of the rising interruption managed by the the pressure switch. (A011)	The hydraulic system is equipped with an hydraulic pressure switch which analyzes the pressure in the system; when the bollard completes the rising, the pressure switch detects an increase due to the moving cylinder in up position, consequently the control unit ends its rising phase by stopping the operation of the hydraulic pump. Check that once the moving cylinder stops in up position, also the pressure switch makes the hydraulic pump stop in about 4s. Otherwise adjust or replace the pressure switch. Read the chapter 10: SPECIFIC OPERATIONS.
Overall check of the proper grip of the screws. (A012)	Check the proper grip of screws and bolts by using the standard handling equipment (hexagonal fix wrenches – Allen wrenches – screw drivers).

UK

Check the proper operation of the differential magnetothermal switch of the electrical circuit. (A013)	The 230V electric line which powers the control unit must be protected by a differential magnetothermal switch. In particular, it is necessary to check that it stops the power supply in case of earth fault (electric leakage) or electric shock, providing either direct or indirect protection to persons (lifesaving). By means of the suitable instrument (loop tester) check the proper operation with regard to the isolation and the continuity. In addition push the TEST button of the switch and verify that it springs in OFF position to confirm the proper functionality.
Overall check of the control unit. (A014)	Check visually the overall status of the control unit and in particular verify that there are no slack wires in the terminals, sparking relay contacts, oxidised terminals or similar. Check the general conditions of the case and the door gasket which must ensure the IP protection class.
Check the operation of the integrated multiled flashing light (optional item). (A015)	If the bollard is equipped with the multiled flashing light, check the overall conditions and the operation of the 25 LED points. In case of partial or total failure, restore the operation of the flashing light. Read the chapter 10: SPECIFIC OPERATIONS.
Check the operation of the traffic lights (optional item). (A016)	If the bollard is equipped with traffic lights, check their overall conditions. In case of fault of one or more light sectors, replace the filament bulb (traffic light - old version) or the LED (traffic lights - current version).
Check the operation of the safety inductive loops (optional item). (A017)	If the bollard system is equipped with safety inductive loops placed under the road surface and with an inductive detector in the control unit, check their operation by using a sample metallic mass (e.g: a metallic box containing hexagonal wrenches, hammers, pliers etc.) on different parts of the inductive loops. Check that the inductive detector moves from the free state (green LED) to the alarm state (red LED). While the bollard is rising check the operation again, and verify that it stops and returns in down position.
Check the proper operation in case of power failure. (A018)	If the bollard system is equipped with automatic lowering device, rise the bollard to up position then turn the power in the control unit off and check that it lowers automatically. If the system is not equipped with automatic lowering device, check that the manual lowering device works properly. Read the chapter 10: SPECIFIC OPERATIONS.
Check the operation of the radio receiver (optional item). (A019)	If the system is equipped with radio receiver and transmitters, check the correct operation from a distance of about 30m and, as far as possible, verify the wear of the transmitters and the built-in batteries.
Check of the GSM activator for remote control (optional item). (A020)	If the bollard system is equipped with GSM activator for remote control, check the correct operation performing some rising/lowering movements from a telephone and/or a mobile phone enabled for the operation of the system.

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10 - SPECIFIC OPERATIONS

Operation	Procedure
Topping up of the hydraulic unit. (B001)	• Lift the bollard out of pit, lower it to down position then turn the power off. • Unfasten and remove the black cap of the hydraulic pump (placed above the transparent spyhole) and fill it with the same oil up to half of the spyhole. • ATTENTION: USE ONLY ORIGINAL OIL. • ATTENTION: CHECK IF IT IS MINERAL OIL OR BIODEGRADABLE OIL. • Turn the 230V power supply on and rise the bollard to up position. • Once the bollard is up and the hydraulic unit is still (end of the rising cycle), close the black cap of the hydraulic pump.
Oil topping up of the hydraulic unit with E.F.O. circuit. (B002)	• Lift the bollard out of pit, lower it to down position then turn the power off. • Discharge the hydraulic accumulator of the E.F.O circuit by pushing simultaneously the two red push buttons for 10s: the one for E.F.O solenoid valve and the one for emergency lowering. To confirm that the hydraulic accumulator is completely discharged, check that the moving cylinder remains down after pushing the push button of the E.F.O solenoid valve. • Check the oil level in the hydraulic pump through the suitable spyhole. • Unfasten and remove the black cap of the hydraulic pump (generally placed above the transparent spyhole) and fill it with the same oil up to about half of the spyhole. • ATTENTION: USE ORIGINAL OIL ONLY. • ATTENTION: CHECK IF IT IS MINERAL OR BIODEGRADABLE OIL. • Turn the 230V power supply on and rise the bollard to up position. • Once the bollard is up and the hydraulic unit is still (end of the rising cycle) close the black cap of the hydraulic pump.
Check/replacement of the lowering solenoid valve. (B003)	• Lift the bollard out of pit, lower it to down position then turn the power off. • Unfasten the black cap of the hydraulic pump of about 2 turns (to reset the internal pressure of the pump). • Remove the coil from the solenoid valve. • Unfasten and remove the solenoid valve by means of a fixed wrench size 24 (some oil leaks may occur, use cloth to wipe it clean). • Verify that the lower part of the solenoid valve is not mechanically obstructed by impurities such as metal swarf or similar (in presence of impurities, it is suggested to clean, reassemble the solenoid valve and run functional tests; otherwise use a new solenoid valve). • Fasten the solenoid valve and the coil. • In case of negative logic solenoid valve, on the top there is a push button for emergency manual lowering, it is recommended to lubricate it and check the proper operation. CONTINUES NEXT PAGE

Check/replacement of the lowering solenoid valve. (B003)	• Turn the 230V power supply on and perform the necessary functional tests. • When the bollard is in down position check the oil level and, if necessary, top it up with the same oil type. • When the bollard is in up position and the hydraulic pump is still (end of the
Check of the lock valve of the hydraulic unit. (B004)	Ask Gi.Bi.Di. S.r.l. the specific procedure for the replacement of the lock valve and communicate the reference number of the system or the reference number of the order confirmation (to define the model of the hydraulic unit).
Repair/replacement of the 25 points flashing light integrated in the head of the bollard (optional item). (B005)	Every single led of the integrated multiled flashing light is composed by 3 light points but only one point is used; in case of partial or total failure it is possible to use the second or the third light point by following the procedure below. • Turn the 230V power supply off – remove bollard's head – remove the black cover placed under the head (where the power cable enters). • There are 3 terminals on which are connected, on one side 3 black wires (negative power supply of the 3 light points), on the other side only one black wire is connected (this black wire powers the first point at -24VDC). • Move the black wire from the first terminal to the second or the third one to power another light point. • Test the proper operation of the multiled flashing light; if the test is positive reassemble the head and complete the intervention; if the test is negative replace the multiled flashing light. • In case of replacement, request to Gi.Bi.Di. S.r.l. the specific replacement procedure for the flashing light and advise if the printed circuit of the flashing light is orange (old version with IP 67 protection class) or white (current version with IP 68 protection class).
Manual lowering procedure in case of power failure or breakdown. (B006)	If the bollard is not equipped with the automatic lowering device, it is possible to lower the bollard using the manual lowering device; the procedure is described as follows. • Generally the crown is equipped with an inox dowel which closes the access point to the manual lowering device. • Unscrew and remove the dowel using the suitable socked head screw provided with the bollard system. • Enter the socket head screw into the access point until the bottom. • Push deeply (on the hydraulic button for manual lowering) until the bollard will start lowering. • Keep the button pressed until the bollard is completely down. • Assemble the inox dowel again to close the access point. • Once the power supply is restored, the system will automatically enable the normal operation.

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Adjustment/replacement of the safety pressure switch. (B007)	**ATTENTION: before proceding check that the hydraulic unit is cold** (not after having performed several consecutive movements which cause the oil heating inside the hydraulic system). Generally old pressure switches are adjustable and they are recognizable from a waterproof protection made of black soft rubber; the current pressure switches are pre-adjusted and hermetic to increase the IP grade of protection. In case of malfunction, if the pressure switch is pre-adjusted and hermetic it is necessary to replace it, if it is adjustable follow the procedure below: • Bollard out of the pit – Bollard in down position – turn 230V power supply off. • Extract the waterproof protection (made of black soft rubber) for about 5cm to reach the adjusting screw. • Unscrew and remove the nylon white screw (placed in the middle of the two electrical wires) to reach the adjusting screw. • The adjusting screw must be turned clockwise to decrease the sensitivity of the pressure switch or counterclockwise to increase it; the procedure below is referred to the necessity to reduce the sensitivity of a pressure switch (ie. The bollard goes down even when only 10kg weight is on the head). • Turn the adjusting screw clockwise in steps of 30°. • Place a sample weight of 40kg on bollard's head. • After having performed the first adjustment, make bollard rise; if after approx. 10cm the bollard stops and returns in down position, perform another adjustment then rise the bollard (repeat this procedure until the bollard rises completely). • Once the bollard is at about 70% of the rising, push lightly and check that it stops and returns down; whether to stop it is necessary to apply a strong pressure, adjust in steps of 15 ° counterclockwise and check again (if it is necessary perform other adjustments until the bollard stops and returns down by opposing a light pressure). • Fasten the nylon screw and the waterproof protection made of black soft rubber. • Lay the bollard in the pit and check the correct operation.
Maximum rising pressure adjustment. (B008)	**ATTENTION: before proceding check that the hydraulic unit is cold** (not after having performed several consecutive movements which cause oil heating inside the hydraulic system). • When the bollard is in down position, connect the pressure gauge to the pressure outlet (in old models, prior to 2008, there is no pressure outlet so it is not possible to adjust the pressure). • Move the bollard to up position, then check that the pressure is included in a range between 35 and 45bar for standard models and from 40 to 45 for the ones equipped with E.F.O circuit. CONTINUES NEXT PAGE

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Maximum rising pressure adjustment. (B008)	• If the pressure is inferior than the values above indicated, adjust the maximum rising pressure. • Lower the bollard to down position. • At the bottom of the hydraulic unit, immediately by the side of the hydraulic connection, there is an adjusting screw - to increase the pressure turn it clockwise in steps of 45 ° and after each step, command a rising movement. Once the bollard is completely up, check the pressure on the pressure gauge and, most important, hear that the hydarulic unit continues running for about 4" from the moment when tho bollard reaches up position (if the pressure set is too high, the motor of the hydraulic pump may block and fail). • In some cases, even if after the adjustment of the maximum pressure, the system does not reach the requested values; in this case it is necessary to replace the hydraulic pump and send it to Gi.Bi.Di. S.r.l. for the repair.

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11 - PROBLEMS AND SOLUTIONS

This guide shows the most common problems that can occur while using a Gi.Bi.Di. system.

Client's technicians can solve some problems indipendently (especially if they are equipped with spare parts), while for other troubles it may be necessary to be supported by Gi.Bi.Di. S.r.l assistance department.

In this case they have to contact Gi.Bi.Di. S.r.l., communicate the reference number of the system (or the reference number of the order confirmation).

PROBLEM	POSSIBLE CAUSE	SOLUTION
The bollard rises of about 10 cm, stops and then returns in low position (without any lowering control). (C001)	The safety pressure switch which detects the presence of about 40 Kg weight on the bollard head is constantly in ON position and for this reason it must be adjusted or replaced.	When the bollard is in low position check the LEDs L1 on the master and/or the slave unit in the control unit: switched off = the pressure switch is ok – turned on = the pressure switch is in alarm (it is on) – if the LED is always turned ON or turns ON when the bollard starts rising, the problem is caused by the safety pressure switch which must be adjusted or replaced. For the pressure switch adjustment please consult the chapter 10: SPECIFIC OPERATIONS. Note: generally only the pressure switches of old supply are adjustable and recognizable from a waterproof protection made by black soft rubber; the current pressure switches are preadjusted and hermetic to increase the IP grade of protection.
The bollard rises but not completely. (C002)	• The hydraulic unit does not have enough oil in the tank. • Bollard's electric cables are not well placed in the pit, so when the bollard rises the upper limit switch gets stuck in the cable, blocking the complete rising.	• Check and fix any possible oil leak in the hydraulic system, verifying the proper fastening of the hydraulic fittings. Top up oil in the hydraulic pump. For the topping up procedure please read the chapter 10: SPECIFIC OPERATIONS. • Pull the bollard out from the pit and perform a rising in order to verify if the rising is complete up to the top; if confirmed, replace the bollard in the pit making sure that the electrical cables are placed adhere to the wall of the pit and that they do not tangle themselves too close to the bollard.
When in low position the moving cylinder is about 7 mm lower than the fix crown device. (C003)	The vulcanized hard rubber of the lower base supports is worn.	Replace the lower base supports.

During the rising phase, the bollard does not perform the reversal managed by the pressure switch. **ATTENTION: when bollards are equipped with E.F.O the reversal function is not operative. (C004)**	• The dip switch 5 of the master unit is in ON position (stop function by pressure switch is excluded). • The pressure switch does not detect any pressure increase in the hydraulic circuit. • The hydraulic unit does not generate the correct operating pressure.	• Set the dip switch 5 of the master board in OFF position (reversal function by pressure switch enabled). • If it is possible adjust the pressure switch sensibility (adjustable old version) or replace the pressure switch (pre-adjusted and hermetic new version to increase the IP grade of protection and the system reliabilty). For the pressure switch adjustment please consult the chapter 10: SPECIFIC OPERATIONS. • Adjust the maximum rising pressure in the hydraulic unit. For the adjustment, please consult the chapter10 : SPECIFIC OPERATIONS.
The bollard rises completely but the hydraulic unit continues working for about 10". (C005)	• The dip switch 4 of the master unit is in ON position (the stop function by pressure switch is excluded). • The pressure switch does not detect any pressure increase in the hydraulic circuit. • The hydraulic unit does not generate the correct operating pressure.	• Set the dip switch 4 of the master board in OFF position (the stop function by pressure switch is enabled). • If it is possible adjust the pressure switch sensibility (adjustable old version) or replace the pressure switch (pre-adjusted and hermetic new version to increase the IP grade of protection and the system reliabilty). For the pressure switch adjustment please consult the chapter 10: SPECIFIC OPERATIONS. • Adjust the maximum rising pressure in the hydraulic unit. For the adjustment, please consult the chapter10 : SPECIFIC OPERATIONS.
The bollard completes the rising phase, but it performs the reversal and turns back in lower position. (C006)	The adjustable parameter in the master board which corresponds to the reversal time in case of alarm of to pressure switch pre-adjusted, must be lowered of 1".	Request to Gi.Bi.Di. S.r.l. the specific document for the programming software, communicating the code on the master board; perform the parameter 1 adjustment lowering the time of about 1".
The bollard is in high position and a lowering command is given, but the bollard remains up and lowers only after an initial pressure downward. (C007)	• Only for cold territories: there is no heating device or it does not work. • The piston rod is "dry" and must be lubricated. • The bollard was bumped violently when in high position so the piston rod is crooked.	• If there is no heating device, install one in each bollard; in presence of heating device, check the proper operation of the resistance and the thermostat. • Lubricate the piston rod. • Replace the piston.

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The bollard is in high position and a lowering command is given, the bollard starts lowering but it stops in intermediate position. (C008)	• The piston rod is “dry” and must be lubricated. • The bollard was bumped violently when in high position so the piston rod is crooked.	• Lubricate the piston rod. • Replace the piston.
Even if it is powered, the bollard remains for a long time in high position, but after a few days it begins to lower very slowly (millimeter by millimeter). (C009)	When an hydraulic system remains in operation for a long time, the internal pressure decreases gradually up to not being able to maintain the moving cylinder in high position, because of internal micro-leaks in the system. The control unit analyzes the pressure level in the system and when it is lower than a certain value it performs an automatic adjustment. When it occurs, this problem may be caused by: • The automatic pressure adjustment has been accidentally excluded. • The safety inductive detector always in alarm (ON).	• Verity that the dip switches 4 and 5 of the master board are in OFF position. • Reset the correct operation of the safety inductive detector (sometimes the cause is the presence of a metallic object on inductive loops).
The bollard is in high position and a lowering command is given, but the bollard performs the descent slowly (only for products equipped with emergency manual lowering). (C010)	• The lowering solenoid valve is not powered. • The solenoid valve or the solenoid valve coil is broken.	• Control (and if it is necessary replace) the solenoid valve protection fuse in the master/slave units (master unit PF4 - slave unit PF2). • Replace the solenoid valve and/or the solenoid valve coil.

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The bollard does not work or shows random operations. (C011)	• The electrical guard switch of the control unit is in OFF position. • The protection fuses of the master board are burned. • The master board is broken and it must be replaced.	• Reset the electrical guard switch in ON position and check that it remains in this position. • Check the 7 fuses of the master board and if it is necessary replace the burned ones with some others with the same values as reported on the printed circuit (ex. T1A). • Replace the master board. Consult the chapter 10: SPECIFIC OPERATIONS.

EC Declaration of conformity

The manufacturer:

GI.BI.DI. S.r.l.

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

declares that the products:

AUTOMATIC BOLLARDS DPT260

are in conformity to the following EEC Directives:

- **Directive LVD 2006/95/CE and subsequent amendments**;
- **Directive EMC 2004/108/CE and subsequent amendments**;

and that the following harmonised standards have been applie:

- **EN60335-1,**
- **EN61000-6-1, EN61000-6-3**

Moreover declares that the product must not be used until the machine in which it has been incorporated has not been declared in accordance with 2006/42/CE Directive.

The legal Representative
Michele Prandi

Date 10/01/2020

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