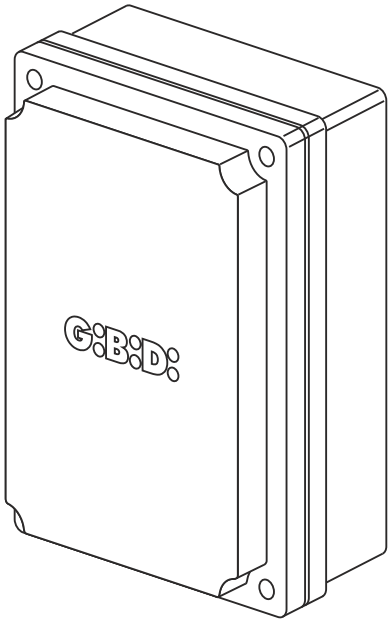


BE24

BE24 - (AS05870)

Electronic control unit
INSTRUCTIONS FOR INSTALLATION

UK

UK

1 - TECHNICAL SPECIFICATIONS

Control unit	**BE24 / AS05870**
Type	**Electronic control unit for automation of a double swing gate with 24VDC motors**
Power supply	230 VAC single-phase 50/60 Hz
No. of motors	2
Motor power supply	24 Vdc
Flashlight	24 Vdc 10W max
Accessory power supply	24 Vdc 10W max
Radio receiver	Integrated, 200 trasmitters maximum
Operating temperature	-20°C +60°C
Run time	ENCODER or TIME

2 - TECHNICAL SPECIFICATIONS/FUNCTIONS

- Red warning LEDs for N.C. contacts and for programming.
- Blue led for times programming.
- Buttons on the circuit board for programming and learning the radio controls.
- Automatic run time learning with simplified procedure.
- Onboard radio receiver that can store up to 200 radio controls.
- Control of the radio transmitter channels via dip switches.
- Deceleration during opening and closing.
- Deceleration speed adjustable via DIP switch.
- Stop and motion inversion after intervention of the safety devices.
- Anti-crushing function both at normal speed and in deceleration.
- Amperometric reading of motor absorption for the anti-crushing function adjustable via DIP switch.
- Pedestrian operation with motor 1 opening.
- Two N.C. inputs, photocell 1, photocell 2.
- One 8K2 input (SAFETY) programmable as 8K2 STOP or 8K2 EDGE.
- Two possible operating logics: step-by-step with stop or condominium selectable via DIP switch.
- Gate phase shift time adjustable via DIP switch.
- Programming of automatic closing and pause time via DIP switch.
- Provision for use with buffer batteries.
- Soft-Start and Soft-Stop to limit mechanical shock.

Thank you for choosing GIBIDI.

⚠ **READ CAREFULLY THESE INSTRUCTIONS BEFORE PROCEEDING WITH INSTALLATION.**

WARNINGS:
This product has been tested by GI.BI.DI. for full compliance with the requirements of the directives in force. GI.BI.DI. S.r.l. reserves the right to change the technical data without prior notice in relation to product development.

DISPOSAL: GI.BI.DI. advises recycling the plastic components and to dispose of them at special authorised centres for electronic components thus protecting the environment from polluting substances.

UK

3 - INSTALLATION WARNINGS

- Before proceeding with installation, fit a differential magnetothermal 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.
- To prevent possible interference, differentiate and always keep the power cables (minimum cross-section 1.5 mm²) separate from the signal cables (minimum cross-section 0.5 mm²).
- Make the connections referring to the following tables and to the attached screen-print. Be extremely careful to connect in series all the devices that are connected to the same N.C. (normally closed) input, and in parallel all the devices that share the same N.O. (normally open) input.
  Incorrect installation or improper use of the product may compromise system safety.
- Keep all the materials contained in the packaging away from children since they pose a potential hazard.
- 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.
- When installation is complete, 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.
- The control unit described in this document may only be used for the purpose for which it was designed.
- Check the intended end use 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).

4 - WARNINGS FOR THE USER

- In the event of an operating fault or failure, cut the power upstream of the control unit and call Technical Service. Periodically check functioning of the safety devices. Any repairs must be carried out by specialised personnel using original and certified materials.
- The product may not be used by children or persons with reduced physical, sensorial or mental capacities, or lacking experience and knowledge, unless appropriately instructed.
- Do not access the circuit board for adjustments and/or maintenance.

WARNING: IMPORTANT SAFETY INSTRUCTIONS.
It is important for the safety of persons to follow these instructions.
Keep this instruction manual.

UK

5 - ELECTRICAL CONNECTIONS: CONNECTORS

FASTON	Description
CF1	0 VAC from transformer
CF2	24 VAC from transformer

6 - ELECTRICAL CONNECTIONS: TERMINAL BOARDS

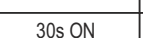
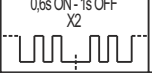
Terminal	Position	Signal	Description
M1	1	M1+	Motor 1+
	2	M1-	Motor 1-
	3	M2+	Motor 2+
	4	M2-	Motor 2-
M2	5	EL+	+ Electric lock power supply 12V
	6	EL-	- Electric lock power supply 12V
	7	LAMP/SPIA	+ FLASHLIGHT power supply 24 VDC MAX 10W.
	8	LAMP/SPIA	- FLASHLIGHT power supply 24 VDC MAX 10W.
	9	+ACC	+24Vdc External accessory power supply MAX 10W
	10	-ACC	External accessory power supply common
M3	11	5V	Motor 1 ENCODER +5VDC power supply.
	12	S1	Motor 1 ENCODER signal.
	13	COM	Motor 1 ENCODER power and signal common.
	14	5V	Motor 2 ENCODER +5VDC power supply.
	15	S2	Motor 2 ENCODER signal.
	16	COM	Motor 2 ENCODER power and signal common.
M4	17	START	START input (N.O.).
	18	PED	PEDESTRIAN input (N.O.).
	19	PHOTO 1	PHOTOCELL 1 input (N.C.). Input active only during closing. It stops and inverts the motion, opening the gate completely. If the gate is closed, it does not affect its functioning. If intercepted during pause, it reloads the pause time.
	20	PHOTO 2	PHOTOCELL 2 input (N.C.). Input active during both opening and closing. If intercepted, it immediately stops the motion and holds it stopped until the photocell is freed. Upon release, motion always restarts in opening. If intercepted during pause, it reloads the pause time.
	21	STOP SAFETY	8K2 programmable INPUT (STOP – edge).
	22	COM	Accessory common.
	23	COM	Accessory common.
	24	IN1	Unused imput.
	25	IN2	Unused imput.
M5	26	COM	Antenna braid input.
	27	ANT	Antenna signal input.
M6	28	+BAT	+Battery 24V MAX 3Ah.
	29	-BAT	-Battery 24V MAX 3Ah.

UK

7 - PROTECTION FUSES

Position	Value	Type	Description
F1	**10A**	F	Protects battery power circuit.
F2	**3,15A**	F	Protects external accessories, electric lock and flashing light.
F3	**8A**	F	Protects the circuit board.
F4	**2A**	F	Protects the transformer.

8 - WARNING LEDs

Position	Colour	Signal	Description	
L1	GREEN	START	Comes on when the START control is activated from the terminal board or the receiver.	
L2	GREEN	PED	Comes on when the PED control is activated from the terminal board or the receiver.	
L3	RED	PHOTO1	Always on. Comes off when the contact of terminal PHOTO 1 is opened.	
L4	RED	PHOTO2	Always on. Comes off when the contact of terminal PHOTO 2 is opened.	
L5	RED	SAFETY	Always on. Comes off when the resistance value of terminal SAFETY is wrong.	
L6	RED	RX	Always off, comes on when LEARN button is pressed.	
L7	BLUE	INFO	0,2s ON 0,2 OFF 	The control board is locked, it's necessary to execute a new travel learning procedure.
			30s ON 	The control board is in pre-learning phase, aftre pressing MEMO button.
			0,2s ON-4s OFF 	During sleep time, the control board is set to work with KUDA operator.
			0,2s ON - 0,2s OFF 0,2s ON - 4s OFF 	During sleep time, the control board is set to work with BL240 operator.
			1s OFF - 0,6s ON - 1s OFF X2 	Motor 1 encoder error, travel learning procedure failed.
			1s OFF - 0,6s ON - 0,6s OFF 0,6s ON - 1s OFF X2 	Motor 2 encoder error, travel learning procedure failed.

UK

9 - DIP SWITCH DIP1

The settings are stored during the rest phase (gate closed).
The default settings are highlighted in the boxes with grey background.

DIP	Function	Status	Description
1_1	AUTOMATIC	ON	**Operation in response to the START command:** • Gate closed ⟶ OPENS • During opening ⟶ UNINFLUENTIAL • Gate open ⟶ Reloads the automatic closing time if automatic closing is enabled, otherwise it closes.
	STEP-BY-STEP WITH STOP	OFF	**Operation in response to the START command:** • Gate closed ⟶ OPENS • During opening ⟶ STOPS • Gate open ⟶ CLOSES • During closing ⟶ STOPS • After a STOP ⟶ inverts the motion
1_2	TERMINAL 21 AS 8K2 EDGE	ON	**Operation :** • Gate closed ⟶ UNINFLUENTIAL • During opening ⟶ Immediate motion inversion for 2s at low speed, when contact is freed, the gate will continue with inverted movement at low speed. • Gate open ⟶ UNINFLUENTIAL • During closing ⟶ Immediate motion inversion for 2s at low speed, when contact is freed, the gate will continue with inverted movement at low speed.
	TERMINAL 21 AS 8K2 STOP	OFF	**Operation :** • Gate closed ⟶ UNINFLUENTIAL • During opening ⟶ STOP • Gate open ⟶ UNINFLUENTIAL • During closing ⟶ STOP
1_3 1_4	ANTI CRUSHING SENSITIVITY	OFF OFF	Very High sensitivity.
		OFF ON	High sensitivity.
		ON OFF	Medium sensitivity.
		ON ON	Low sensitivity.
1_5 1_6	PAUSE TIME	OFF OFF	Automatic closing disabled.
		OFF ON	30 seconds.
		ON OFF	60 seconds.
		ON ON	120 seconds.

UK

9 - DIP SWITCH DIP1

The settings are stored during the rest phase (gate closed).
The default settings are highlighted in the boxes with grey background.

DIP	Function	Status	Description
1_7	PRE-FLASHING	ON	Enables pre-flashing of 3 seconds before motor activation during opening and closing.
		OFF	Disables pre-flashing.
1_8 1_9	GATE PHASE SHIFT TIME	OFF OFF	Disables gate phase shift time.
		OFF ON	Motor 2 delay during opening: 3 seconds. Motor 1 delay during closing: 3 seconds.
		ON OFF	Motor 2 delay during opening: 3 seconds. Motor 1 delay during closing: 6 seconds.
		ON ON	Motor 2 delay during opening: 3 seconds. Motor 1 delay during closing: 9 seconds.
1_10	WATER HAMMER	ON	Enables the water hammer function during opening to help electric lock release. **Operation:** at the START command, the following will occur in sequence: - electric lock activation; - closing pulse of **1 sec**; - opening; - electric lock release after **2 sec**.
		OFF	Disables the water hammer function.

10 - DIP SWITCH DIP2

The settings are stored during the rest phase (gate closed).
The default settings are highlighted in the boxes with grey background.

DIP	Function	Status	Description
2_1	DECELERATION SPEED	ON	Deceleration speed equal to **50%** of the maximum speed.
		OFF	Deceleration speed equal to **30%** of the maximum speed.
2_2	MOVEMENT SPEED changing this setting will reset the control board and a new learning cycle will be required.	ON	Speed during normal movement equal to **100%** of the maximum speed.
		OFF	Speed during normal movement equal to **80%** of the maximum speed.
2_3	FAST CLOSING	ON	Enables fast closing function. Operation: Reduces the stand-by time to 3 seconds following interception and subsequent freeing of the photocells. Active only on photocell 1.
		OFF	Fast closing disabled.

UK

10 - DIP SWITCH DIP2

The settings are stored during the rest phase (gate closed).
The default settings are highlighted in the boxes with grey background.

DIP	Function	Status	Description
2_4	**FUNCTIONING** changing this setting will reset the control board and a new learning cycle will be required.	ON	ENCODER
		OFF	TIME
2_5	**ANTI CRUSHING**	ON	Anti crushing active. -It is not active in the proximity of mechanical end stops. -After anti crushing intervention the gate will reverse its movement for 1s, after a short pause the movement will continue at slow speed. -Subsequently to 3 consecutive anti crushing interventions the control board will STOP and a user command will be required to start again the motion. -Anti crushing is not active when working by time (DIP2_4 = OFF)
		OFF	Anti crushing disabled.
2_6	**SPIA / FLASHING LIGHT**	ON	Terminal M2_7 and M2_8 work as WARNING LIGHT.
		OFF	Terminal M2_7 and M2_8 work as FLASHING LIGHT.
2_7	**UNUSED**	ON	
		OFF	
2_8	**UNUSED**	ON	
		OFF	
2_9	**UNUSED**	ON	
		OFF	
2_10	**UNUSED**	ON	
		OFF	

UK

11 - DIP SWITCH DIP3

In order to store the new settings It's necessary to power down and power up the control board.
The default settings are highlighted in the boxes with grey background.

DIP	Function	Status	Description
3_1 3_2	START COMMAND ALLOCATION TO TRANSMITTER BUTTON	OFF OFF	Transmitter button 1.
		OFF ON	Transmitter button 2.
		ON OFF	Transmitter button 3.
		ON ON	Transmitter button 4.
3_3 3_4	PEDESTRIAN COMMAND ALLOCATION TO TRANSMITTER BUTTON If this setting is the same as DIP3_1 and DIP3_2, PEDESTRIAN is disabled.	OFF OFF	Transmitter button 1.
		OFF ON	Transmitter button 2.
		ON OFF	Transmitter button 3.
		ON ON	Transmitter button 4.
3_5	UNUSED	OFF	Keep this OFF, do not change.
3_6	UNUSED	ON	
		OFF	

12 - ONBOARD RADIO RECEIVER CONTROL

Storing a new transmitter in memory:
1 - Press and release **Learn** button.
2 - Led L6 will come on.
3 - Press button 1 of the transmitter to be stored for 2 seconds.
4 - The new transmitter is stored.
5 - Led L6 will stay on for another 5 seconds; during this period, you can store other transmitters, restarting from step 3.

It is possible to store up to 200 transmitters.

Clearing the memory:
1 - Press and hold down **Learn** button for 12 seconds.
2 - Led L6 will initially come on and then go off after 12 seconds.
3 - All the transmitters have now been deleted.

Assigning START and PED commands to the transmitter buttons:
Refer to **Figure 17-18** and DIP3 configuration.

UK

13 - GATE TRAVEL LEARNING

The procedure has two phases, completely automatic: the first one of OPENING and CLOSING SPACES learning and the second one of motors' amperometric values learning.

If using only one motor, it must be connected to the terminals **M1.**
Intervention of START, PED, PHOTO1, PHOTO2, SAFETY inputs during learning procedure will abort the procedure and it will be necessary to repeat it from the beginning.
During learning procedure FLASHING LIGHT / WARNING LIGHT will be on.
Travel learning movement is slowed down (50%).
Learning procedure cannot be executed while running on battery.

Learning procedure:
- Release the operators and move the gates to halfway their travel.
- Lock the operators.
- Check that the mechanical opening and closing stops are present on the ground (KUDA/AGO424-624) or on the operator (SERRA320).
- Remove any obstacles in the range of action of the automated device.
- Check that leds L3, L4, L5 and L8 are on.
- Press and release MEMO button.
- Led L7 will come on, after 30 seconds of no user interaction the control board will quit learning procedure.
- Within 30 seconds press again MEMO button in order to choose operator type. At the first stroke L7 will blink once every 4 seconds and that means KUDA/AGO424-624 is the installed operator; at the second stroke L7 will blink twice every 4 seconds and that means SERRA320 is the installed operator.
  The operator selection sequence is cyclic.
- Press button 1 of the radio control or give a START pulse from the terminal board.
- Check that motors' movement is in the correct direction (at the beginning in opening). On the contrary, block the learning cycle with any safety device, invert the motor cables and repeat the procedure.

Movements during learning with 2 motors:
- Motor 1 opens until meeting the mechanical end-stops.
- Motor 2 opens until meeting the mechanical end-stops .
- 5 seconds pause.
- Motor 2 closes until meeting the mechanical end-stops.
- Motor 1 closes until meeting the mechanical end-stops.
- Full open-close cycle.
- End of learning; L7 will goes off.

Movements during learning with 1 motor:
- Motor 1 opens until meeting the mechanical end-stops.
- 5 seconds pause .
- Motor 1 closes until meeting the mechanical end-stops.
- It makes a complete manoeuvre, opening, 5 sec.pause and closing.
- End of learning; L7 goes off.

In case the learning procedure cannot be completed, please check LED L7 status (chapter 8).

UK

14 - FLASHING LIGHT SIGNALS SUMMARY

Meaning	Signal	Effect
Opening	0,8s ON, 0,8s OFF continuous	The gate is opening
Closing	0,4s ON, 0,4s OFF continuous	The gate is closing
Photo 2 intercepted in stand-by in presence of START command	5 fast flashings	When released it opens
Edge intercepted in stand-by in presence of START command	3 slow flashings	Blocked closed door
Edge intercepted in pause in presence of START command or at the closing beginning	3 slow flashings	Blocked open door
Low Battery before closing (21V).	4 seconds slow flashing	Blocked open door
Low Battery before opening or closing(16V).	4 seconds slow flashing	Blocked door

15 - TROUBLESHOOTING

The gate does not move after a START command.	• Check that L3, L4 and L5 are off; if not, check the devices connected to terminals 19-20-21. • Check fuses. • Check that the battery voltage is not below 22VDC. • If L7 is blinking fast, learning procedure must be executed.
The gate moves slowly.	Check the control board is not running on battery.
Transmitter range is short.	Check terminals 26-27 screws are tight. Check and replace transmitter battery.
The gate does not fully open/close.	Check the motor and encoder connections.
The gate moves slowly during opening.	The first maneuvre after a power failer is slowed and with automatic logic.

UK

Declaration of conformity CE

The manufacturer:

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

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

declares that the products:

ELECTRONIC CONTROL UNIT BE24

are in conformity to the following CEE 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 applied:

- **EN60335-1,**
- **EN61000-6-2, EN61000-6-3**

Date 01/08/2017

The legal Representative
Michele Prandi

NOTES

NOTES

NOTES

Cod. AIC4918 - 04/2018 - Rev. 01

GI.BI.DI. S.r.l.
Via Abetone Brennero, 177/B
46025 Poggio Rusco (MN) - ITALY
Tel. +39.0386.52.20.11
Fax +39.0386.52.20.31
E-mail: info@gibidi.com

Numero Verde: 800.290156

w w w . g i b i d i . c o m