



C E DECLARATION OF C O N F O R M I T Y

Manufacturer: FAAC S.p.A.

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BOLOGNA - ITALY

Declares that: Token acceptorGRS-02

•conforms to the essential safety requirements of the following EEC directives:

73/23 EEC and following modification 93/68/EEC
89/336 EEC and following modification 92/31 EEC and
93/68/EEC

Additional notes:
this product underwent tests in a typical homogeneous configuration (all products by FAAC S.p.A.).

Bologna, 2nd January 2009

The Managing
Director

A. Marcellan

A handwritten signature in black ink, appearing to read 'A. Marcellan', written over the printed name.

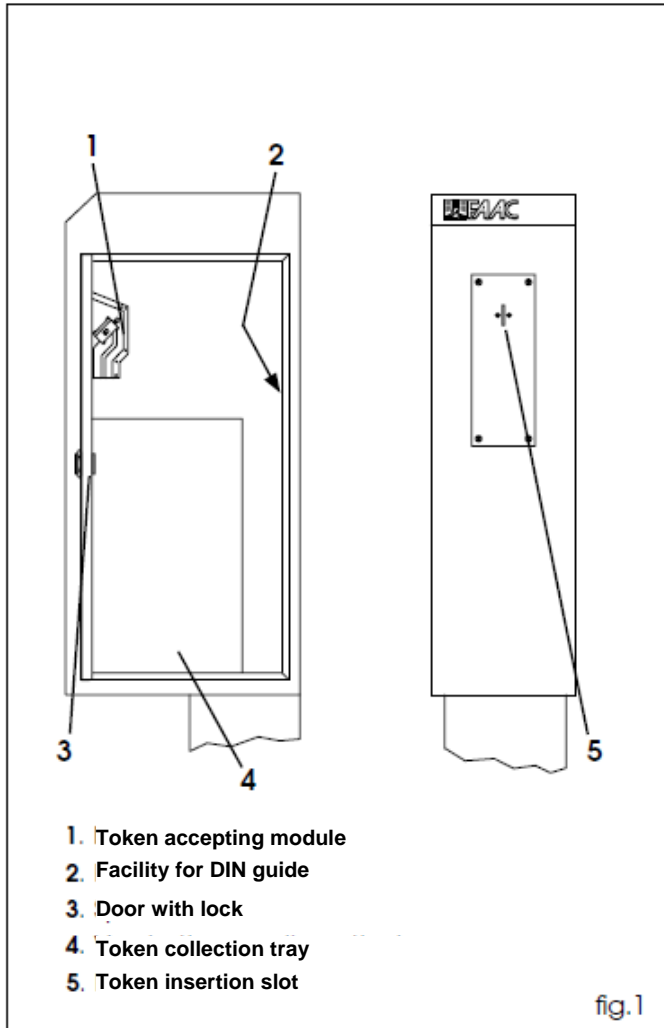
GENERAL SAFETY OBLIGATIONS

- 1) **ATTENTION! To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.**
- 2) Carefully read the instructions before beginning to install the product.
- 3) Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
- 4) Store these instructions for future reference.
- 5) This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition of the product and/or be a source of danger.
- 6) FAAC declines all liability caused by improper use or use other than that for which the product was intended.
- 7) Do not install the equipment in an explosive atmosphere: the presence of gas or inflammable fumes is a serious danger to safety.
- 8) FAAC is not responsible for failure to observe Good Technique in the installation of the product.
- 9) Before attempting any job on the system, cut out electrical power.
- 10) Make sure that a differential switch with threshold of 0.03A is fitted upstream of the system.
- 11) Make sure that the earthing system is perfectly realised and connect the yellow/green earth terminal of the Token Acceptor to it.
- 12) FAAC declines all liability as concerns safety and efficient operation of the Token Acceptor, if system components not produced by FAAC are used.
- 13) For maintenance, strictly use original parts by FAAC.
- 14) Do not in any way modify the components of the Token Acceptor.
- 15) The installer shall supply all information concerning the system operation and shall hand over to the user the "User's Guide" supplied with the product.
- 16) The user must not attempt any kind of repair or direct action whatever and contact qualified personnel only.
- 17) **Anything not expressly specified in these instructions is not permitted.**

TOKEN ACCEPTOR GRS-02

The GRS-02 Token Acceptor consists of a steel upright with cathaphoresis treatment and polyester painting. The upright houses the FAAC token accepting module and the collection tray. The Token Acceptor is prepared for the application of a DIN guide on which a Detector can be installed to enable the token insertion only in the presence of a vehicle.

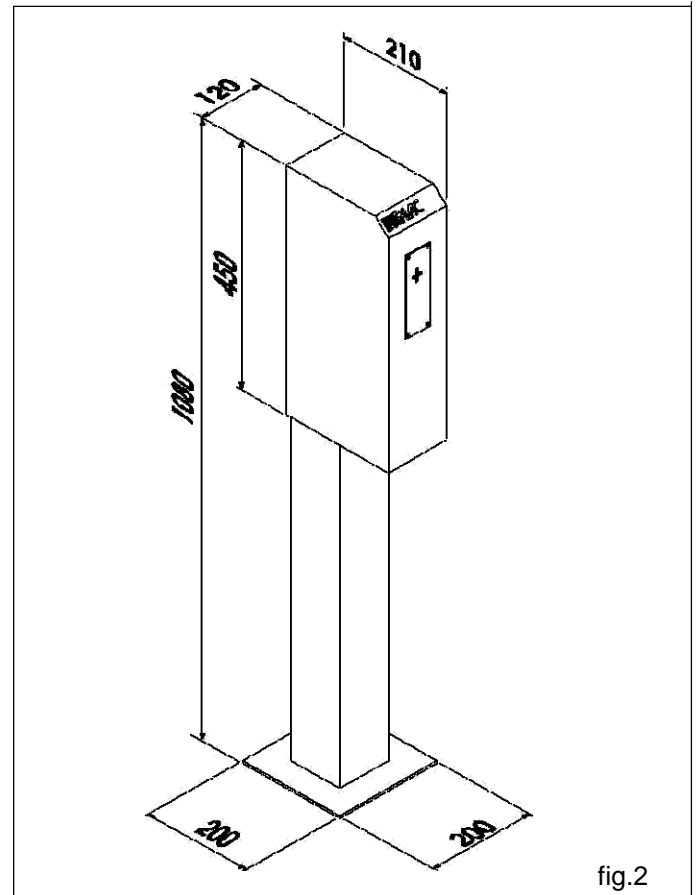
The GRS-02 Token Acceptor was designed and built to control pedestrian or vehicle accesses. Avoid any other use.



Tab.1 Technical Specifications GRS-02 Token Acceptor

POWER SUPPLY	24VDC (ACCESSORIES ONLY)
MAX. ABSORBED POWER	SEE INDIVIDUAL ACCESSORIES
OPERATING AMBIENT TEMPERATURE	-20°C / +50°C
WEIGHT	14 KG
HOUSING PROTECTIVE TREATMENT	CATAPHORESIS
HOUSING PAINT	RAL 2004 POLYESTER
No. CONTACTS	2 (N.O. or N.C.)
TOKEN CONTAINER CAPACITY	APPROX. 2000 PCS.
OVERALL DIMENSIONS	SEE FIG. 2

2. DIMENSIONS



1. DESCRIPTION AND TECHNICAL SPECIFICATIONS

The GRS-02 Token Acceptor is a pulse generator that, when a token is inserted, controls the opening of pedestrian or vehicle accesses.

In the “**pedestrian**” configuration, the token insertion slot must be always open (in this case, the shutter must be physically removed).

In the “**vehicle**” configuration, by interfacing a Single- or a Two-Channel Detector, you can enable the token insertion only in the presence of a vehicle; in this case pedestrians are not allowed to use the lane.

3. ELECTRIC PREPARATIONS

3.1. PEDESTRIAN ACCESS

If the Token Acceptor is used to control the opening of a pedestrian access you need **to remove the shutter from the token acceptor**:

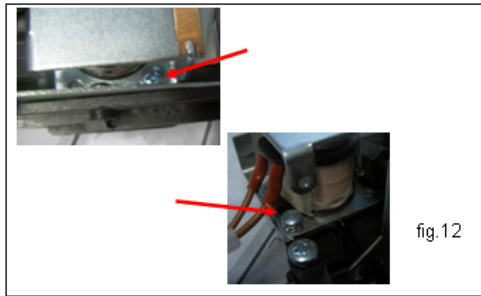


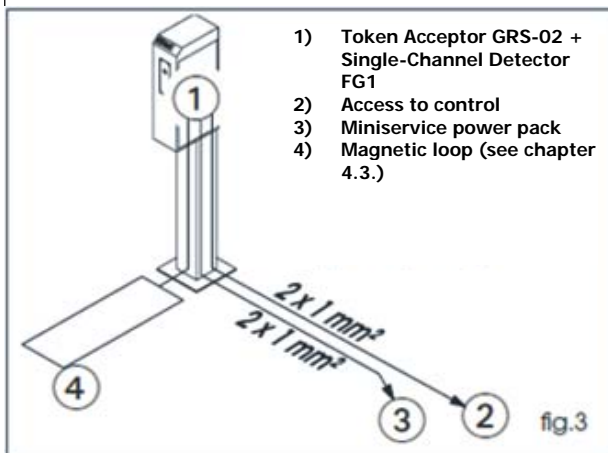
fig.12

Prepare a 2 x 1 mm² cable between the token acceptor and the control unit of the gate or barrier.

3.2. VEHICLE ACCESS IN LOGIC "A"

If you need to control the opening of a vehicle access only, without having to control a beam closing contact, operate as follows:

- add a Single-Channel Detector FG1 (to connect the use of the Token Acceptor according to the presence of a vehicle)
- realise a magnetic loop
- provide 24 Vdc – 500 mA power supply
- perform the electric preparations as shown in fig.3



3.3. VEHICLE ACCESS IN LOGIC "P"

If the GRS-02 Token Acceptor is used to control a vehicle access and simultaneously manage the beam closure, you need to perform the following:

- add the Two-Channel Detector FG2 (to connect the use of the Token Acceptor according to the presence of a vehicle and control the beam closure)
- realise **two** magnetic loops
- provide 24 Vdc - 500 mA power supply
- perform the electric preparations as shown in fig.4

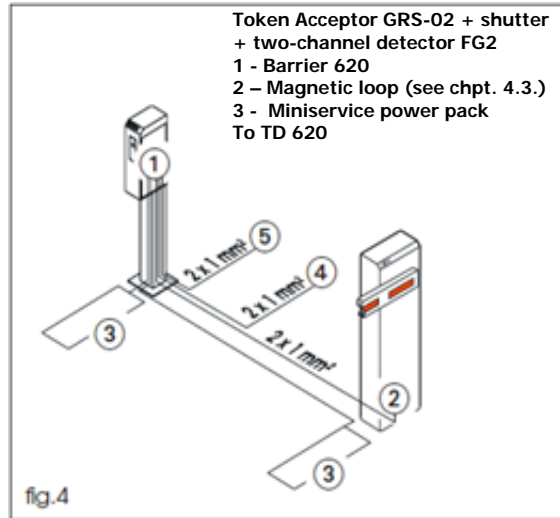


fig.4

4. INSTALLATION

4.1. PRELIMINARY CHECKS

To ensure safety and an efficiently operating Token Acceptor, make sure the following conditions are observed:

- The soil must permit sufficient stability of the foundation plinth.
- There must be no pipes or electrical cables in the plinth excavation and in the loop areas.
- If the Token Acceptor is exposed to passing vehicles, install, if possible, adequate means of protections against accidental impact.
- Check that an efficient earth socket is available for connecting the housing of the Token Acceptor.

4.2. POSITIONING THE COMPONENTS

4.2.1. PEDESTRIAN ACCESS

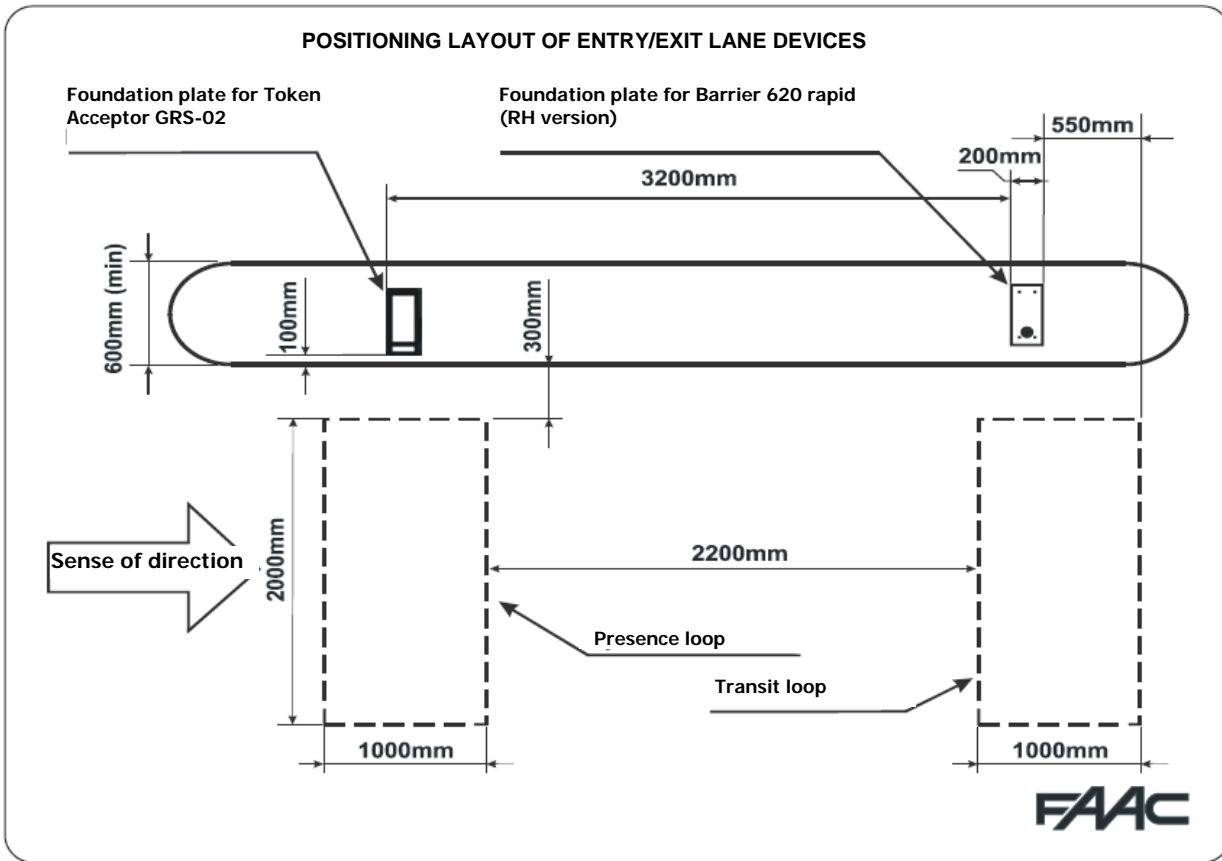
Before placing the foundation plate of the GRS-02 Token Acceptor, make sure the following conditions are observed:

- The Token Acceptor must be installed in such a way not to expose the user to impact, crushing, dragging risks etc. due to the movement of the gate or barrier.

4.2.2. VEHICLE ACCESS

Before placing the foundation plate of the GRS-02 Token Acceptor, make sure the following conditions are observed:

- The Token Acceptor must be installed in such a way not to expose vehicles to impact, crushing, dragging risks etc. due to the movement of the gate or barrier
- Place the Token Acceptor in such a way that the vehicles coming from various directions can approach the Token Acceptor enabling the driver to insert the token without any difficulties.
- Realise the magnetic loop in correspondence with the Token Acceptor (the loop must be engaged by the vehicle when the window is in front of the token insertion slot). The loop must be dimensioned according to the type of vehicle to detect: observe the dimensions given in fig.5 for vehicles and vans or the dimensions in fig.7 to detect heavy vehicles. To realise the loop follow the instructions in Chapters 4.3. and 4.4.1.



- The magnetic loops must be positioned as shown in fig. 5: only if positioned in this configuration, the loops are able to manage the vehicle count in a correct way and to control the re-closure of the barrier exclusively after the vehicle has transited. However the dimensions can be adapted to the lane width and to the type of vehicles to detect: fig.5 shows the loops to be used in the event of a lane width of 2.5 m for cars and vans.
- The Token Acceptor and the Barrier must be installed on an island lifted by approx. **15 cm.** with respect to the street surface in order to protect them against impacts during vehicle movement. If this is not possible, install suitable protective structures around the base of both housings.

4.3. REALIZING THE MAGNETIC LOOPS

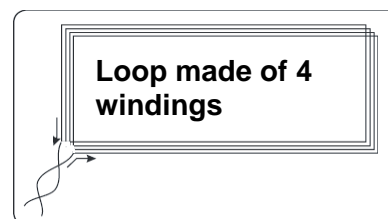
The magnetic loops can be realised in two different ways: laying the cable directly in a chase made in the existing pavement or, this is the best solution, realising a cable duct in PVC before the pavement is made.

In both cases, the cable must be laid not over 5 cm from the surface and not less than 15 cm from covers or other metallic objects.

In case of a cable duct, you can use a normal single-pole cable with 1.5 mm² section. On the contrary, the cable directly laid in the chase must have the same section but with double insulation (for the realisation of the chase, see chapter 4.4.1.).

The loop must be realised with a single cable without making any joints. Both ends of the cable must be twisted each other (**at least 20 times per meter**) for the whole section from the loop to the Detector terminal board.

The number of windings of the loops is 4.



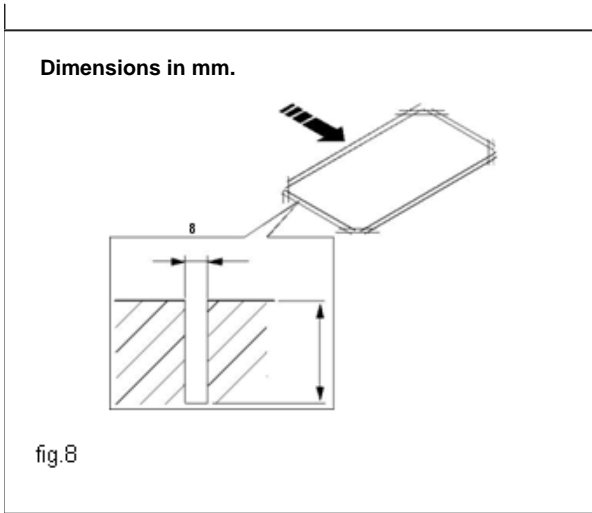
4.4. MASONRY PREPARATIONS

4.4.1. CHASE FOR THE MAGNETIC LOOP

Fig.8 shows the realization of the magnetic loop chase. The corners must be cut at 45°, as shown in the figure, to prevent the cable breaking in the corners. After the cable has been laid, the chase must be sealed with bitumen.

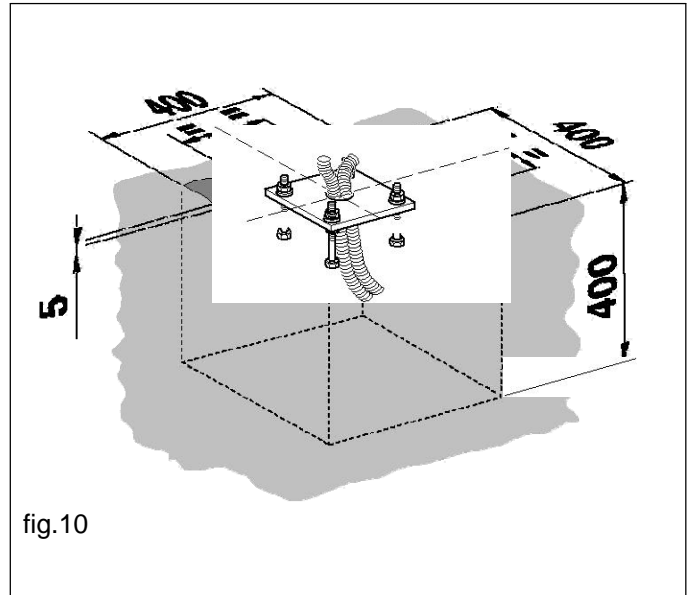
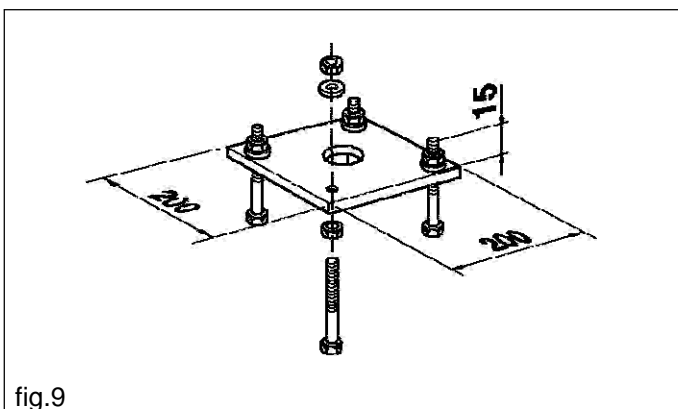
Realize the case at a distance of at least 15 cm. from metallic objects (pits, grids, etc.).

If the pavement is still to be made, prepare a cable duct (if possible with a plastic duct in one of the loop corners) and calculate its depth according to the thickness of the finished pavement (when pavement jobs are finished, the loop must be at a distance greater than 5 cm from the surface).



4.4.2. MASONRY OF THE FOUNDATION PLATE

- 1) Assemble the foundation plate as shown in fig.9.
- 2) Make a foundation plinth as shown in fig.10 and wall the foundation plate supplying one or more sheaths for routing electrical cables. Using a spirit level, check if the plate is perfectly level. Wait for the cement to set.



- 3) Prepare the electric cables for the connection as indicated in Chapter 3.1, 3.2 or 3.3 according to the type of use. For easy connection, let the cables come out of the foundation plate hole for approx 1m. .

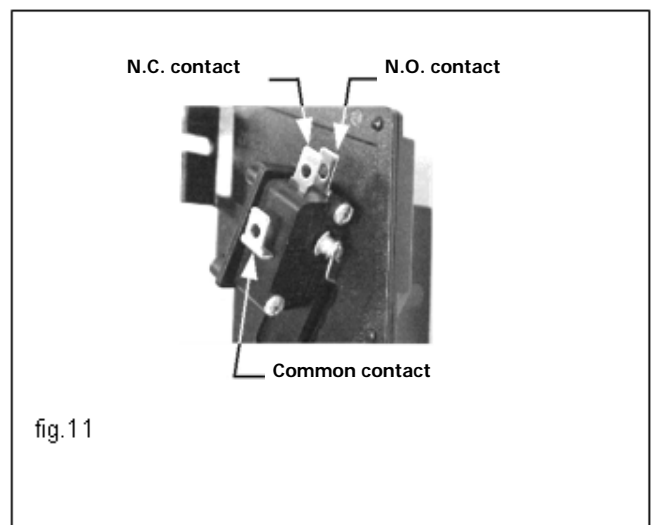
4.5. FASTENING

Make sure that the foundation plate is correctly secured and that the cement has set. Unscrew the plate nuts and fasten the Token Acceptor routing the cables from the inner part of the base to the door.

5. ELECTRICAL CONNECTIONS

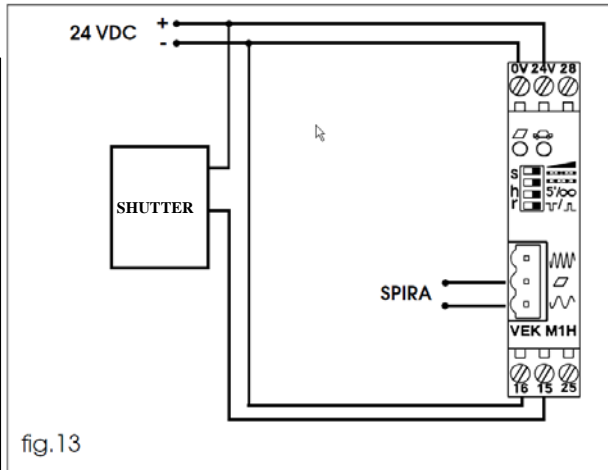
5.1. PEDESTRIAN ACCESS

In the configuration for pedestrian access management there is a microswitch with 2 potential-free contacts, N.O. and N.C., to send the Open command to an automated system. The terminals are positioned as shown in fig.11.



5.2. VEHICLE ACCESS IN LOGIC "A"

In the configuration for the management of a lane in logic "A" you need to add a detector FG1. Fasten the DIN guide on the two available screws and press the detector in place. Prepare a 24 Vdc power supply and perform the connections as shown in fig.13.



when the detector is activated or when the dip "h" setting changes.

RELAY 1 FUNCTION		DIP "r"
N.C. CONTACT		
N.O. CONTACT		

Operation of the Relay

The detector is equipped with 2 relays: Relay 1 supplies a presence contact, while Relay 2 sends a pulse when the loop is disengaged. The operation of Relay 1 can be selected by changing the setting of the dip "r".

N.B.: For this application you need to select the operation "N.O." contact.

FREQUENCY	LOOP CONN.
HIGH	
LOW	

Frequency selection

The detector operating frequency can be set on two levels according to the position of the loop connector. Frequency depends furthermore on the loop shape, on the number of windings and on the cable total length.

N.B.: For any further explanations on the operation of the detector FG1, please refer to the specific instructions of the product.

PRESENCE TIME	DIP "h"
5 minutes	
∞	

Presence Time and Reset

The presence time can be set using the microswitch "h". At the end of the presence time the detector

signals "loop free" and self-calibrates. The presence time starts when the loop is engaged. An automatic reset is performed

5.3. VEHICLE ACCESS IN LOGIC "P"

In the configuration for the management of a lane in logic "P" you need to add the detector FG2. Fasten the DIN guide on the two available screws and press the detector base in place.

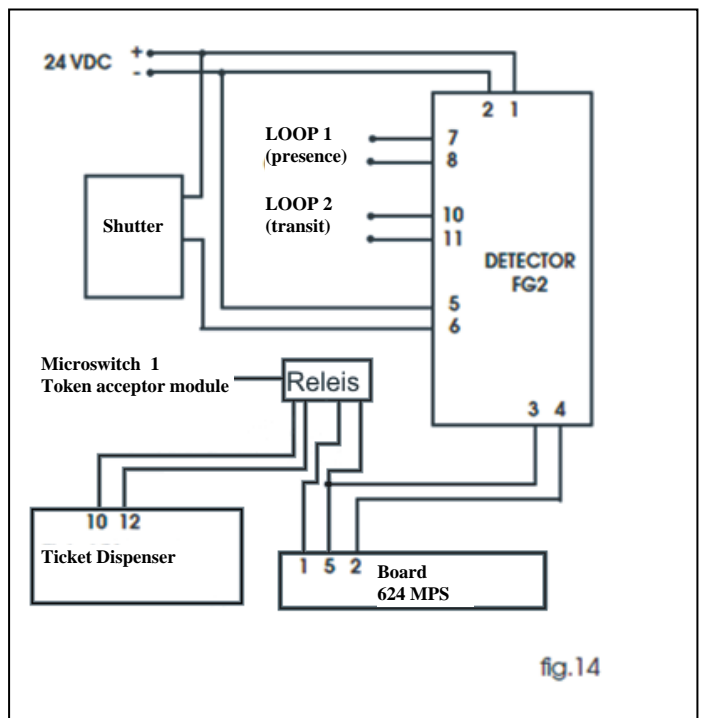


fig.13: the token insertion slot only opens when a vehicle is on the magnetic loop. The gate or beam opening command must be connected to the microswitch of the accepting module (see Chapter. 5.1.).

For the detector FG1 programming, operate as follows:

Sensitivity

The detector sensitivity can be set on four different levels using the two first microswitches on top (close to letter s).

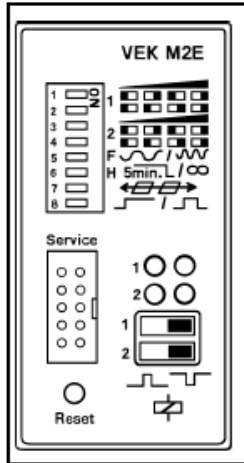
SENSITIVITY		DIP "s"
1	LOW	
2	MEDIUM-LOW	
3	MEDIUM-HIGH	
4	HIGH	

Prepare a 24 Vdc power supply and perform the connections as shown in fig.14.

In this way the token insertion slot only opens when a vehicle is on the presence loop. The token insertion commands the barrier opening and the de-count of the vehicle; the barrier closes again when the transit loop is disengaged (using logic P on FAAC barriers, mod.620 - 640).

To program and use the detector FG2 operate as follows (the recommended setting is indicated in grey):

On the front part you may find green LEDs (loop check), red LEDs (loop status), programming microswitches and the reset push-button. The red LEDs light on when a metallic mass is detected; the green LEDs are normally on: they turn off to signal a loop malfunctioning and can also flash to indicate a temporary fault: in this condition the loop operates regularly and the Reset push-button can be pressed to acknowledge the signal.



Below you will find the Programming table of the microswitches: Never change the setting of microswitch SW7 and of both switches under the LEDs (they must be positioned to the right).

Sensitivity

The detector sensitivity can be set on four different levels: each of the 2 loops has an independent setting.

SW1	SW2	LOOP 1 SENSITIVITY (presence)
OFF	OFF	LOW
ON	OFF	MEDIUM – LOW
OFF	ON	MEDIUM – HIGH
ON	ON	HIGH

SW3	SW4	LOOP 2 SENSITIVITY (transit)
OFF	OFF	LOW
ON	OFF	MEDIUM – LOW
OFF	ON	MEDIUM – HIGH
ON	ON	HIGH

Frequency selection

The detector operating frequency can be set on two levels using the dip SW5. The detector automatically changes the frequencies of both loops. Frequency depends furthermore on the loop shape, on the number of windings and on the cable total length.

SW5	FREQUENCY
OFF	LOW
ON	HIGH

Presence Time and Reset

The presence time can be set using the microswitch SW6. At the end of the presence time, the detector signals “loop free” and self-calibrates. The presence time starts when the loop is engaged. An automatic reset is performed when the detector is activated, changing the dip SW6 setting or pressing the Reset push-button.

SW6	PRESENCE TIME (Self-calibration)
OFF	5 MINUTES
ON	INFINITE

Microswitch SW7

This microswitch must be programmed as shown below to enable the correct operation of the system.

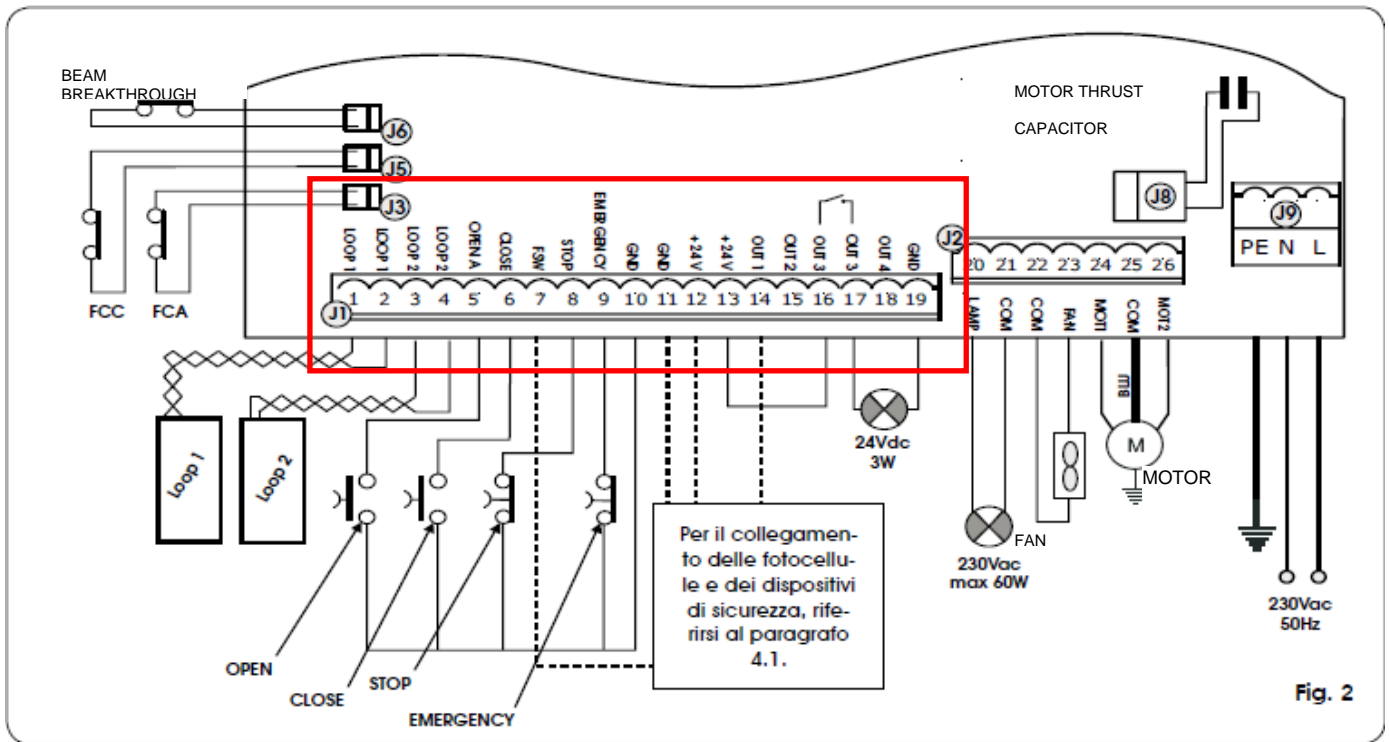
SW7	OFF

Relay 2 logic

When programming the microswitch SW8 you can choose if the Relay 2 has to work in “presence” (contact active as long as the loop is engaged) or “pulse on disengagement” logic (200 ms pulse when loop 2 is disengaged).

SW8	RELAY 2 LOGIC
OFF	PRESENCE
ON	PULSE ON LOOP 2 DISENGAGEMENT

N.B.: For any further explanations on the detector FG2 operation, please refer to the specific instructions of the product.



MICROSWITCH ON GRS-02 ON N.O. CONTACT

