

# FAAC

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## FAAC CITY

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**Automatic hidden traffic bollards  
275 H600 and 275 H800  
with pit**

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## Technical installation manual

- **CE Declaration of conformity**
- **Warnings for the installer**
- **Technical specifications of the traffic bollard**
- **Preparing and installing the traffic bollard**
- **Wiring diagram of the traffic bollard with 624 BLD control unit**
- **Programming the 624 BLD unit**
- **Technical specifications of the Faac City MASTER control station**
- **Diagrams of the MASTER control station**
- **Dip-Switches of the MASTER control board**
- **Terminal boards connecting MASTER and SLAVE control boards**
- **Manual lowering procedure**
- **Maintenance operations**



## CE DECLARATION OF CONFORMITY FOR MACHINES (DIRECTIVE 98/37/EC)

**Manufacturer:** FAAC S.p.A.

**Address:** Via Benini, 1 - 40069 Zola Predosa BOLOGNA - ITALY

**Declares that:** the operator mod. FAAC CITY 275 H600 and 275 H800 AUTOMATIC

- is built to be integrated into a machine or to be assembled with other machinery to create a machine under the provisions of Directive 98/37/EC;
- conforms to the essential safety requirements of the following EEC directives:

73/23/EEC and subsequent amendment 93/68/EEC.  
89/336/EEC and subsequent amendment 92/31/EEC and 93/68/EEC

and also declares that it is prohibited to put into service the machinery until the machine in which it will be integrated or of which it will become a component has been identified and declared as conforming to the conditions of Directive 98/37/EC.

Bologna, 01 January 2007

The Managing Director  
A. Bassi

## CE DECLARATION OF CONFORMITY

**Manufacturer:** FAAC S.p.A.

**Address:** Via Benini, 1 - 40069 Zola Predosa BOLOGNA - ITALY

**Declares that:** the equipment Faac City Master, Faac City Slave and 624 BLD

- conform to the essential safety requirements of the following EEC directives:  
73/23/EEC and subsequent amendment 93/68/EEC.  
89/336/EEC and subsequent amendment 92/31/EEC and 93/68/EEC

Additional note:

These products underwent tests in a typical uniform configuration  
(all products manufactured by FAAC S.p.A.)

Bologna, 01 January 2007

The Managing Director  
A. Bassi



## WARNINGS FOR THE INSTALLER - GENERAL SAFETY OBLIGATIONS

1	<b>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.</b>	14	Make sure that the earthing system is perfectly constructed, and connect metal parts to it.
2	<u>Carefully read the instructions</u> before beginning to install the product.	15	The automated system is supplied with an intrinsic anti-crushing safety device consisting of a torque control. Nevertheless, its tripping threshold must be checked as specified in the Standards indicated at point 10.
3	Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.	16	The safety devices (EN 12978 standard) protect any danger areas against <b>mechanical movement Risks</b> , such as crushing, dragging, and shearing.
4	Store these instructions for future reference.	17	Use of at least one indicator-light is recommended for every system (i.e. flashing lamp integrated in the bollard head), as well as a warning sign in addition to the devices mentioned at point "16".
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/operation of the product and/or be a source of danger.	18	For maintenance, strictly use original parts by FAAC S.p.A.
6	FAAC S.p.A. declines all liability caused by improper use or use other than that for which the automated system was intended.	19	FAAC S.p.A. declines all liability as concerns safety and efficient operation of the automated system, if system components not produced by FAAC S.p.A. are used.
7	Do not install the equipment in an explosive atmosphere: the presence of inflammable gas or fumes is a serious danger to safety.	20	Do not in any way modify the components of the FAAC CITY automated system.
8	For non-EU countries, to obtain an adequate level of safety, the Standards mentioned above must be observed, in addition to national legal regulations.	21	The installer shall supply all information concerning manual lowering of the bollard in case of an emergency, and shall hand over to the user the warnings handbook supplied with the product.
9	FAAC S.p.A. is not responsible for failure to observe Good Technique in the installation of the FAAC CITY products and relating accessories or for any deformation that may occur during use.	22	Do not allow children or adults to stay near the bollard while it is operating.
10	Installation must be performed in compliance with the currently Ruling Standards.	23	Keep radio controls or other pulse generators away from children, to prevent the automated system from being activated involuntarily.
11	Before attempting any job on the system, cut out electrical power .	24	Transit on the FAAC CITY traffic bollard is permitted only when the automated system is idle
12	The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a differential 6A thermal breaker with all-pole circuit break is recommended.	25	The user must not attempt any kind of repair or direct action whatever and contact qualified personnel only.
13	Make sure that a differential switch with threshold of 0.03 A is fitted upstream of the system.	26	<b>Anything not expressly specified in these instructions is not permitted</b>



## TECHNICAL SPECIFICATIONS OF FAAC CITY 275 H600 AND 275 H800

Driving method	<b>Hydraulic</b>
Driven cylinder	<b>FE37 steel *<sup>1</sup> - thickness 6 mm</b>
Driven cylinder treatment	<b>Polyester powder paint, dark grey colour, metalised *<sup>2</sup></b>
Driven cylinder diameter	<b>275 mm</b>
Driven cylinder stroke	<b>600 mm (275 H600) and 800 mm. (275 H800)</b>
Cylinder top part (head)	<b>Anticorodal case hardened aluminium</b>
Cylinder surface treatment	<b>Polyester powder paint, light grey colour, metalised</b>
Descent time	<b>5 sec. (275 H600) - 7 sec. (275 H800)</b>
Rise time	<b>5 sec. (275 H600) - 7 sec. (275 H800)</b>
Hydraulic pump	<b>Power supply 230V +6/-10% 50Hz</b>
Protection class	<b>IP 67</b>
Pump capacitor	<b>16 µF</b>
Absorbed power	<b>220W</b>
Work frequency	<b>Heavy duty</b>
Reflecting adhesive strip	<b>Standard height 55 mm</b>
Operating ambient temperature	<b>- 40°C + 70°C *<sup>3</sup></b>
Total weight with pit	<b>Kg. 180 - 200</b>
Manual lowering operation	<b>Yes *<sup>4</sup></b>
Impact resistance	<b>15,000 joule (FE37 steel - thickness 6 mm.)</b>
Dimensions of pit to be walled in	<b>560 x 560 x 1020 (275 H600) 560 x 560 x 1220 (275 H800)</b>
Standard length with connected cable	<b>10 m *<sup>5</sup></b>
Heating Elements	<b>24 Volts, 80 Watts</b>

\*<sup>1</sup> optional item: FE37 steel thickness 10 mm or stainless steel AISI 304 thickness 6 mm.

\*<sup>2</sup> optional item: customised spray painting in RAL range

\*<sup>3</sup> optional item: heating resistances (recommended for temperatures less than -15°C to limit cylinder icing)

\*<sup>4</sup> optional item: automatic lowering device in the event of power fault

\*<sup>5</sup> optional item: length up to 30 m available on order.



**AUTOMATIC TRAFFIC BOLLARDS WITH PIT**  
**FAAC CITY 275 H600 and 275 H800**  
**INSTALLATION DIAGRAM**

- 1) Make sure that the place where the FAAC CITY traffic bollard is to be installed is not a cavity; if this situation is present, partially protect the FAAC CITY traffic bollard with a drainage channel equipped with covering grid.
- 2) Dig up to a depth of about **1.30 m** (275 H600) or about **1.50 m** (275 H800); the cross-section shall have a side of about **1 m** (fig. 1 and fig. 2).
- 3) Make sure that the ground is able to absorb water: pour about 40 l water in the dig and check if draining takes place within 30 minutes. If this is not the case, discharge rainwater by means of a pipeline with a diameter of 60mm connected to the drainage system or, as an alternative, connected to a pit equipped with a drainage system (i.e. motor pump), having a depth greater than the FAAC CITY pit for the collection and drainage of rainwater.
- 4) Introduce gravel (grain with a diameter of approx. 8 - 20 mm) to obtain a thickness of about **30 cm**, taking care to compact it well to avoid future settlements.
- 5) Install the metallic pit complete with counter-frame, taking care to position it vertical. The top level of the counter-frame must be approx. 10mm higher than the floor surface (to limit the inlet of rainwater in the pit). **Place the pit checking the reference of the counter-frame according to the sense of direction (fig. 1 and fig. 2).**
- 6) After pit installation, lay a flexible sheath, internal diameter 45mm, from the electrical connection in the pit to the drive control station.
- 7) Cast concrete all around the pit, up to approx. 10cm from the floor surface, and make sure that the anchors supplied with the pit are correctly positioned. Once the pit has been positioned, finish the street surface using the same type of material (fig. 3 and fig. 4).
- 8) Lay the necessary pipes for the connection between the control unit and any additional device (i.e. traffic lights - inductive loops - card reader - etc.) and every other bollard, if present. Then prepare the electrical connection and the earthing (fig. 5).

**N.B.:** every pipe must be laid in compliance with the current rules.

## POSITIONING THE FAAC CITY 275 H600

### BOLLARD FAAC CITY 275 H600 Installation diagram for metal housing

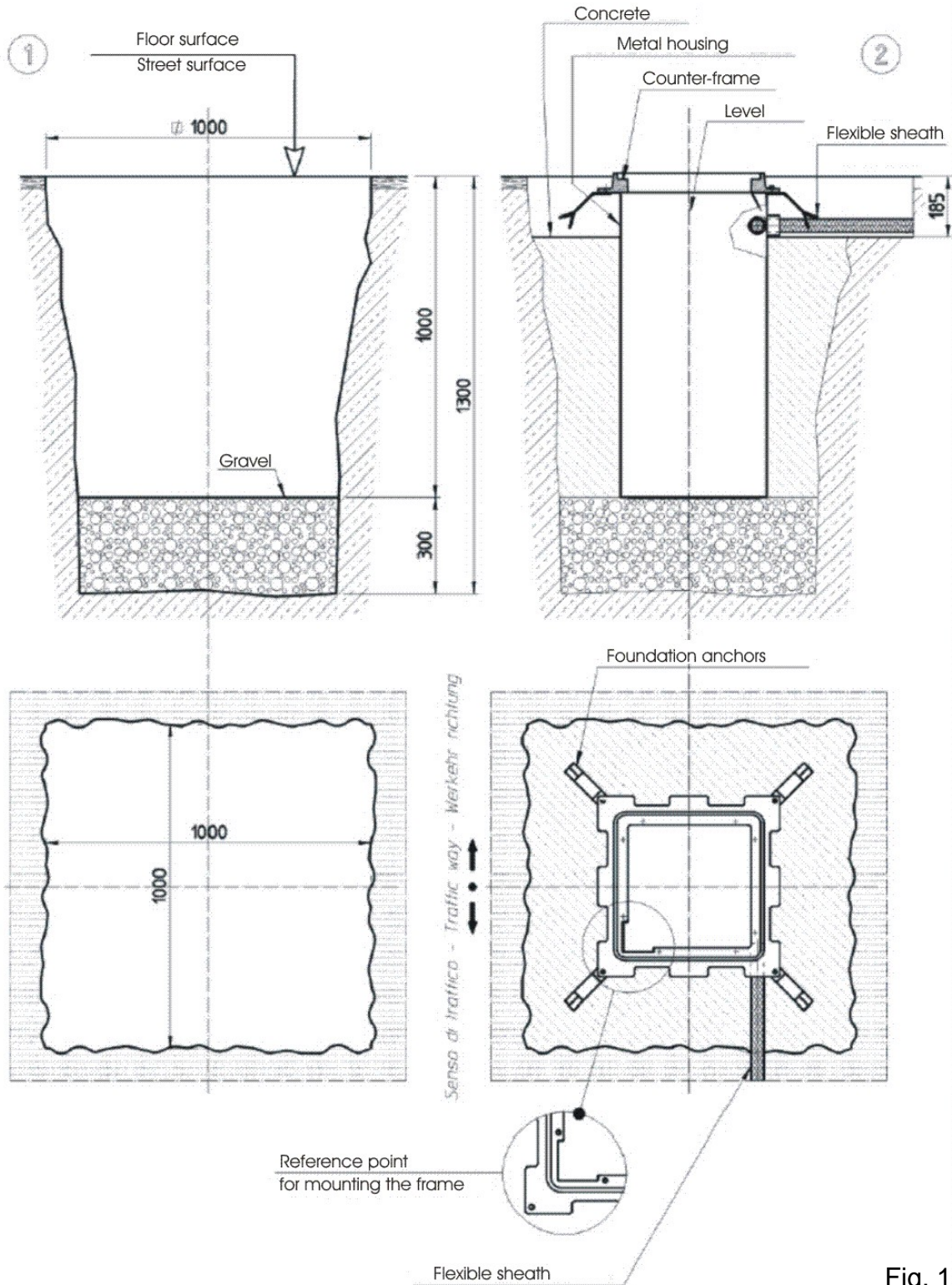


Fig. 1

**BOLLARD FAAC CITY 275 H600**  
 Installation diagram for metal housing

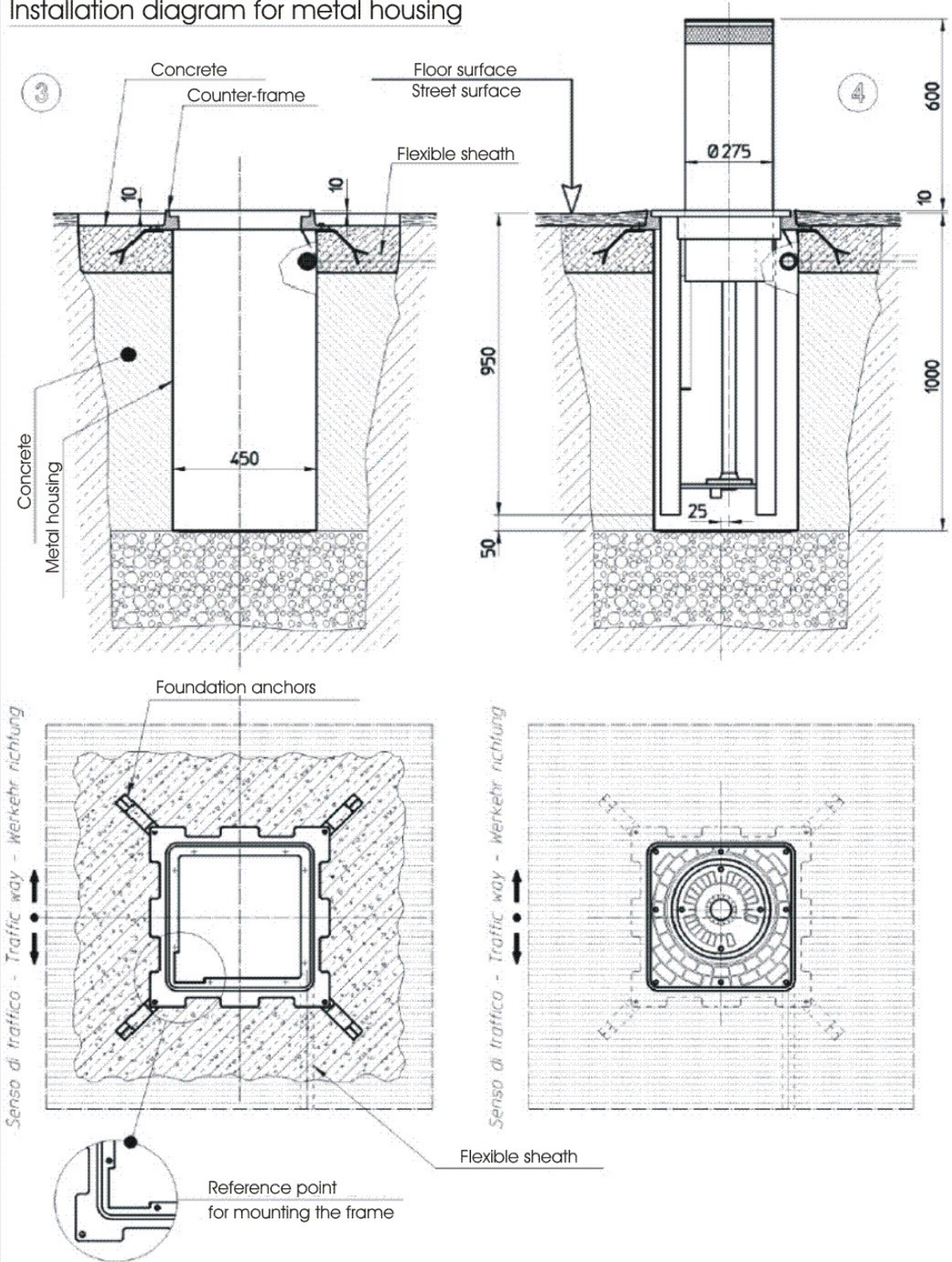


Fig. 2



## POSITIONING THE FAAC CITY 275 H800

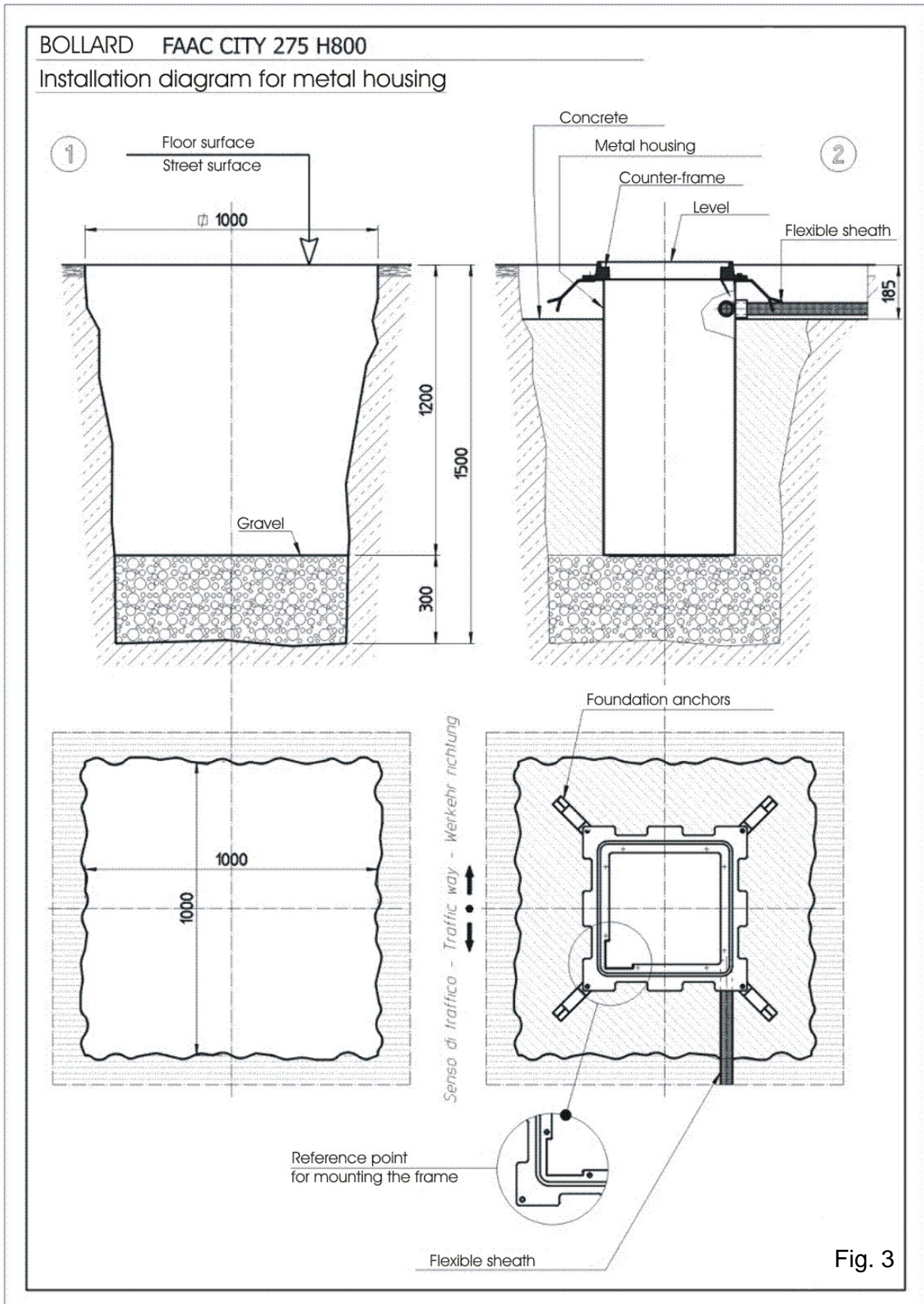


Fig. 3

**BOLLARD FAAC CITY 275 H800**  
**Installation diagram for metal housing**

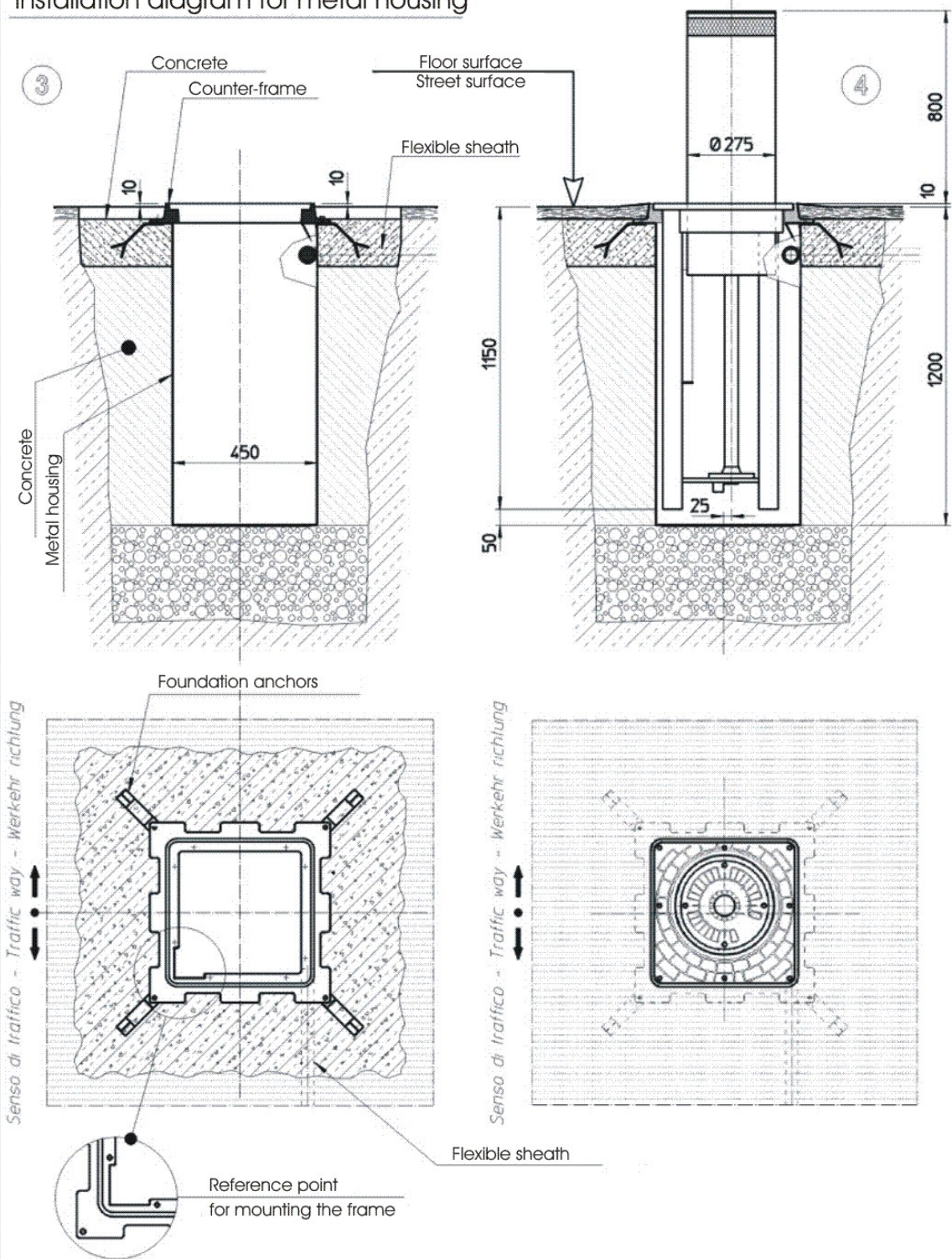
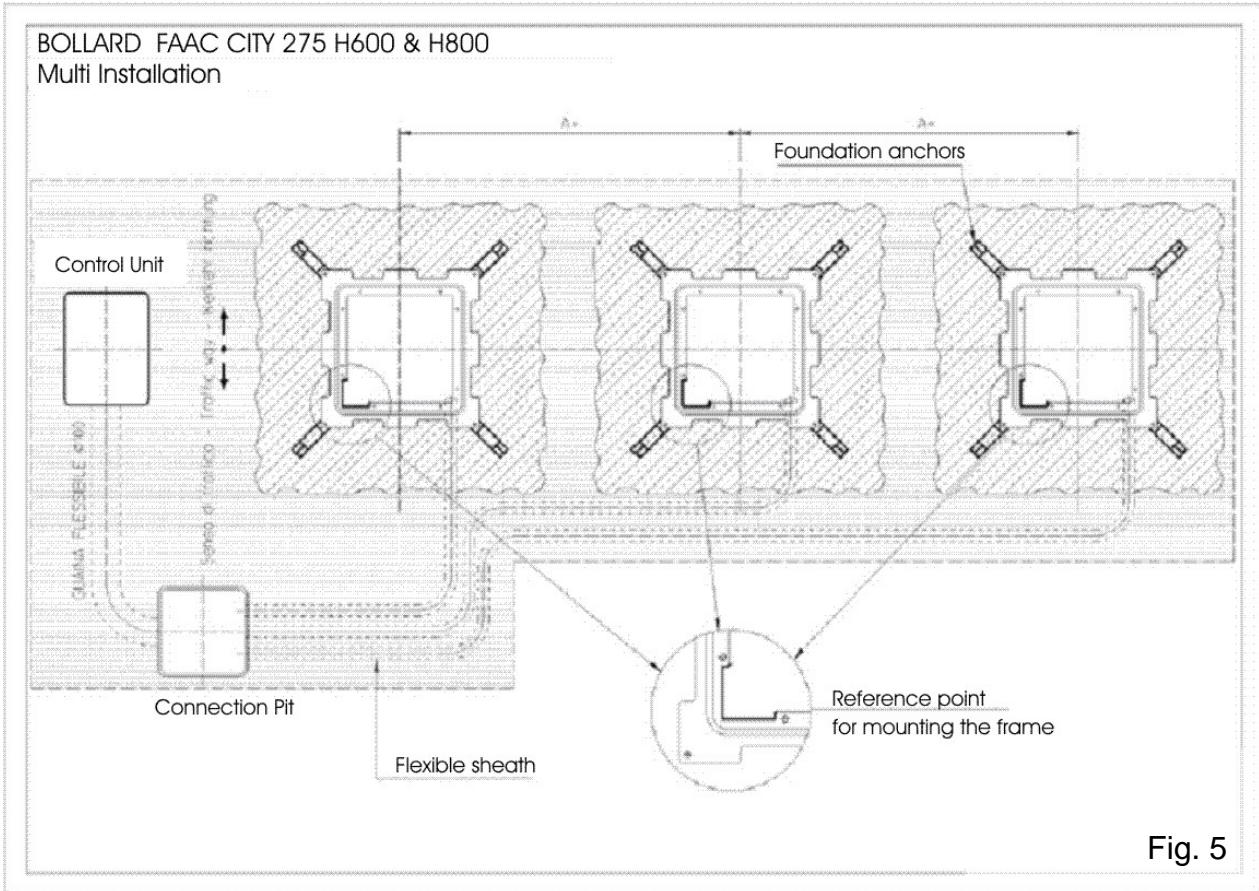


Fig. 4

## ALIGNING SEVERAL FAAC CITY DEVICES



## POSITIONING THE SAFETY INDUCTIVE LOOPS

Any inductive loops making part of the system must be laid in compliance with the instruction of the detector.

Two laying examples are given in the figures below.

Fig. 6 represents the installation of a single bollard with two magnetic loops for the detection of the vehicle transit.

Fig. 7 represents the laying of a loop to obtain the external protection of the bollard.

Fig. 8 represents the laying of two loops protecting a passage with large dimensions.

## INSTALLATION DIAGRAM FOR 1 FAAC CITY K 275 H600 AND H800

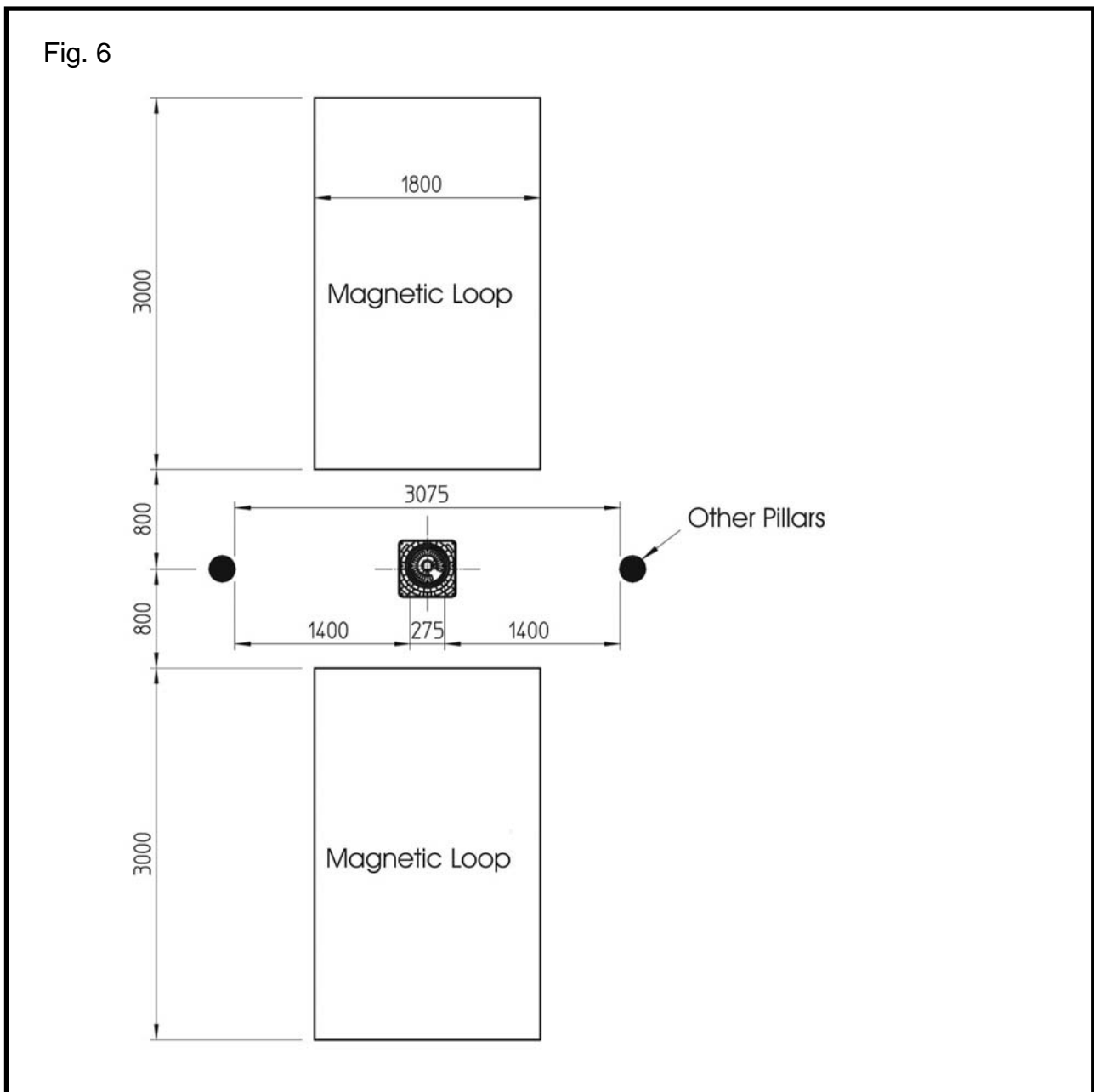


Fig. 7

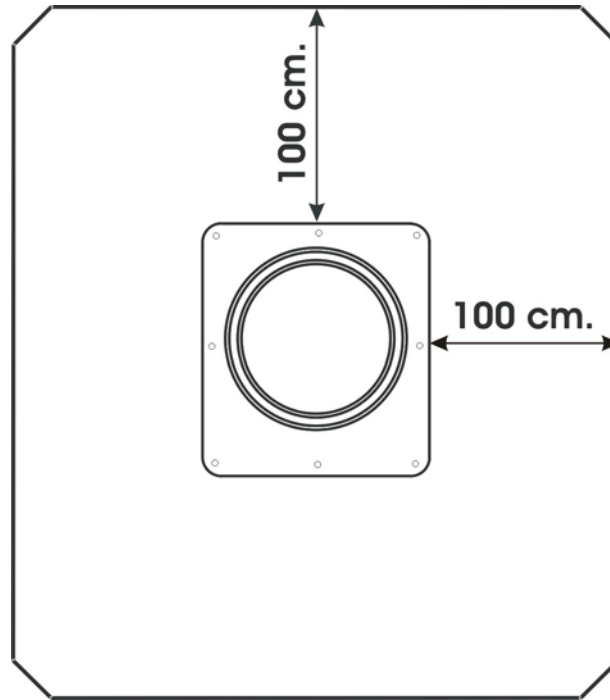
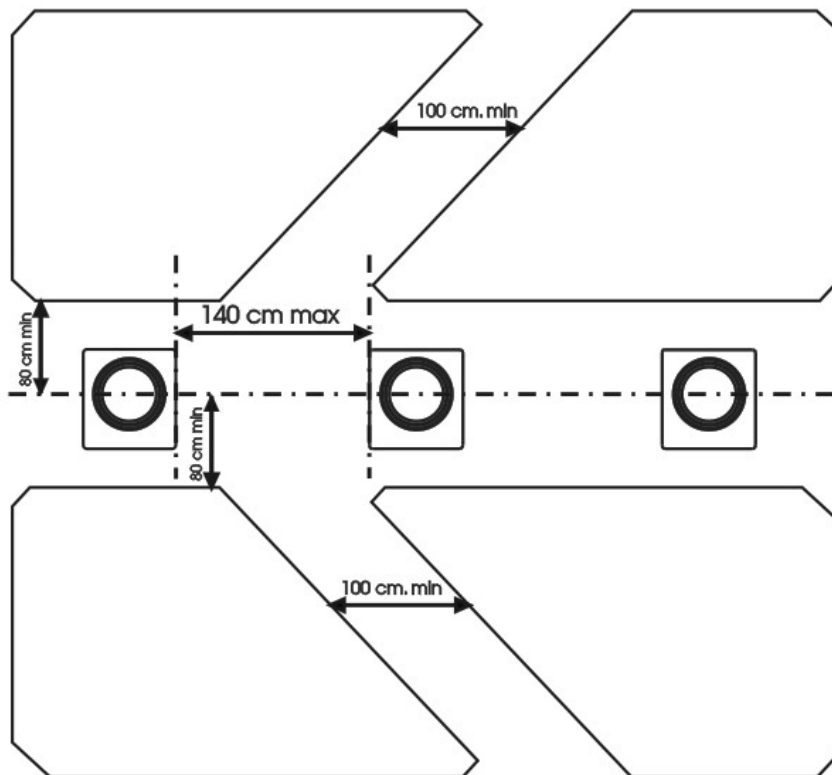
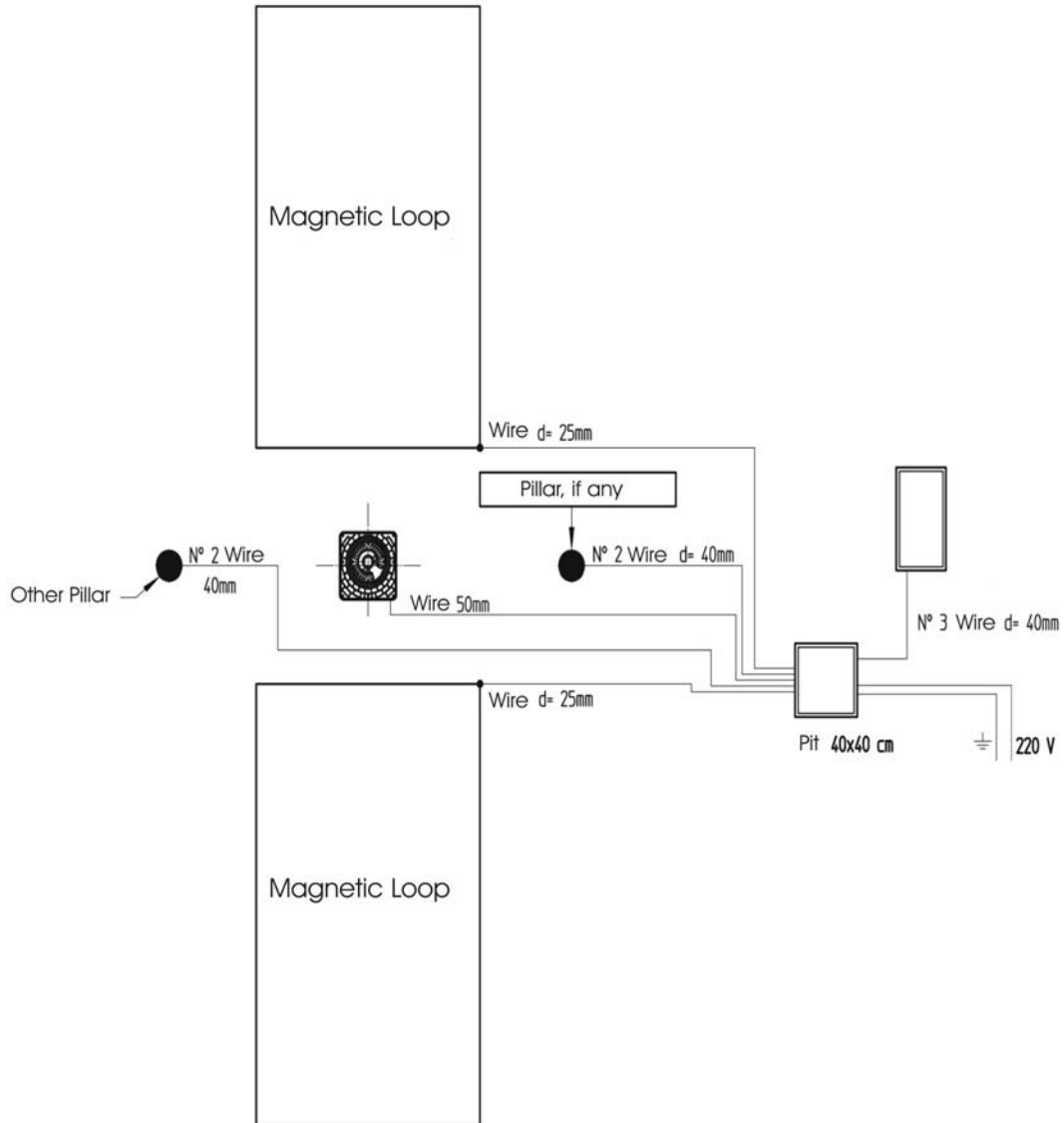


Fig. 8



## PIPE LAYING DIAGRAM FOR 1 FAAC CITY K 275 H600 AND H800

Fig. 9



## PIT - 624 BLD UNIT CONNECTION DIAGRAM

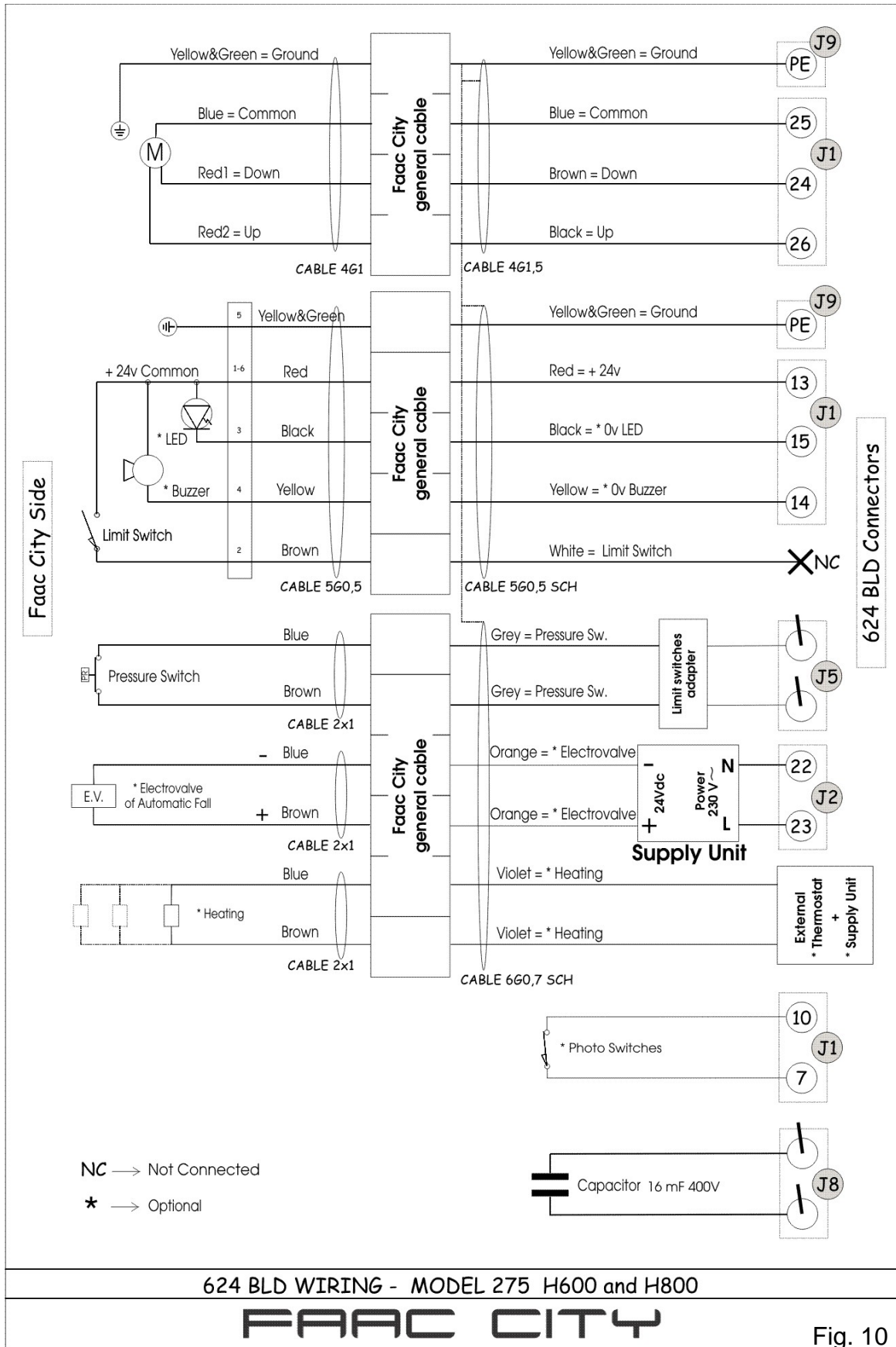


Fig. 10

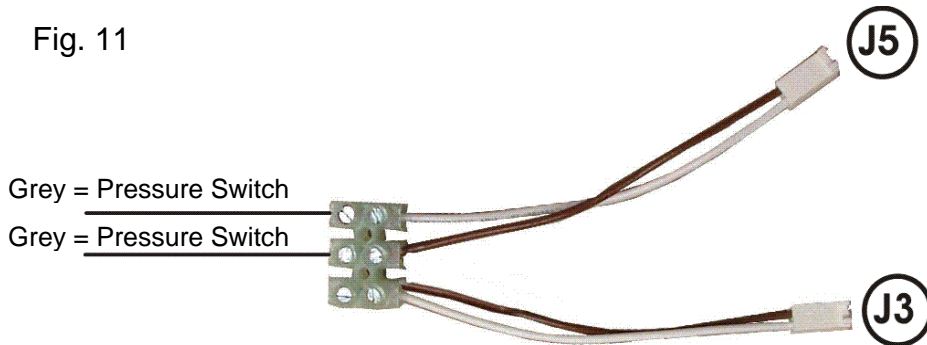
**NOTE:** During the first 4 seconds of the Faac City rise, the pressure switch behaves as a safety photocell. Therefore refer to column FSW in the Logic tables to check its behaviour in the different functions.

# FAAC

## CONNECTION WITH 624 BLD UNIT

To control the Faac City device with the 624 BLD unit, you need to connect the internal components of the traffic bollard according to the diagram of fig. 10 (if necessary, use the connection diagram indicated in the electronic manual of the 624 BLD unit for a more complete overview of the connections):

Specifically, connect the cables coming from the safety pressure switch to the terminal board of the travel-limit adapter, as shown in the following figure:



The absence of the opening travel-limit device in the Faac City application requires you to short-circuit the J3 connector as shown in figure 11.

Take great care when connecting the automatic lowering solenoid valve, if present. This solenoid valve, in fact, must be supplied with 24 Volt DC via an EXTERNAL POWER UNIT 230Vac-24Vdc able to supply 1.3 amp connected to the FAN output of the 624 BLD board on terminals 22 and 23 (as shown in fig. 10).

The heating resistances (optional item), if any, shall be controlled via an external power unit and a thermostat, which are independent from the 624 BLD board.

## PROGRAMMING THE BOARD

You need to change the following programming step on the 624 BLD board (refer to chapter "PROGRAMMING" of the electronic manual of the 624 BLD board):

### **First programming step**

- Set the step **dF** to the value **03** to install the FAAC CITY H600 and H800 standard. Exit the first programming level by scrolling the steps with the "F" key until you reach the status of the application without making any further changes.

The a.m. operation is indispensable and must always be carried out at the beginning of a new installation, BEFORE changing any other parameters in order to customise the application.

In this way, you can set the following basic parameters to control the Faac City on the 624 BLD board:

*Logic A, Pause time 30 seconds, Work Time Out 12 seconds, OUT1 output for Buzzer, OUT2 output for Head Lights and control parameters of the travel-limit/safety pressure switch.*

To customise the operation of the Faac City you can now enter the first and second programming level, remembering however not to change the parameter dF that shall remain to 00.

Further details and customisations can be found in the electronic manual of the 624 BLD board, which is supplied together with the application.



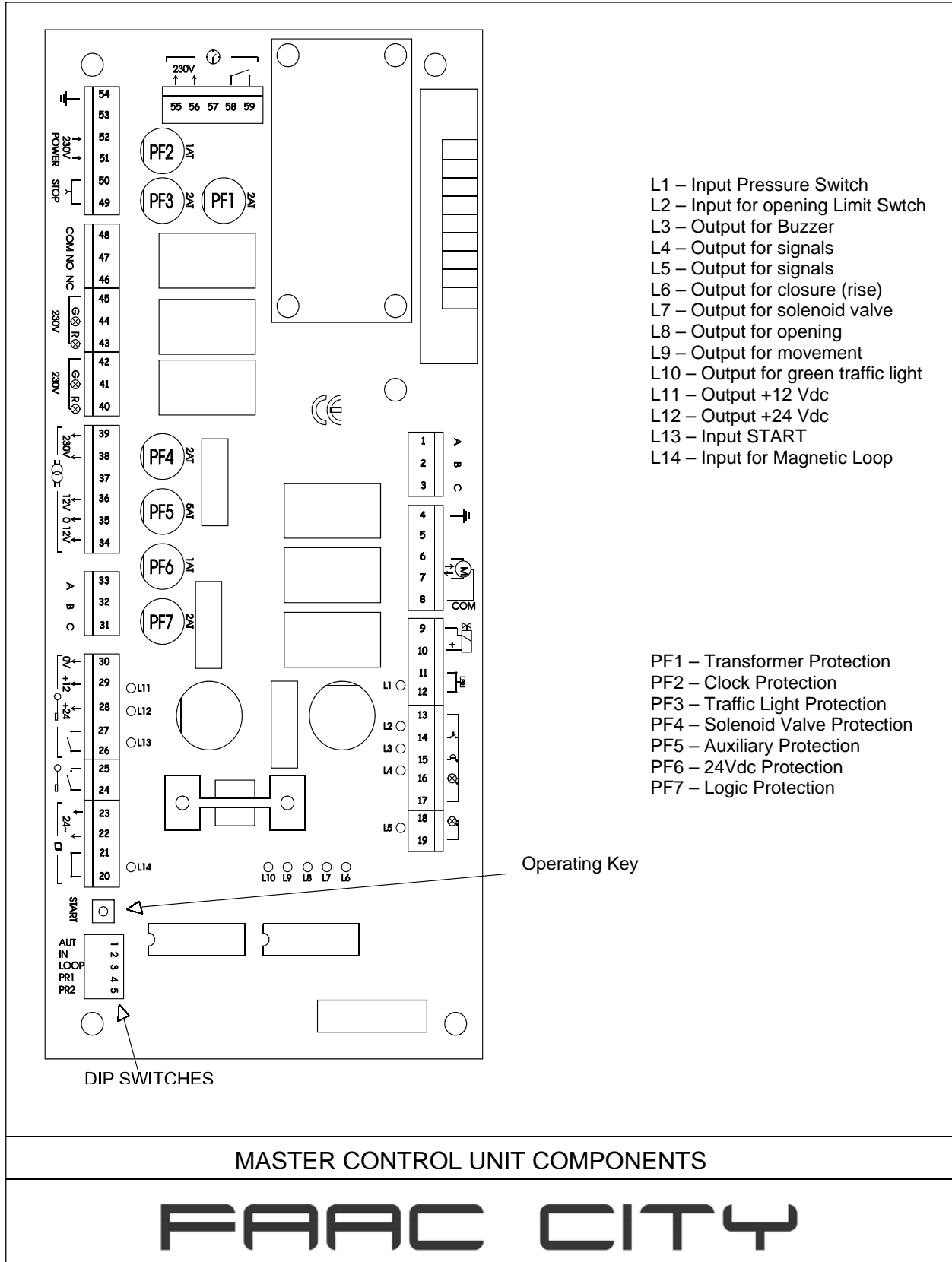


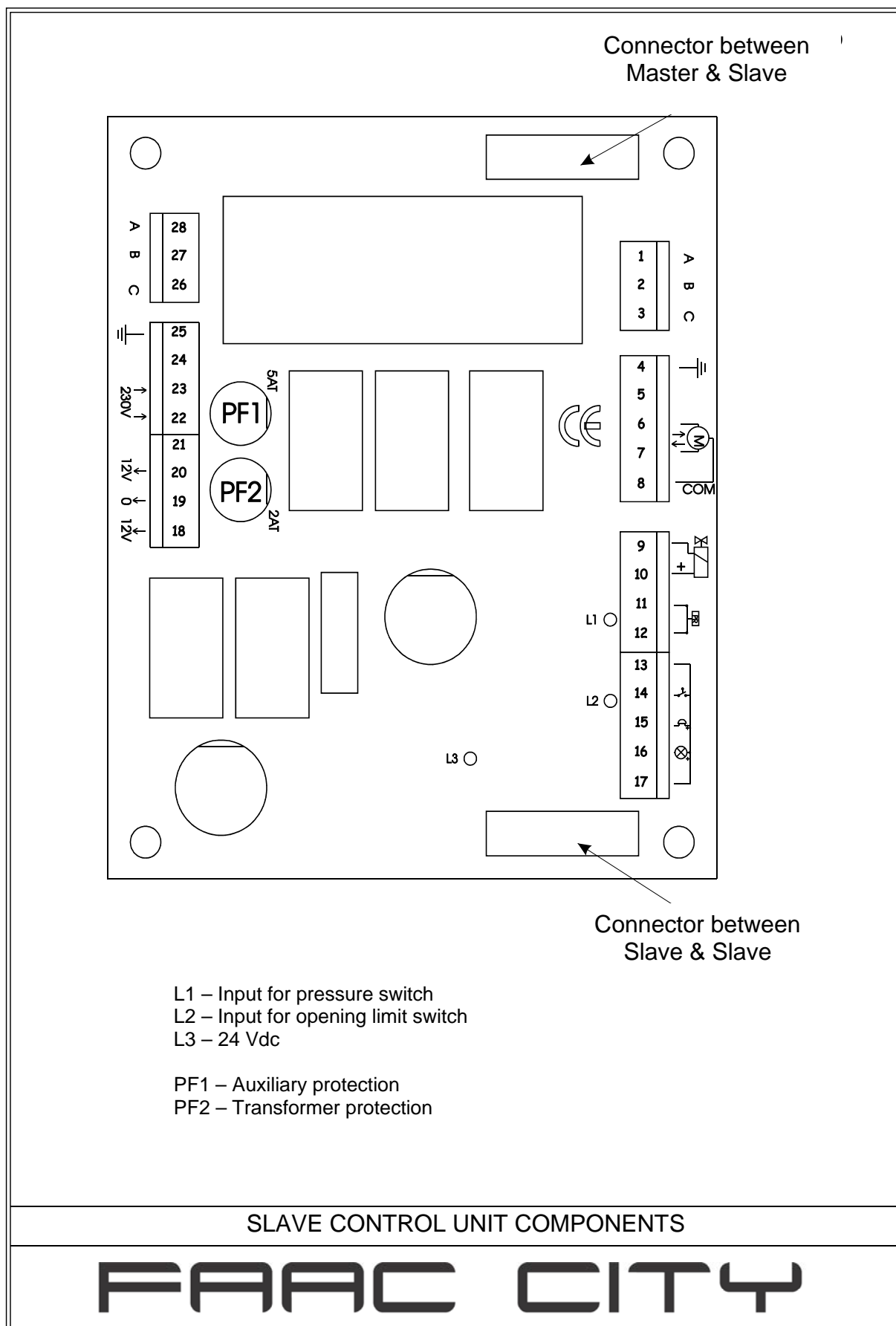
<b>TECHNICAL SPECIFICATIONS OF THE FAAC CITY MASTER CONTROL STATION</b>	
Electronic control circuit	<b>With microprocessor with specific software for controlling the FAAC CITY traffic bollards</b>
Housing for control station	<b>Standard, wall-mounted</b>
Dimensions of housing	<b>see enclosed table</b>
Protection class	<b>IP 55</b>
Operating ambient temperature	<b>-15°C + 70°C</b>
Control station power supply	<b>230V. +6/-10% - 50Hz</b>
Protective switches	<b>Thermal-magnetic 1P + N – 6A ÷ 16A – 30mA - 6KA</b>
Service transformer	<b>230/24 Vac 100VA</b>
Max. quantity of PILOMATs that can be connected to the control station	<b>Max 10 FAAC CITY devices with simultaneous movement – the first FAAC CITY is connected to the master unit – the remaining devices are connected to the additional slave units – the housing dimension depends on the quantity of FAAC CITY and on the required accessories</b>

<b>HOUSINGS FOR FAAC CITY TRAFFIC BOLLARDS DRIVE CONTROL STATIONS</b>		
<b>Dimensions L x H x D</b>	<b>Material</b>	<b>System configuration</b>
WALL-MOUNTED HOUSING 320 X 400 X 160	PLAST 120° C	- For basic system with 1 FAAC CITY.
WALL-MOUNTED HOUSING 400 X 480 X 160	PLAST 120° C	- For system with accessories and 1 FAAC CITY. - For basic system with 2 FAAC CITY.
WALL-MOUNTED HOUSING 400 X 600 X 200	STEEL FE 37	- For system with accessories and 2 FAAC CITY. - For basic system with 3 FAAC CITY.
WALL-MOUNTED HOUSING 500 X 700 X 200	STEEL FE 37	- For system with accessories and 5 FAAC CITY. - For basic system with 8 FAAC CITY.
FLOOR COLUMN 320 X 950 X 280 Protection class IP 44	POLYESTER	- For system with accessories and 2 FAAC CITY. - For basic system with 3 FAAC CITY.
<p>➤ <b>LARGER DIMENSIONS ARE AVAILABLE ACCORDING TO THE SYSTEM CONFIGURATION</b></p>		

## LAYOUT OF FAAC CITY MASTER AND FAAC CITY SLAVE EQUIPMENT

Below you will find the layouts of the Master and Slave equipment with the signalling LEDs functions and the indications of the protective fuses.



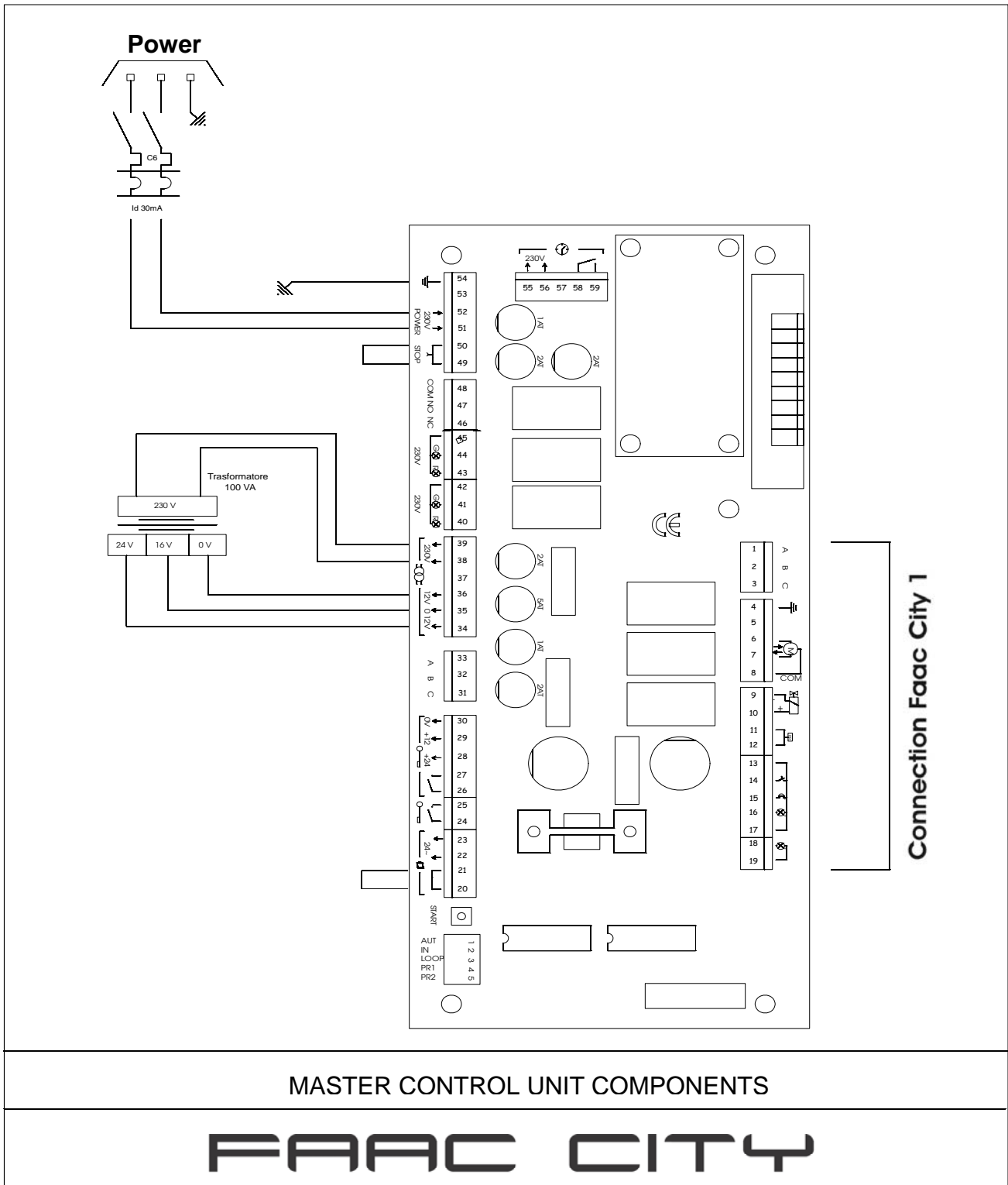


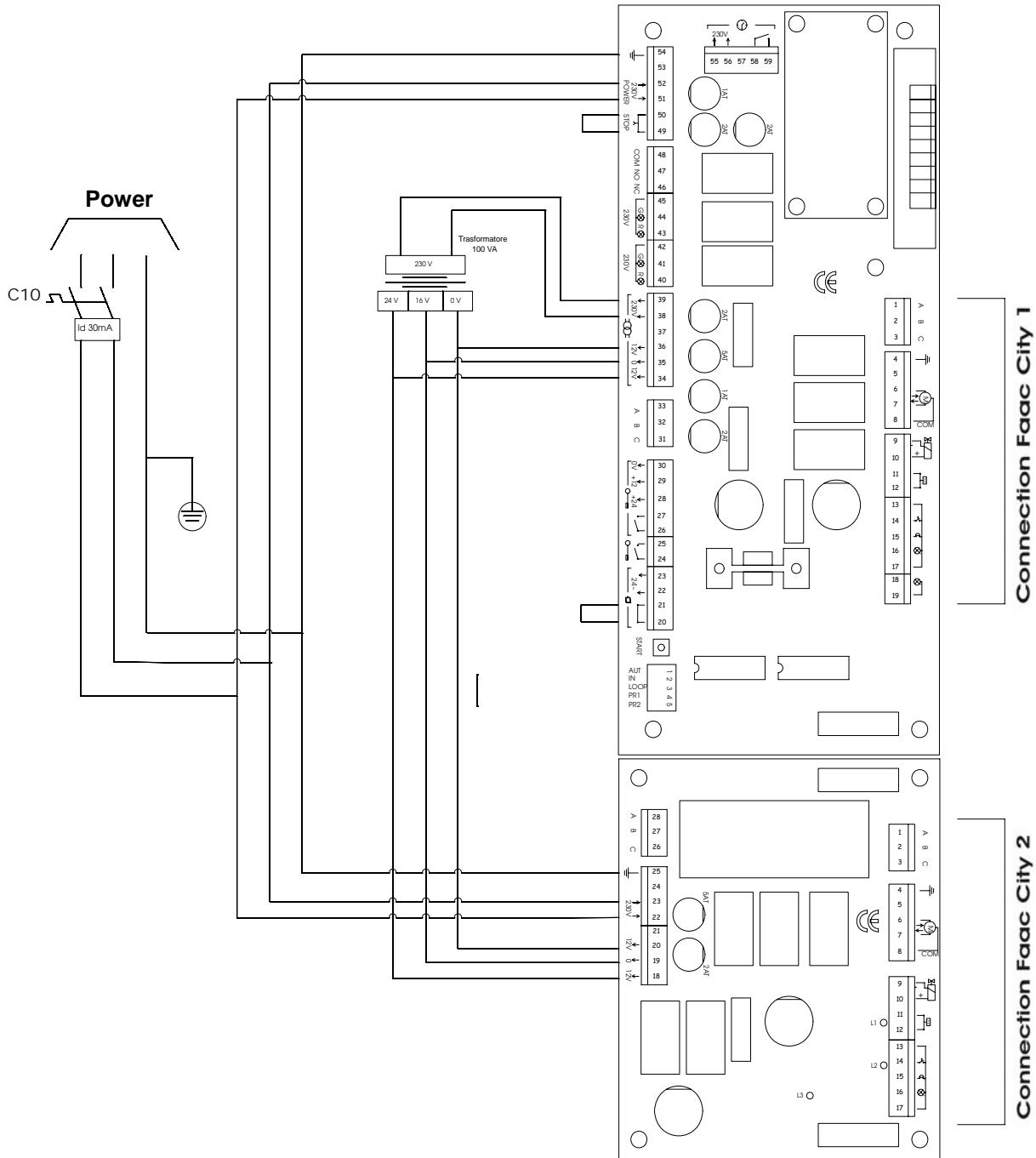
# FAAC

## POWER SUPPLY FOR THE FAAC CITY MASTER AND FAAC CITY SLAVE EQUIPMENT

Below you will find the diagrams for connecting the power supply to the Master board and to the Master board with one or more cascade-connected Slave boards. Usually the transformers are connected in the factory.

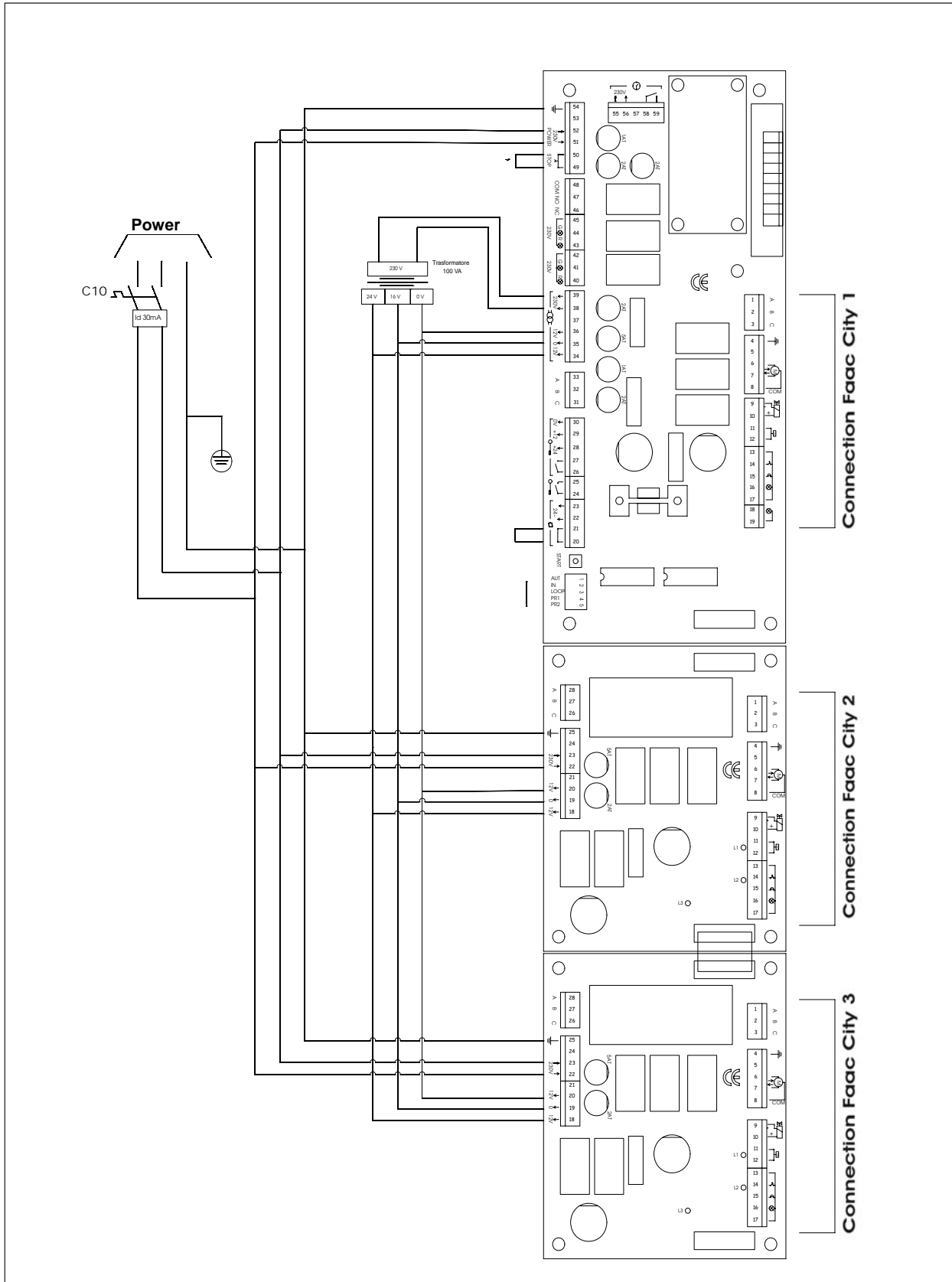
**Note:** the Faac City devices connected to the Slave boards perform the same movement as that connected to the Master board. If you need the bollards to perform different movements, you shall fit a Master board for every movement type to control.





## MASTER & SLAVE CONTROL UNIT CONNECTIONS

# FAAC CITY



## MASTER & 2 SLAVE CONTROL UNIT CONNECTIONS

# FAAC CITY



## **TERMINAL BOARD CONNECTING THE MASTER BOARD**

1-2-3	= through connection with 33-32-31 with protective fuse
4-5-6-7-8	= connection of the hydraulic unit
9-10	= connection of the automatic lowering device in the event of a 230V power fault
11-12	= connection of the safety pressure switch
13	= common contact for limit switch- buzzer- flashing lamp
14	= connection for FAAC CITY limit switch down
15	= connection for intermittent buzzer FAAC CITY
16	= connection of the flashing lamp incorporated in the FAAC CITY head
17	= common contact for: limit switch-buzzer-flashing lamp
18-19	= connection of flashing luminous sign (24 V a.c. intermittent output)
20-21-22-23	= connection of the safety inductive detector
24-25	= input for lowering control
26-27-28-29-30	= connection of the lowering control device
31-32-33	= through connection with 3-2-1 with protective fuse
34-35-36-37-38-39	= connection of service transformer
40-41-42	= 230v connection traffic light 1
43-44-45	= 230v connection traffic light 2
46-47-48	= traffic light remote repetition (voltage-free contact)
49-50	= connection of the emergency lowering push-button
51-52	= 230v connection to the electronic circuit
53	= not used
54	= earthing connection
55-56-57-58-59	= connection of the weekly/yearly clock

## **TERMINAL BOARD CONNECTING THE SLAVE BOARD**

1-2-3	= through connection with 28-27-26 with protective fuse
4-5-6-7-8	= connection of the hydraulic unit
9-10	= connection of the automatic lowering device in the event of a 230v power fault
11-12	= connection of the safety pressure switch
13	= common contact for limit switch - buzzer - flashing lamp FAAC CITY
14	= connection for limit switch FAAC CITY down
15	= connection for intermittent buzzer FAAC CITY
16	= connection of flashing lamp incorporated in the FAAC CITY head
17	= common contact for limit switch - buzzer - flashing lamp FAAC CITY
18-19-20	= connection to the service transformer
21	= not used
22-23	= 230v connection to the electronic circuit
24	= not used
25	= earthing connection
26-27-28	= through connection with 3-2-1 (with protective fuse)



## FUNCTIONS OF THE DIP-SWITCHES OF FAAC CITY MASTER BOARD

The dip-switch no. 1 on the Faac City Master board enables you to select the operating logic of the system (automatic or semiautomatic).

The dip-switches no. 2, 3 and 4 have been added to simplify trouble-shooting operations during system repair/maintenance jobs.

In facts, if faults occur, you do not need to disconnect the wires from the terminal boards, but you can override part of the circuits by positioning the dip-switches as you require.

DIP - SWITCH "OFF"	No. DS	DIP - SWITCH "ON"
AUTOMATIC RISE ENABLED	<b>1</b>	AUTOMATIC RISE DISABLED
COMMANDS ENABLED	<b>2</b>	COMMANDS DISABLED
SAFETY DEVICES ENABLED	<b>3</b>	SAFETY DEVICES DISABLED
RISE TRAVEL-LIMIT PRESSURE SWITCH ENABLED	<b>4</b>	RISE TRAVEL-LIMIT PRESSURE SWITCH DISABLED
-----	<b>5</b>	LEAVE ALWAYS ON

### DIP - SWITCH 1

This position is to be defined according to the use and the system configuration (if no safety device is used, it **MUST** be positioned to ON)

- **OFF position = AUTOMATIC RISE ENABLED:** the traffic bollard, normally in up position, moves to down position following a command. After the vehicle has transited through the controlled passage (and therefore it engages and then disengages the safety devices) the traffic bollard goes up again. If the vehicle does not pass, the traffic bollard returns automatically to the up position after 30". If the opening command is kept pressed, the traffic bollard remains in down position until the command is released (timer function).
- **ON position = AUTOMATIC RISE DISABLED:** the traffic bollard, after a first command, moves from up to down position. Following a further command it returns up.

### DIP - SWITCH 2

Default position: OFF

- **OFF position = COMMANDS ENABLED:** the commands for the bollard movement, connected to terminals 24/25 - 26/27 - 58/59, are in function.
- **ON position = COMMANDS DISABLED:** the commands for the bollard movement, connected to terminals 24/25 - 26/27 - 58/59, are disabled. If the FAAC CITY traffic bollard does not rise, run a test by means of the push-button on the board (START) after having momentarily disabled the external command devices.





### DIP – SWITCH 3:

Default position: OFF

- **OFF position = SAFETY DEVICES ENABLED:** the inputs for the safety devices (terminals 20/21) are enabled. If no safety devices are fitted, jumper connect terminals 20 and 21.
- **ON position = SAFETY DEVICES DISABLED:** the input for the safety devices (terminals 20/21) is disabled. If the FAAC CITY traffic bollard does not rise, you can momentarily disable the safety devices to check if the fault is caused by them.

**Note:** to fit devices for the detection of metallic masses, please refer to the instructions of the traffic bollard and to the instructions of the single devices.

### DIP – SWITCH 4:

Default position: OFF

- **OFF position = RISE TRAVEL-LIMIT PRESSURE SWITCH ENABLED:** in the final rising phase, the signal from the pressure switch is used as rise travel-limit.
- **ON position = RISE TRAVEL-LIMIT PRESSURE SWITCH DISABLED:** the a.m. function is disabled. The rise command is kept for the entire duration of the time-out time (cannot be changed).

### DIP – SWITCH 5:

Default position: ON

**Leave always ON.**

### THE FOLLOWING CHECKS ARE ALSO TO BE PERFORMED:

- Check the operation of the flashing lamp incorporated in the bollard head
- Check the operation of the safety inductive loops
- Check the operation of the command radio receiver
- Visual check of the control unit

### FINAL OPERATIONS

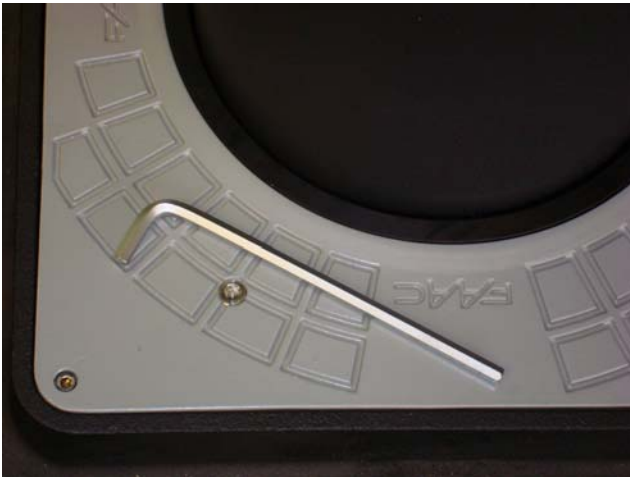
After installation, check the correct operation of the traffic bollard, paying special attention to the safety devices, if any.

## MANUAL LOWERING PROCEDURE

In the event of a power fault or system failure, you can perform the following operation for the manual lowering of the traffic bollard:

- Unscrew the Allen screw on the base in order to remove it from its seat.
- Press the key under the seat of the screw using an Allen wrench. The traffic bollard lowers as long as the key is kept pressed.
- When the bollard is down, tighten the screw to the base.

The manual lowering device is not supplied with the FAAC CITY bollards equipped with an automatic lowering device.





**STANDARD PROCEDURE FOR A 6-MONTHLY ORDINARY MAINTENANCE OF CONCEILING TRAFFIC BOLLARD FAAC CITY 275 H600 and 275 H800:**

Ordinary maintenance standard procedure:

- Clean the pit and remove any settled material by suction
- Clean the water drainage systems on the pit bottom
- Clean and lubricate the central sliding guide
- Check (and replace, if necessary) the bottom limit-stop gaskets
- Check (and repair, if necessary) any oil leakages from the driving piston
- Check the correct tightening of the bollard screws
- Clean the driven cylinder and touch up paint, if necessary
- Check the hydraulic unit and top up oil, if necessary. Check the setting of the operating pressure
- Check and set, if necessary, the functions of the safety pressure switch (40 Kg.)

**THE FOLLOWING CHECKS ARE ALSO TO BE PERFORMED:**

- Check the operation of the flashing lamp incorporated in the bollard head
- Check the operation of the safety inductive loops
- Check the operation of the command radio receiver
- Visual check of the control unit



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Distributor's stamp:

The descriptions and illustrations in this manual are not binding. While leaving the essential characteristics of the equipment unaltered, FAAC reserves the right, at any time and without having to update this publication, to make the modifications which it considers convenient for technical improvements or for any other construction or commercial requirements.