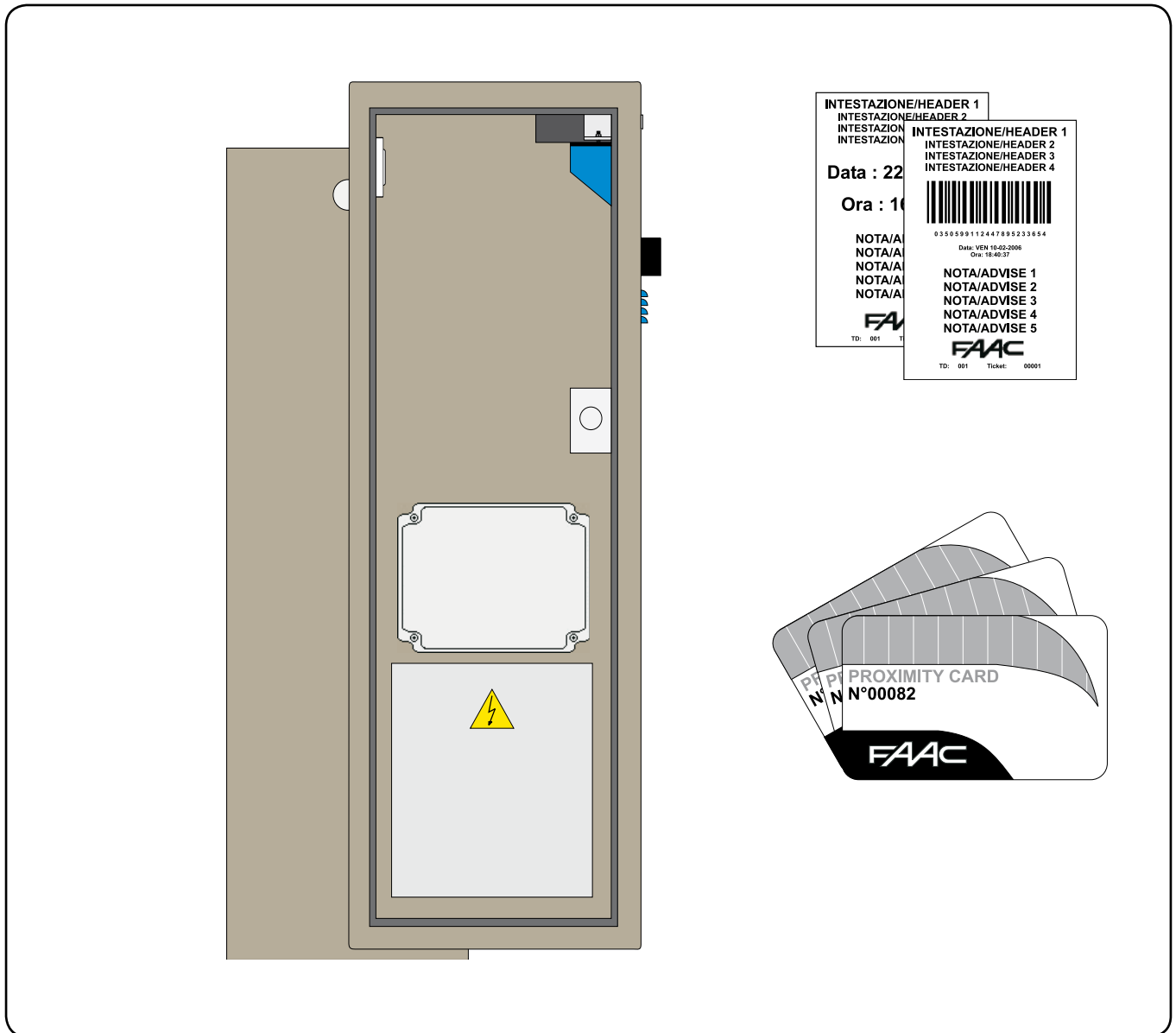


Ticket Reader

ParkLite



INSTALLATION MANUAL

FAAC

TR ParkLite rev. A

CE DECLARATION OF CONFORMITY

Manufacturer: FAAC S.p.A.

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

Declares that: the ParkLite Ticket Reader

- 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 conforms to the following standards:

EN 50081 -1

EN 60555 - 2

IEC 801 - 2

EN 50082 -1

EN 60555 - 3

IEC 801 - 3

EN 60335 -1

EN 55022

IEC 801 - 4

EN 60204 -1

EN 55014

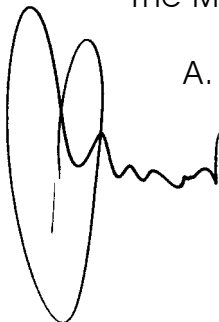
Additional notes:

This product underwent a test in a typical, uniform configuration (all products of FAAC S.p.A.).

Bologna, 01 January 2006

The Managing Director

A. Bassi



WARNINGS FOR THE INSTALLER

GENERAL SAFETY OBLIGATIONS

- 1) **IMPORTANT! To ensure the safety of people, it is important that all the instructions be carefully read. 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) Packing materials (plastic, polystyrene, etc.) must not be left within the reach of children, because these materials are potential danger sources.
- 4) Keep the instructions for future reference.
- 5) This product was designed and built exclusively for the use indicated in this documentation. Any other use not expressly indicated could compromise the condition of the product and/or be a source of danger.
- 6) FAAC declines any responsibility due to improper use or use other than the use for which the product is 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 use Good Workmanship in installing the product.
- 9) The installation must be carried out by observing standards EN12453 and EN12445.
- 10) Before attempting any action on the system, cut out the electrical power supply.
- 11) Install an omnipolar switch upstream of the power supply line for the ParkLite Ticket Reader with contact opening distance of 3 mm. or more. We advise you to use a 6A thermal breaker with omnipolar switching.
- 12) Make sure that a differential switch with a threshold of 0.03A is installed upstream of the system.
- 13) Make sure that the earthing system is expertly made and connect to it the Yellow/Green earth terminal of the Ticket Reader.
- 14) FAAC declines all responsibility for the safety and efficient operation of the Ticket Reader, if system components not produced by FAAC are used.
- 15) For maintenance, strictly use original FAAC parts.
- 16) Do not in any way modify the components of the ParkLite Ticket Reader.
- 17) The installer must supply all information on the operation of the system and hand over to the user, the “User’s Guide” which accompanies the product.
- 18) The user must not in any way attempt to repair or to take direct action and must contact qualified personnel only.
- 19) **Anything not expressly specified in these instructions is not permitted.**

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1. DESCRIPTION AND TECHNICAL SPECIFICATIONS

1.1 DESCRIPTION

The ParkLite Ticket Dispenser was designed to manage the exit lane of a parking area. This function can be carried out by the equipment only subordinately with respect to the “ParkLite” management software.

The unit which controls exit from the gate must be connected to the data Controller PC, and to the relevant application program. This type of connection makes it possible to exploit all the services offered by the system, thanks to the support of the parking area management program.

The ParkLite Ticket Reader is available in three versions:

- **ParkLite TR**
- **ParkLite TR-TAG**
- **ParkLite TR-MAG**

All models are provided with the ticket reading module, for managing single-stay users.

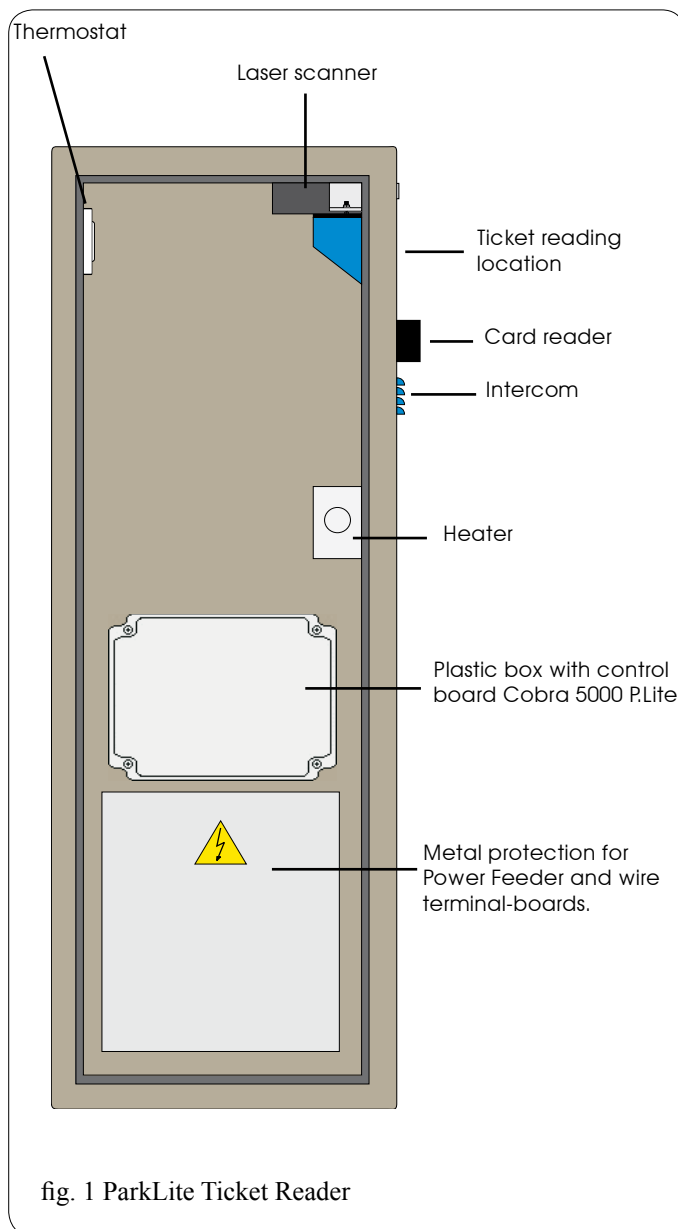


fig. 1 ParkLite Ticket Reader

The equipment was designed to read tickets with a 22-character interleaved 2/5 barcode, issued by the ParkLite Ticket Dispensers installed on the area entry lanes, or by the ParkLite Decentralised Cash Desks, as substitute tickets.

The ParkLite Ticket Reader reads the ticket by means of a one-way 16-line laser scanner, at a scanning speed of 1200 times a second.

“ParkLite TR-TAG” has a reader of passive proximity cards, which detects memory-stored codes at a frequency of 125 KHz.

“ParkLite TR-MAG” has a magnetic card reader, which reads magnetic bands coded on a Standard 2 ISO track.

The equipment is operational only when it is on-line with the management software.

The Ticket Reader can be connected to a specific intercom control unit (optional), which enables the operator to remotely communicate with the user situated on the exit lane.

Connection with two magnetic loops, able to detect the presence and transit direction of the vehicle, is obligatory for all models.

The engagement and disengagement of these sensors, allows the Ticket Reader to enable the ticket/card reading modules, control the car’s travelling direction, supply the closing command to the beam and do the counting.

The location of the loops, in common with the equipment for controlling access in the exit lane, must observe to the letter the instructions in the following chapters.

The Ticket Reader directly opens/closes the beam with an impulsive logic, providing the open/closed command.

For this reason, when creating exit gates for vehicles, solely beams which manage the car park logic must be used.

The vehicles-only lanes must be provided with appropriate horizontal and vertical signs indicating “transit by pedestrians forbidden”. Likewise, if there are any pedestrian crossings on the lanes, all the beams must be made safe and suitable warning signs must be installed. See the current legal regulations on the matter (in particular standards: EN12453 and EN 12455).

To avoid damage to transiting vehicles, the barriers must be equipped with a safety option, which makes it possible to connect the “vehicle present” signal, received from the transit loop, to avoid accidental closure. This characteristic must be enabled also when photocells installed under the beam are used.

1.2 TECHNICAL SPECIFICATIONS

Tab. 1 Characteristics present on all ParkLite Ticket Reader models

DIMENSIONS	350x1050x170 (Width x Height x Depth in mm)
WEIGHT	30 Kg
CABINET PROTECTIVE TREATMENT	Cataphoresis
CABINET PAINT	Opaque grey and blue micalised polyester
POWER SUPPLY	230 Vac (+6% - 10%) 50 Hz
OPERATING AMBIENT TEMPERATURE	-20°C / +50°C
ABSORBED POWER WITH HEATER	100 Watt
ABSORBED POWER WITHOUT HEATER	45 Watt
INPUT/OUTPUT CONNECTIONS	Through pull out terminal-boards, on control board
METAL DETECTOR FOR LOOP CONNECTION	Integrated, with two channels and doubled outputs
POWER SUPPLY	Switching on 2 channels; 115Vac - 230Vac
HEATER	Yes
TEMPERATURE MAINTENANCE THERMOSTAT	Yes (value range from 0° to 30° Celsius)
DATA TRANSMISSION LINE	RS485
CONTROL UNIT	COBRA 5000 P.Lite board
RAM CONTROL UNIT	512 KByte
USER CAPACITY	5000
EVENT CAPACITY	15000
BARCODE READER	One-way laser scanner
SCANNING RESOLUTION	16 lines
SCANNING SPEED	1200 per second
READ TICKET DETECTION	Barcode with 22 characters 2/5 interleaved

Tab.2 Characteristics present only on ParkLite TR TAG

TYPE OF CARD READER	Contact Less reader of Passive Transponders
CARD DETECTION FREQUENCY	125 KHz
TYPE OF READ CARDS CODING	UNIQUE
CARD DETECTION DISTANCE	Max. 10cm.
CARD FORMAT	ISO (86x54x0,78mm)

Tab. 3 Characteristics present only on ParkLite TR MAG

TYPE OF CARD READER	Magnetic card swipe reader (100% of track)
TYPE OF READ CARDS CODING	Standard 2 ISO track (from 1 to 37 characters)
CODING CODE	High coercitivity 4000 Oe
CARD FORMAT	ISO (86x54x0,78mm)

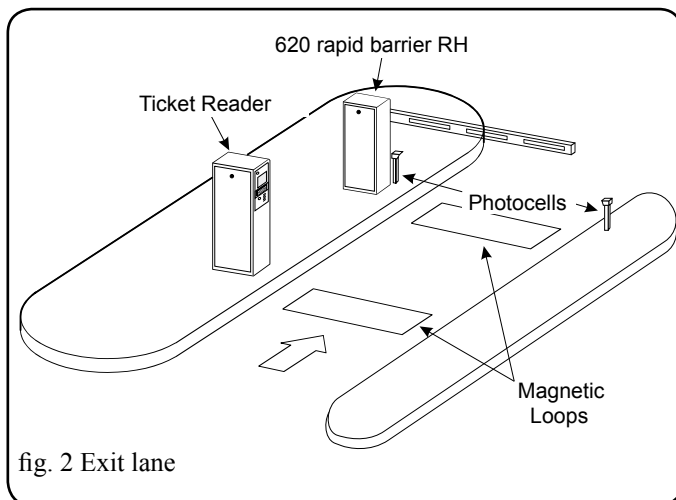
2. INSTALLATION OF COMPONENTS

2.1 LANE CHARACTERISTICS

All the components of an exit lane of a ParkLite automated parking system, are directly managed by the Ticket Dispenser.

The exit lane of a parking area consists of:

- **Nr. 01 ParkLite Ticket Reader.**
- **Nr. 01 620 rapid barrier RH.**
- **Nr. 02 Magnetic loops.**
- **Nr. 01 Pair of photocells.***



* optional

2.2 ESSENTIAL REQUIREMENTS

- The exit lane from a parking area managed by the Ticket Reader must be constructed so that the vehicles coming from different directions can easily get close to the column, to enable the user to read the ticket or a valid card without any difficulty.
- The equipment must be installed on an island 15 cm. above road level. If this is not possible, protective structures must be installed around the base of the two columns (TR and barrier 620) and the Ticket Reader must be raised 15 cm. above the lane paving, so that the devices for reading and treating the tickets for exit from the parking area are located at the right height.
- The Ticket Reader operates only if the magnetic loops have been correctly connected to it. In fact, the column was designed to manage all the user exit from lane stages, exploiting these two elements, which are generally defined as: presence loop and transit loop.

The construction and deployment of the loops is fundamentally important to ensure that the system functions correctly. For this reason, observe to the letter all the instructions described in the following paragraphs:

2.3 Making the Magnetic Loops

2.7 Positioning the equipment.

- The power cables and the cables for connecting the equipment in the parking system must have the characteristics indicated in paragraph:

3.2 Type of cables.

Furthermore, all the instructions in paragraph “General safety rules” on page 3 must be respected, and, with reference to the specific electrical preparations, as described in paragraph:

3.1 Safety rules.

- The Ticket Reader was designed to manage automatically the exit of vehicles from a parking area. Therefore, transit by pedestrians must be forbidden in the area reserved for transit of vehicles. Moreover, appropriate signs prohibiting transit by pedestrians must be installed. Where it is not possible to have an entrance/exit gate reserved exclusively for pedestrians, the current legal regulations on the subject must be absolutely observed; (in particular standards: EN 12453 and EN 12445)
- The lane must not allow the exit by two or more vehicles side by side. For this reason, the width of the lane must be appropriately sized, according to the type of vehicle generally used.
- Sufficient space must be provided for every equipment of the parking system, so that all the necessary installation and maintenance operations can be smoothly carried out.
- Position the Ticket Reader so that it (laser scanner) is not directly exposed to luminous radiation, which could be source of disturbance during reading.

- Appropriate signs (not supplied by FAAC), indicating the tariffs and the car park rules must be visibly shown on the entrance lane to the car park.

NB.: All the equipment which can be used in the ParkLite parking system, were designed and tested by FAAC, in observance of the points mentioned above. In order to avoid any kind of unforeseen behaviour, all the rules shown in this manual must be observed.

2.3 CONSTRUCTION OF LOOPS

2.3.1 INSTALLATION

The following instructions must be respected:

- Lay the loops at least 15 cm. from fixed metal objects.
- Lay the loops at least 15 cm. from fixed metal grilles.
- Lay the loops at least 50 cm. from moving metal objects.
- The loops must be laid at a depth of 30mm. to 50mm. from the road surface.
- The loop must be made with a single cable, without making any joints or shunts inside the pits.
- The two ends of the cable issuing from the loop perimeter must be twisted or intertwined with each other at least 20 times per meter, up to the connection inside the Ticket Reader.
- The twisted cable of the loop must be laid in pipes or cable ducts separated from those used for other purposes (power etc.).

2.3.2 CONSTRUCTION

The shape of the loops must be 'rectangular'. The corners must be cut at 45° to prevent the cable breaking, due to the vibrations of transiting vehicles or possible settling of the road paving.

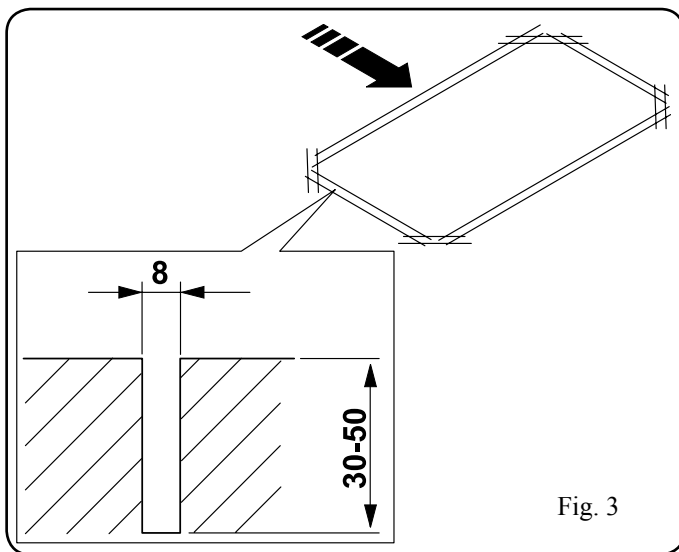


Fig. 3

There are two methods for making them:

- Lay a single single-pole cable with a cross section of 1.5 mm², with double insulation, directly in a chase made in the existing road paving.
- First construct a cable duct in PVC of the necessary shape, insert a single-pole single-insulation cable with a cross-section of 1.5 mm² inside it, and then lay the loop thus constructed inside the chase.

NB.: in both cases, respect the requirements specified in point 2.3.1.

2.3.3 NUMBER OF WINDINGS

The loop must consist of a precise set of windings of the cable

described up to here, around the perimeter in which it must be constructed.

Procedure for the above operation: insert the cable end from the sharp edge providing access into the chosen seat, next run it inside for a set of full 'circuits', to make a coil, and then make the same cable come out from the point where it had been inserted.

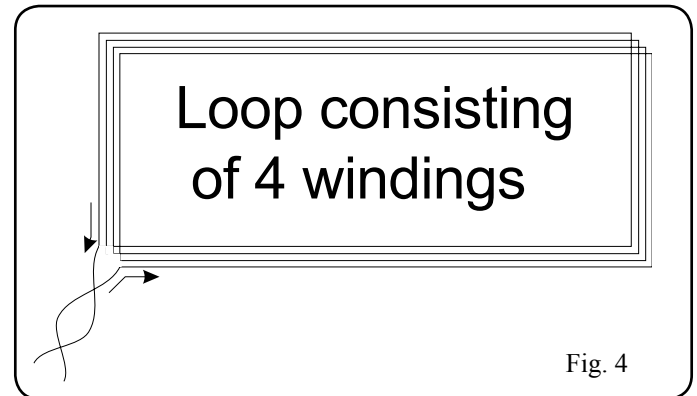


Fig. 4

The windings which must be made in order to construct the loop correctly, depend on the dimension of the perimeter. The dimensions of the loops to be laid on the lane managed by the Ticket Reader, shown in the following chapters, call strictly for the construction of 4 windings.

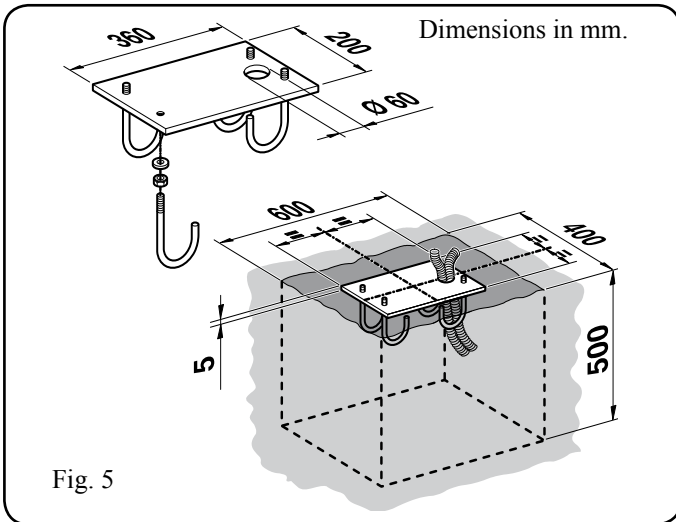
In fact, the system detects all the transit stages of the vehicles on the entrance lane, making use of these devices. As a result, fewer than specified windings will not make the equipment, assigned to control the lane, operate correctly.

NB.: if there are metal nets under the paving (see the distance of the metal grilles previously referred to), we advise you to add 2 windings to the 4 obligatory windings.

2.4 MASONRY PREPARATIONS

2.4.1 LAYING THE FOUNDATION PLATES

The foundation plate for securing the Ticket Reader is identical to the one used for installing the 620 barrier. The drawing below shows the dimensions and methods for laying them both.



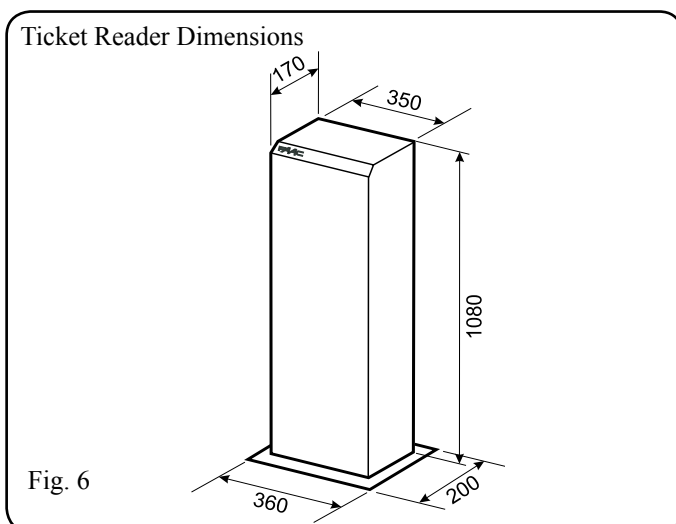
2.4.2 FASTENING

Ticket Reader and/or 620 Barrier

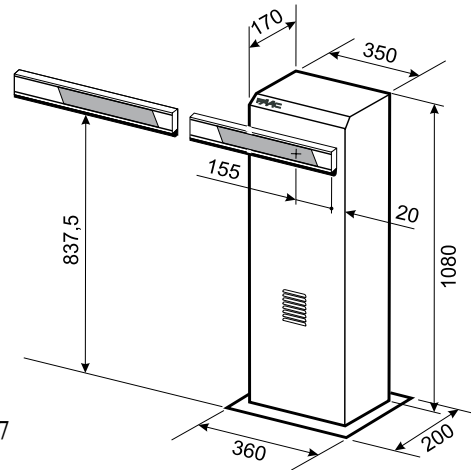
- Using a level, check if the foundation plate is perfectly horizontal before installing.
- Secure the upright to the plate with suitable nuts and washers.
- Position the Ticket Reader so that it (laser scanner) is not directly exposed to luminous radiation, which could be source of disturbance during reading.

2.5 COMPONENT DIMENSIONS

The following pictures show the dimensions in millimetres of the main lane equipment.



Dimensions of 620 Barrier



The dimensions of the barrier rod obviously depend on many different factors: lane width, gate height (in case of on-site installations with cover), etc.

We advise you to determine the size of this element, so that it can move freely.

2.6 PREPARATION OF CHANNELS

Before carrying out the masonry works required to make the lane, prepare all the channels/ducts/raceways essential for cable routing, for electrical connection of the system's equipment.

Lay the cable ducts, scrupulously observing the indications shown in the lay-out below.
Separate ducts must be provided between: high voltage (230

Vac power cables) and low voltage (cables for: commands, safety, intercom, serial data line, etc.).
Furthermore, appropriately size the diameter of the cable ducts to be laid, in relation to the cross-section and number of cables to be inserted. To this end please refer to section 3. **Electrical preparations** of this manual.

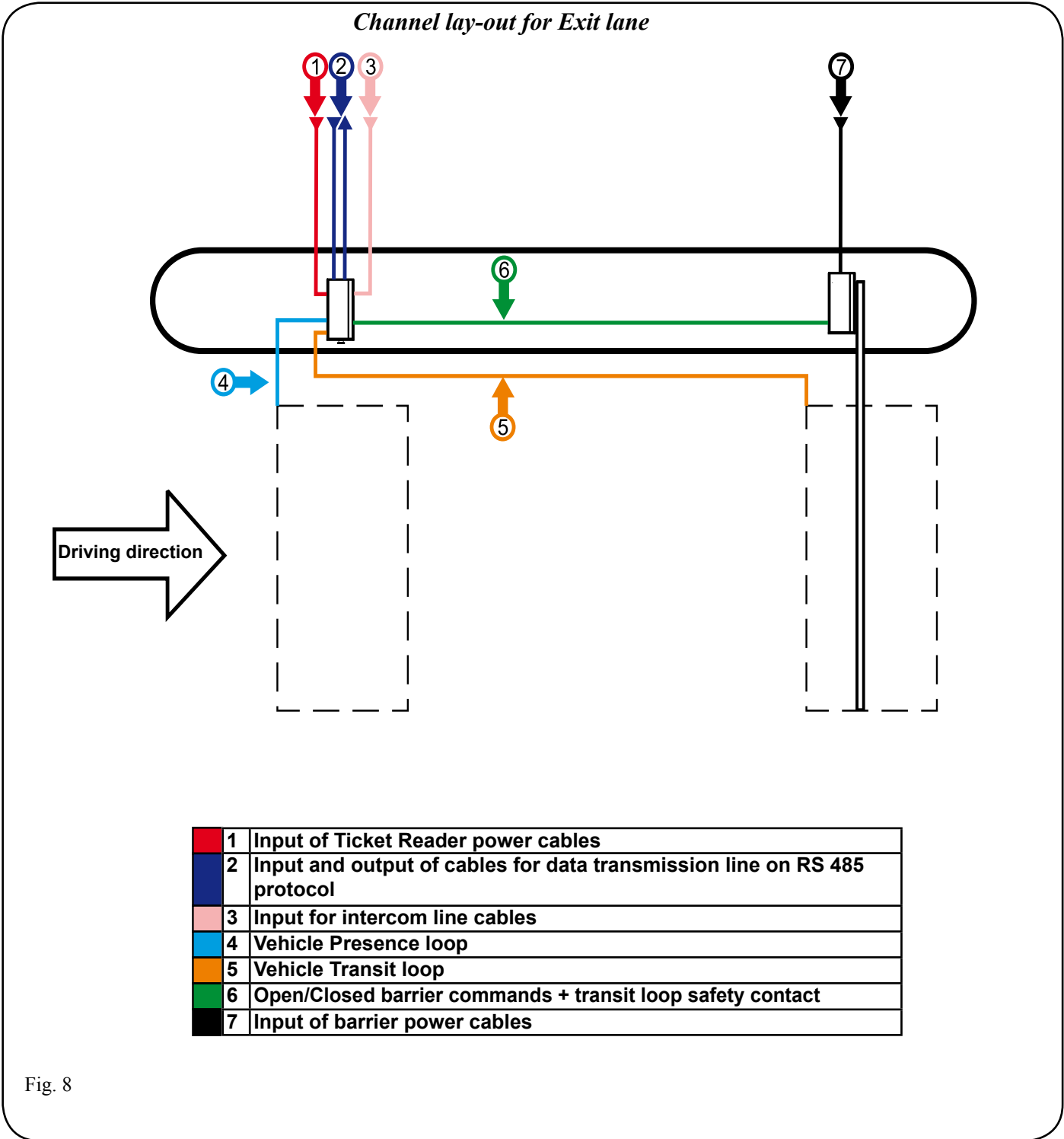


Fig. 8

2.7 POSITION OF EQUIPMENT

To ensure the parking system operates correctly, all the equipment of the exit lane must be positioned, strictly observing the

dimensions shown in the lay-out below:

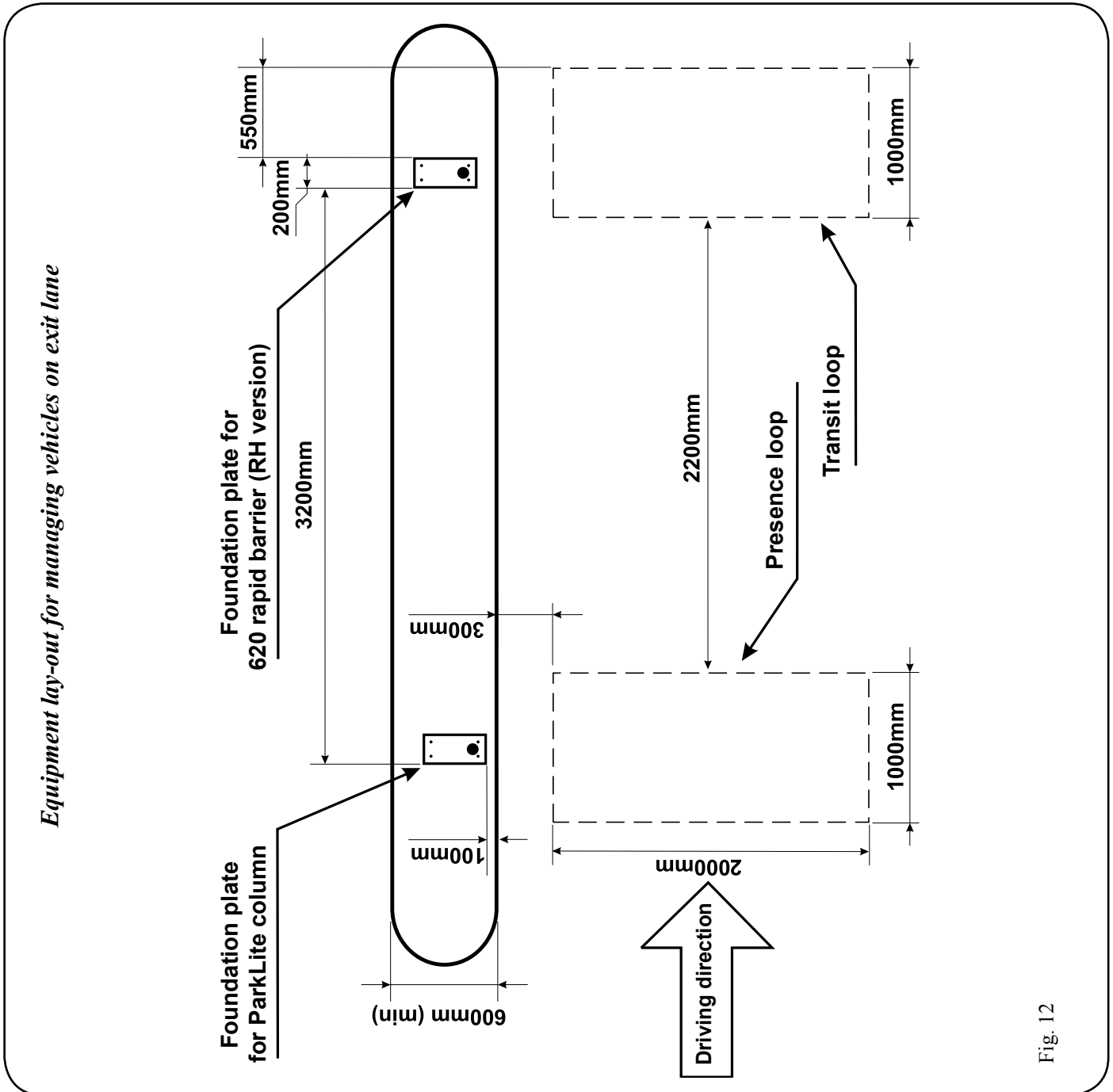


Fig. 12

3. ELECTRICAL PREPARATIONS

3.1 SAFETY INSTRUCTIONS

- Before attempting any action on the system, cut out the electrical power supply.
- Install an omnipolar switch upstream of the power supply line for the device, with contact opening distance of 3 mm. or more. We advise you to use a 6A thermal breaker with omnipolar switching.

- Make sure that a differential switch with a threshold of 0.03A is installed upstream of the system.
- Make sure that the earthing system is expertly made and connect to it the metal parts of the closing element.
- Apply all the instructions described in the preceding points to all the lane devices, in addition to the Ticket Reader.



3.2 TYPE OF CABLES

The characteristics of the cables, to be used for connecting the Ticket Reader, are determined to ensure that the equipment and all the devices connected to it operate well.

For this reason, you must use only the conductors with the characteristics described in the table below:

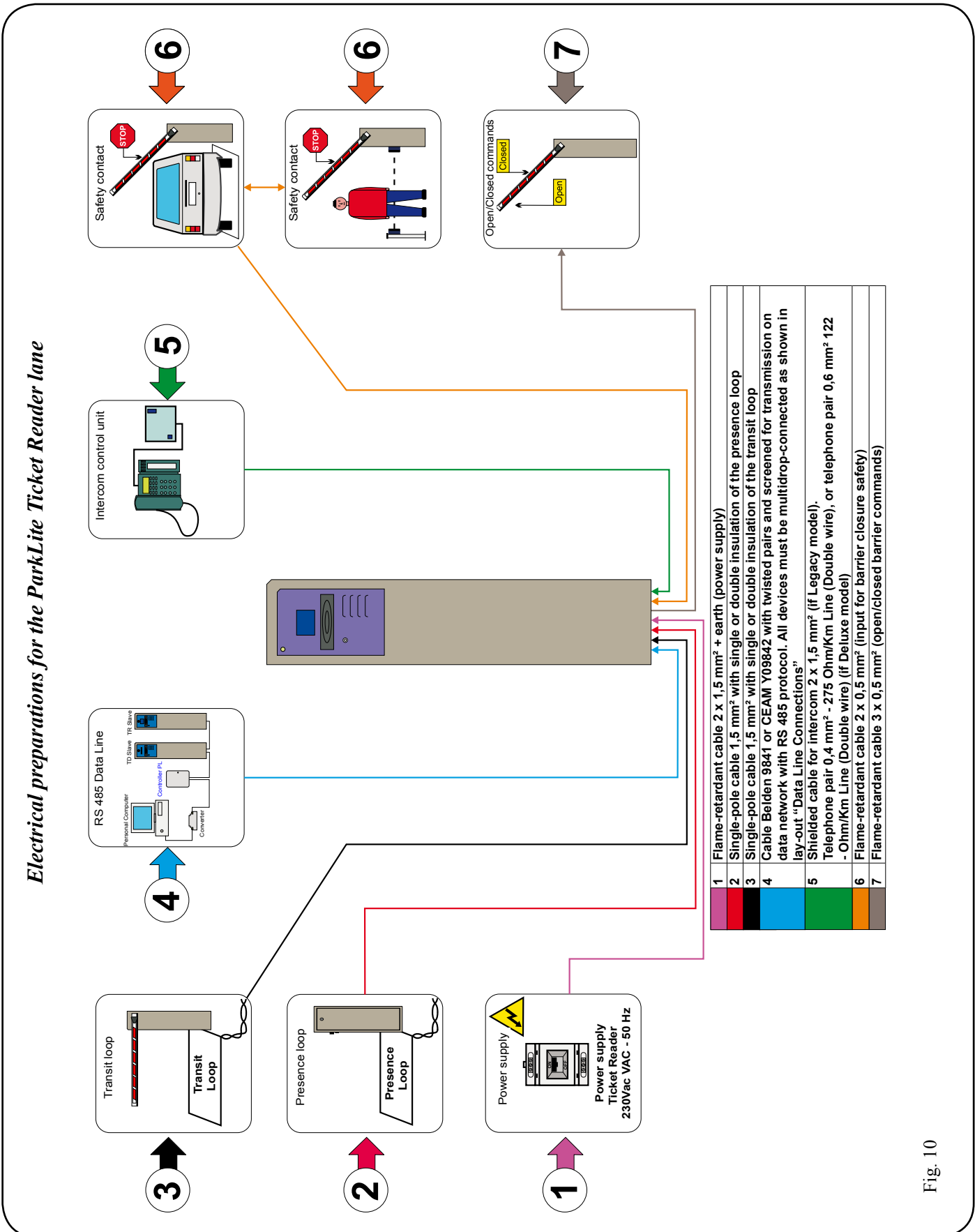


Fig. 10



4. ELECTRICAL CONNECTIONS

4.1 CONNECTIONS ON INTERFACE BOARD

Most of the devices managed by the Ticket Reader are connected via the Interface board. The lay-out below shows all

the connections that can be made, for all the types of uses for which the equipment was designed.

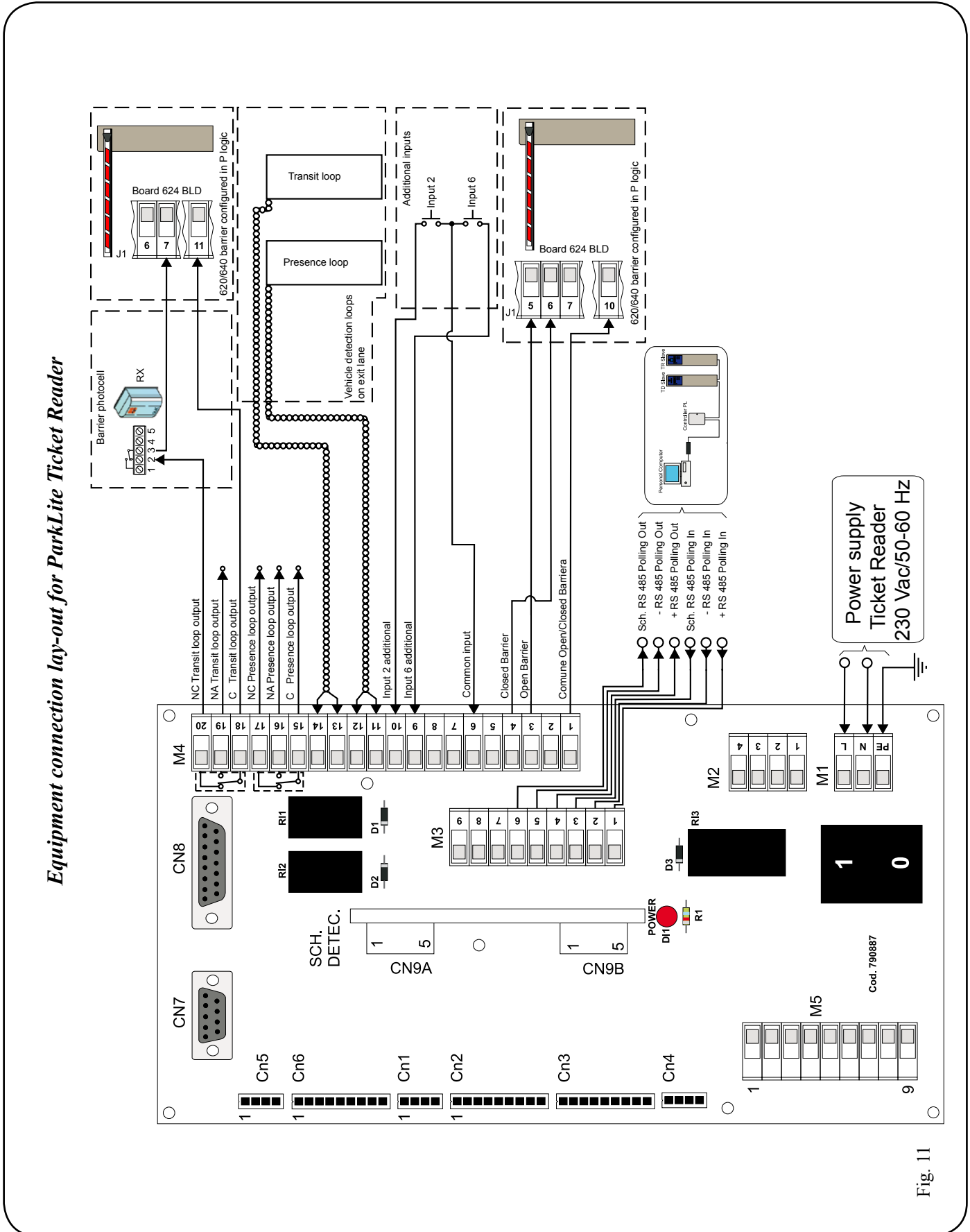


Fig. 11



4.2 DATA TRANSMISSION LINES

The Ticket Reader must be connected to a data transmission line, so that all the necessary information can be transmitted/received, in a specific management unit, to which the equipment will be slaved. In the higher performance systems, all the devices which control entrance/exit to/from the parking area,

are controlled by a Personal Computer (data controller) by means of the ParkLite software. The lay-out in the following figure shows the connection of the various types of equipment which can be connected to the data transmission line. In addition to this, a table summarises the characteristics required for operation of the data communication networks.

Connection of data lines in a system operating on-line with controller PC and ParkLite management software

- Network connection between Concentrator PC and NET PC**
- The concentrator PC must share the program's (ParkLite) work directory with all the NET computers for access, reading and writing.
 - If the system uses NET stations, both the concentrator PC and the NET PC must have a static address assigned to them..
 - The fundamental parameters for network connection between PCs, such as: IP address, Netmask, Gateway, etc, must be supplied by the customer's network administrator.
- RS 485 Data transmission line**
- Use a paired, twisted and screened cable for transmission on data network with RS 485 protocol, type Beiden 9841 or CEAM Y09842 or with identical characteristics.
 - All devices must be multidrop-connected as shown in lay-out .
 - A maximum of 31 devices can be connected for every line output from the converter.
 - The total maximum distance of the network must not exceed 1200 mt.
 - Insert a 120 Ohm termination resistor (insert by shifting a jumper on the Cobra control unit or on the converter) at the end of the line..
 - Star-type connections are not permitted.
 - Do not make any joints on the data transmission cable.

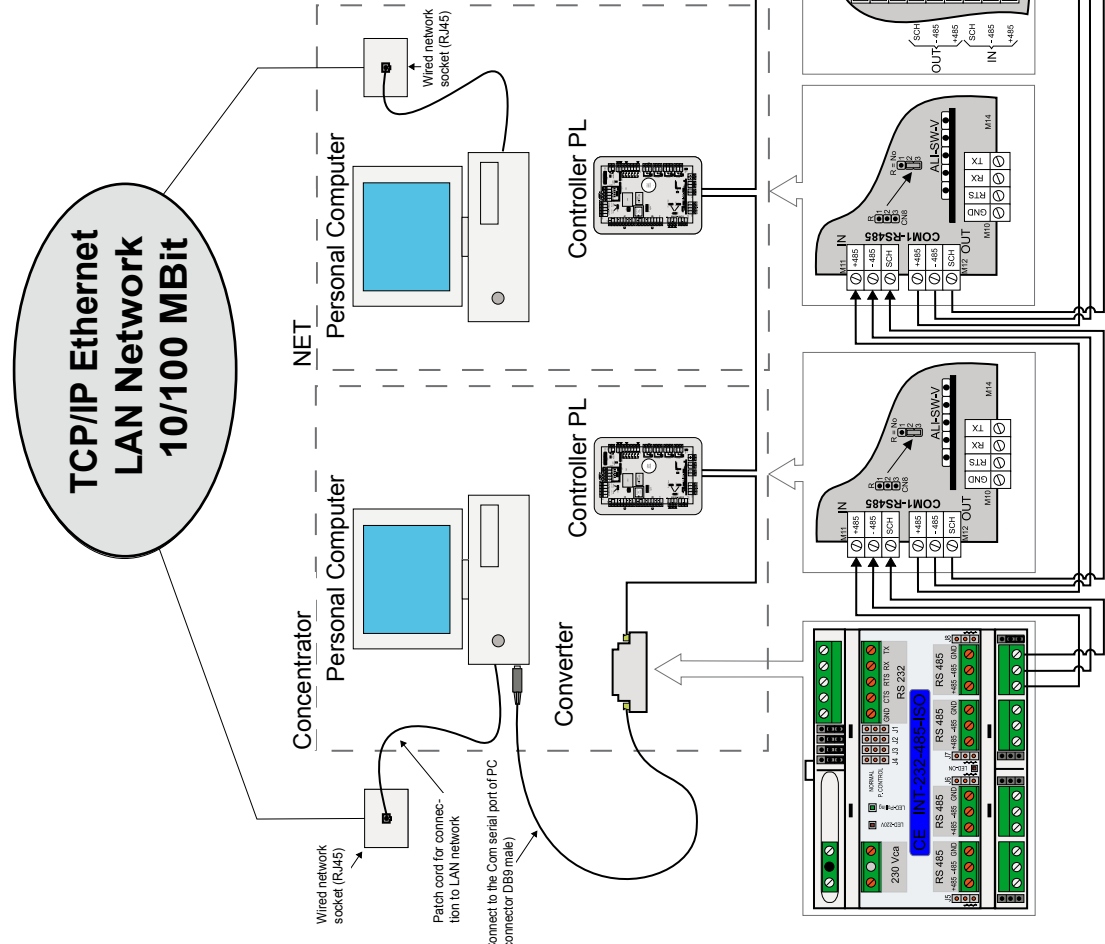


Fig. 12

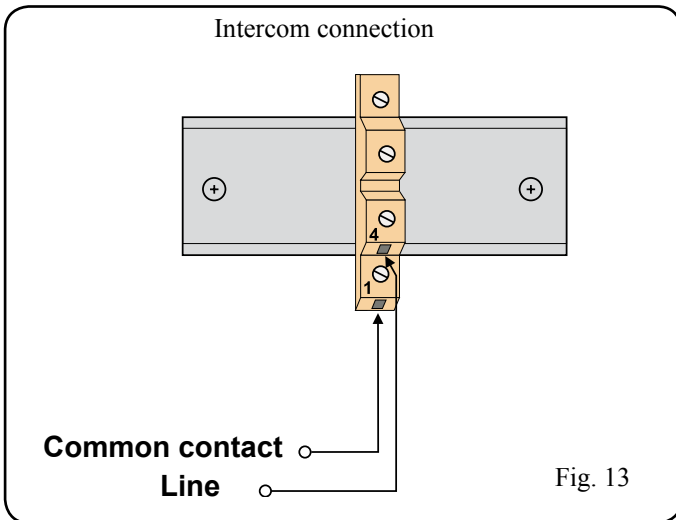


4.3 INTERCOM CONNECTION

The intercom is an optional item and can be supplied in two different models, named:

- LEGACY
- DELUXE

The connection of the intercom line for both models must be made via a terminal-board installed on a DIN guide, which is located under the interface board. To connect the conductors, refer to the lay-out shown in the following figure:

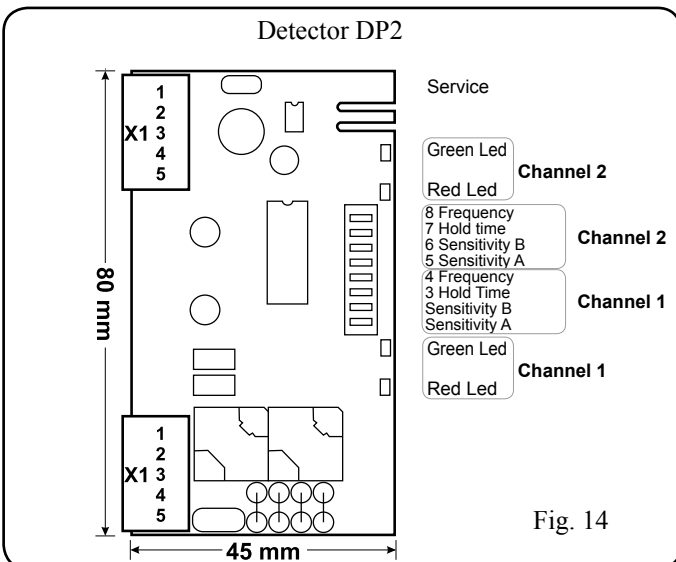


NB.: connection to the intercom control unit depends on the model used. To this end, consult the manual of the intercom that was bought.

5. SETTING OF COMPONENTS

5.1 DETECTOR CONFIGURATION

The ParkLite Ticket Reader is supplied with the built-in DP2 two-channel detector. This device is fitted in the interface board and detects vehicles transiting on the entrance lane. The following image shows the board's essential components:



The detector can be set by using the 8 dip-switches located at the side of the control board. Varying the position of each dip-switch enables you to change the operational characteristics of this component. The following steps show all the configurations that can be performed. In addition to this, the tables show the recommended value in blue.

Sensitivity

For each channel, you can change the inductivity sensitiveness which a vehicle must vary to activate the relevant output of the detector. This parameter is adjusted separately for each channel, with the aid of two dip-switches

Sensitivity	Channel 1	Channel 2
Low	DIP 01 = OFF DIP 02 = OFF	DIP 05 = OFF DIP 06 = OFF
Medium-Low	DIP 01 = ON DIP 02 = OFF	DIP 05 = ON DIP 06 = OFF
Medium-high	DIP 01 = OFF DIP 02 = ON	DIP 05 = OFF DIP 06 = ON
High	DIP 01 = ON DIP 02 = ON	DIP 05 = ON DIP 06 = ON

Frequency

The operating frequency of the detector can be configured on two levels, by dip-switches 4 and 8, separately for each channel. It is essential to differentiate the frequency among the channels of the detectors which command two adjacent loops, in order to avoid any kind of noise.

Frequency	Channel 1	Channel 2
Low	DIP 04 = OFF	DIP 08 = OFF
High	DIP 04 = ON	DIP 08 = ON

Presence time and reset

Dip-switches 3 and 7 enable you to set a continuous detection time of 5 minutes, after which a reset and a consequent self-set are performed automatically. This type of setting is normally not recommended for parking systems, because the cars may stay on the loops for some time, e.g. waiting for a vehicle to come out when the area is full.

Presence time	Channel 1	Channel 2
5 minutes	DIP 03 = OFF	DIP 07 = OFF
Infinity	DIP 04 = ON	DIP 07 = ON

Signalling LEDs

The green LED signals that the detector channel is operating, whereas the red LED supplies information on the status of the relay according to loop condition. Signals are shown separately for each of the 2 channels.

The following table summarises the detected conditions.

Detector Status	Green Led	Red Led
Not powered	OFF	OFF
Self-setting	Flashing light	OFF
Loop free	ON	OFF
Loop engaged	ON	ON
Faulty loop	OFF	ON

NB: for further information about the DP2 detector, please consult the manual of this device



5.2 THERMOSTAT ADJUSTMENTS

To ensure that the various modules used by the Ticket Reader operate in optimum conditions, a temperature of 22° Celsius must be maintained inside the column. This characteristic will ensure that the laser scanner operates at its best, when the ticket is read. This is in addition to eliminating any condensation accumulated inside, due to possible temperature ranges between day and night. We therefore advise you to always power the Ticket Dispenser and adjust the thermostat knob to 22°C.

6. CONTROL UNIT

6.1 P.LITE COBRA BOARD

The Ticket Reader electronic control unit is defined as: **Cobra P.Lite**. It has specifically created firmware for commanding all devices which need to be controlled on the exit lane from the parking area.

The board manages some processes in a fully independent way, whereas others can be subordinated through the board to the ParkLite management software.

We must underscore the fact that every equipment for treating tickets and cards in the ParkLite system uses this type of unit.

The various devices of the system (Ticket Dispenser, Ticket Reader, Cash Desk, etc) make use of this control board with the same firmware. The function to which the equipment is addressed, is acquired by inserting a jumper, located on the board's CN1 connector.

6.2 JUMPER FUNCTION

Whenever the Ticket Reader is powered up, the Cobra P.Lite control unit controls the function to which it is delegated, through the jumper fitted on the CN1 connector, and it sets itself to manage all the specified devices for that use. Therefore this jumper must be correctly fitted.

Obviously, the Ticket Reader is supplied with the jumper already set in the right position. Fig.15 shows all the settings which can be carried out on the management unit. This figure is included in order to be used, if this board has to be replaced on the equipment.

6.3 RS485 LINE TERMINATION

On the Cobra P.Lite board, there is a connector which makes it possible to fit a 120 Ohm termination resistor on the RS485 data transmission line.

We should stress that this resistor must be fitted only if the equipment is located on one of the ends of the line section. Use the CN8 connector to fit this resistor.

Figure 15 shows the insertion of this characteristic.

Set-up of function jumper and insertion of termination resistor

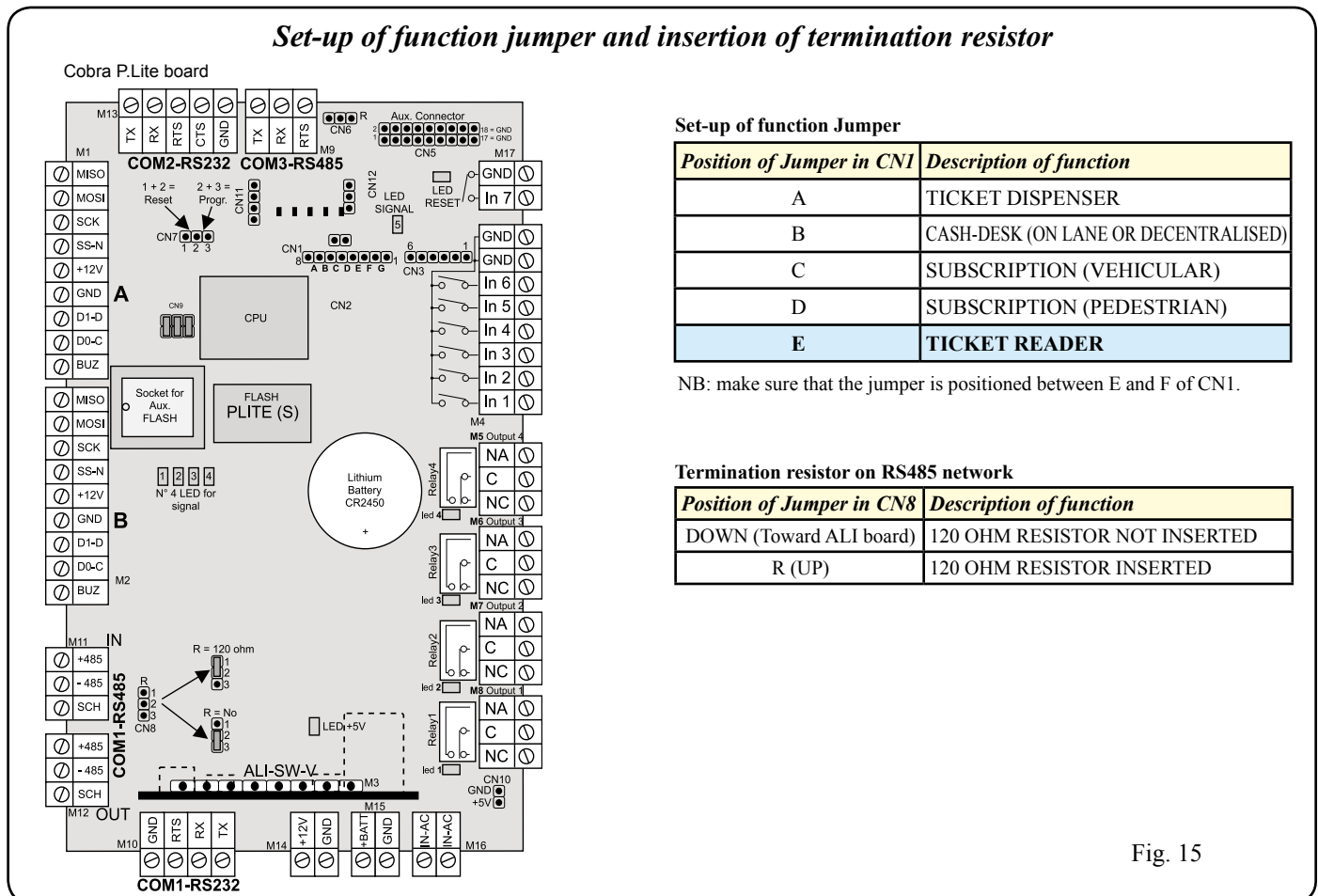


Fig. 15

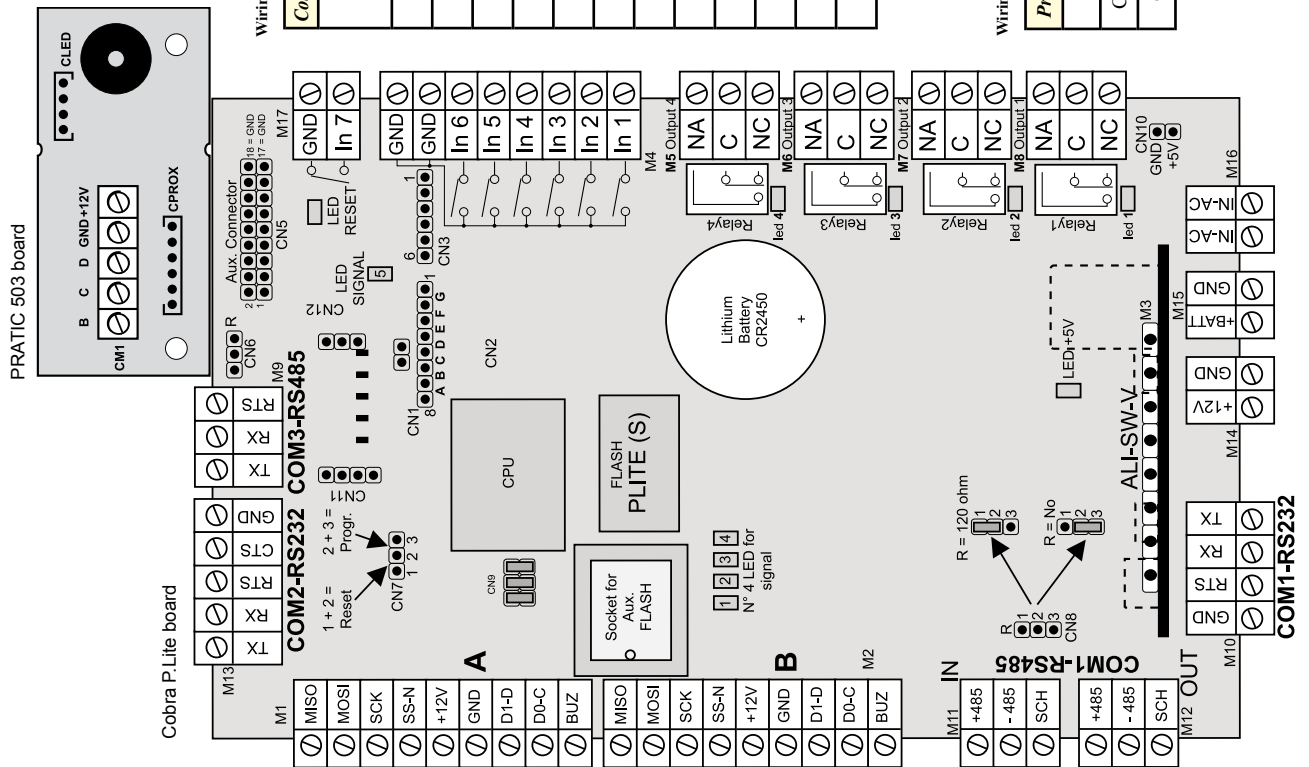


6.4 CONTROL UNIT WIRING

The table in the following figure shows the various internal connections with the electronic control unit housed in the Tic-

ket Reader. The table includes the connectors on the board, and the relevant description of cable destinations and the function of the connection.

Wiring on the electronic control board



Cobra P.Lite	Destination	Function
M1	MAG 100 reader	Connection of MAG100 reader (ParkLite TR-MAG)
M11	CM1 (Pratic 503)	Connection of Pratic 503 board for managing reader (ParkLite TR-TAG)
M12	CN3 on Interface board	Input for data transmission network in RS485 for polling
M10	CN3 on Interface board	Output for data transmission network in RS485 for polling
M14	Not used	Direct PC connection for configuration (CN7 connector, Interface board)
M15	Not used	None
M16	Power feeder	None
M8	CN1 on Interface board	+24Vdc power supply to board
M7	CN1 on Interface board	Open Barrier Command (Output 1)
M6	Not connected	Closed Barrier Command (Output 2)
M5	Not connected	Output 3
M4	CN2 on Interface board	Output 4
M13	Ticket Reader Scanner	Inputs: loops engage/disengage (in5 and in1), area down-count or reserve (remaining) Receive the data of the ticket read by the laser scanner

Pratic 503	Destination	Function
CM1	M1 on Cobra P.Lite board	Connection of reader input to control unit
CPROX	Transponder reader	Connection of passive transponders reader 125 KHz
CLED	Front Led	Connection of front LED signalling outcome of ticket reading

Fig. 16

