GUNNEBO

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Operation and Maintenance Manual

Full - O - Stile

CE

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Contents

Section 1

Introduction

General

Please read this manual carefully, it contains information that will assist you with all aspects of installation and maintenance, including unpacking, so that a long and useful machine life can be achieved.

GEC makes every effort to ensure that this manual is reviewed whenever significant changes are made to the design. However, our policy of continuous improvement may result in some small differences between the unit supplied and the description in this document.

Enquiries in this respect should, in the first instance, be directed to our Customer Support Department.
Telephone +39 (0) 461 248900, Fax +39 (0) 461 248999.

Electrical Warnings

The electrical power used in this equipment is at a voltage high enough to endanger life. Before carrying out maintenance or repair, you must ensure that the equipment is isolated from the electrical supply and tests made to verify that the isolation is complete.

When the supply cannot be disconnected, functional testing, maintenance and repair of the electrical units is to be undertaken only by persons fully aware of the danger involved and who have taken adequate precautions and training.

Errors

Reports on errors, comments and suggestions concerning this manual are requested and encouraged. They should be submitted to:
Gunnebo Entrance Control SpA, Via Volta 15, 38015 Lavis (TN), Italy
Telephone +39 0461 248900, Fax +39 0461 248999.

Proprietary Notices

All data appearing herein is of a proprietary nature, with exclusive title to it held by Gunnebo Entrance Control. The possession of this Manual and the use of the information is therefore restricted only to those persons duly authorized by Gunnebo Entrance Control.

Do not reproduce, transcribe, store in a retrieval system or translate into any human or computer language, any part of this Manual without prior permission of GI.

Hardware Changes

No hardware changes may be made without authority from GI, who will be responsible for ensuring that the proposed change is acceptable in all safety aspects. Only personnel authorized by GI may make hardware changes.

Any maintenance or modification of Emergency Stop and Guarding Circuitry must be followed by safety checks on the whole hardwired Emergency Stop and Guarding Circuitry.
Prior to a hardware change, records must be made of the change, one of which MUST be sent to the GEC Customer Support Department at Lavis.

Rotating Machinery

Rotating industrial machinery may possess huge amounts of stored energy. On no account should maintenance be started unless all aspects of safety precautions normally associated with industrial electronic control systems and machines are fully understood.

Before starting to work on the equipment, ensure that all personnel are familiar with the associated blocks in the system, including control loops, mechanics, drives, transducers and electrics. Please read all the Equipment Manuals first.

Warnings, Cautions and Notes

Where necessary within the technical manual, Warnings, Cautions and Notes may be given.

Warnings

Are for conditions that might endanger people. The instructions given in Warnings must be followed precisely. They are given to avoid injury or death.

Cautions

Are for conditions that may cause damage to equipment, or may spoil work. The instructions given in Cautions must be followed to avoid spoilt work or damage to equipment.

Notes

Alert the user to pertinent facts and conditions.

Static Sensitive Devices

Some of the PCB's in the equipment covered by this Technical Manual contain Static Sensitive Devices. It is recommended that maintenance and service engineers are fully aware of the Local Industry Regulations and procedures when handling such devices.

Good Practices

Equipment being installed must not be left unattended unless all potential mechanical and electrical hazards have been made safe. A competent person must be left in charge when the equipment is in a potentially unsafe condition.

The following points indicate good practice that will contribute to safety and avoid equipment damage.

- i Ensure that all electrical power supplies and batteries are turned OFF and disconnected before working on any of the equipment.
- ii Never leave the equipment in a potentially dangerous state.
- iii Use only the correct tools for the task in hand.
- iv When working on the equipment, remove any personal jewellery that may be conductive, or clothing that may become entangled with mechanical parts.

Equipment Safety Systems

Safety systems and controls, such as interlocks, covers and guards, must not be overridden or bypassed by personnel other than authorized staff who are qualified to carry out prescribed actions within specified Warnings.

Risk Assessment

Risk assessment is graded into categories of safety, rated 1 to 8 (where 8 is the highest risk level). The following activities are covered.

Rating	Activity
1	Cleaning
2	General Installation
3	Servicing
4	Servicing General Maintenance Using Chemical Fixers
5	Commissioning
8	Floor Drilling

Rating 1: Cleaning.

Who is at Risk	Engineers or Site Personnel
Hazard	Mis-use of Cleaning Fluids
Current Controls	Compliance with health regulations

Rating 2: General Installation

Who is at Risk	Site Personnel
Hazard	Objects/Tools in Installation area
Current Controls	Trained Installation Engineers

Rating 4: General Maintenance

Who is at Risk	Site Personnel
Hazard	Electric Shock
Current Controls	Isolation of Power/Trained Service Personnel

Using Chemical Fixer

Who is at Risk	Site Personnel within the Vicinity of the Work Area
Hazard	Fume Inhalation
Current Controls	Compliance with health regulations

Rating 5: Commissioning

Who is at Risk	Site Engineer
Hazard	Power Supply/Moving Parts
Current Controls	Isolate Power

Rating 8: Floor Drilling

Who is at Risk	Installation Engineer
Hazard	Flying Debris and Noise
Current Controls	Protective Equipment must be worn

CE - Marking

The GEC Full-O-Stile is CE marked, developed and manufactured according to Low-Voltage and EMC-Directives.

Important Notice

The Full-O-Stile is a security product, any children or minors using the Full-O-Stile must be supervised and accompanied by a responsible adult. Gunnebo Entrance Control Spa does not accept any liability if this rule is not enforced.

Section 2

Product Description

The Full-O-Stile entrances manufactured by Gunnebo Entrance Control S.p.A. are access control barriers specifically engineered for Administrative Centres, Industries and Buildings where there is a need to combine quality and high security,

General Details

Figures 2.1 to 2.6 show the general dimensions of the Full-O-Stile range of entrances.

Glass lateral panels, with metal rotor.

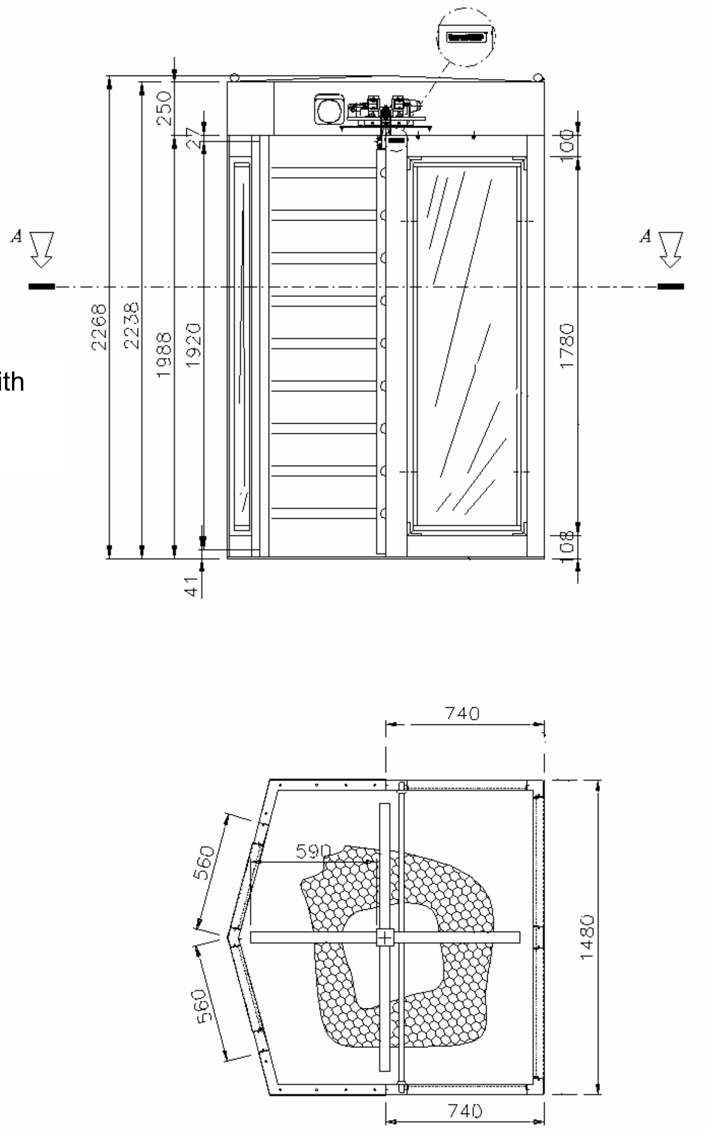


Figure 2.1 Full –O-Stile 90 (Single Configuration)

Glass lateral panels, with metal rotor.

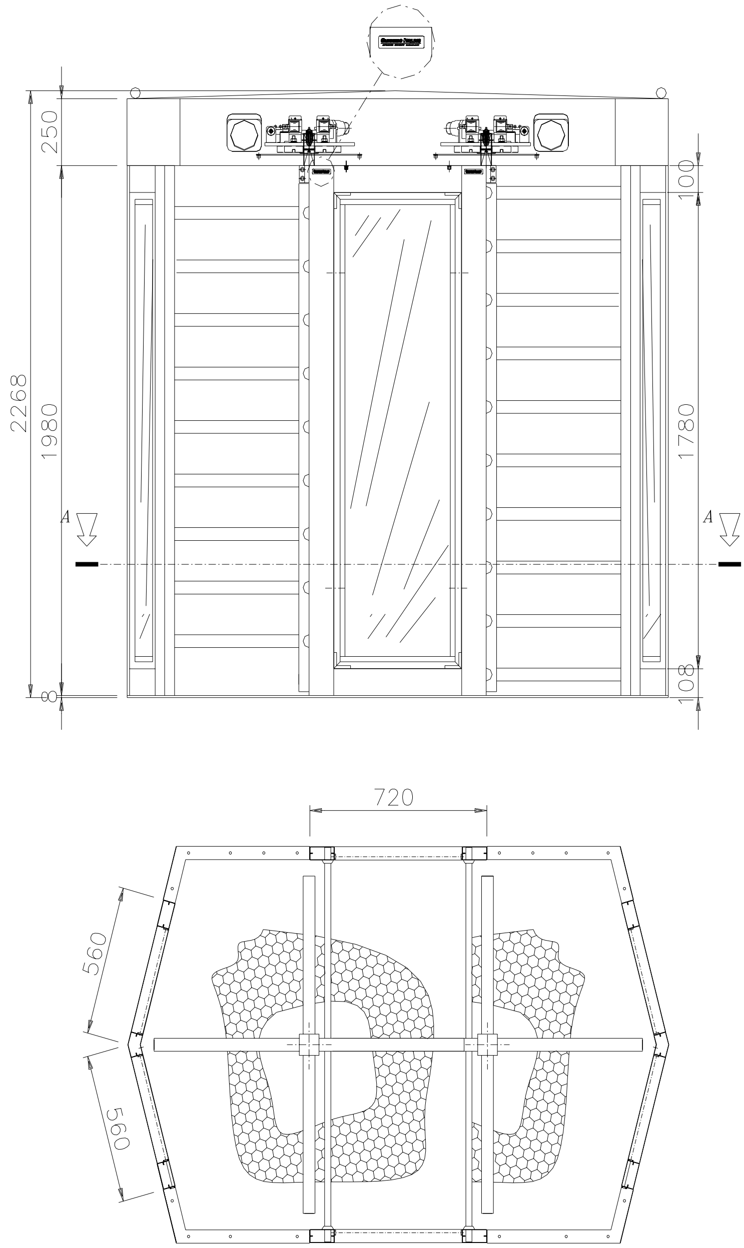
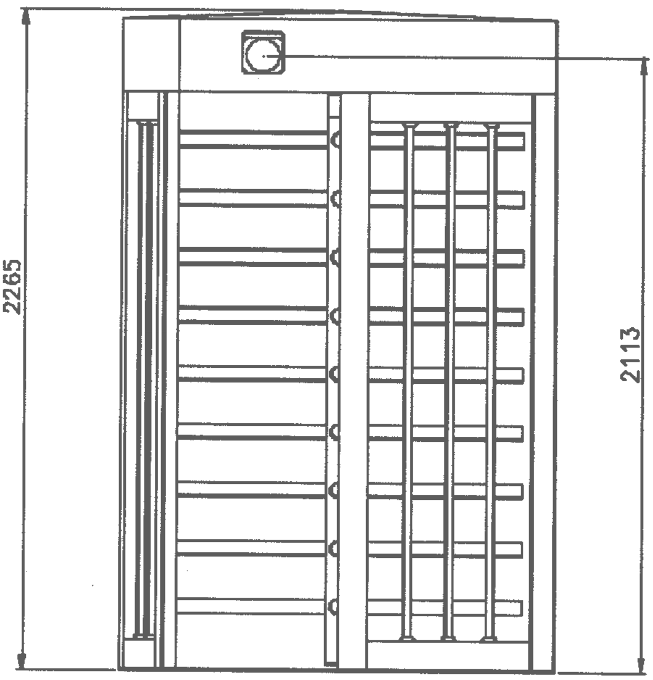


Figure 2.2 Full-O-Stile 90 (Double Configuration)



Lateral panels and
rotors are made of
metal tubes

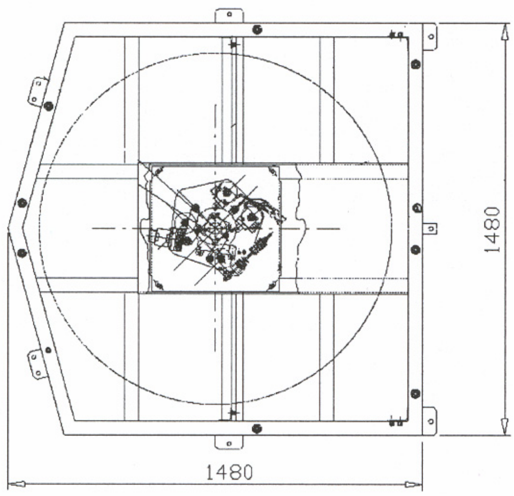


Figure 2.3 Full-O-Stile 91 (Single Configuration)

Lateral panels and
rotors are made of
metal tubes

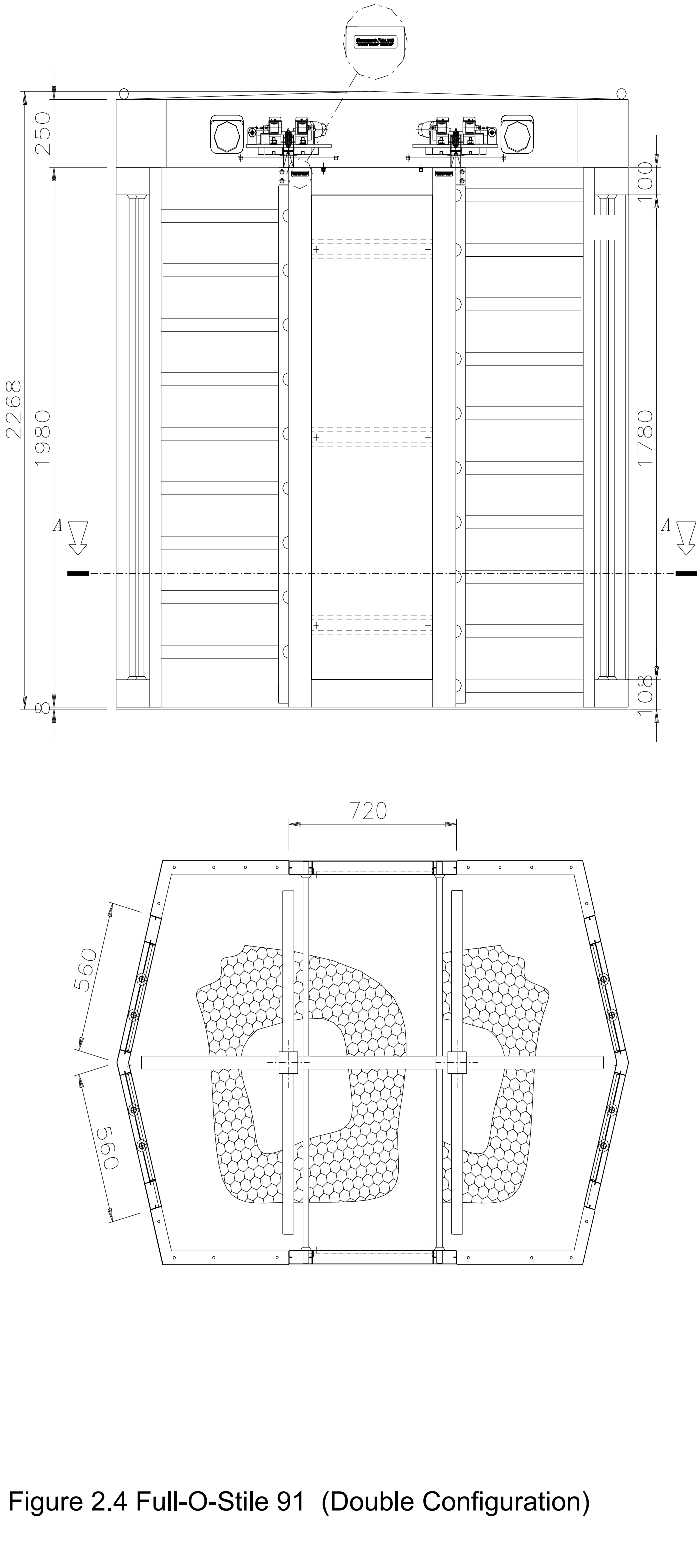
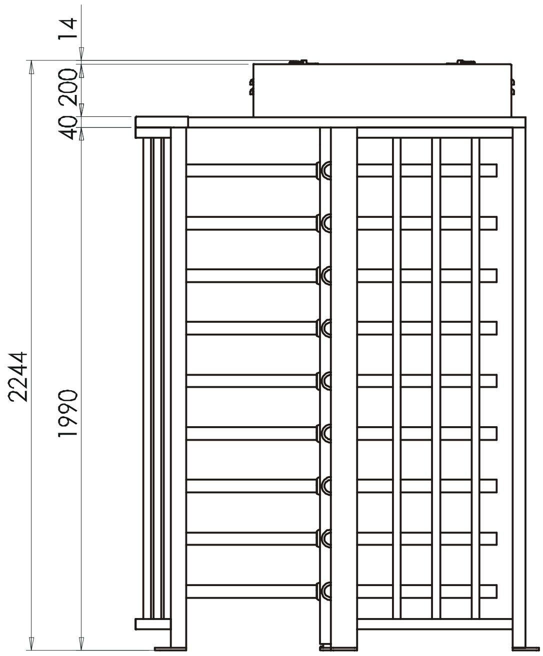


Figure 2.4 Full-O-Stile 91 (Double Configuration)



Lateral panels and rotors
are made of metal tubes.
No roof and no traffic lights

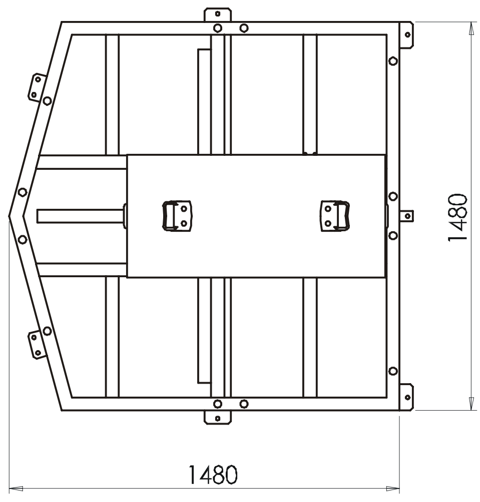


Figure 2.5. Full-O-Stile AT91 (Single Configuration)

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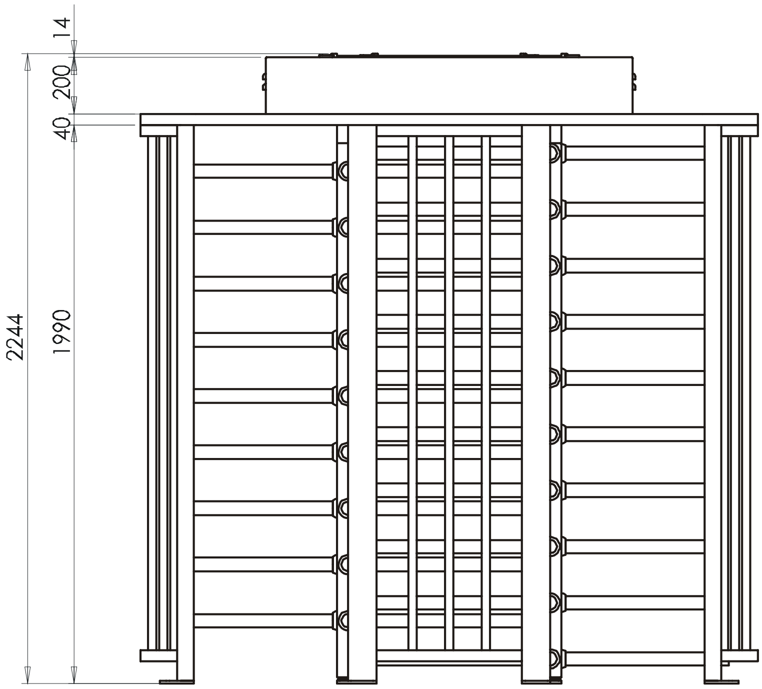


Lateral panels and
rotors are made of
metal tubes. No roof
and no traffic lights

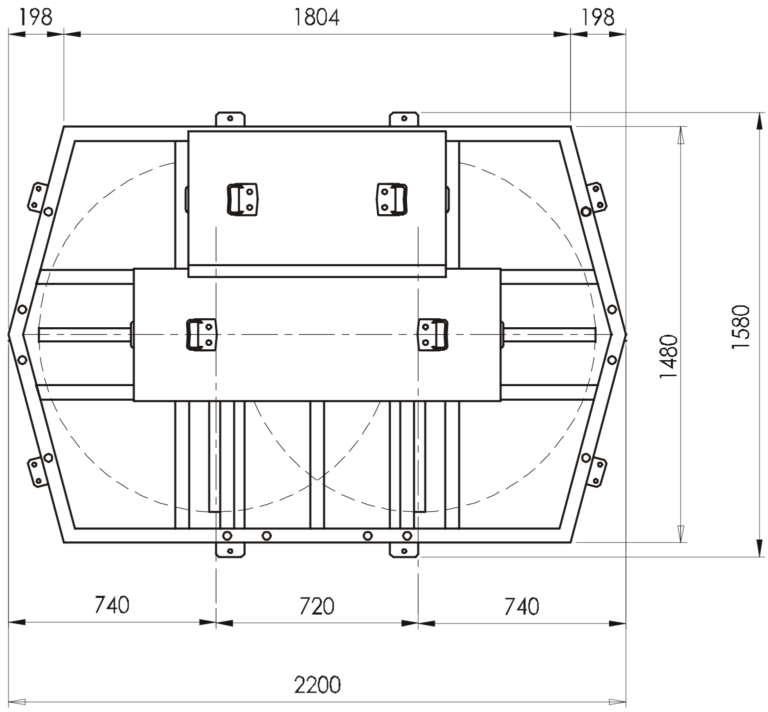


Figure 2.6 Full-O-Stile AT91 (Double Configuration)

Technical Details

The Full-O-Stile entrances are manufactured in galvanised painted steel or stainless steel, according to the model.

The entrance rotor is equipped with arms at 90° welded on a central shaft fixed to the floor by a conic ball bearing and at the upper end, by an antifriction bearing.

The double door systems have rotors placed so that they interlace each other making the total space required smaller.

The passageway can be controlled by devices such as card readers, or local and remote push buttons.

The rotor's movement control is effected by an electro-mechanical mechanism placed in the upper part of the passageway which can be accessed through a service panel.

Technical Specifications

Dimensions	See section 2 and 5 of this manual.
Rotor movement	The system is operated by pressure exerted by the user and has an electro-mechanic repositioning control that automatically closes once the user has passed the barrier. It is equipped with a non-return device in order to avoid an incorrect use of the barrier.
Orientation	Right or left passageway.
Materials	
Casework	Stainless or painted steel, with anti corrosion treatment, according to model.
Rotor	Stainless or painted steel, with anti corrosion treatment, according to model.
Functionality	Electro-mechanically controlled bi-directional passage.
Power failure	In the event of a power failure the rotor automatically locks or unlocks. On request it is possible to have the lock mode functioning in both directions, or the lock mode in one direction and unlock mode in the opposite one.
Interface	Voltage free contacts are available for the passage control with card readers or buttons. Other outputs are available for reader inhibit or optic signalling devices (traffic lights).
Security	High security standards, typical of Full-O-Stile systems.
Maintenance work	Through a removable lid placed on the top of the system.
Control logic	Microprocessor control logic. Magnetic sensors for the signalling of the rotor's position.

Power supply	115/230 Volt AC, 50/60Hz
Logic voltage	24 V DC
Max power	50 watt
Operating Temperature	0 to 45°C
Transportation and storage	-25 to + 55°C
Relative humidity	95% max

Section 3

Instructions for Use

Information in this section provides the basis for the correct use of the Full-O-Stile entrance systems.

Signs and Symbols

In this manual the conventional signs shown in the Figure 3.1 will be employed. Direction A is the direction where the mechanism (or the rotor's cabinet) is to the right when passing through the door.

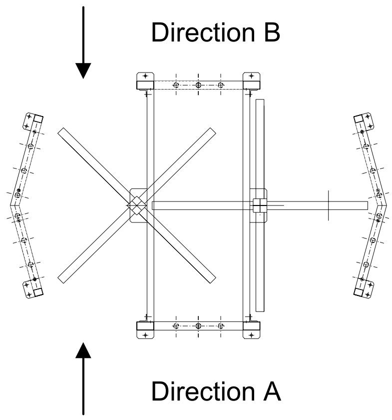


Figure 3.1 Direction Indications

Functional Modes

The Full-O-Stile door is bi-directional. The two directions can be separately configured as follows:

Unlock mode: passage is authorised for all users in the desired direction;

Lock mode: passage is inhibited in the desired direction;

Reader control mode: the passage is possible only for those users who are recognised by the badge reader.

The mode for each direction can be programmed;

- By means of programmable parameters.
- By means of a remote control (optional Gunnebo Entrance Control MP2000 control module, that requires the installation of a COMR1 control board).
- Through the RS485 serial interface, (which require the installation of the optional RS485 board).

The action of the Remote Control or the Serial Control has priority over the programmable parameter.

Modifications effected through the programmable parameters can be made as described later in this manual.

Transit Sequence

This describes the normal sequence of events at each passage through the entrance.

- The rotor is locked when the Unlock Mode is not defined in either direction (A or B).
- The access control system (if fitted) provides an authorisation signal which unlocks the rotor so that it can free wheel.
- The user passes through the entrance pushing and rotating the rotor.
- The rotor, when transit is complete, automatically returns to the rest position and is locked.

Note

- **The doors must be used by one person only at a time.**
- **Bulky personal items must be carried in front and not behind the user.**

Transit management by means of card readers

In the Reader-Controlled Mode, the logic system waits for the card reader to send an unlock signal that authorizes passage.

The signal sent by the reader can be interpreted in two ways.

- Unlock on Front: the logic identifies as authorisation the transition from non active to active (of the unlock signal).
- Unlock on Level: the logic keeps the system unlocked for a period corresponding to when the reader signal is sent.

The entrance generally waits for a front; if the level mode is preferred, then the programmable parameter must be modified accordingly, as shown in this section.

If the reader authorisation is programmed to "Unlock on Front", the logic records authorisation signals that arrive while the door is still being used.

The maximum number of authorisation signals that can be recorded is determined by a programmable parameter.

Transit management

The logic makes the counting outputs available for each passage direction as well as an output for the total number of rotations (an optional board is available for this feature). The outputs are generated every time the rotor reaches a specified angle.

In order to facilitate the transit flow, traffic lights are installed (not on all models) which show when a door is programmed with the lock mode or is already engaged in the other direction (red cross). Similarly the presence of a green arrow indicates that a user can pass through the door by operating the access control system (card reader, etc.).

Power Failure

It is possible to set the entrance so that in the event of a power failure the rotor is unlocked in both directions, one direction (as required) or remains locked.

This can be achieved by inverting the position of magnets on the mechanism and programming the relevant parameter. Details of the magnet position are given in Section 6 of this manual.

Emergency

With the optional COMR1 board, an emergency input is available ('IN7' input, dry contact required). In the event of an emergency signal on that input, the entrance automatically enters the emergency mode:

Any previous alarm signal is de-activated;
Traffic lights and pictograms illuminate a flashing green arrow;
The readers are deactivated;
The rotor is unlocked in both directions;
No other function is effected.

This function remains for as long as the emergency signal is active.
The emergency input is configurable Normally Open/Closed by programmable parameter.

Programmable Parameters

The Full-O-Stile operational modes are affected by the values of the programmable parameters that are stored in EEPROM on the LCM02 board (see Section 4 of this manual for the electronic board description and connections). When the microprocessor executes a program, it checks the values of these parameters and executes algorithms.

Modifications to the parameters should only be carried out by trained personnel.

It is important to record the value of the old and new parameters.

To carry out parameter programming, a subsystem is used that comprises two seven-segment displays with indicators (**T1** and **T2**) and push buttons **SW1** (microprocessor reset) **SW2**, **SW3**, **SW4**, in the LCM02 command logic circuit boards.

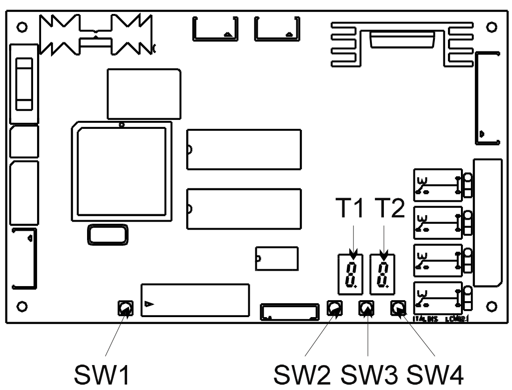


Figure 3.2 LCM02 Subsystem Location

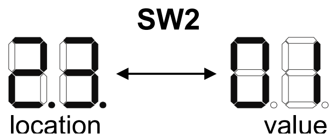
To enter the parameter modification mode, the following sequence should be carried out.

1. Press push button **SW2** and hold down;
2. Reset the microprocessor by pressing and releasing push button **SW1**;
3. Release the push button **SW2**;

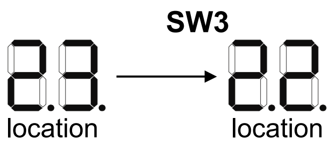
After few seconds press push button **SW2 and note that** a number appears on the indicator representing the location of a parameter (if it has two points), if there are no points it represents a value.

For example:

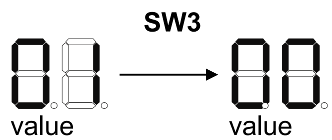
By pressing push button **SW2**, the display of the parameter location switches over to its value



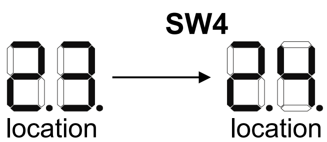
By pressing **SW3** when a location is displayed will lower the location.



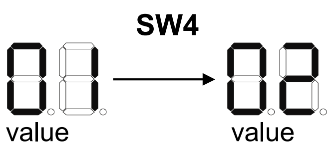
Pressing **SW3** when a value is shown will lower the value.



By pressing **SW4** when a location is displayed, will move to a higher location.



By pressing **SW4** when a value is displayed, increases the value.



Where the desired parameter have been set, the program will need to be started again by pressing the reset push button **SW1**.

It is possible to set all parameters according to a preset configuration.

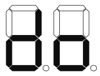
NOTE;

This configuration may be different from that delivered by the factory. Performing this operation will result in the loss of the originally set values.

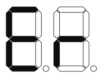
To load the parameter configuration, the following sequence of operations should be carried out:

1. Press and hold down push button **SW2** and **SW4** ;
2. Reset the microprocessor by pressing and releasing push button **SW1**;
3. Release push buttons **SW2** and **SW4**;
4. Select the desired default configuration by pressing **SW3**.
5. Press **SW4.**

If the operation is successful, the following symbol will appear on the indicator.



An error will be indicated as follows:



When the operation is complete, the program will need to be started again by pressing the Reset push button **SW1**.

Section 4

Technical Information

Component Location

The entrance control mechanism and electronic system are mounted on the top of the Full-O-Stile doors inside a protected housing.   Figure 4.1 refers:

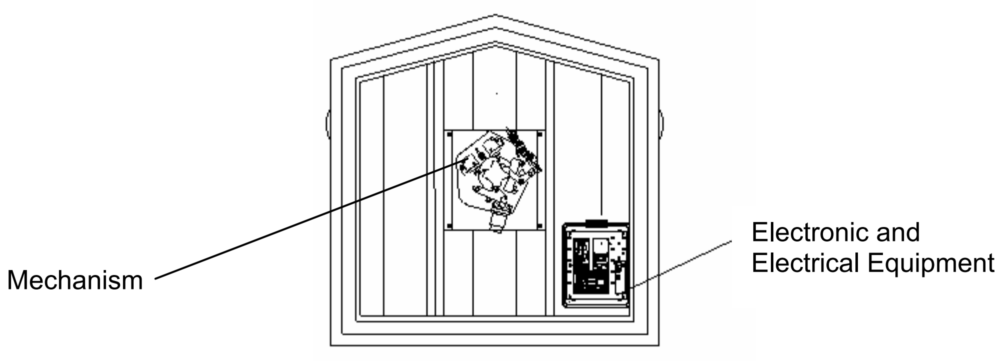


Figure 4.1 Location of Main Units

The component layout inside the Logic and Electrical Equipment Box is shown in the figure 4.2.

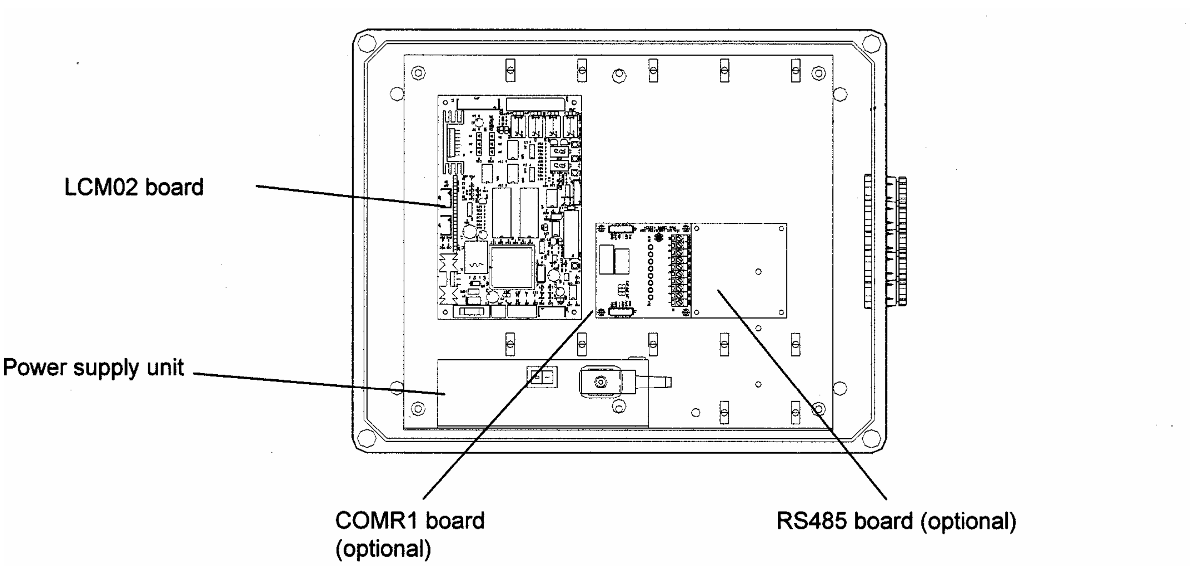


Figure 4.2 Electronic and Electrical Equipment Location Details

The Full-O-Stile is equipped with the following electronic devices:

- LCM02 control board;
- Sensors board (mounted on the Titan mechanism);
- COMR1board (optional);
- RS485 board (optional).

LCM02 Board

The LCM02 board is the main control board of the Full-O-Stile door. The layout is given in Figure 4.3 and main characteristics are detailed below.

- Control logic based on a microprocessor 80C552;
- Software on EPROM 27C256;
- Programmable parameters stored on EEPROM 24C02;
- Power supply 24Vdc;
- Asynchronous serial line half duplex RS485;
- I2C BUS serial line;
- Expansion BUS;
- Two inputs for permissive signals;
- Two protected outputs for external traffic lights;
- Four programmable outputs (relay- voltage free contact) to interface the control logic with external equipment.
- Protection: fuse 5x20 mm, 3.15A/250V;
- One push-button to reset the microprocessor;
- Operator interface, comprising two seven segment displays and three push-buttons.

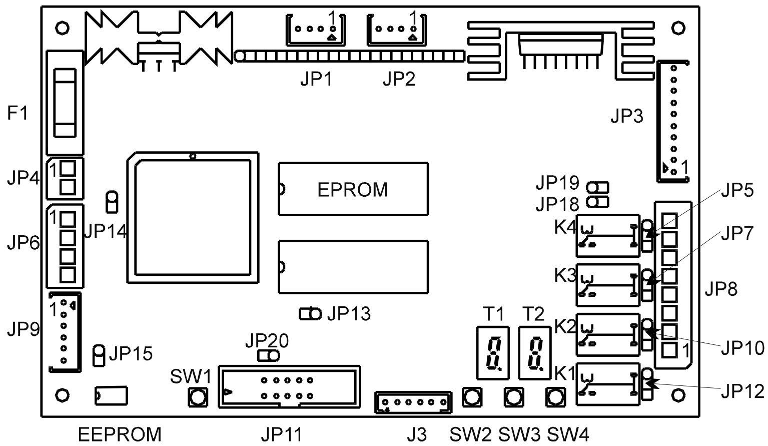


Figure 4.3 LCM02 Component Location

Inputs

NAME	CONNECTOR	TYPICAL USE	ELECTRICAL CARACTERISTICS
sens1	JP3	signal from sensor	see figure 4.4
sens2	JP3	signal from sensor	see figure 4.4
sens3	JP3	signal from sensor	see figure 4.4
Reader A	JP6	Unlock command from access control device	see figure 4.4
Reader B	JP6	Unlock command from access control device	see figure 4.4
encoder1	J3	signal from encoder	see figure 4.5
encoder2	J3	signal from encoder	see figure 4.5

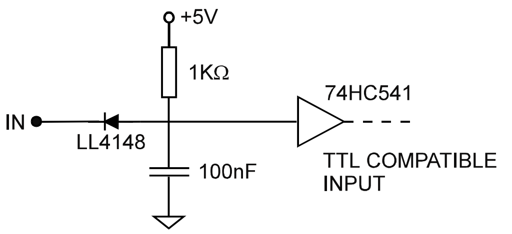


Figure 4.4

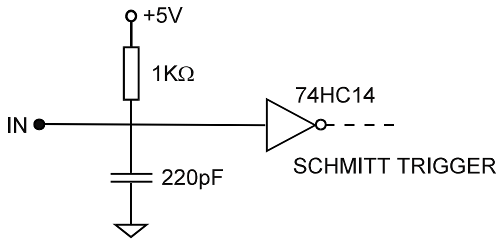
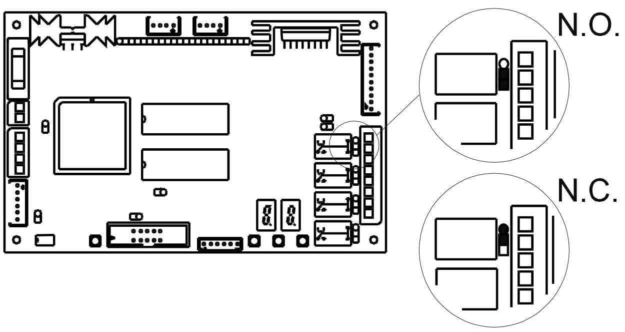


Figure 4.5

Outputs

NAME	CONNECTOR	TYPICAL USE	ELECTRICAL CARACTERISTICS
k1	JP8	Interface with access control device	Voltage free contact NO/NC* 0.5A max, 30V max
k2	JP8	Interface with access control device	Voltage free contact NO/NC* 0.5A max, 30V max
k3	JP8	Interface with access control device	Voltage free contact NO/NC* 0.5A max, 30V max
k4	JP8	Interface with access control device	Voltage free contact NO/NC* 0.5A max, 30V max
Green A	JP2	Green light control signal	open collector npn; 1A max
Red A	JP2	Red light control signal	open collector npn; 1A max
Green B	JP1	Green light control signal	open collector npn; 1A max
red B	JP1	Red light control signal	open collector npn; 1A max
sol1	JP3	Electromagnets control	open collector npn; 1A max
sol2	JP3	Electromagnets control	open collector npn; 1A max



*Configurable by jumpers JP05, JPO7, JP10, JP12,

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Connectors

JP1	Traffic light direction B
pin	*Description*
1	Power supply +24Vdc
2	Green light direction B
3	Red light direction B
4	GND

JP2	Traffic light direction A
Pin	*description*
1	Power supply +24Vdc
2	Green light direction A
3	Red light direction A
4	GND

JP3	Sensors Ed Electromagnets
pin	*Description*
1	input sensor 1
2	input sensor 2
3	input sensor 3
4	GND
5	Power supply +5Vdc
6	Power supply +24Vdc
7	Power supply +24Vdc
8	Output solenoid 1
9	Power supply +24Vdc
10	Output solenoid 2

JP4	Power supply
Pin	*Description*
1	Power supply +24Vdc
2	GND

JP6	Permissive signals
pin	*Description*
1	Unlock direction A
2	GND
3	Unlock direction B
4	GND

JP8	Voltage free contacts
pin	*Description*
1	Common relè K1
2	Contact NO/NC relè K1
3	Common relè K2
4	Contact NO/NC relè K2
5	Common relè K3
6	Contact NO/NC relè K3
7	Common relè K4
8	Contact NO/NC relè K4

JP9	I^2C Bus
pin	*Description*
1	I^2C – SCL
2	I^2C – SDA
3	INT0
4	Power supply +5Vdc
5	Power supply +24Vdc
6	GND

JP11	Serial RS485
pin	*Description*
1	I^2C – SCL
2	I^2C – SDA
3	Power supply +5Vdc
4	data transmission -RTX
5	Data transmission +RTX
6	Shield
7	Shield
8	RESIN
9	GND
10	Power supply +24Vdc

JP17	Expansion BUS
pin	*Description*
1	Power supply +24Vdc
2	Power supply +24Vdc
3	Stop
4	Power supply +5Vdc
5	24V not regulated (conv. A/D)
6	Absorbed current (conv.A/D)
7	+24Vdc (conv. A/D)
8	Motor tension (conv. A/D)
9	Motor tension (conv. A/D)
10	PWM signal
11	Motor direction
12	Reset
13	interrupt int0
14	interrupt int1
15	Not connected
16	Photocell 1
17	Opening limit switch
18	Closing limit switch
19	GND
20	GND
21	Photocell 2
22	Auxiliary input aux1

J3	Encoder
pin	*Description*
1	GND
2	Power supply +24Vdc
3	Input encoder 1
4	Input encoder 2
5	Power supply +5Vdc
6	GND

Jumpers

Name	Description
JP5	configures NO/NC relay K4 output
JP7	configures NO/NC relay K3 output
JP10	configures NO/NC relay K2 output
JP12	configures NO/NC relay K1 output
JP13	Inserted in order to load a resistance in the serial line
JP14	Inserted only if software has the function “watch dog”
JP15	configures the function modes of the EEPROM device
JP18	To insert in order to manage input sens1 (JP3 connector) as encoder input
JP19	To insert in order to manage input sens2 (JP3 connector) as encoder input
JP20	To insert in order to have on JP11 connector the reset RESIN

Sensor Board

The sensor board is directly mounted to the mechanism head and is fitted with three Hall effect sensors that cut the magnetic field caused by four magnets fitted on the mobile mechanism head. This action transmits to the logic system the rotor position.

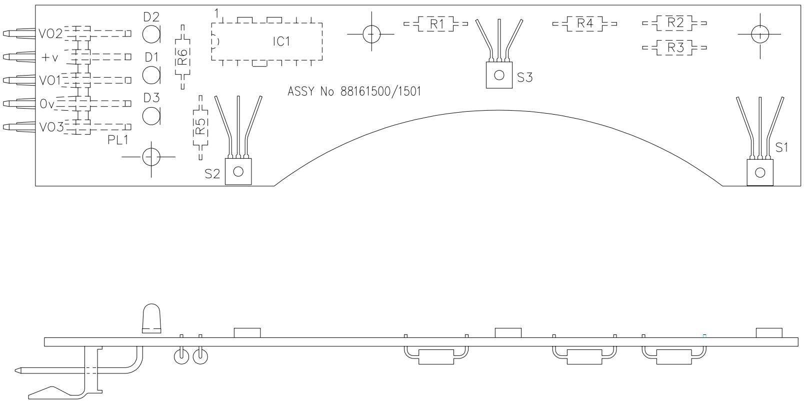


Figure 4.6 Detail of the Sensor Board

Connector PL1	Connection to LCM02
D1, D2, D3	Green LEDs (switched off when the corresponding sensor is activated).
S1, S2, S3	Hall effect sensors

COMR1 Board

The COMR1 board allows, in conjunction with the MP2000 control module, remote control of the unit.

COMR1 board acts as an interface between the remote control panel and the logic unit LCM02.

Communication BUS: the communication with the logic unit LCM02 is performed by means of a I2C BUS. The board is fitted with two connectors Y1 and Y2 dedicated to the communication BUS with LCM02 board.

The two connectors, connected in parallel on the printed circuit, perform the BUS transit and allow: One to connect COMR1 and LCM02.

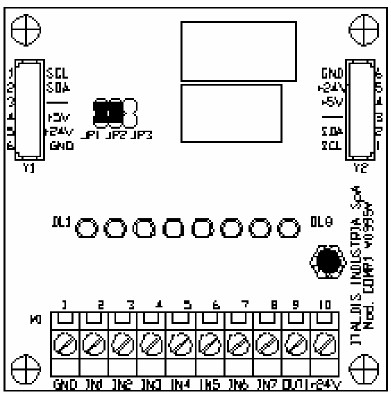


Figure 4.7 Details of the COMR1 Board

Connectors

M1	Remote Control Connection	Electrical features
pin	*Description*	
1	GND	
2	IN 1: Lock A	Dry contact vs ground required
3	IN 2: Release A	Dry contact vs ground required
4	IN 3: Lock B	Dry contact vs ground required
5	IN 4: Release B	Dry contact vs ground required
6	IN 5: not used	Dry contact vs ground required
7	IN 6: System Reset	Dry contact vs ground required
8	IN 7: Emergency	Dry contact vs ground required
9	Output 1: Alarm	NPN O.C. max 24V 0,1A
10	Power supply +24 Volt	

Y1, Y2	
pin	*Description*
1	I^2C – SCL
2	I^2C – SDA
3	INT0
4	Power supply +5Vdc
5	Power supply +24Vdc
6	GND

Jumpers

The COMR1 board is fitted with three jumpers JP1, JP2, JP3, that are used to define the board address in the communication with the control board LCM02.

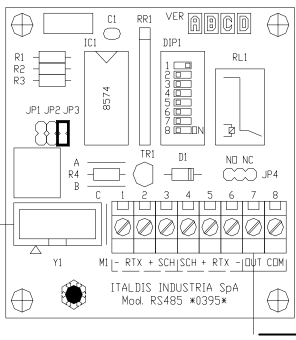
The default configuration of the board is:

- JP1 and JP2 closed (jumpers in);
- JP3 open (jumper not inserted).

RS485 board

The RS 485 serial interface board is used to connect the control logic to the serial line.
The bi-directional flow of signals from the RS 485 serial line, to which the other gates and the gates management unit are connected, is received from serial interface board RS485 through connector Y1, and sends it to the control board LCM02.
M1 allows the input of the serial line and the output of the serial line to the following gate.

Y1: serial bus (to LCM02)

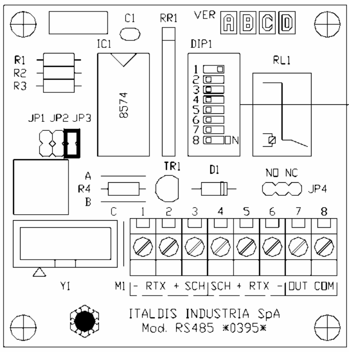


RS 485 connection block

Figure 4.8 Details of the RS485 Board

The board is fitted with a series of DIP-switches in order to programme the serial address (binary code from 1 to 30) of the gate in which the RS485 is installed.

Each gate fitted with a RS485 interface board must have its own serial address. The maximum number of gates that can be connected on the same serial line is 30.



Door Address							
Door #	SW1	SW2	SW3	SW4	SW5	SW6	SW7
1	ON	OFF	OFF	OFF	OFF		
2	OFF	ON	OFF	OFF	OFF		
3	ON	ON	OFF	OFF	OFF		
4	OFF	OFF	ON	OFF	OFF		
5	ON	OFF	ON	OFF	OFF		
6	OFF	ON	ON	OFF	OFF		
7	ON	ON	ON	OFF	OFF		
8	OFF	OFF	OFF	ON	OFF		
9	ON	OFF	OFF	ON	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF		
11	ON	ON	OFF	ON	OFF		
12	OFF	OFF	ON	ON	OFF		
13	ON	OFF	ON	ON	OFF		
14	OFF	ON	ON	ON	OFF		
15	ON	ON	ON	ON	OFF		
16	OFF	OFF	OFF	OFF	ON		
...	...	...	...	...	...		
30	OFF	ON	ON	ON	ON		

Figure 4.9 RS485 Interface Serial Board

Jumpers

The following table shows JP1-JP4 jumpers that are factory set and must not be changed.

JP	FUNCTION	
1	Factory setting	Open
2	Factory setting	Open
3	Factory setting	Closed
4	Factory setting	NO

Table 4.1 Pre-set Jumpers

Power supply unit

The PX53-14A power supply unit supplies 24 V dc power for the electronic and the mechanism's electro-mechanical devices. The unit is fitted with an ON/OFF switch and a socket for the connection to the power supply network.

The main characteristics are:

Input voltage	115/230Vac, 50/60Hz
Output voltage	24Vdc
Max current	2.2 A
Power	50 watt
Input protection	Internal fuse 5x20mm, 4 A/250V
Output protection	Automatic for current and voltage overloads

Mechanism

Figure 4.11 shows a view of the Titan mechanism general arrangement details.

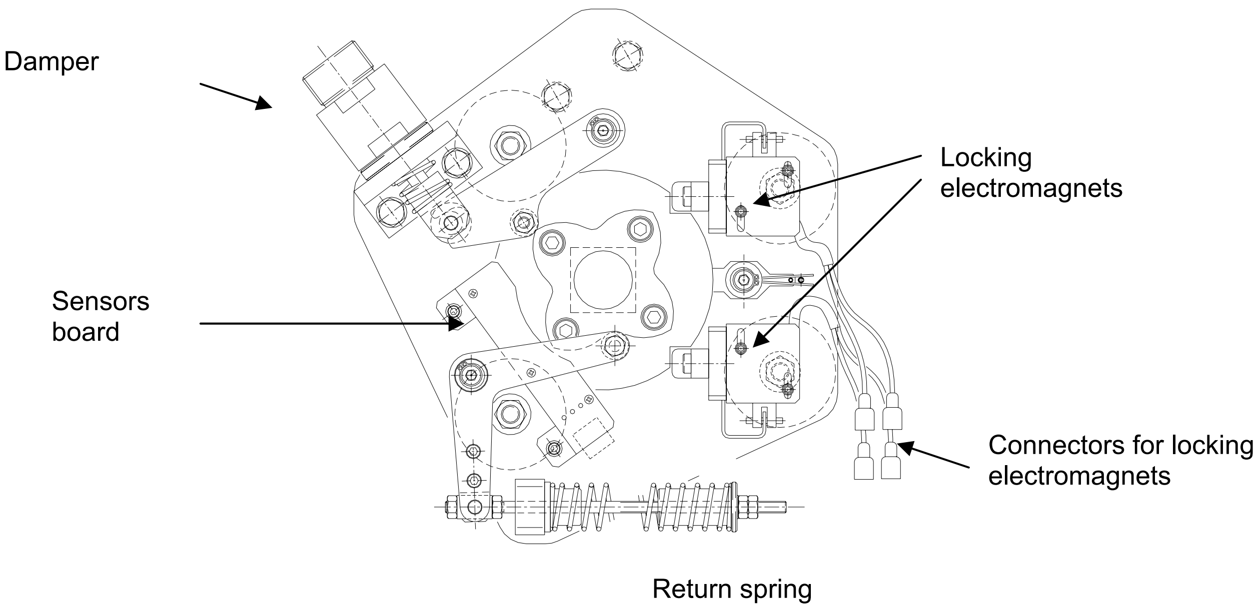


Figure 4.11 Full-O-Stile Mechanism Details

The mechanism is a robust and silent unit equipped with an anti-reversal device to prevent the rotation in the reverse direction after a pre-determined rotation angle has been reached from the rest position. The locking system is operated by electro-magnets that can be programmed to allow doors to freely rotate or to be locked in case of power failures.

When the access control system sends an authorisation signal to the logic, one of the two electro-magnets enables the mechanism to rotate in the desired direction.

With the system set to the free wheel mode in the event of power failure, when the door is in the rest position, the two electro-magnets are energised and lock the rotation.

When an authorisation signal is sent by the reader, the relevant magnet is de-energised and access is possible in the desired direction.

When the system is set in the lock mode in the event of power failure, the electro-magnets are normally de-energised and lock rotation. When the reader sends an authorisation signal the relevant electromagnet is energised and the desired direction is unlocked.

Restoring Spring

The restoring spring functions to return the rotor to the rest position after a passage.

The force exerted by the spring can be regulated in order to adjust for differing rotor weights and diameters.

Damper

The damper has the function of making the rotor's motion continuous and smooth, where the movement is by user passage and the restoring spring.

The damper can be regulated so that it can be calibrated according to the rotor weight and the user requirements. The restoring spring and damper operate in opposite ways, therefore any calibration of one will require calibration of the other.

Main technical characteristics:

Rotor maximum weight	120 kg
Mechanism weight	20 kg
Detection system	Hall effect magnetic sensors in the rest position and at 35° of rotation of the head on each side.
Electrical characteristics	Lock electromagnets, 24Vdc, 1 A max each Sensors system: 24Vdc

Section 5

Installation

On receipt of the equipment, open the packaging and check that it corresponds to the description on the packing list and that there are no defects or damage of any kind.
It is recommended to retain packaging so it can be re-used should the need arise to move the equipment for return to factory.

Tools required

- Hammer drill, with masonry drills (12mm for EAM 10 expansion fittings, or 20mm for M 10 expansion fittings)
- Screwdrivers set;
- Socket head screwdrivers ;
- Box wrench set;
- Wire cutters;
- Crimping Pliers ;
- Wire strippers;
- Insulated lugs;
- Piece of string, chalk powder, pen;
- Scissors;
- Double tape measure;
- Rubber mallet;
- Level;
- Lifting equipment.
-
- NOTE: The lifting equipment should be appropriate for the weight of the barrier, and characteristics of the assembly site. The weight of Full-O-Stile barriers varies from 400 kg for the single barrier version to 950 kg for the double barrier version. The barriers must be moved using the two eyebolts provided (fixed in the threaded holes on the top of the barrier).

Site Preparation

Before assembly the following should be taken into consideration:

Environmental conditions;
Power supply characteristics;
Physical space;
Cable layout.

Environmental conditions

For the correct operation of the equipment the site should meet the following requirements:

Working temperature between 0 - 45 °C;
Humidity must not exceed 80%;
No metal powders present;
There must be no solid, liquid or gaseous pollutants present that could corrode copper or other metal components of the equipment.

Electrical Systems Characteristics

Full-O-Stile barriers operate from the public power supply network.

Nominal voltage required - 230-115VAC / 50-60Hz.
Tolerance is ±15% of the nominal value.

Maximum power supply of the equipment is 50W.

The power must be supplied through a dedicated cable NOT from cables that supply other electrical equipment.

In the event of voltage or frequently variations the use of voltage stabilisers is advisable.
The power supply circuits of the equipment must be protected by differential switches that are independent from other machinery.

The power supply circuits provided by the customer must have an insulated cable, with an earth connection. The earth protection circuit must be uni-potential and comply with all safety standard in force.

For installations in areas particularly prone to thunderstorms, or supplied by overhead power lines, it is recommended to install an anti-lightning protector on the power supply line.

General Conditions

It is recommended that a drawing of the installation site lay-out should be made, referring to Lay-out and GA drawings shown in this Manual, before actually assembling the equipment.

When Full-O-Stile barriers are to be installed under a roof, there must be a minimum space of 0.90 m between the highest part of the barrier and the ceiling, so that the barrier can easily be installed and maintenance work carried out.

Foundations should be in concrete to comply with UNI 9858, type RCK 250 (250daN/cm2). The foundation should be level with a maximum tolerance of 5mm.

Anchor holes in the floor for M10 expansion bolts, must be of a minimum depth of 100mm.

The positioning tolerance should be 2mm and the holes drilled during the installation stages.

For floors made with very compact materials (such as granite) use expansion fittings, Fischer type mod. EAM 10, or equivalent.

For floors made with less compact materials (concrete) use expansion fitting, Fischer type mod. M10 L=80mm De=20mm.

Chemical expansion fittings can be used where the floor characteristics require it.
Use screws appropriate to the expansion fitting, according to the following table.

FOS 90 91 single or double

Expansion fitting	*Screw*
EAM 10	Flathead hexagonal screw 10x30
M10	Flathead hexagonal screw 10x60

FOS AT 91 single or double

Expansion fitting	*Screw*
EAM 10	Hexagonal screw 10x30, flat ring nut
M10	Hexagonal screw 10x60, flat ring nut

Cabling

Full-O-Stile barriers require two types of cables:

Power supply cables
Signal transmission cables

The following instructions should be followed when laying cables:

Earth conduits with a diameter no less than 20mm;

Lay the conduits for the power cables and those for data transmission cables separately.

Lay the conduits away from high voltage cables or cables with radio-frequencies, electric motors and other machines.

Place the conduits as far as possible from the barrier's anchor holes in the floor;

Conduits must be directed towards the position for the cables on the barrier (see the layout shown in this section). The conduits must rise at least 50 mm from the foundation base.

Cables must rise from the floor with a length that reaches the logic panel on the barrier top or to the integrated reader mounted on the barriers (at least 4m). Taken care when running the cables because curves with tight radii can damage the cables.

The following cables generally connect the Full-O-Stile barrier to the outside:

Power Supply Cable	For each door a power supply cable with 3 conductors must be used, starting from the user switch gear and running to the power supply unit. The conductors' section must be determined according to the cable length and the power required. It is recommended to install a disconnecting switch up-line of the power supply. A differential switch should also be installed in accordance with Local Regulations.
Remote Control Line	If there is a remote control panel, an electric shielded cable with eight (8) conductors must be provided for each gate, running from the logic board to the remote control panel. The conductor section, for a maximum distance of 100m, should be 0,33mm^2 or greater.

Emergency line	If the emergency control line is provided, a cable with 2 conductors must be placed running from the barrier's logic board to the emergency control switch The conductor section, for a maximum distance of 100m, should be 0,33mm^2 or greater.
Serial Communication Line	If the RS485 serial connection is provided (optional), the logic boards of each barrier must be connected one after the other with a data transmission cable. A twisted and shielded cable (FTP Cat. 5) should be used for the connection. The cable must be posed in independent canalization and the recommended maximal length is 500 mt.
Badge Reader Connection Line	The customer should consult the data provided by the reader's system supplier.

Mounting Details

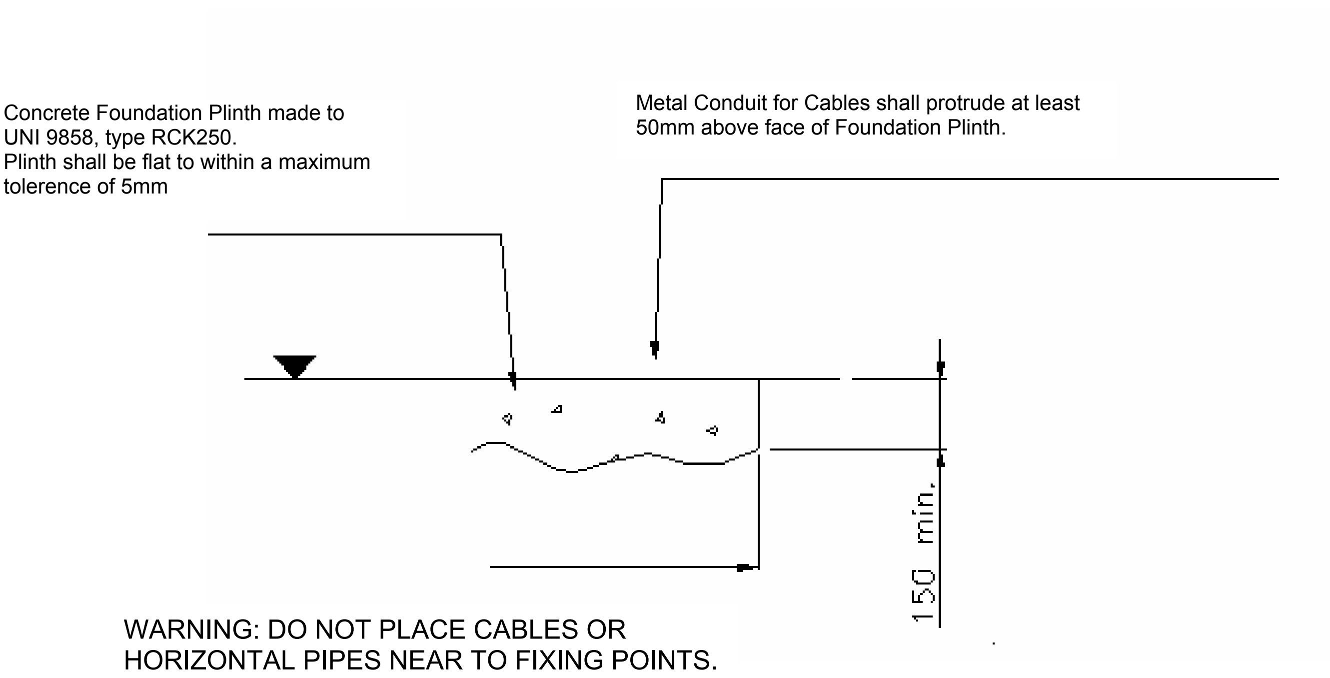


Figure 5.1 General Indications for Foundation Plinth

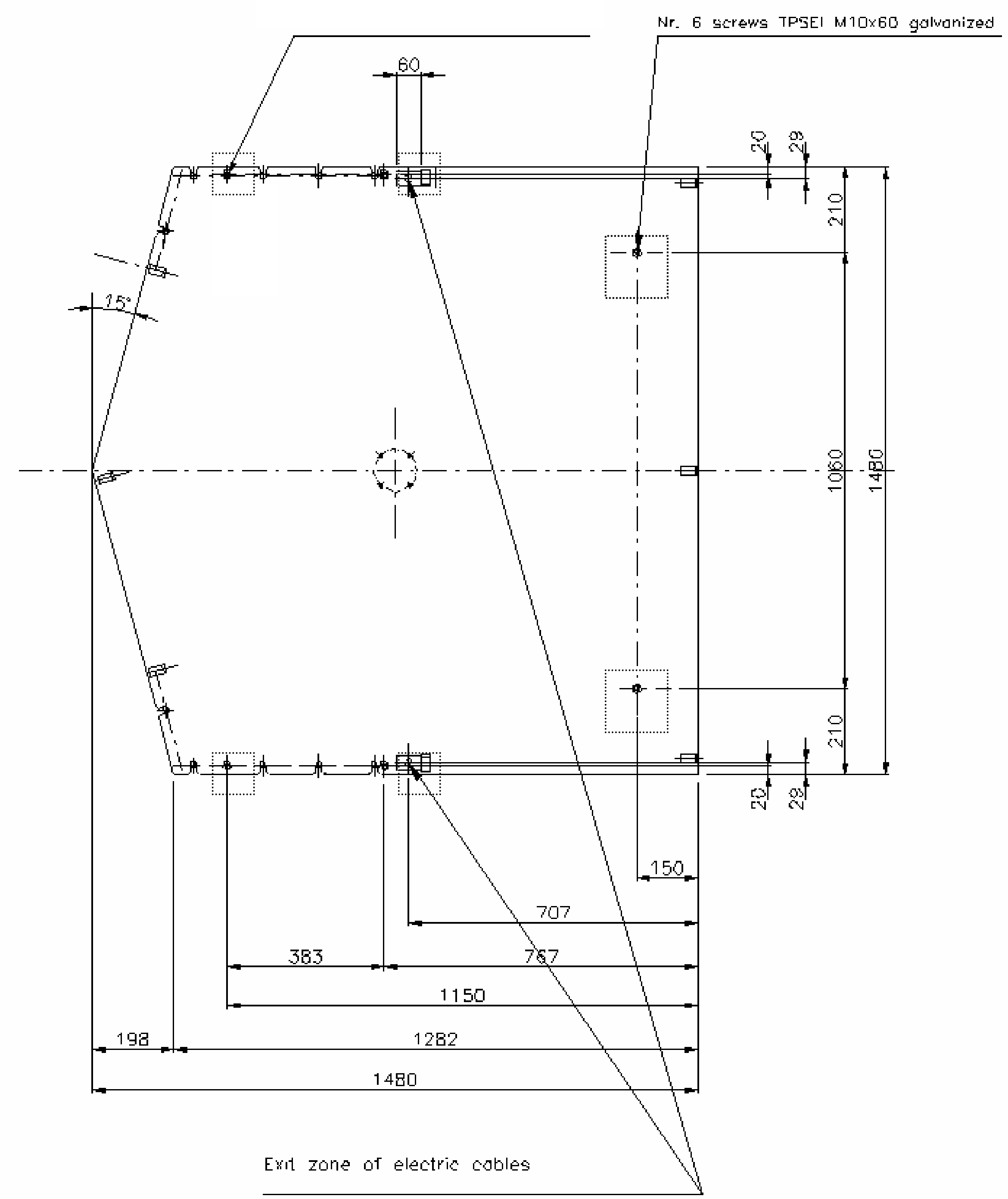


Figure 5.2 Full-O-Stile 90 and 91 Single

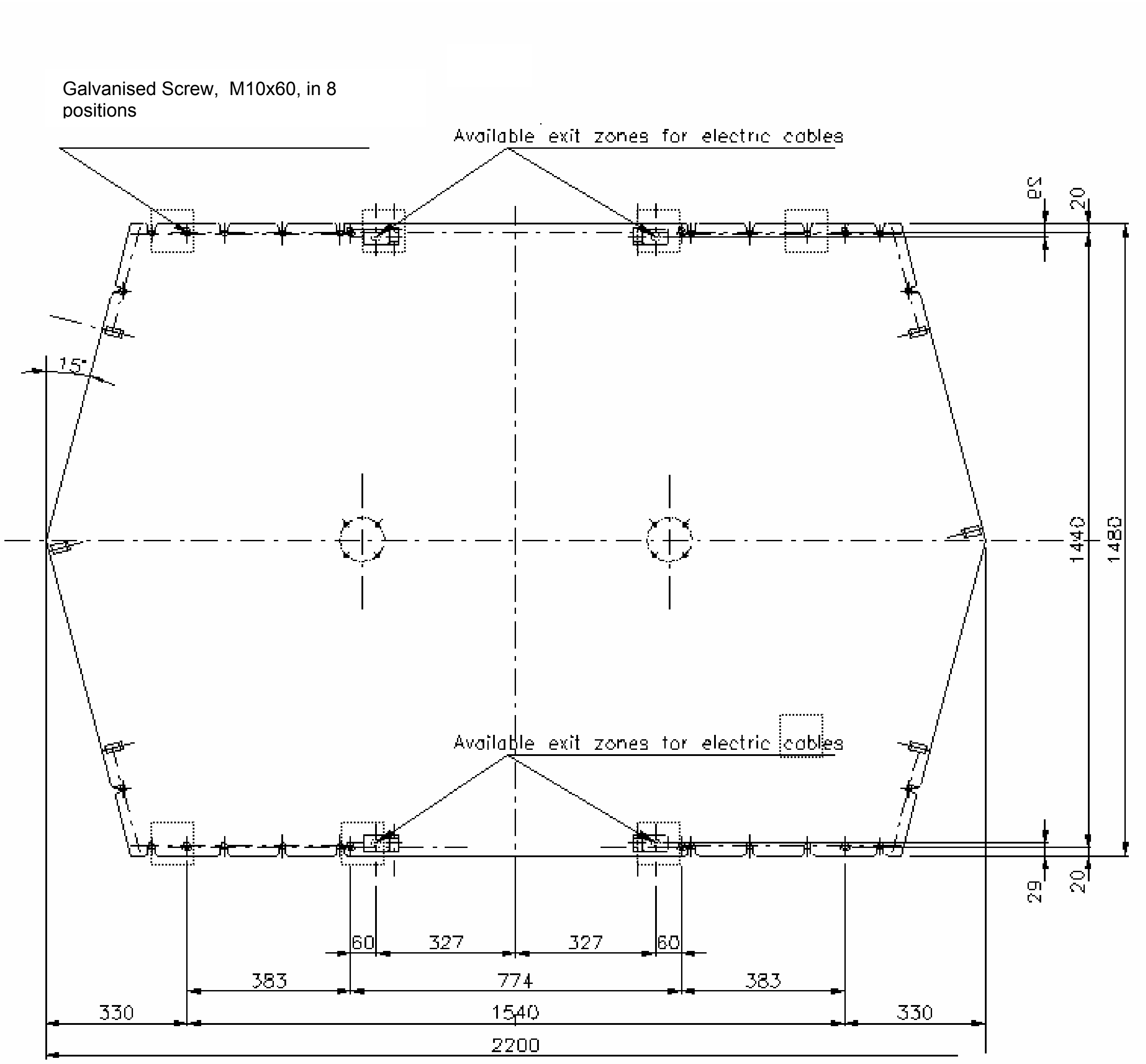


Figure 5.3 Full-O-Stile 90 and 91 Double

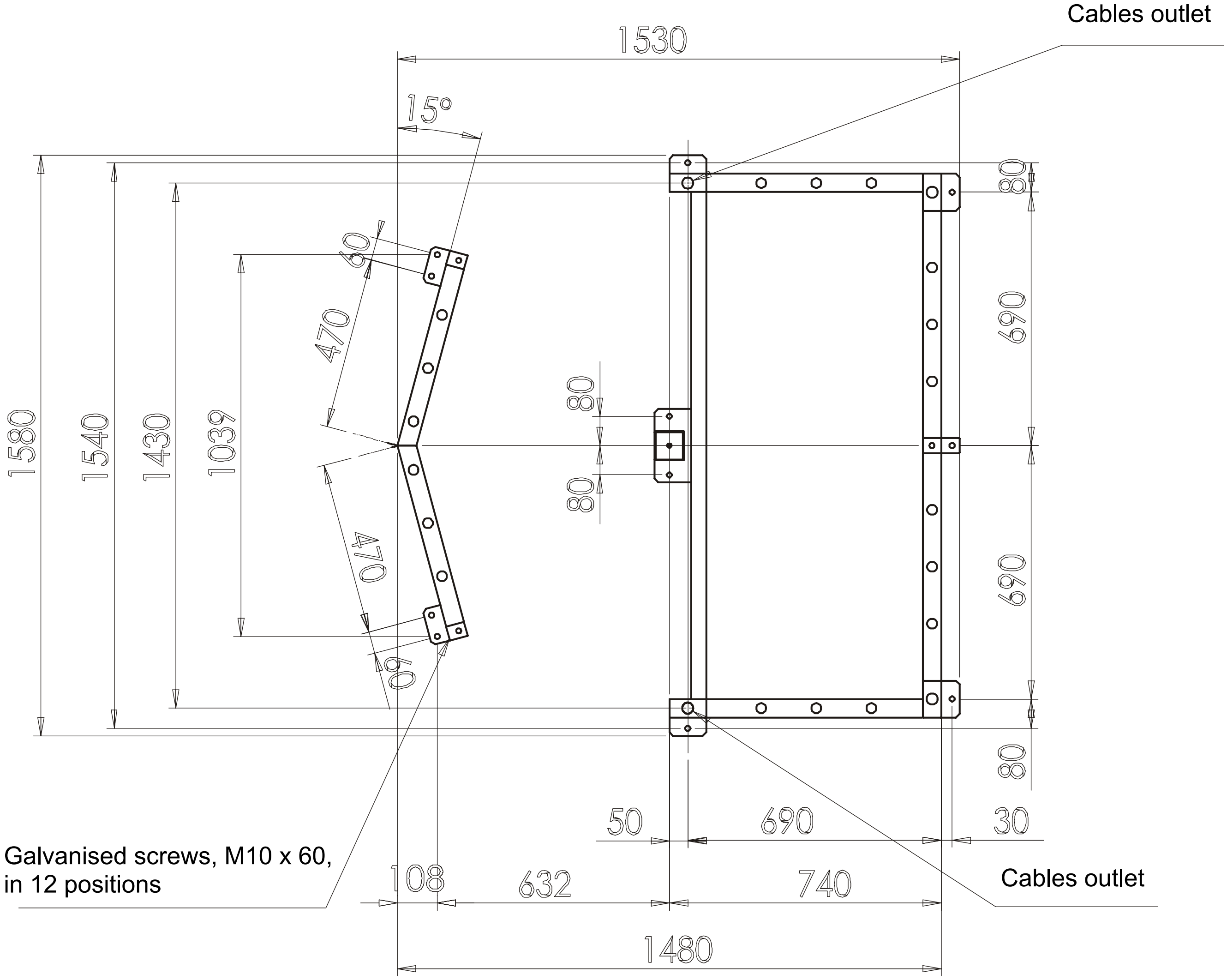


Figure 5.4 - Full-O-Stile AT91 Single

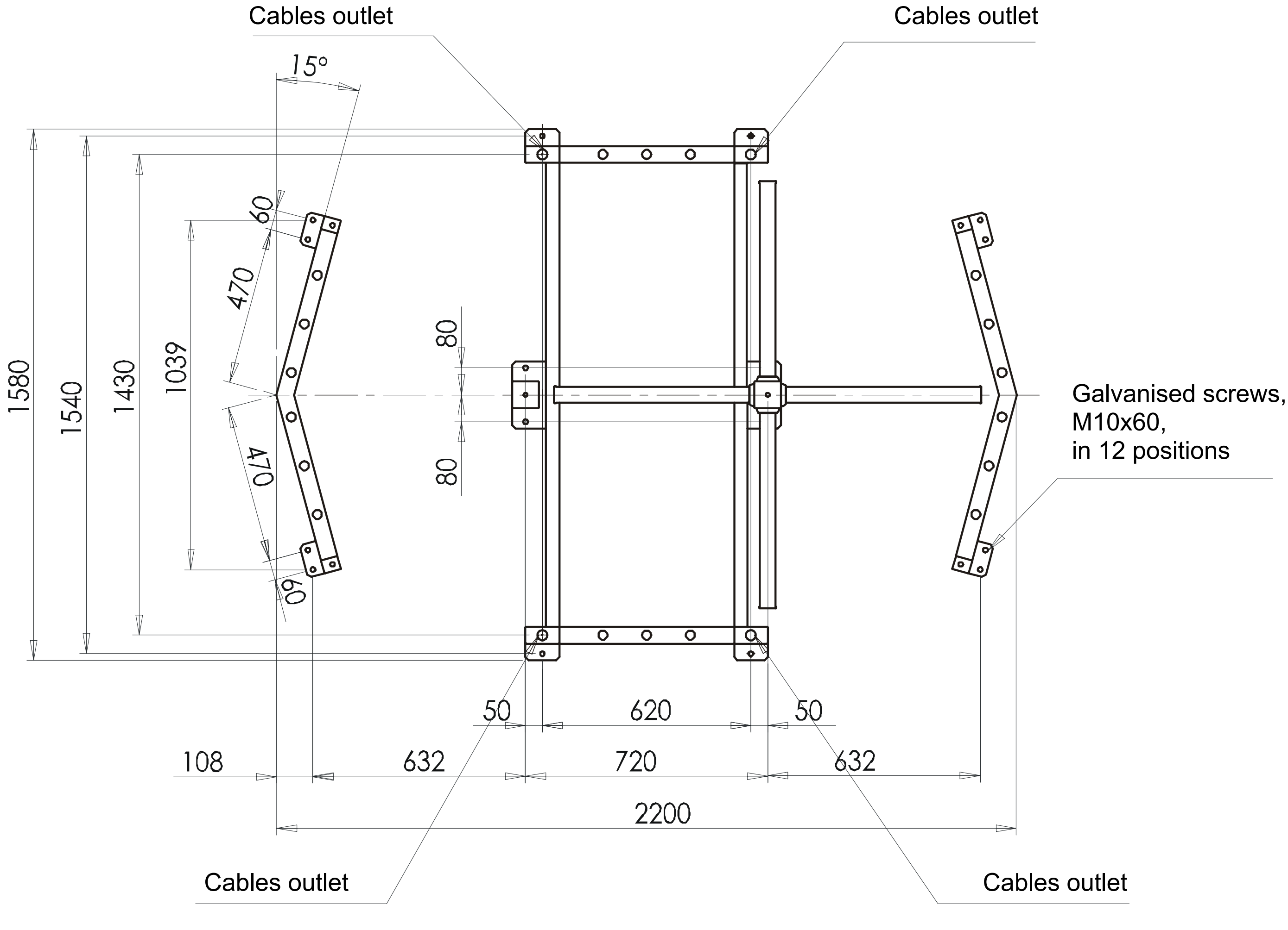


Figure 5.5 - Full-O-Stile AT91 Double

Unit Positioning

The Full-O-Stile barrier is supplied already-assembled and is tested in the factory before the shipping:

Trace on the floor with chalk a line to which the door must be aligned.

Place the Full-O-Stile door in the correct position.

On the floor mark the position of the expansion fitting holes.

Remove the barrier (if necessary) to make a hole in the floor to fix the expansion fittings.

Re-position the barrier and fix it to the floor fixing the screws into the expansion fittings.

Ensure the frame is positioned both longitudinally and transversally, checking with a level gage.
During installation, be careful not damage any positioned cables.

NOTE: If the barrier is supplied as an assembling kit, follow the instructions given in the manual supplied with each kit.

Electrical Connections

All cables for the barrier should be placed as shown in the lay-out diagram and pass through the posts up to the top of the barrier and inserted in the logic board of the barrier.

Within the logic, connections must be made as follows.

- Connection of the release signals from the readers to the JP6 connector (Release direction A & B);

- Connection of the counting signals to the JP8 connector (Direction A & B);

- Connection of the reader enabling signals to the JP8 connector (Reader enable direction A & B);

All other connections have been carried out in the factory before the shipping.

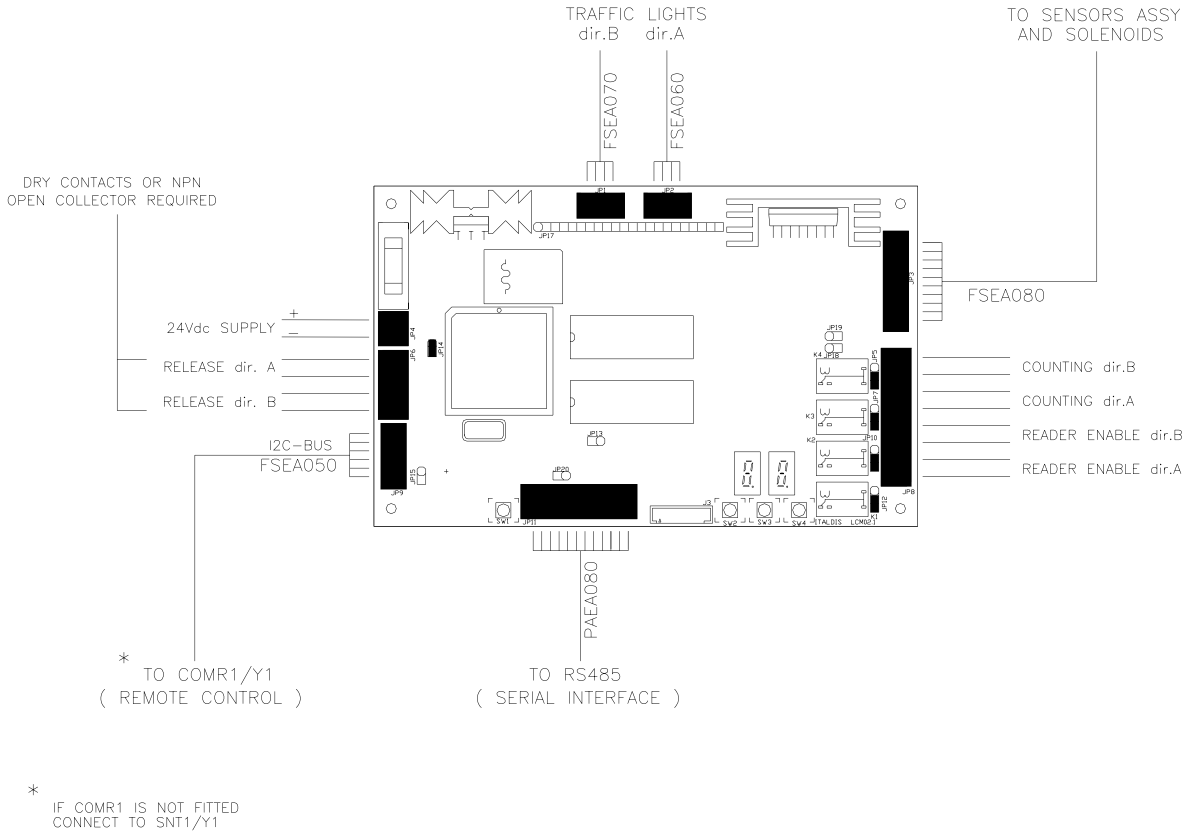


Figure 5.6 Interconnection Details

If the unit is equipped with a COMR1 board it should be connected to the GEC MP2000 command module, as shown in Figures 5.7.

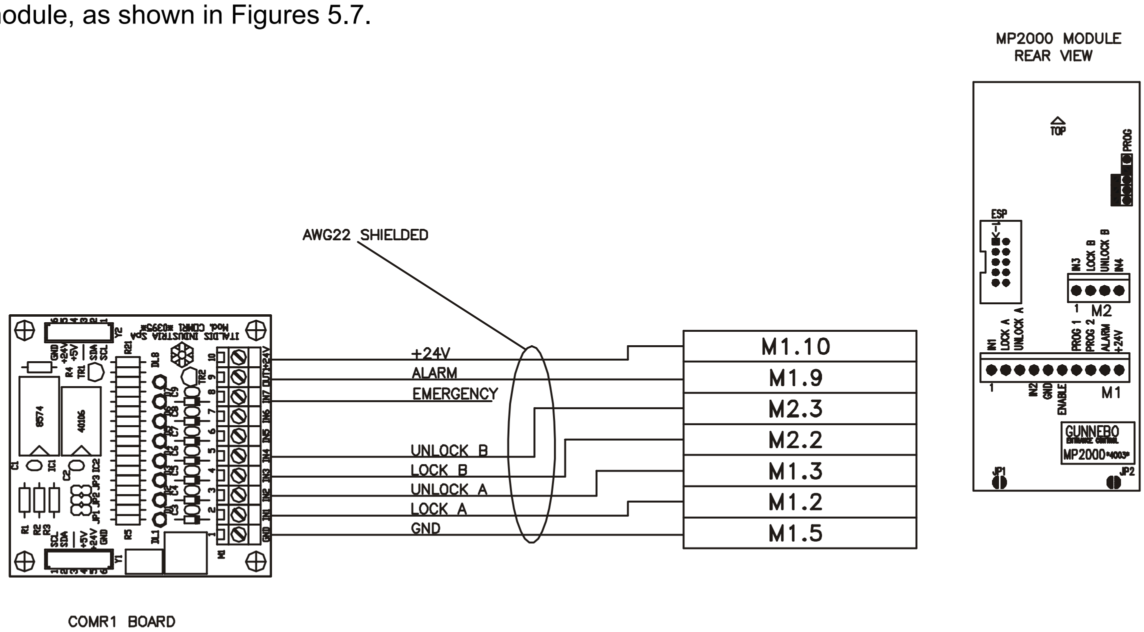


Figure 5.7. COMR1 Connection

The connection must be carried out by passing the cable through the barrier post and to the logic board though one of the cable glands.

Section 6

Maintenance

General Care

Routine Cleaning:
Clean with soap or similar detergents, rinse with water and dry thoroughly.

Cleaning oil or fat stains:
Use the appropriate organic detergents, after which clean with soap, rinse with water and thoroughly dry.

Minor damage to painted surfaces:
Remove with an abrasive agent the damaged paint, clean the surface and thoroughly dry. Apply paint on the surface and when the paint is dry (after 2 weeks) use an abrasive paste to ensure a smooth surface.

Damage to the painted surfaces and rust detected:
Remove the rust with a knife and apply an anti-rust agent. If necessary use fine body filler to repair damaged parts after which carry out the procedure for minor damage to painted surfaces.

Preventive Maintenance

The frequency of preventive maintenance interventions depends on the door's condition and frequency of use.
It is recommended however to carry out maintenance work every 250,000 passages or every year, if the number of passages is less.
The actions that characterise preventive maintenance intervention must include, at least, the following points.

1. Make sure that the door is insulated from the power supply line;

2. Open the door lid, (hold it with the safety bar) in order to access the mechanism and the logic box.

3. The electronic device does not require maintenance, however, make sure that all connections are in good condition and correctly fixed to the boards;

4. Check the mechanism in order to verify if the system is excessively worn and if there are signs of damage. Replace, if necessary, the unserviceable components.

5. Lubricate with grease (see the Figure 6.1):

   The anti-reversal mechanism, restoring and dumper pivots (apply the grease through the nipples on the top of the pillars).

   Apply a smear of grease to the interface between the locking pawl and the bracket.

   Apply a smear of grease to the periphery of the baffle plate

6. Check the function of:

Lock solenoids;
Anti-reversal quietening;
Return mechanism;
Damper.

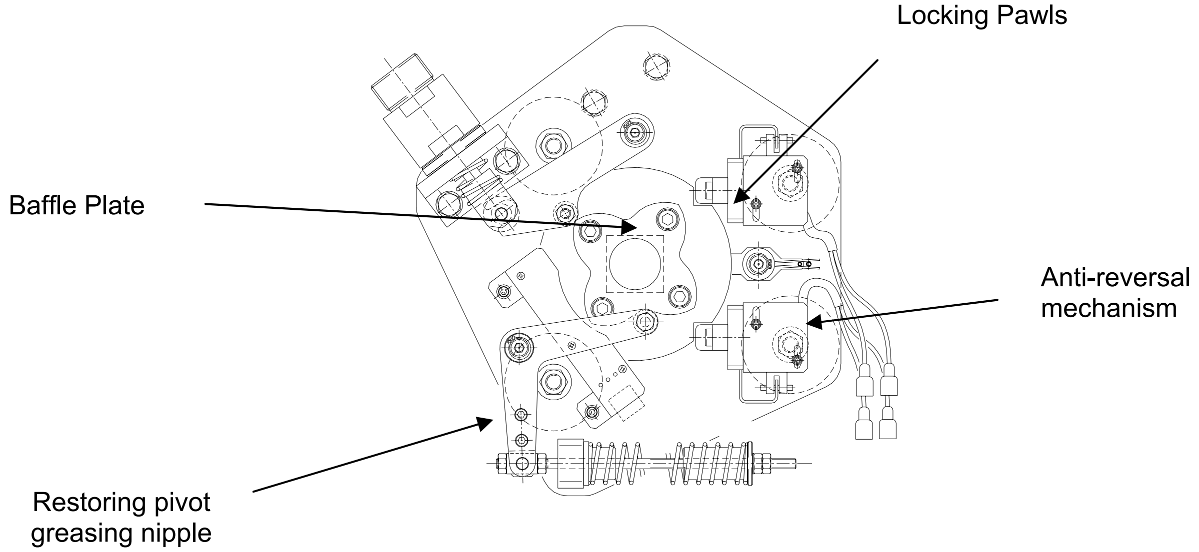


Figure 6.1. Head Mechanism – Main Components

Lock solenoids

The lock solenoids can be assembled to ensure the door's free rotation in the event of a power failure (fail safe) or to lock the door in the event of a power failure (fail lock).
To change from one mode to the other, simply modify the position of the mechanism, as described below.

1. The following figure shows the position of solenoids and locking pawls, for the passage in A and B direction, in the fail safe and fail lock conditions (the figure shows the solenoids are de-energised).

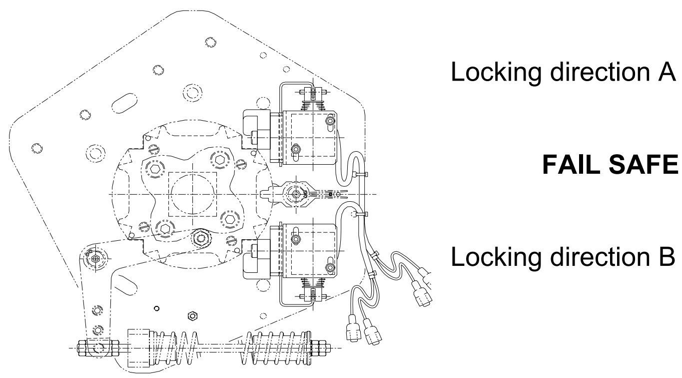


Figure 6.2. Fail Safe Configuration

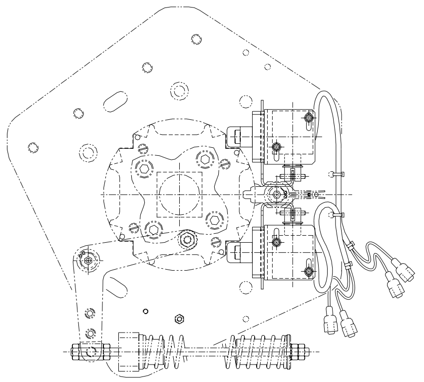
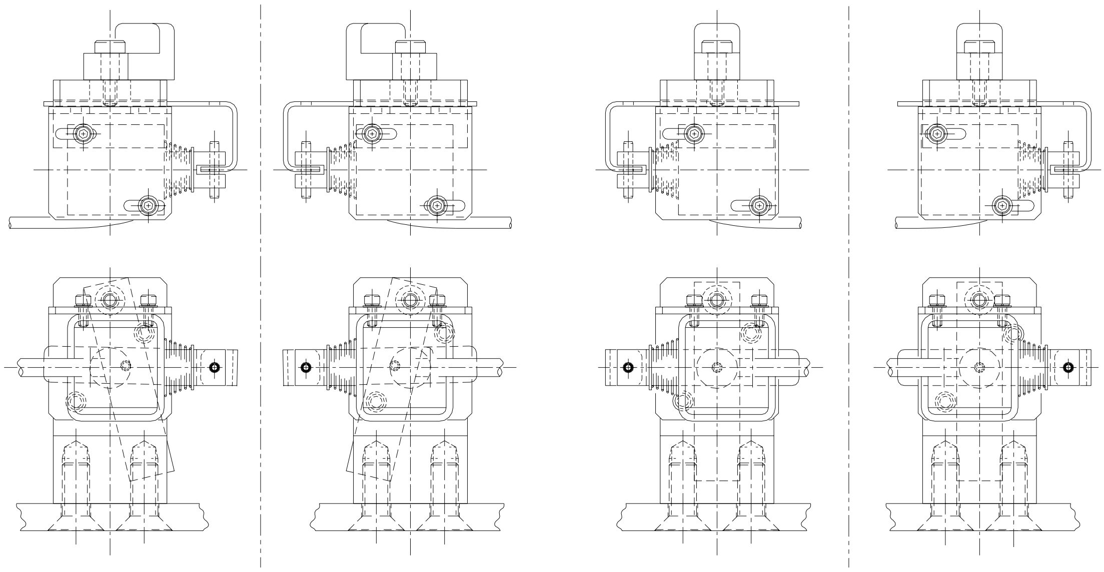


Figure 6.3. Fail Lock Configuration

2. The conditions together with the solenoid components are shown in the following figures.
The procedure for modification of the magnets requires the rotation of solenoids in order to change from one mode to the other.



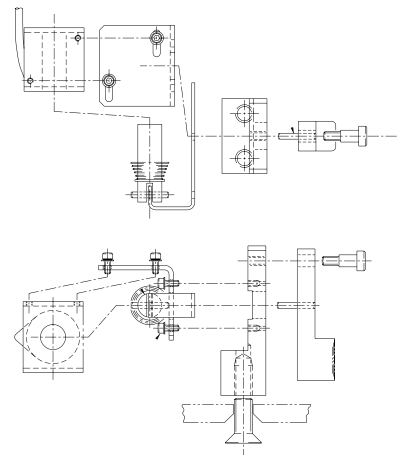


Figure 6.4. Details of Fail Lock/Fail Safe

When the mechanical modifications have been carried out, the programmable parameters need to be modified, according to the instructions given in the previous sections. This sets the new system's operative mode (Pmagneti parameter).

The following checks must be carried out for preventive maintenance and every time that work on solenoids is required.

Fail safe configuration.

With the solenoid de-energised and the nucleus extended by the action of the spring, make sure that the pawl does not interfere with the baffle plate.

Check, by moving the nucleus manually, that the pawl is inserted in the appropriate space in the baffle plate and that it exits without excessive friction.
If necessary adjust the position of the solenoid group in order to obtain this condition.

Energise and de-energise the solenoid, the pawl must go in and out of the locking position.

Energise the solenoid, the pawl returns to the locking position, push the pawl in the unlocking position against the resistance of the electro-magnet: there must be a resistance but not excessive. If necessary vary the position of the solenoid and repeat the previous steps.

Fail lock configuration.

With the solenoid de-energised the pawl must be in the rotation locking position. If necessary modify the position of the electro-magnet. Move the core manually and make sure that the pawl exits completely from the baffle plate; it must re-enter in its housing in the baffle plate.

Energise the solenoid: the pawl must exit from its housing and pass to the outside of the circumference of the baffle plate. De-energise the solenoid and make sure that the pawl returns to the rotor locking position.

Anti-Reversal Device Quieting System Adjustment

The quietening mechanism is calibrated during the production process in order to obtain the best performance. It is however possible that, because of wear or component adjustment, there is an increase in noise caused by the device. In this case it is necessary to adjust the 4 screws on the baffle plate, turning them clockwise by a quarter of a turn each time, until the noise has been reduced.
Do not adjust the screws too tightly, so as to avoid excessive friction on the mechanism.

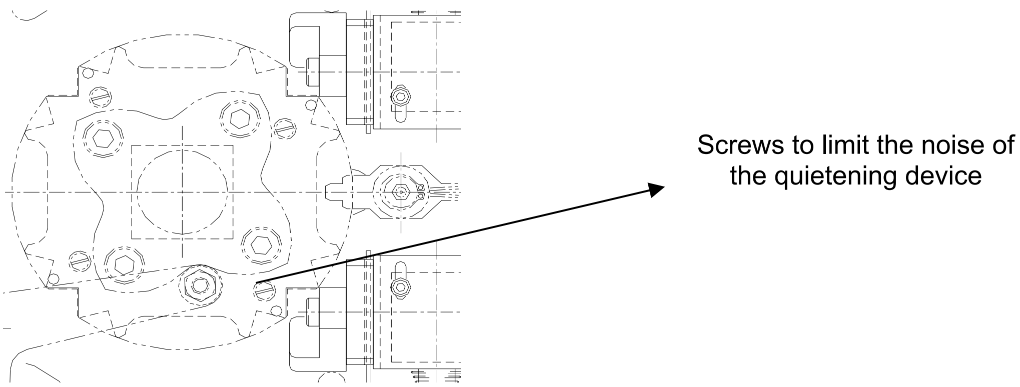


Figure 6.5. Anti-Reversal Device

Restoring Device

The force exerted by the restoring spring can be adjusted by tightening or loosening nuts of the spring rod. If the spring is shortened the force exerted by the device increases, bringing the door to the rest position quickly.

Calibrate the spring so that the door always returns to the rest position, independently of its starting point.

If the spring is too tightly adjusted a greater force is required to open the door.

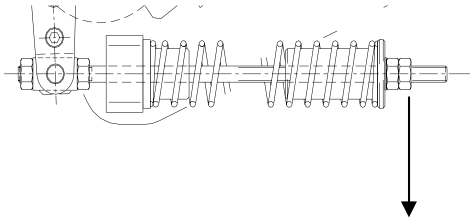


Figure 6.6. Restoring Device

Damper

The doors are equipped with an adjustable damper that is factory calibrated. If further calibrations are required, carry out the following:

Adjust the desired damping effect by quickly moving the rotor and checking that it returns to the rest position with the desired movement (adjustment on the regulator; 0 is the lowest damping level, 6 the maximum);

Regulate the mechanism's restoring spring so that, by working with the damping effect, it enables the door to return to the rest position.

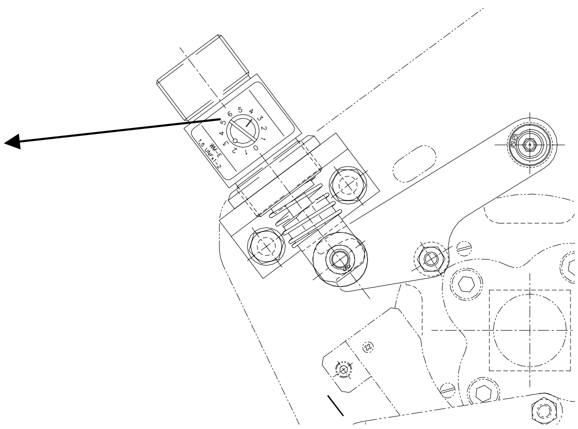


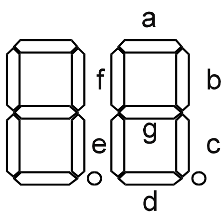
Figure 6.7. Damper Unit

Trouble-Shooting

The LCM02 board is equipped with two 7 segment LEDs that show a series of indications if the door fails to work correctly.

The indications are as follows:

Segment	Description
A	State of one of the sensors on the board
B	State of one of the sensors on the board
C	Authorised passage signal in direction B
D	Up/down encoder
E	Authorised passage signal in direction A
F	State of one of the sensors on the board
G	Encoder passage signal



As the door rotates, segments (f) and (a) flash since they reproduce the signals of the sensors controlling rotation.

When the door is in the rest position, segment (b) should be illuminated.

Segments (d) and (g) flash, but they only reproduce the signals generated by the internal logic of the LCM02 board.

When there is an authorised passage signal in direction A (reader), segment (e) is illuminated. If the authorised passage signal is in direction B, segment (c) is illuminated.

LCM02 board outputs test

The control logic can work in the test mode: it is possible to lock the solenoids and turn the LCM02 display ON and OFF.

1. Push SW3 push button and keep it depressed.
2. Reset the microprocessor by pushing and releasing push button SW1.
3. Release push button SW3

The following tests can be carried out:

- Press push button SW2 to energise the lock solenoid in the direction A. The K2 and K4 relays on the LCM02 board are energised and all displays are OFF.
-
- Press push button SW3 to energise the lock solenoid in the direction B. The K1 and K3 relays on the LCM02 board are energise all displays are ON.
-
- Press push button SW4 to de-energise the solenoids.
-
- At the end of test procedure, press push button SW1 to reset the control logic.

GUNNEBO
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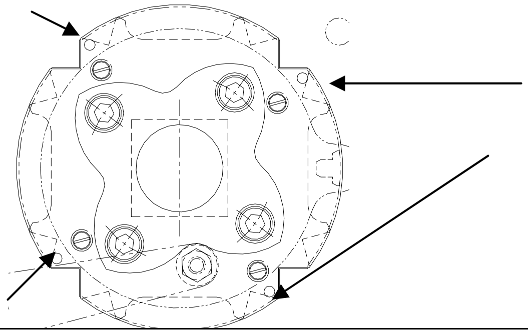
Fault Finding

Symptom	Action	Remedy
The door remains locked/unlocked	Check that the power supply switch is in the ON position. Check that the 24Vdc voltage is present on the LCM02 board. The movement of electromagnets and /or locking pawls is impeded. The fuse of the LCM02 board is unserviceable Carry out LCM02 outputs test: Simulate a command to the electromagnet and verify that at the output 24Vdc voltage is present. Verify that 24Vdc voltage is present at the solenoids when commanded. Simulate the reader signal by short-circuiting the two corresponding inputs for each rotation direction.	 If it is not present replace the power supply and/or check the wiring. Remove obstacles and carry out maintenance work to check the units function correctly Replace the fuse with a known serviceable item. If there is no voltage replace the LCM02 If the solenoid does not move when a voltage is applied, replace the solenoid. If the corresponding LEDs do not illuminate, replace the LCM02.
The reader does not receive the passage confirmation signal or the reader inhibit signal.	Carry out tests of the LCM02 outputs and check the correct function of relays.	If one or more relays do not work, replace the LCM02 Check the wirings. Check the reader.
For one reader authorisation signal there are two passages.	Check the four magnets on the upper face of the baffle plate are in the correct position. 	If one or more of the magnets have been removed, replace them.

LCM02 Board Replacement

- Disconnect the power supply to the door.
- Disconnect all board connections.
- Remove the board from the logic panel.
- Set the jumpers in the same position of the replaced board.
- Insert the EPROM of the removed board into the replacement one (if you want to keep the same programmable parameter setting).
- Place the replacement board on the logic panel.
- Reconnect all wires and connections.
- Reconnect the power supply.
- Carry out a functional test of the door.

Sensor Board Replacement

- Disconnect the power supply.
- Disconnect all board connections.
- Remove the sensor board from its support.
- Place the replacement board on the support, (paying attention to the positioning), the board must not interfere with the movement of the mechanism's head. The magnetic sensors must detect the presence of magnets (check if the LEDs are off when the sensors is activated by the presence of a magnet).
- Reconnect all wires and connections.
- Reconnect the power supply.
- Carry out functional test of the door.

COMRI Board Replacement

- Disconnect the power supply.
- Disconnect the COMR1 board connections.
- Unscrew the 4 fixing screws and remove the board.
- On the replacement COMR1 board, check that the position of the jumpers are the same as that of the replaced board; if different, correct positions.
- Replace the board.
- Replace the fixing screws.
- Re-connect the board connections.
- Re-connect the power supply.
- Carry out a functional test of the door.

Section 7

Spare Parts

The following list gives the recommended spares holding for a two-year period of operation.

Item	Description	Quantity
ESC0217	LCM02 board without EPROM	1
EPS0116	Switching Power Supply	1
	250 V DC 3.15 A fuse (LCM02)	2
88161501	Sensors board	1
88164010	Restoring spring	1
72091006	Damper	1
71541021	Locking Solenoid	1
88164013	Actuating Link	1
72452050	Tension Pin, M24x25	1

Section 8

Table Appendices

Table 8.1 Decimal, Hexadecimal and Decimal Conversion Table

Dec	Hex	Binary	Dec	Hex	Binary	Dec	Hex	Binary	Dec	Hex	Binary
0	00	00000000	64	40	01000000	128	80	10000000	192	CO	11000000
1	01	00000001	65	41	01000001	129	81	10000001	193	C1	11000001
2	02	00000010	66	42	01000010	130	82	10000010	194	C2	11000010
3	03	00000011	67	43	01000011	131	83	10000011	195	C3	11000011
4	04	00000100	68	44	01000100	132	84	10000100	196	C4	11000100
5	05	00000101	69	45	01000101	133	85	10000101	197	C5	11000101
6	06	00000110	70	46	01000110	134	86	10000110	198	C6	11000110
7	07	00000111	71	47	01000111	135	87	10000111	199	C7	11000111
8	08	00001000	72	48	01001000	136	88	10001000	200	C8	11001000
9	09	00001001	73	49	01001001	137	89	10001001	201	C9	11001001
10	0A	00001010	74	4A	01001010	138	8A	10001010	202	CA	11001010
11	OB	00001011	75	4B	01001011	139	8B	10001011	203	CB	11001011
12	OC	00001100	76	4C	01001100	140	8C	10001100	204	CC	11001100
13	0D	00001101	77	4D	01001101	141	9D	10001101	205	CD	11001101
14	0E	00001110	78	4E	01001110	142	8E	10001110	206	CE	11001110
15	OF	00001111	79	4F	01001111	143	8F	10001111	207	CF	11001111
16	10	00010000	80	50	01010000	144	90	10010000	208	D0	11010000
17	11	00010001	81	51	01010001	145	91	10010001	209	D1	11010001
18	12	00010010	82	52	01010010	146	92	10010010	210	D2	11010010
19	13	00010011	83	53	01010011	147	92	10010011	211	D3	11010011
20	14	00010100	84	54	01010100	148	94	10010100	212	D4	11010100
21	15	00010101	85	55	01010101	149	95	10010101	213	D5	11010101
22	16	00010110	86	56	01010110	150	96	10010110	214	D6	11010110
23	17	00010111	87	57	01010111	151	97	10010111	215	D7	11010111
24	18	00011000	88	58	01011000	152	98	10011000	216	D8	11011000
25	19	00011001	89	59	01011001	153	99	10011001	217	D9	11011001
26	1A	00011010	90	5A	01011010	154	9A	10011010	218	DA	11011010
27	1B	00011011	91	5B	01011011	155	9B	10011011	219	DB	11011011
28	1C	00011100	92	5C	01011100	156	9C	10011100	220	DC	11011100
29	1D	00011101	93	5D	01011101	157	9D	10011101	221	DD	11011101
30	1E	00011110	94	5E	01011110	158	9E	10011110	222	DE	11011110
31	1F	00011111	95	5F	01011111	159	9F	10011111	223	DF	11011111
32	20	00100000	96	60	01100000	160	A0	10100000	224	EO	11100000
33	21	00100001	97	61	01100001	161	A1	10100001	225	E1	11100001
34	22	00100010	98	62	01100010	162	A2	10100010	226	E2	11100010
35	23	00100011	99	63	01100011	163	A3	10100011	227	E3	11100011
36	24	00100100	100	64	01100100	154	A4	10100100	228	E4	11100100
37	25	00100101	101	65	01100101	165	A5	10100101	229	E5	11100101
38	26	00100110	102	66	01100110	166	A6	10100110	230	E6	11100110
39	27	00100111	103	67	01100111	167	A7	10100111	232	E7	11100111
40	28	00101000	104	68	01101000	168	A8	10101000	232	E8	11101000
41	29	00101001	105	69	01101001	169	A9	10101001	233	E9	11101001
42	2A	00101010	106	6A	01101010	170	AA	10101010	234	EA	11101010
43	2B	00101011	107	6B	01101011	171	AB	10101011	235	EB	11101011
44	2C	00101100	108	6C	01101100	172	AC	10101100	236	EC	11101100
45	2D	00101101	109	6D	01101101	173	AD	10101101	237	ED	11101101
46	2E	00101110	110	6E	01101110	174	AE	10101110	238	EE	11101110
47	2F	00101111	111	6F	01101111	175	AF	10101111	239	EF	11101111
48	30	00110000	112	70	01110000	176	B0	10110000	240	F0	11110000
49	31	00110001	113	71	01110001	177	B1	10110001	241	F1	11110001
50	32	00110010	114	72	01110010	178	B2	10110010	242	F2	11110010
51	33	00110011	115	73	01110011	179	B3	10110011	243	F3	11110011
52	34	00110100	116	74	01110100	180	B4	10110100	244	F4	11110100
53	35	00110101	117	75	01110101	181	B5	10110101	245	F5	11110101
54	36	00110110	118	76	01110110	182	B6	10110110	246	F6	11110110
55	37	00110111	119	77	01110111	183	B7	10110111	247	F7	11110111
56	38	00111000	120	78	01111000	183	B8	10111000	248	F8	11111000
57	39	00111001	121	79	01111001	185	B9	10111001	249	F9	11111001
58	3A	00111010	122	7A	01111010	186	BA	10111010	250	FA	11111010
59	3B	00111011	123	7B	01111011	187	BB	10111011	251	FB	11111011
60	3C	00111100	124	7C	01111100	188	BC	10111100	252	FC	11111100
61	3D	00111101	125	7D	01111101	189	BD	10111101	253	FD	11111101
62	3E	00111110	126	7E	01111110	190	BE	10111110	254	FE	11111110
63	3F	00111111	127	7F	01111111	191	BF	10111111	255	FF	11111111

Table 8.2 Titan Version 1.00(FBCBQITA100)

Note.

- Def.00 and Def.01 are related to all the models except 89. The difference between the two is just the magnets polarity (lock if power failure for 00 / unlock if power failure for 01);
- Def.02 is not to be used..

Loc.	Def.00	Def.01	Def.02	Parameter	Note	Description
00	00	03	00	PMagneti	see table 1	Magnets polarity BMT/SMT
01	03	03	03	MA	1=locked 2=unlocked 3=reader 4=temporized	Mode A at start-up
02	03	03	03	MB	1=locked 2=unlocked 3=reader 4=temporized	Mode B at start-up
03	01	01	01	EnableAll	see table 2	Alarms enabling at start-up (high)
04	00	00	02	EnableAll+1	See table 2	Alarms enabling at start-up (low)
05	00	00	00	PConteggio	0= half rotation. 1= end rotation.	Count pulse generation
06	19	19	19	PPulseCont	1/100 sec.	Count Pulse Width.
07	01	01	01	PIncContA		Count pulses per passage direction A
08	01	01	01	PIncContB		Count pulses per passage direction B
09	00	00	00	PSemafori	See table 3	Traffic light colours in reader or timed mode
0A	00	00	00	PSetLettori	See table 4	Reader mode settings
0B	00	00	00	PMaxPrenotaz	Range from 00H to 0FH	Possible reader credit memory (max 15 credits)
0C	50	50	50	PTOLett	1/10 sec.	Max passing time.
0D	32	32	32	PTOTemporizzato	1/10 sec.	Timer mode timeout
0E	0F	0F	0F	Riservato		Reserved, do not modify.
0F	14	14	14	PTOFineRot	1/100 sec.	Magnet block time after a normal passage in unlock e single passage mode.
10	14	14	14	PTODisInverso	1/10 sec.	Opposite direction blocking time.
11	64	64	64	PTOPosiz	1/10 sec.	Position sensing timeout for arm out of stand-by position.
12	32	32	32	PPercSort	da $00 a $64	Choosing %
13	14	14	14	PTOBuzzerSort	1/10 sec.	Buzzer duration when chosen
14	14	14	14	PTOBloccoSort	1/10 sec.	Duration of turnstile stop during choosing. Must be >= PTOBuzzerSort
15	11	11	11	PTipoSort	See table 5	Choosing style alarm
16	05	05	05	PTOResAll	sec.	Alarm duration before normalizing.
17	00	00	01	PAutoRelease	0=Disabilitato 1=Abilitato	Auto-reset in case of dead zone alarm
18	F6	F6	F6	PTempLow	in °C	Lower temperature alarm threshold
19	28	28	28	PTempHigh	in °C	Upper temperature alarm threshold
1A	00	00	00	K1High	See table 6	Relay function assignment to K1
1B	01	01	01	K1Low	See table 6	Relay function assignment to K1
1C	00	00	00	K2High	See table 6	Relay function assignment to K2
1D	02	02	02	K2Low	See table 6	Relay function assignment to K2
1E	00	00	00	K3High	See table 6	Relay function assignment to K3
1F	04	04	04	K3Low	See table 6	Relay function assignment to K3
20	00	00	00	K4High	See table 6	Relay function assignment to K4
21	08	08	08	K4Low	See table 6	Relay function assignment to K4

TABLE 1: PMagneti

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Coil polarity B side 0= BMT 1= SMT	Coil polarity A Side 0= BMT 1= SMT

TABLE 2: EnableAll - PMaskRL1 - PMaskRL2 (high+low)

EnableAll(high) - PMaskRL1H - PMaskRL2H

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Reserved Power-On					Temperature		Positioning

EnableAll(low) - PMaskRL1L - PMaskRL2L

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
				Choosing		Fraud	

TABLE 3: PSemafori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Traffic lights during waiting dir. B 0=Green 1=Red	Traffic lights during waiting dir. A 0=Green 1=Red

TABLE 4: PSetLettori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
		Accumulated credits. 0=Not ordered. 1=Order in a table		1=Reader resets alarms. Only if PMaxPrenotaz=0	Number of readers 0=2 readers 1=1 reader	Reader time out 0=Pulse 1=Level	

Bit 3 modifies flag FELA e FELB functioning in case of an alarm.

TABLE 5: PTipoSort

Bit 7..4	Bit 3..0
Choosing typology in A direction. 0=None 1=Before passage occurs 2=During counting	Choosing typology in B direction 0=None 1=Before passage occurs 2=During counting

TABLE 6: K(x)High + K(x)Low

K(x)High

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Polarity 0=Normal	0=OR 1=AND						FPosiz S0

K(x)Low

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
FBusy B	FBusy A	FBlocco B	FBlocco A	Conteggio B	Conteggio A	FELB	FELA

Table 8.3 Titan Version 1.10(FBCBQITA110)

Note.

- Def.00 and Def.01 are related to all the models except 89. The difference between the two is just the magnets polarity (lock if power failure for 00 / unlock if power failure for 01);
- Def.02 is not to be used.

Loc.	Def.00	Def.01	Def.02	Parameter	Note	Description
00	00	03	00	PMagneti	see table 1	Magnets polarity BMT/SMT
01	03	03	03	MA	1=locked 2=unlocked 3=reader 4=temporized	Mode A at start-up
02	03	03	03	MB	1=locked 2=unlocked 3=reader 4=temporized	Mode B at start-up
03	01	01	01	EnableAll	see table 2	Alarms enabling at start-up (high)
04	00	00	02	EnableAll+1	See table 2	Alarms enabling at start-up (low)
05	00	00	00	PConteggio	0= half rotation. 1= end rotation.	Count pulse generation
06	19	19	19	PPulseCont	1/100 sec.	Count Pulse Width.
07	01	01	01	PIncContA		Count pulses per passage direction A
08	01	01	01	PIncContB		Count pulses per passage direction B
09	00	00	00	PSemafori	See table 3	Traffic light colours in reader or timed mode
0A	00	00	00	PSetLettori	See table 4	Reader mode settings
0B	00	00	00	PMaxPrenotaz	Range from 00H to 0FH	Possible reader credit memory (max 15 credits)
0C	50	50	50	PTOLett	1/10 sec.	Max passing time.
0D	32	32	32	PTOTemporizzato	1/10 sec.	Timer mode timeout
0E	0F	0F	0F	PTOSblocco	1/10 sec.	Unlock timeout, if door not engaged
0F	14	14	14	PTOFineRot	1/100 sec.	Magnet block time after a normal passage in unlock e single passage mode.
10	14	14	14	PTODisInverso	1/10 sec.	Opposite direction blocking time.
11	64	64	64	PTOPosiz	1/10 sec.	Position sensing timeout for arm out of stand-by position.
12	32	32	32	PPercSort	da $00 a $64	Choosing %
13	14	14	14	PTOBuzzerSort	1/10 sec.	Buzzer duration when chosen
14	14	14	14	PTOBloccoSort	1/10 sec.	Duration of turnstile stop during choosing. Must be >= PTOBuzzerSort
15	11	11	11	PTipoSort	See table 5	Choosing style alarm
16	05	05	05	PTOResAll	sec.	Alarm duration before normalizing.
17	00	00	01	PAutoRelease	0=Disabilitato 1=Abilitato	Auto-reset in case of dead zone alarm
18	F6	F6	F6	PTempLow	in °C	Lower temperature alarm threshold
19	28	28	28	PTempHigh	in °C	Upper temperature alarm threshold
1A	00	00	00	K1High	See table 6	Relay function assignment to K1
1B	01	01	01	K1Low	See table 6	Relay function assignment to K1
1C	00	00	00	K2High	See table 6	Relay function assignment to K2
1D	02	02	02	K2Low	See table 6	Relay function assignment to K2
1E	00	00	00	K3High	See table 6	Relay function assignment to K3
1F	04	04	04	K3Low	See table 6	Relay function assignment to K3
20	00	00	00	K4High	See table 6	Relay function assignment to K4
21	08	08	08	K4Low	See table 6	Relay function assignment to K4
22	00	0	00	PBaudRate	0=9600 1=4800 2=2400 3=1200	Serial Transmission Speed

TABLE 1 PMagneti

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Coil polarity B side 0= BMT 1= SMT	Coil polarity A Side 0= BMT 1= SMT

TABLE 2: EnableAll - PMaskRL1 - PMaskRL2 (high+low)

EnableAll(high) - PMaskRL1H - PMaskRL2H

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Reserved Power-On					Temperature		Positioning

EnableAll(low) - PMaskRL1L - PMaskRL2L

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
				Choosing		Fraud	

TABLE 3: PSemafori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Traffic lights during waiting dir. B 0=Green 1=Red	Traffic lights during waiting dir. A 0=Green 1=Red

TABLE 4: PSetLettori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 0..1
		Accumulated credits. 0=Not ordered. 1=Order in a table		1=Reader resets alarms. Only if PMaxPrenotaz=0	Number of readers 0=2 readers 1=1 reader	Reader Mode: 00=front 01=inputs echo 10=level

Bit 3 modifies flag FELA e FELB functioning in case of an alarm.

TABLE 5: PTipoSort

Bit 7..4	Bit 3..0
Choosing typology in A direction. 0=None 1=Before passage occurs 2=During counting	Choosing typology in B direction 0=None 1=Before passage occurs 2=During counting

TABLE 6: K(x)High + K(x)Low

K(x)High

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Polarity 0=Normal	0=OR 1=AND				FSbloccoB	FSbloccoA	FPosiz S0

K(x)Low

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
FBusy B	FBusy A	FBlocco B	FBlocco A	Conteggio B	Conteggio A	FELB	FELA

Table 8.4 Titan Version 1.11(FBCBQITA111)

Loc.	Def.00	Def.01	Def.02	Parameter	Note	Description
00	**00**	**03**	**00**	PMagneti	see table 1	Magnets polarity BMT/SMT
01	03	03	03	MA	1=locked 2=unlocked 3=reader 4=temporized	Mode A at start-up
02	03	03	03	MB	1=locked 2=unlocked 3=reader 4=temporized	Mode B at start-up
03	01	01	01	EnableAll	see table 2	Alarms enabling at start-up (high)
04	**00**	**00**	**02**	EnableAll+1	See table 2	Alarms enabling at start-up (low)
05	00	00	00	PConteggio	0= half rotation. 1= end rotation.	Count pulse generation
06	19	19	19	PPulseCont	1/100 sec.	Count Pulse Width.
07	01	01	01	PIncContA		Count pulses per passage direction A
08	01	01	01	PIncContB		Count pulses per passage direction B
09	00	00	00	PSemafori	See table 3	Traffic light colours in reader or timed mode
0A	00	00	00	PSetLettori	See table 4	Reader mode settings
0B	00	00	00	PMaxPrenotaz	Range from 00H to 0FH	Possible reader credit memory (max 15 credits)
0C	50	50	50	PTOLett	1/10 sec.	Max passing time.
0D	32	32	32	PTOTemporizzato	1/10 sec.	Timer mode timeout
0E	0F	0F	0F	PTOSblocco	1/10 sec.	Unlock timeout, if door not engaged
0F	14	14	14	PTOFineRot	1/100 sec.	Magnet block time after a normal passage in unlock e single passage mode.
10	14	14	14	PTODisInverso	1/10 sec.	Opposite direction blocking time.
11	64	64	64	PTOPosiz	1/10 sec.	Position sensing timeout for arm out of stand-by position.
12	32	32	32	PPercSort	da $00 a $64	Choosing %
13	14	14	14	PTOBuzzerSort	1/10 sec.	Buzzer duration when chosen
14	14	14	14	PTOBloccoSort	1/10 sec.	Duration of turnstile stop during choosing. Must be >= PTOBuzzerSort
15	11	11	11	PTipoSort	See table 5	Choosing style alarm
16	05	05	05	PTOResAll	sec.	Alarm duration before normalizing.
17	**00**	**00**	**01**	PAutoRelease	0=Disabilitato 1=Abilitato	Auto-reset in case of dead zone alarm
18	F6	F6	F6	PTempLow	in °C	Lower temperature alarm threshold
19	28	28	28	PTempHigh	in °C	Upper temperature alarm threshold
1A	00	00	00	K1High	See table 6	Relay function assignment to K1
1B	01	01	01	K1Low	See table 6	Relay function assignment to K1
1C	00	00	00	K2High	See table 6	Relay function assignment to K2
1D	02	02	02	K2Low	See table 6	Relay function assignment to K2
1E	00	00	00	K3High	See table 6	Relay function assignment to K3
1F	04	04	04	K3Low	See table 6	Relay function assignment to K3
20	00	00	00	K4High	See table 6	Relay function assignment to K4
21	08	08	08	K4Low	See table 6	Relay function assignment to K4
22	00	00	00	PBaudRate	0=9600 1=4800 2=2400 3=1200	Serial Transmission Speed

TABLE 1 PMagneti

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Coil polarity B side 0= BMT 1= SMT	Coil polarity A Side 0= BMT 1= SMT

TABLE 2: EnableAll - PMaskRL1 - PMaskRL2 (high+low)

EnableAll(high) - PMaskRL1H - PMaskRL2H

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Reserved Power-On					Temperature		Positioning

EnableAll(low) - PMaskRL1L - PMaskRL2L

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
				Choosing		Fraud	

TABLE 3: PSemafori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Traffic lights during waiting dir. B 0=Green 1=Red	Traffic lights during waiting dir. A 0=Green 1=Red

TABLE 4: PSetLettori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 0..1
		Accumulated credits. 0=Not ordered. 1=Order in a table		1=Reader resets alarms. Only if PMaxPrenotaz=0	Number of readers 0=2 readers 1=1 reader	Reader Mode: 00=front 01=inputs echo 10=level

Bit 3 modifies flag FELA e FELB functioning in case of an alarm.

TABLE 5: PTipoSort

Bit 7..4	Bit 3..0
Choosing typology in A direction. 0=None 1=Before passage occurs 2=During counting	Choosing typology in B direction 0=None 1=Before passage occurs 2=During counting

TABLE 6: K(x)High + K(x)Low

K(x)High

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Polarity 0=Normal	0=OR 1=AND				FSbloccoB	FSbloccoA	FPosiz S0

K(x)Low

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
FBusy B	FBusy A	FBlocco B	FBlocco A	Conteggio B	Conteggio A	FELB	FELA

Table 8.5 Titan Version 1.20(FBCBQITA120)

Loading of Mechanism Default Parameters:
push **SW2** + **SW4** and reset (**SW1**);
appears “in”; with SW3 choice:

00 Solenoid configuration: A=Fail Lock; B=Fail Lock;
01 Solenoid configuration: A=Fail Safe; B=Fail Safe;
02 Solenoid configuration: A=Fail Lock; B=Fail Safe;
03 Solenoid configuration: A=Fail Safe; B=Fail Lock;
04 It is not to be used.

confirm with SW4, then appears “do”.

Loc.	Def. 00	Def. 01	Def. 02	Def. 03	Def. 04	Parameter	Note	Description
00	**00**	**03**	**02**	**01**	**00**	PMagneti	see table 1	Magnets polarity BMT/SMT
01	03	03	03	03	03	MA	1=locked 2=unlocked 3=reader 4=temporized	Mode A at start-up
02	03	03	03	03	03	MB	1=locked 2=unlocked 3=reader 4=temporized	Mode B at start-up
03	01	01	01	01	01	EnableAll	see table 2	Alarms enabling at start-up (high)
04	**00**	**00**	**00**	**00**	**02**	EnableAll+1	See table 2	Alarms enabling at start-up (low)
05	00	00	00	00	00	PConteggio	0= half rotation. 1= end rotation.	Count pulse generation
06	19	19	19	19	19	PPulseCont	1/100 sec.	Count Pulse Width.
07	01	01	01	01	01	PIncContA		Count pulses per passage direction A
08	01	01	01	01	01	PIncContB		Count pulses per passage direction B
09	00	00	00	00	00	PSemafori	See table 3	Traffic light colours in reader or timed mode
0A	00	00	00	00	00	PSetLettori	See table 4	Reader mode settings
0B	00	00	00	00	00	PMaxPrenotaz	Range from 00H to 0FH	Possible reader credit memory (max 15 credits)
0C	50	50	50	50	50	PTOLett	1/10 sec.	Max passing time.
0D	32	32	32	32	32	PTOTemporizzato	1/10 sec.	Timer mode timeout
0E	0F	0F	0F	0F	0F	PTOSblocco	1/10 sec.	Unlock timeout, if door not engaged
0F	14	14	14	14	14	PTOFineRot	1/100 sec.	Magnet block time after a normal passage in unlock e single passage mode.
10	14	14	14	14	14	PTODisInverso	1/10 sec.	Opposite direction blocking time.
11	64	64	64	64	64	PTOPosiz	1/10 sec.	Position sensing timeout for arm out of stand-by position.
12	32	32	32	32	32	PPercSort	da $00 a $64	Choosing %
13	14	14	14	14	14	PTOBuzzerSort	1/10 sec.	Buzzer duration when chosen
14	14	14	14	14	14	PTOBloccoSort	1/10 sec.	Duration of turnstile stop during choosing. Must be >= PTOBuzzerSort
15	11	11	11	11	11	PTipoSort	See table 5	Choosing style alarm
16	05	05	05	05	05	PTOResAll	sec.	Alarm duration before normalizing.
17	**00**	**00**	**00**	**00**	**01**	PAutoRelease	0=Disabilitato 1=Abilitato	Auto-reset in case of dead zone alarm
18	F6	F6	F6	F6	F6	PTempLow	in °C	Lower temperature alarm threshold
19	28	28	28	28	28	PTempHigh	in °C	Upper temperature alarm threshold
1A	00	00	00	00	00	K1High	See table 6	Relay function assignment to K1
1B	01	01	01	01	01	K1Low	See table 6	Relay function assignment to K1
1C	00	00	00	00	00	K2High	See table 6	Relay function assignment to K2
1D	02	02	02	02	02	K2Low	See table 6	Relay function assignment to K2
1E	00	00	00	00	00	K3High	See table 6	Relay function assignment to K3
1F	04	04	04	04	04	K3Low	See table 6	Relay function assignment to K3
20	00	00	00	00	00	K4High	See table 6	Relay function assignment to K4
21	08	08	08	08	08	K4Low	See table 6	Relay function assignment to K4
22	00	00	00	00	00	PBaudRate	0=9600; 1=4800 2=2400; 3=1200	Serial Transmission Speed
23	00	00	00	00	00	PEmergency	0= NO; 1= NC.	Polarity of the emergency input on the COMR1 board.

TABLE 1 PMagneti

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Coil polarity B side 0= BMT 1= SMT	Coil polarity A Side 0= BMT 1= SMT

TABLE 2: EnableAll - PMaskRL1 - PMaskRL2 (high+low)

EnableAll(high) - PMaskRL1H - PMaskRL2H

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Reserved Power-On					Temperature		Positioning

EnableAll(low) - PMaskRL1L - PMaskRL2L

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
				Choosing		Fraud	

TABLE 3: PSemafori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
						Traffic lights during waiting dir. B 0=Green 1=Red	Traffic lights during waiting dir. A 0=Green 1=Red

TABLE 4: PSetLettori

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 0..1
		Accumulated credits. 0=Not ordered. 1=Order in a table		1=Reader resets alarms. Only if PMaxPrenotaz=0	Number of readers 0=2 readers 1=1 reader	Reader Mode: 00=front 01=inputs echo 10=level

Bit 3 modifies flag FELA e FELB functioning in case of an alarm.

TABLE 5: PTipoSort

Bit 7..4	Bit 3..0
Choosing typology in A direction. 0=None 1=Before passage occurs 2=During counting	Choosing typology in B direction 0=None 1=Before passage occurs 2=During counting

TABLE 6: K(x)High + K(x)Low

K(x)High

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Polarity 0=Normal	0=OR 1=AND				FSbloccoB	FSbloccoA	FPosiz S0

K(x)Low

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
FBusy B	FBusy A	FBlocco B	FBlocco A	Conteggio B	Conteggio A	FELB	FELA

GUNNEBO
For a safer world®

Section 9

Declaration of Conformity

GUNNEBO
ENTRANCE CONTROL

DECLARATION OF CONFORMITY

GUNNEBO ENTRANCE CONTROL S.p.A., located in Via Alessandro Volta, 15 38015 Lavis (TN) ITALY, declares under its own responsibility that the products:

Full –O-Stile 90 (Single and Double configuration)
Full –O-Stile 91 (Single and Double configuration)
Full –O-Stile AT91(Single and Double configuration)

to which this declaration refers, comply with the provisions of the following directives:

89/336/EC EMC Directive
73/23/EC Low Voltage Directive

and moreover declares that the following harmonized norms have been applied:

EN 61000-6-3 (2001) Electromagnetic compatibility – generic standard, emission
EN 61000-6-1 (2001) Electromagnetic compatibility – generic standard, immunity
CEI - EN 60335-1 Safety of household and similar electrical appliances

Lavis, 25 January 2005

Managing Director

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COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

Note: In pursuit of its policy of continuous refinement and improvement, Gunnebo Entrance Control SpA reserves the right to modify design and details.

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