Fermator

操 作 手 册
VVVF-4

INSTRUCTIONS BROCHURE
VVVF-4

E198022

TECNOLAMA

Rev.: 06.2002

Fermator

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FERMATOR门系统的安装和调校

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ASSEMBLY AND REGULATION OF FERMATOR DOORS

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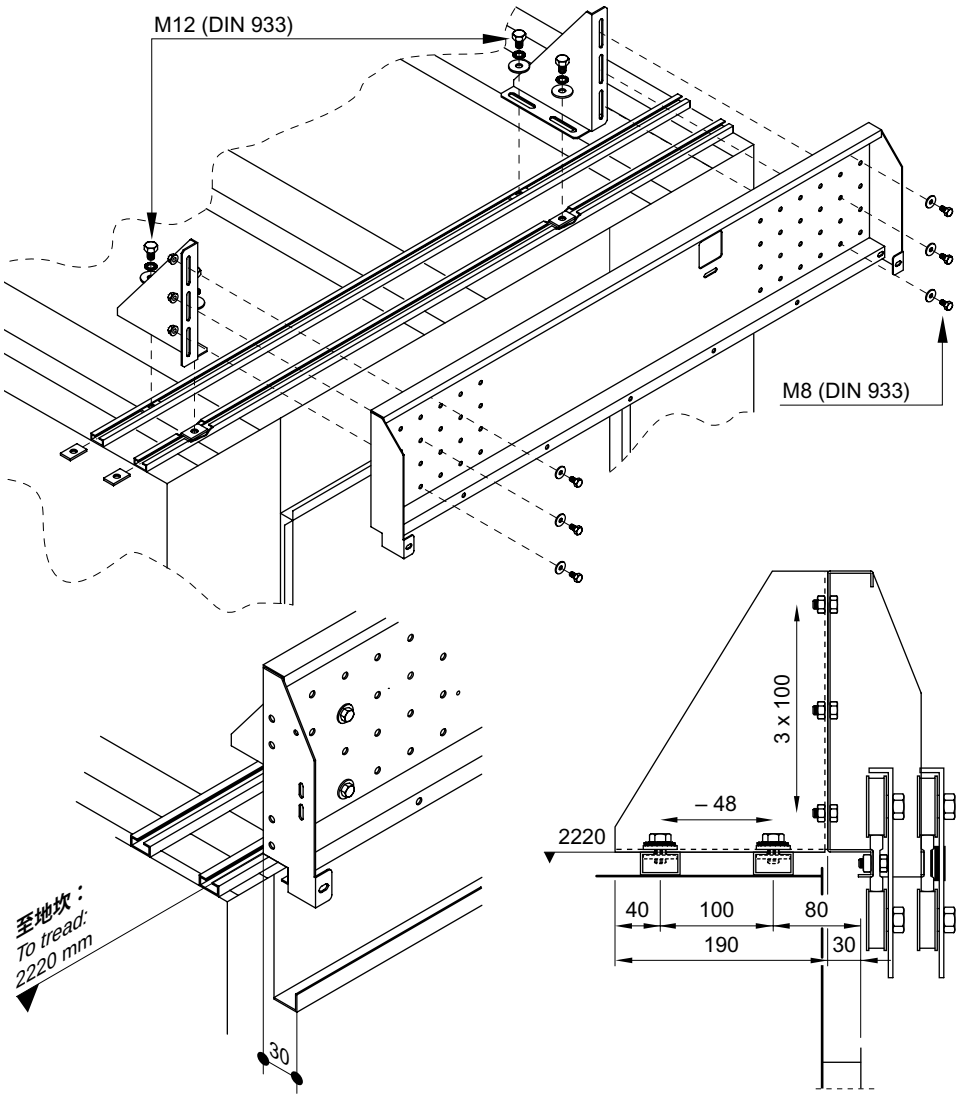
下列程序通用于所有型号的轿门。

1. **将安装支架与位于轿厢顶部的C形安装槽连接，然后将门机固定安装在安装支架上。**
2. **通过调节支架及门机门头板上孔的相对位置，确定门头板底边距地坎的距离为设计值，如** 2220 mm。**确定门头板与轿厢外缘的距离为** 30 mm。

The next procedure is the same for all types of cabin doors.

1st. Place the brackets in the guide tracks situated in the cabin roof, then fix the operator to the brackets.

2nd. By means of the slits in brackets and the existing holes in the operator, regulate the height up to 2220 mm in the operator extremes. Leave a distance of 30 mm between the outside of the cabin and the base of operator.



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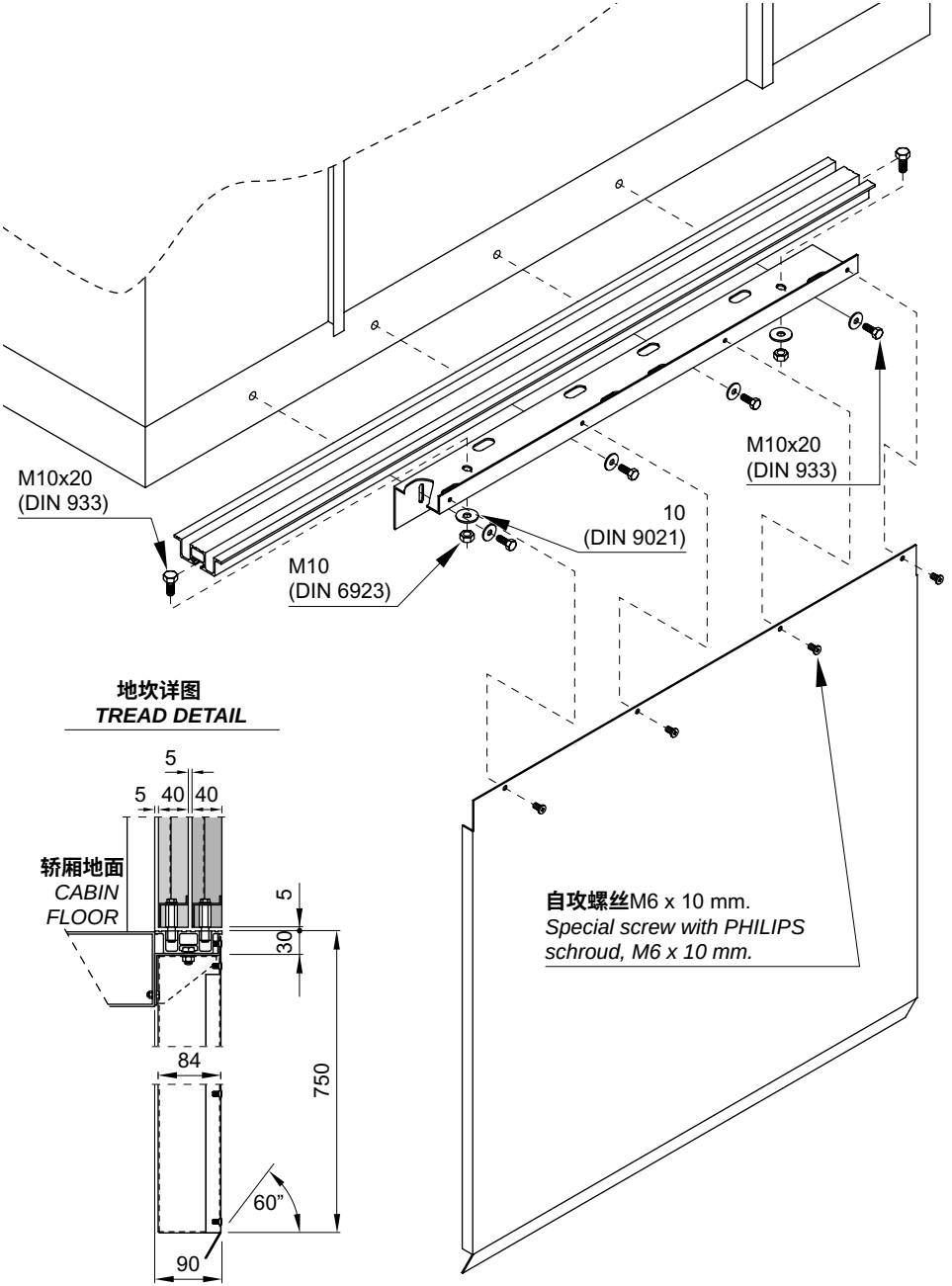
下列安装轿门地坎的程序通用于所有型号的轿门。

The procedure to assembly the cabin tread is the same for all types of cabin doors.



下列程序通用于所有型号的中分轿门。

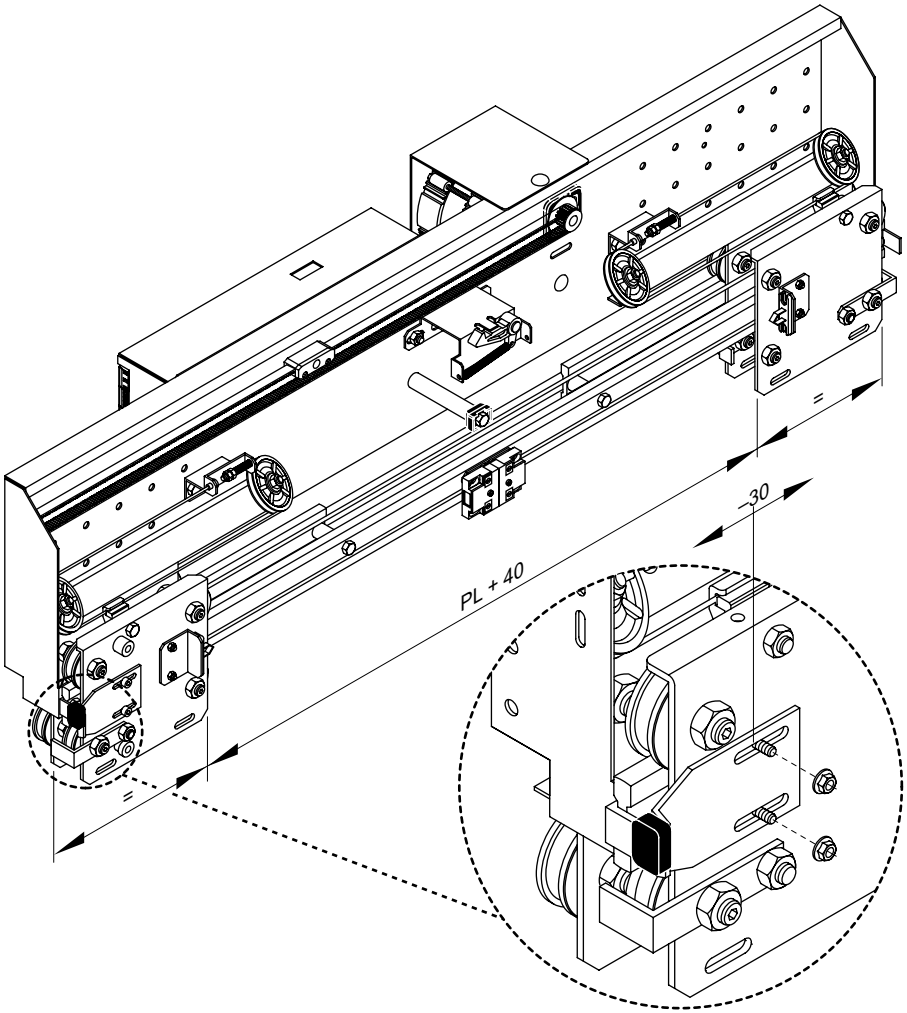
1. **将慢门的挂门板移至门机两端，确认其间距为**CO + 40 mm**，并固定。**
2. **将快门的挂门板移至与慢门挂门板齐平，然后固定铝夹。**
3. **调整挂门板上开有长孔的调整板的位置，开门宽度就被调整完毕。**

The next procedure is the same for all type of CENTRE PARTING cabin doors.

1st. Place the slow hanger plates at the extremes of the operator and check that there is a distance between them of CO + 40 mm, tighten the sheet.

2nd. Place the fast hanger plates in flush position and tighten the aluminium pieces.

3rd. By the slots of the top regulation pieces of the hanger plates, the opening of the door can be regulated.



下列程序通用于所有型号的侧开轿门。

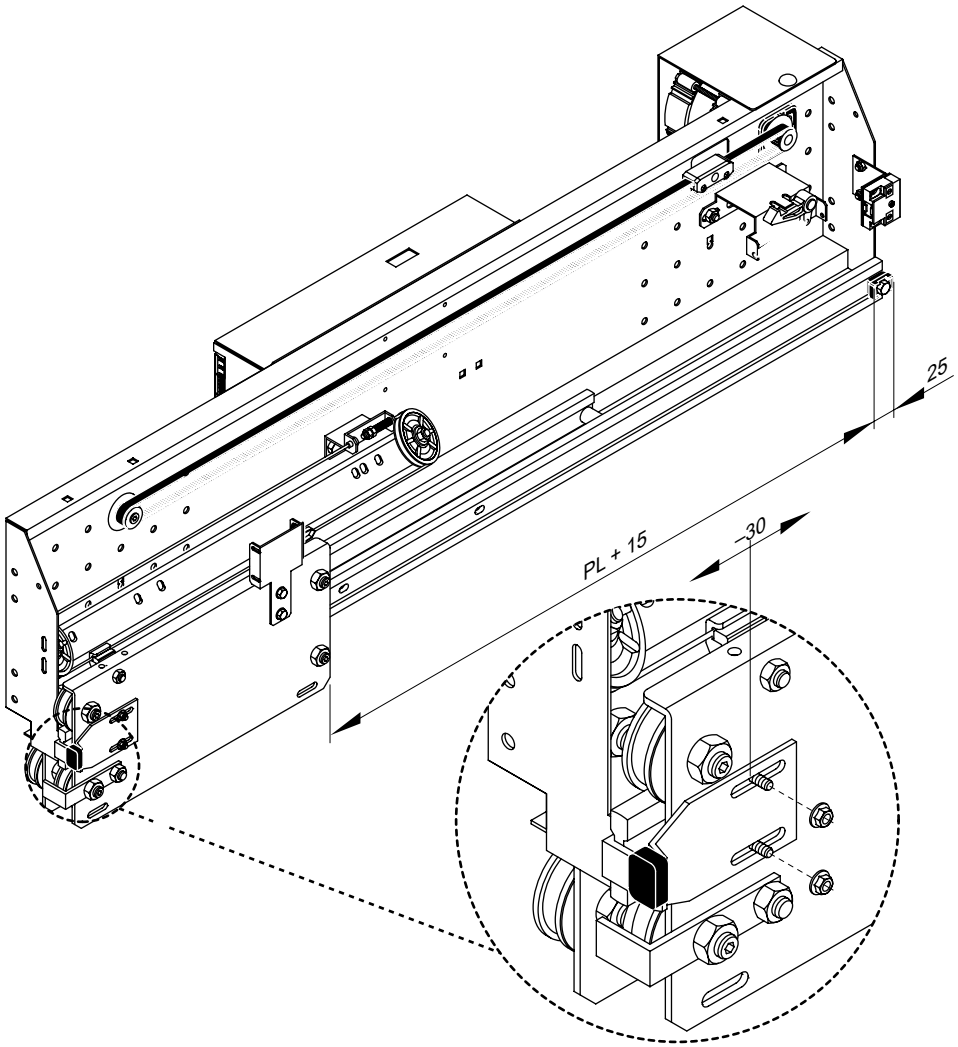
1. **将慢门的挂门板移至门机两端，确认其间距为**CO+15 mm**，并固定。**
2. **将快门的挂门板移至与慢门挂门板齐平，然后固定铝夹。**
3. **调整挂门板上开有长孔的调整板的位置，开门宽度就被调整完毕。**

The next procedure is the same for all type of SIDE OPENING cabin doors.

1st. Place the slow hanger plates at the extreme of the operator and check that there is a distance between them of CO + 15 mm, tighten the sheet.

2nd. Place the fast hanger plates in flush position and tighten the aluminium pieces.

3rd. By the slots of the top regulation pieces of the hanger plates, the opening of the door can be regulated.



下列程序通用与所有型号的中分轿门。

1. **将门板挂到对应的挂门板上之后，移动与轿门门框边缘齐平。拧紧螺母将门板与挂门板固定。**
2. **微调螺母使门板与门框平行。**
3. **检查并确保门板下边缘距地坎间隙为**5 mm。
4. **其它门板依同样步骤调整。**

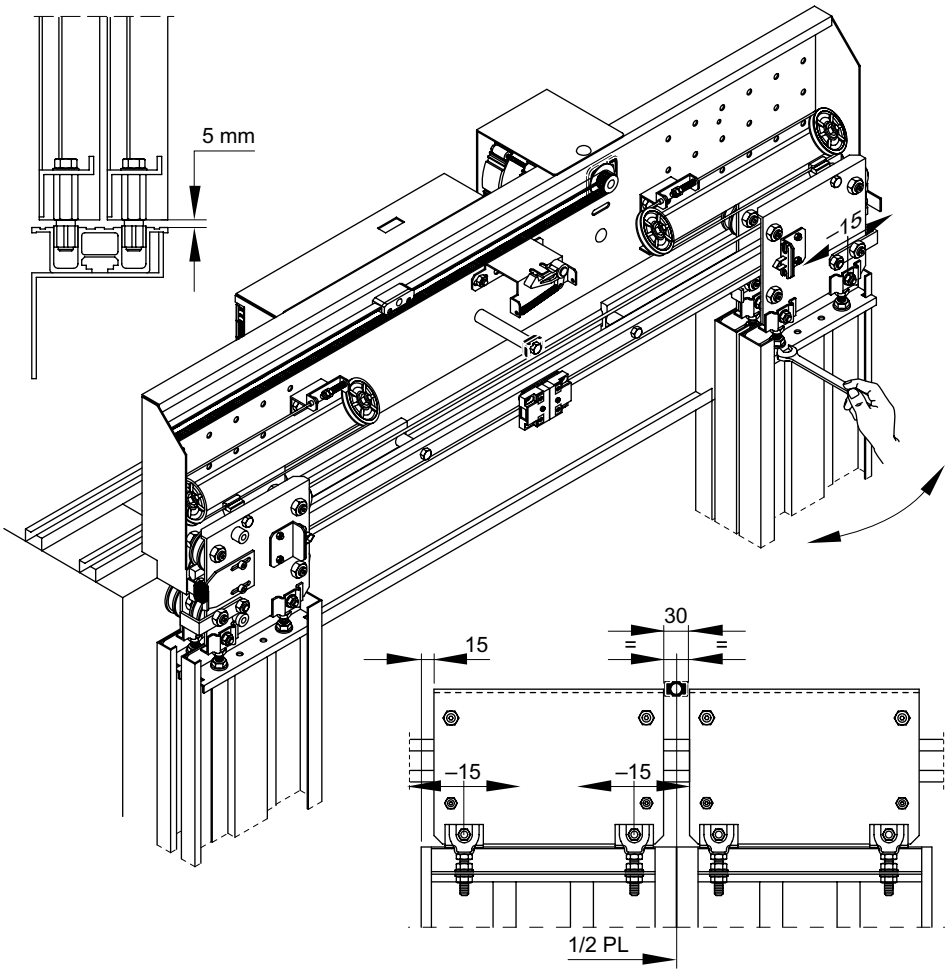
The next procedure is the same for all type of CENTRE PARTING cabin doors.

1st. Once the panels are placed into their corresponding plates, slide them until they are raised with the frames. Tighten the nuts that join the plates with the suspension.

2nd. Slightly straighten the panel with the help of the suspension nuts until the panel is completely parallel to the entrance return post.

3rd. Check that there is a distance of 5 mm between the sill and the bottom of the door panel.

4th. Do the same with the other panels.



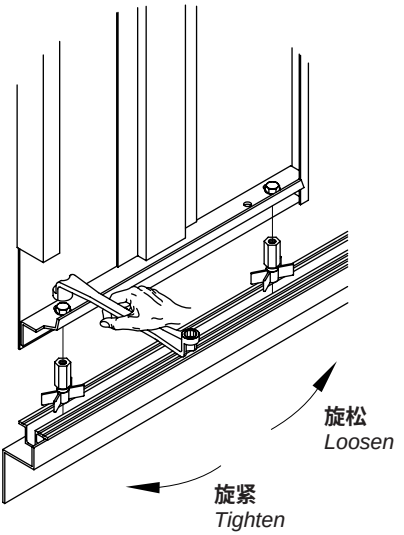
以下程序通用与所有型号的轿门和厅门门板。

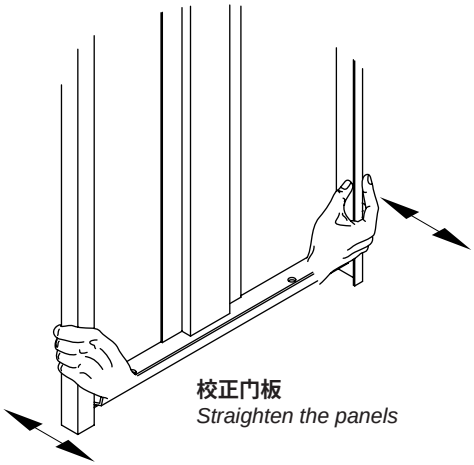
门板沿地坎滑动时，其正确位置是平行的。如果因故滑动不顺畅，需执行以下操作程序：

1. **松掉门滑块并拆除之。**
2. **校正门板使之与地坎平行。**
3. **重新安装门滑块。**

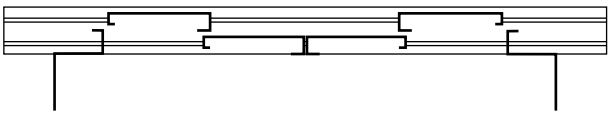
The next procedure is the same for all type of CABIN and LANDING doors.
The correct panels position is when they slide parallel to the tread. If for any reason the panels do not slide smoothly, follow these instructions:

1st. Loosen the nuts that hold the inferior guides and take them out.
2nd. Straighten the panels to remain parallel to the tread.
3rd. Place the guides and tighten the nuts.

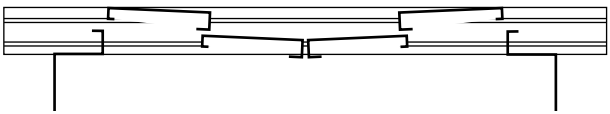




正确 / *CORRECT*



不正确 / *INCORRECT*

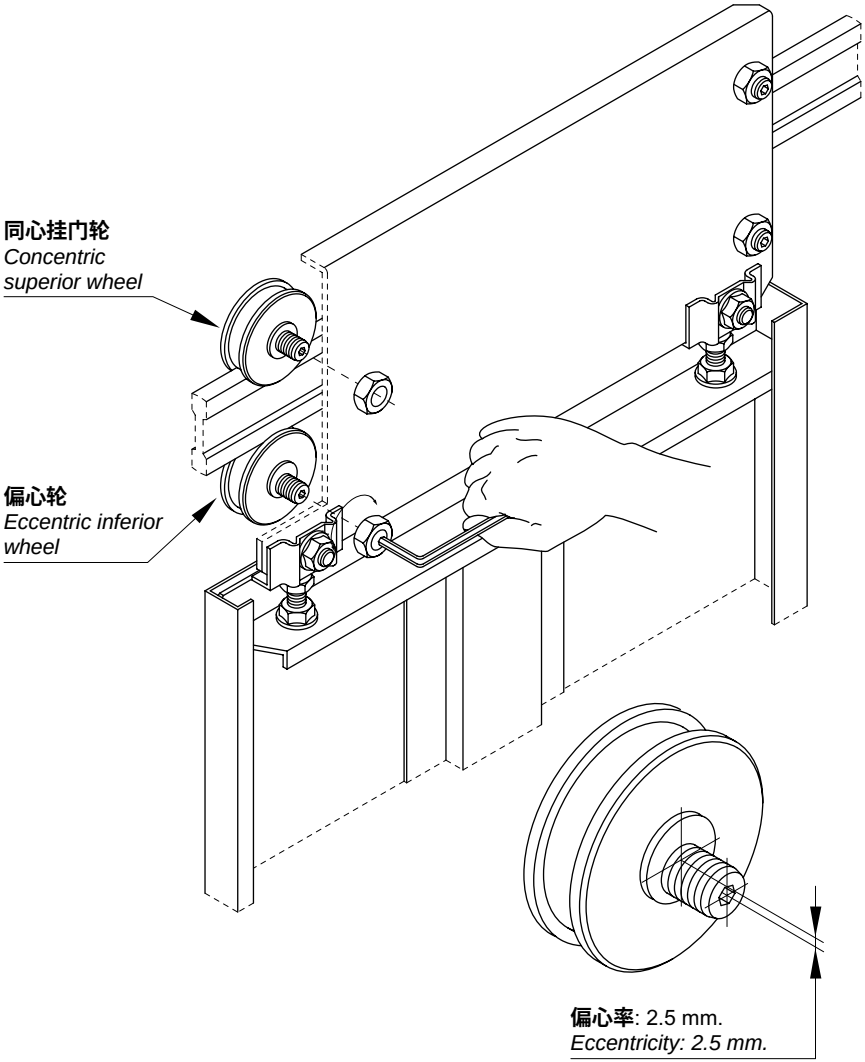


以下程序通用与所有型号的轿门和厅门。

上部的轮子是同心的，不可以调整，是作为挂门板在门机轨道上的支撑。

底部的轮子是偏心的，偏心程度不同作用于轨道的力也不同。调整可以使用5mm的内六角扳手进行,正确的调整结果是接触轨道但又没有对轨道施加压力（过大的力将导致门完全无法运动）。

The following procedure is the same for all type of CABIN and LANDING doors.
The top wheels are concentric and can not be adjusted, as they guarantee the flat support of the plaque, over the guide of the operator.
The bottom wheels are eccentric, this means that rotating the shaft you can adjust the force done by the wheel in the guide. This adjustment may be done with an «allen» wrench of 5 mm, this being a correct adjustment as the wheel touches the guide without force (excessive tightening could stop the door completely).



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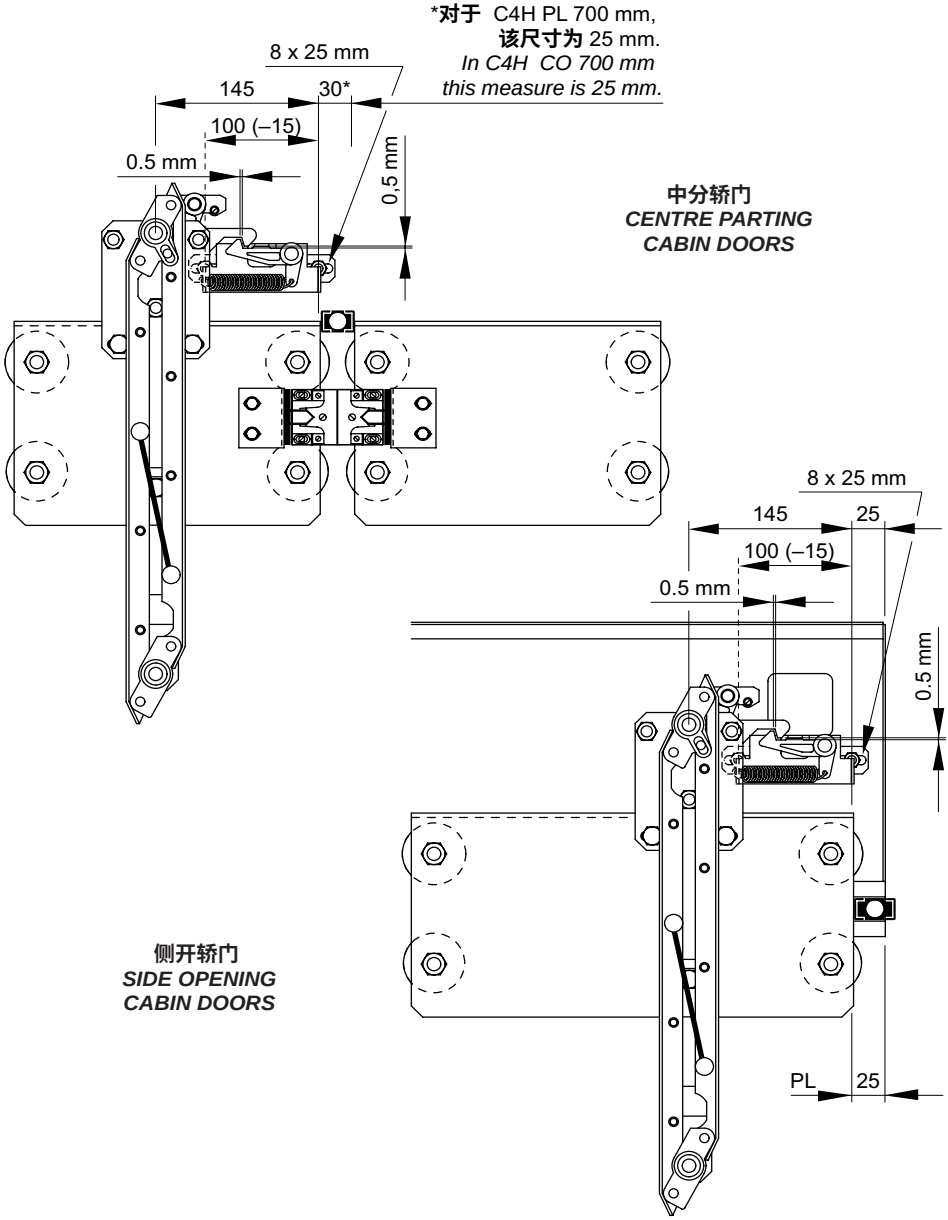
当门刀被安装在距挂门板边缘145mm**位置并固定后将其处于关闭状态，利用门刀启动器支架上** 8 x 25 mm**长孔进行调节，使得启动器锁勾的间隙为**0.5mm**。**

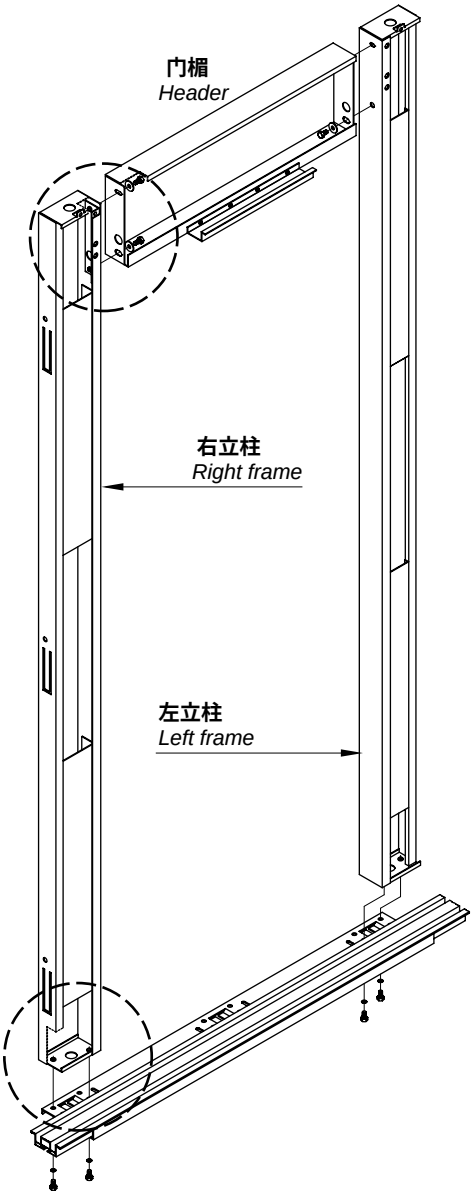
Once the skate is placed at 145 mm from extreme of the hanger plate, and in a locked position, by means of the slit 8 x 25 mm, regulate the set of clamp locker suport, leaving an opening of 0,5 mm of free movement between the dragging clamp and the security locker.

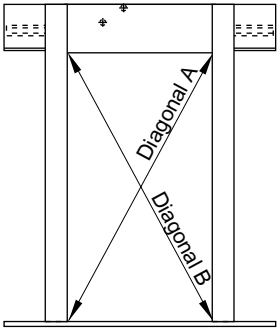


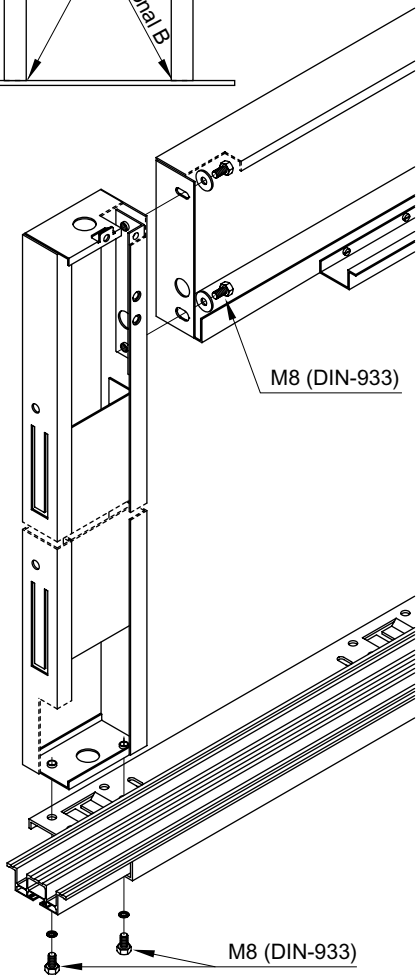
以下程序通用于所有型号的厅门。

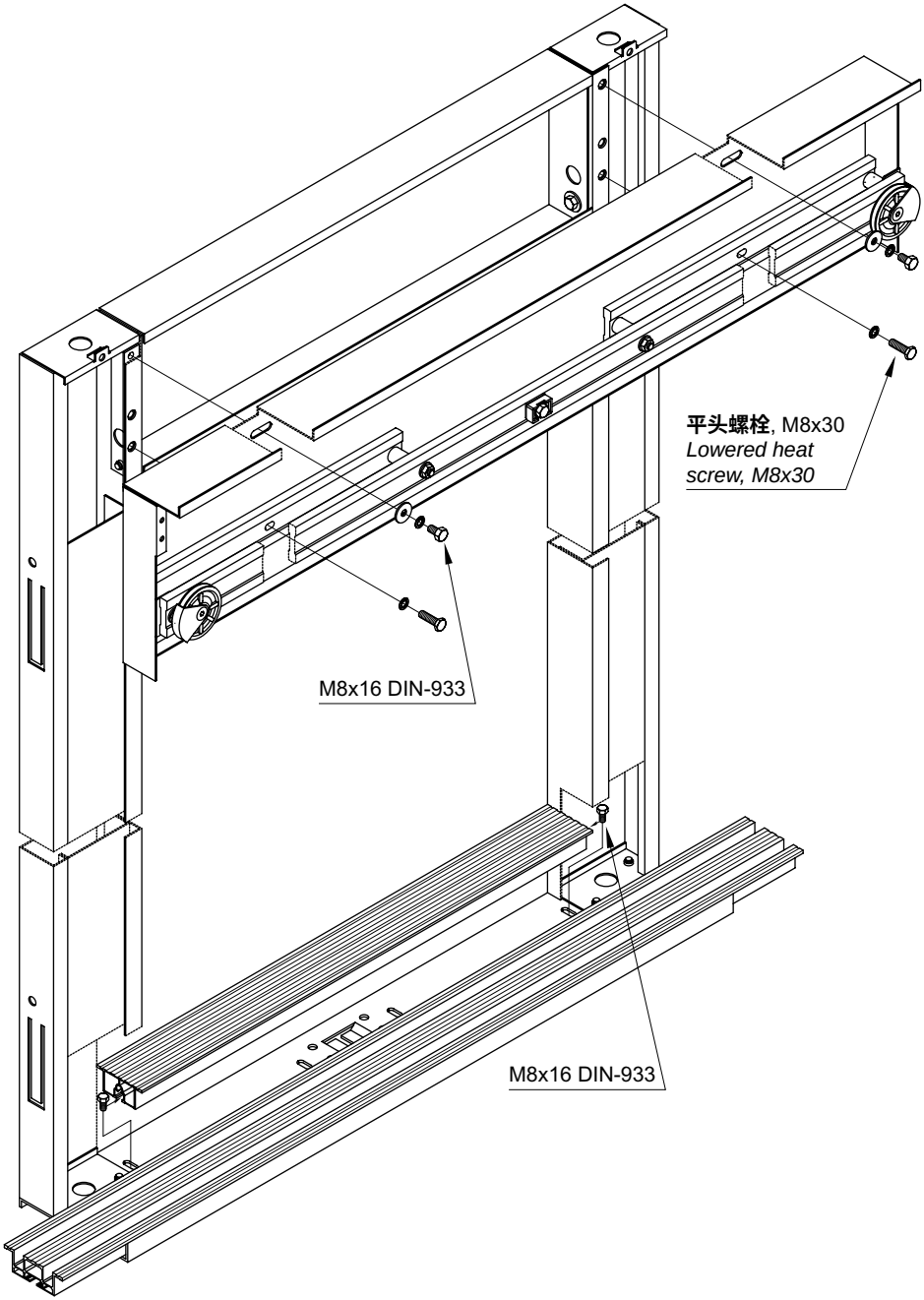
门套装配完成后，在最终固定之前需检查并保证两个对角线的尺寸（如图所示A和B）一样。

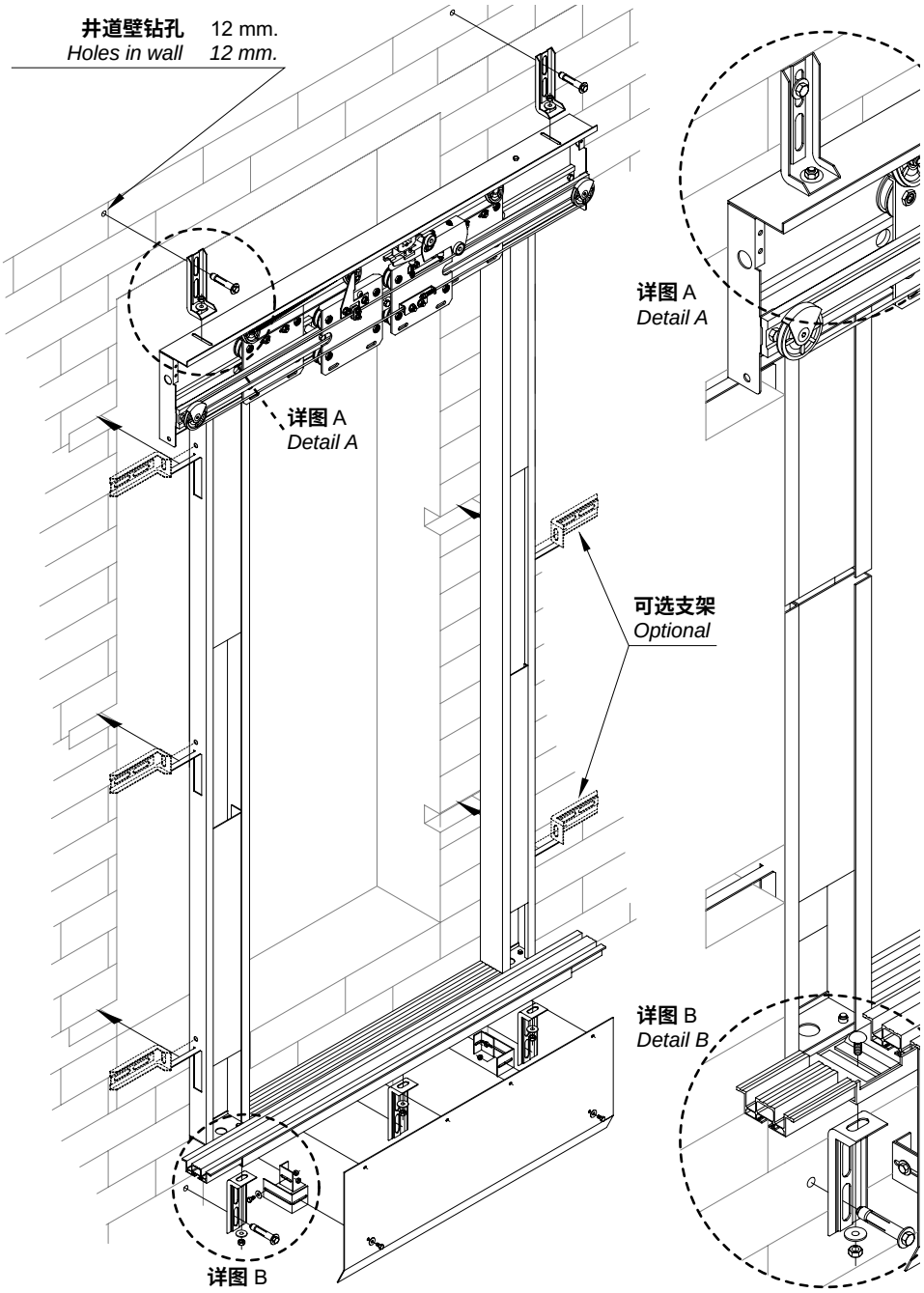
The next procedure is the same for all type of LANDING doors.
When the frame is assembled, before completly tightening, check that the diagonal measurements (A and B), are equal.








平头螺栓, M8x30
Lowered heat screw, M8x30
M8x16 DIN-933
M8x16 DIN-933


井道壁钻孔 12 mm.
Holes in wall 12 mm.
详图 A
Detail A
详图 A
Detail A
可选支架
Optional
详图 B
Detail B
详图 B
Detail B

以下程序通用于所有型号的厅门。

1. **将门板挂到对应的挂门板上之后，移动使之与门框边缘齐平。拧紧螺母将门板与挂门板固定。**
2. **微调螺母使门板与门框平行。**
3. **检查并确保门板下边缘距地坎间隙为**5 mm**。**
4. **其它门板依同样步骤调整。**

注意: 调整完毕的门板必须与相邻门板的折边保持5mm**的间隙。如下图所示。**

The next procedure is the same for all type of LANDING doors.

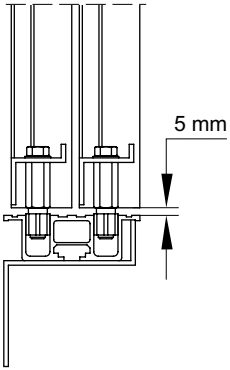
1st. Once the panels are placed into their corresponding plates, slide them until they are raised with the frames. Tighten the nuts that join the plates with the suspension.

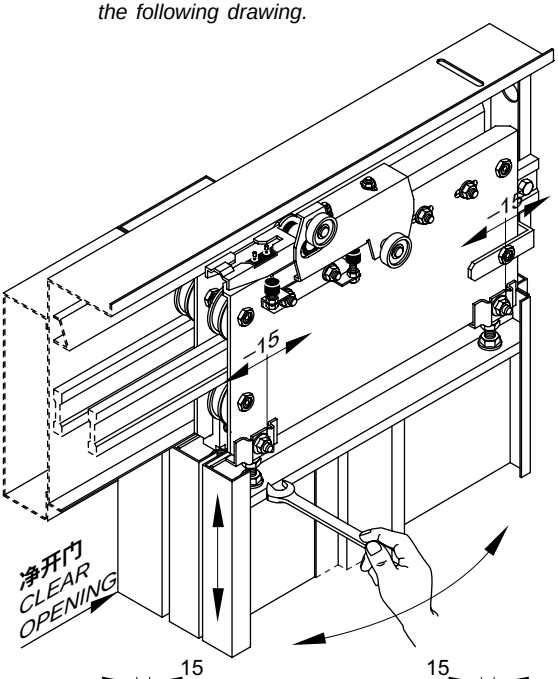
2nd. Slightly straighten the panel with the help of the suspension nuts until the panel is completely parallel to the return post.

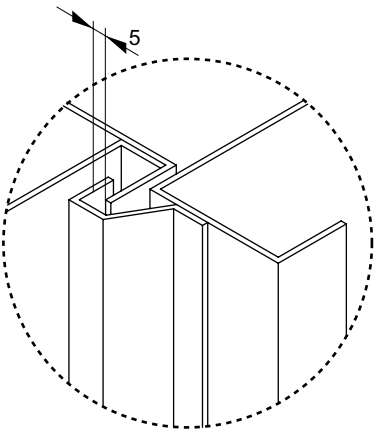
3rd. Check that there is a distance of 5 mm between the sill and the bottom of the door panel.

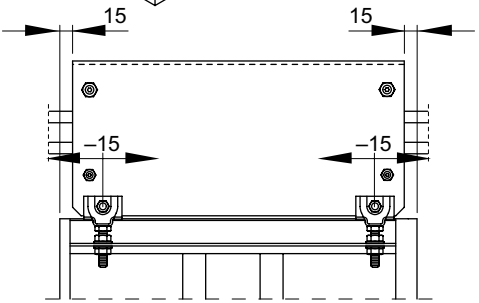
4th. Do the same with the other panels.

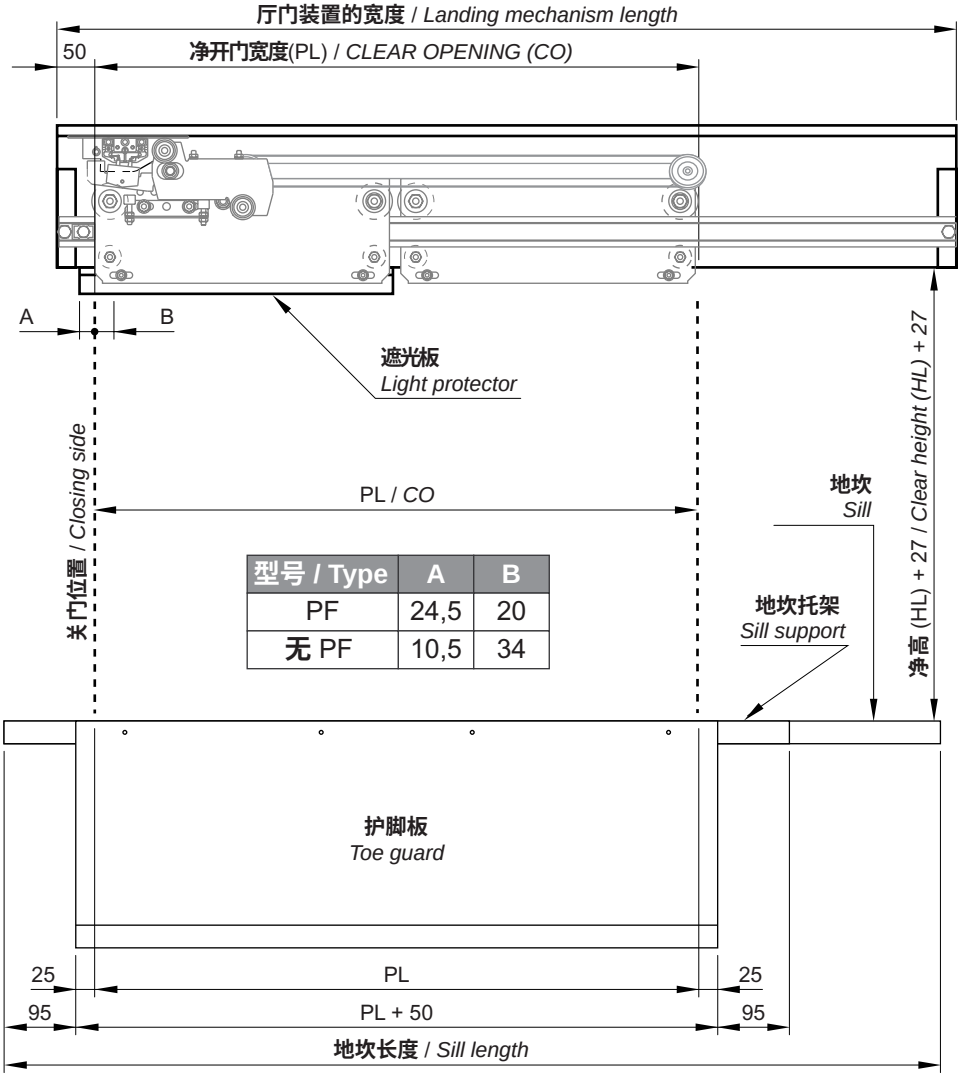
***Atention:** Once the panels are adjusted, it must be an overlap of 5 mm between a panel and the paraflame angle of the other panel, as shown in the following drawing.*



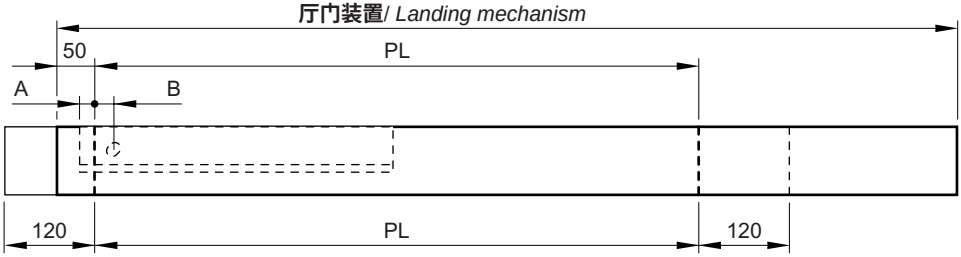








型号 / Type	A	B
PF	24,5	20
无 PF	10,5	34



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注意:

对已安装门机进行维护保养时，需按照以下几点执行，以确保门机的正常工作：

1) **绝对不要对轨道和地坎涂油润滑！涂油会聚集灰尘形成污染层阻碍门板的运行。**

2) **门轮被污染后也会导致上述的不利影响。清洁任何附着在轨道和门轮上的污物，避免阻塞门板的运动。**

3) **保持铝地坎滑槽内部的清洁，以避免阻塞门板的运动。**

所需工具清单:

- **扳手**: 2 x 8 / 2 x 10 / 13 / 17 / 19 / 24.
- **套筒扳手**: 10 / 13 / 17.
- **内六角扳手**: 3 / 4 / 5 / 6.
- **螺丝刀**: 1**把一字螺丝刀**.
  1**把十字螺丝刀**.
  1**把电笔式**.
- **卡环钳**
- **水平尺**
- **重垂**
- **尼龙垫块**

ATENTTION:

It is advisable that in the process of maintenance of the door, the following points should be carried out in order to assure the correct functioning of the installed operator:

1st) NEVER grease the guides or rotation rails as the dirt and dust form a thick layer of rease that stops and obstructs the movements of the panels.

2nd) The rotation wheel, if dirty, produces the same negative effect as above mentioned and free of objects of any kind in sliding guide to avoid any possible interferences that could stop or block the panels.

3rd) Maintain the inside of the aluminium tread clean of the slidding canals in order to avoid possible interferences that slow down or block the panels.

NECESSARY TOOLS:

- *Spanners: 2 x 8 / 2 x 10 / 13 / 17 / 19 / 24.*
- *Tubular wrench: 10 / 13 / 17.*
- *Hexagonal allen wrenches: 3 / 4 / 5 / 6.*
- *Screwdrivers: 1 Philips.*
  1 standard.
  1 for electrical connections.
- *Pointed pliers for elastic rings.*
- *Level.*
- *Plumb bob.*
- *Nylon mave.*

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FERMATOR厅门门锁机构

LOCKING DEVICE FOR FERMATOR LANDING DOORS

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1.- 简介

本技文件是关于由TECNOLAMA, S.A.**制造并获得认证的用于**40/10**型厅门的门锁机构。**

2.- 电梯厅门锁的一般性说明

每一个厅门都装备一个机构，用于防止电梯正常运行时打开厅门，除非轿厢已经停止，或者停止位置处于解锁区域。

该门锁机构完全闭合前电梯不能运行。

紧急开锁：每一个厅门都可以自外面，通过一个三角钥匙打开。三角钥匙必须由有资格的人士保管，以避免开锁时发生意外事故。

3.- 部件认证的描述

本文件仅描述由TECNOLAMA,S.A.**制造的**40/10**型门锁机构。**

4.- 装配和调整

调节A**处的**2**个螺栓（**M8**）使厅门锁尖口转动轴心距离挂门板边缘**100mm**。**

当门锁开启滚轮固定板与橡胶限位器接触的情况下，调节门锁触点支架，使得在门锁在完全闭合位置时锁尖口与触点支架之间的间距为1mm**。**

调节M6x15 DIN-603**螺栓，确保触点安装支架处于锁尖口中心线。**

调节A2**橡胶限位器，使得锁尖口在完全闭合时处于水平位置。然后调节**B2**限位器保留足够的空间用于开门时锁尖口释放。**

通过调整2**个**M6（B）**螺栓，确保**2**个门锁开启滚轮的中心线距离挂门板边缘**145mm**，(对于开门宽**600**至**915mm**的**4**扇中分门，该尺寸为**100mm）。并确认门刀自两开启滚轮中心线位置穿过。

5.- 保养

该门锁所需要的保养是最低限度的。然而门锁作为安全部件，经过培训的保养人员在每次保养时对其进行检查仍然是非常重要的。

5.1.- **检查每一层站的厅门，确保厅门为完全关闭并只能使用紧急三角钥匙开启。部分打开厅门，确保厅门关闭弹簧可以使厅门完全关闭并且门锁机构可以完全闭合并保持锁门状态。**

5.2.- **检查电气触点的安装。**
检查触点插头正确地插入插座，插头与插座有足够的接触，插座弹簧片不可以被完全挤压。如果发现任何故障或者非正常现象，则门锁的部件或者整组必须被更换。

1.- INTRODUCTION

This technical documentation relates to the locking device incorporated in landing doors made and homologated by TECNOLAMA, S.A., used in model «40/10» landing doors.

2.- GENERAL DESCRIPTION OF LOCKING DEVICE FOR LIFT LANDING DOORS

Each landing door shall be provided with a locking device such that it shall not be possible during normal operations of the lift, to open a landing door unless the car has stopped, or is on the point of stopping, in the unlocking zone of that door.

The lift car shall not be able to start until the locking device is properly engaged.

Emergency unlocking: Each of the landing doors shall be capable of being unlocked from the outside with the aid of a key to fit the unlocking triangle. Keys of this type shall be given only to a responsible person in order to avoid accidents which could result from an unlocking which was not followed by effective relocking.

3.- DESCRIPTION OF COMPONENTS CERTIFIED

This documentation is limited to describing the locking devices utilised in model «40/10» landing doors manufactured by TECNOLAMA, S.A.

4.- ASSEMBLY AND ADJUSTMENT

Using the two screws at «A» (M8), adjust the lock beak until the centre of the pivot pin is 100 mm from the leading edge of the hanger.

With the lock roller mounting plate touching the rubber stop, adjust the contact support plate until there is 1 mm between the lock beak and the contact support plate when the lock is fully engaged. By means the screws M6 x 15 m DIN 603, verify and adjust that the lock beak and the contact support are centred with the support and the electric contact.

Fit the rubber stop (A2) in the beak support and adjust so that the beak remains in the horizontal position when locked. Then adjust rubber stop (B2) leaving sufficient clearance for the beak to clear the lock when the door is opening.

By means of 2 screws M6 (B), adjust the lock so the centre line between the lock rollers is 145 mm from the leading edge of the hanger, (100 mm in 4 Centre Panels, from CO 600 to CO 915). Check that the skate passes centrally between the rollers of the locking device.

5.- MAINTENANCE

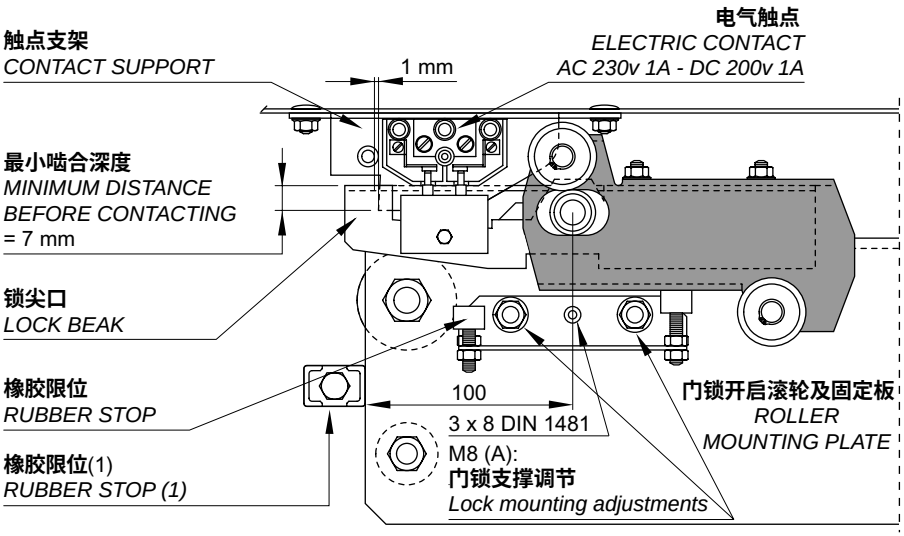
Maintenance of the lock is minimal. However it is a safety device and therefore important that the lock be inspected by trained personnel during every maintenance visit to the installations.

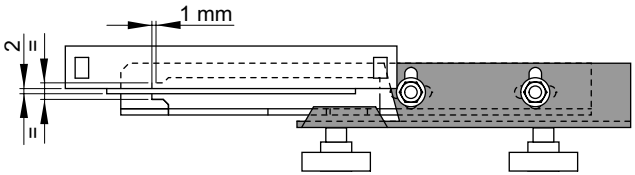
5.1.- At the landing of every floor, check that the landing doors are fully closed and can only be opened using the emergency key. Partially open the door and check to ensure that the spring closer fully closes the door and the lock fully engages and remains locked.

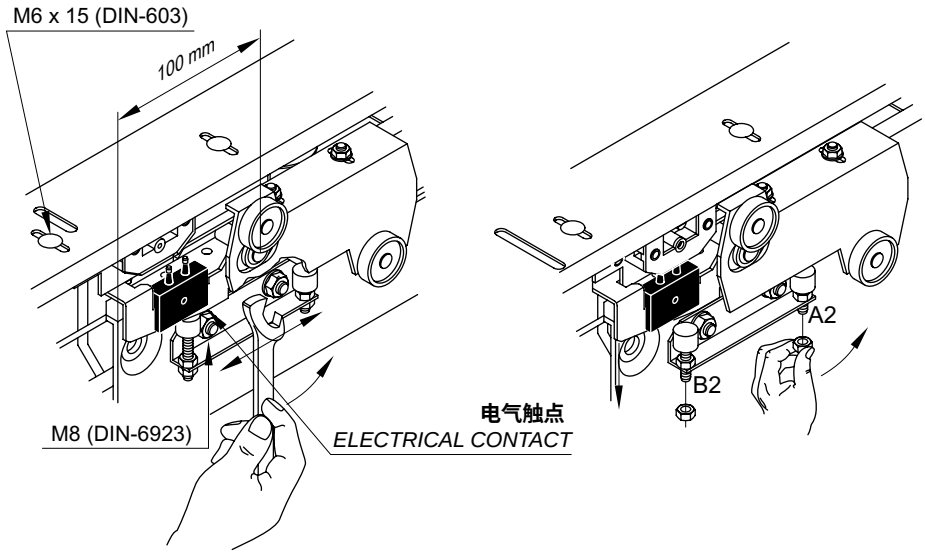
5.2.- Check that the electrical contact operates and is correctly installed.

Check that the male contact at the electric bridge enters to female contact correctly, that there is adequate «wipe» on the contacts and the female contact are not fully depressed.

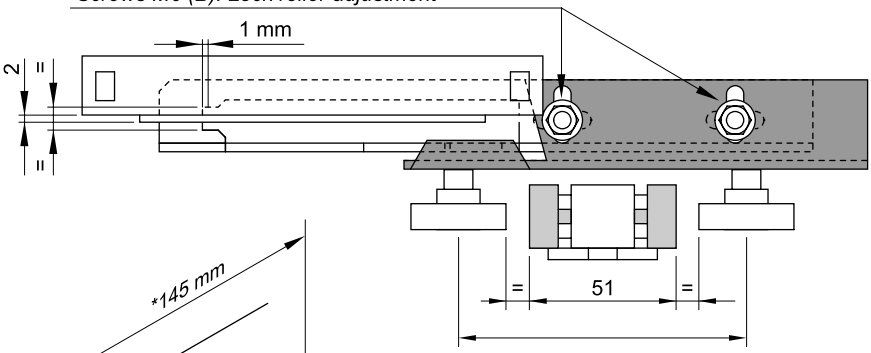
If any fault or anormaly be detected in the lock or electrical contacts, the defective components or complete unit must be replaced.

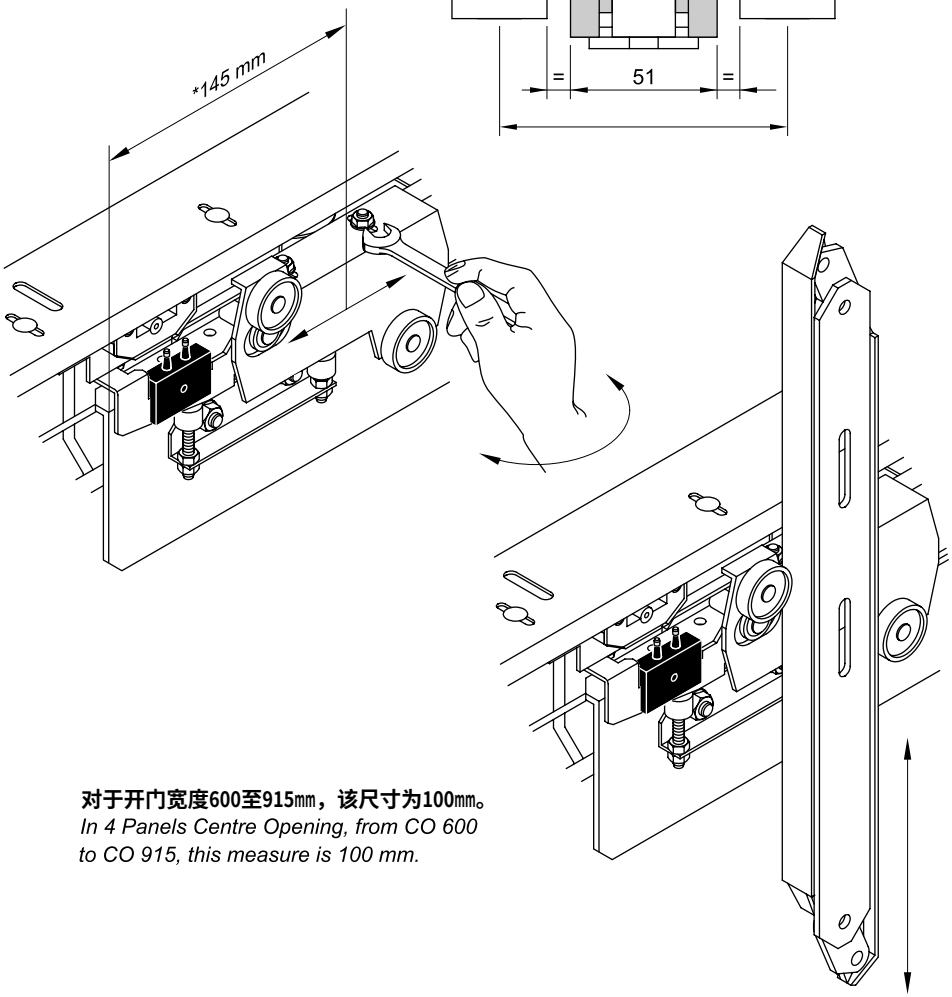

触点支架
CONTACT SUPPORT
1 mm
电气触点
ELECTRIC CONTACT
AC 230v 1A - DC 200v 1A
最小啮合深度
MINIMUM DISTANCE
BEFORE CONTACTING
= 7 mm
锁尖口
LOCK BEAK
橡胶限位
RUBBER STOP
橡胶限位(1)
RUBBER STOP (1)
100
3 x 8 DIN 1481
M8 (A):
门锁支撑调节
Lock mounting adjustments
门锁开启滚轮及固定板
ROLLER
MOUNTING PLATE


1 mm
2


M6 x 15 (DIN-603)
100 mm
M8 (DIN-6923)
电气触点
ELECTRICAL CONTACT
A2
B2

螺栓M6(B):调节门锁开启滚轮
Screws M6 (B): Lock roller adjustment





对于开门宽度600至915mm，该尺寸为100mm。
In 4 Panels Centre Opening, from CO 600 to CO 915, this measure is 100 mm.

1.- 简介

本技术文件是关于由TECNOLAMA, S.A.**制造并获得认证的用于**40/10**型厅门的门锁机构。**

2.- 电梯厅门锁的一般性说明

每一个厅门都装备一个机构，用于防止电梯正常运行时打开厅门，除非轿厢已经停止，或者停止位置处于解锁区域。

该门锁机构完全闭合前电梯不能运行。

紧急开锁：每一个厅门都可以自外面，通过一个三角钥匙打开。三角钥匙必须由有资格的人士保管，以避免开锁时发生意外事故。

3.- 部件认证的描述

本文件仅描述由TECNOLAMA,S.A.**制造的5**0/11**型门锁机构。**

4.- 装配和调整

调节A**处的**2**个螺栓（**M8**）使厅门锁尖口转动轴心距离挂门板边缘**100mm**。**

当门锁开启滚轮固定板与橡胶限位器接触的情况下，调节门锁触点支架，使得在门锁在完全闭合位置时锁尖口与触点支架之间的间距为1mm**。**

调节M6x15 DIN-603**螺栓，确保触点安装支架处于锁尖口中心线。**

调节A2**橡胶限位器，使得锁尖口在完全闭合时处于水平位置。然后调节**B2**限位器保留足够的空间用于开门时锁尖口释放。**

通过调整2**个**M6（B）**螺栓，确保**2**个门锁开启滚轮的中心线距离挂门板边缘**145mm**，(对于开门宽**600**至**915mm**的**4**扇中分门，该尺寸为**100mm）。**并确认门刀自两开启滚轮中心线位置穿过。**

5.- 保养

该门锁所需要的保养是最低限度的。然而门锁作为安全部件，经过培训的保养人员在每次保养时对其进行检查仍然是非常重要的。

5.1.- **检查每一层站的厅门，确保厅门为完全关闭并只能使用紧急三角钥匙开启。部分打开厅门，确保厅门关闭弹簧可以使厅门完全关闭并且门锁机构可以完全闭合并保持锁门状态。**

5.2.- **检查电气触点的安装。**

检查触点插头正确地插入插座，插头与插座有足够的接触，插座弹簧片不可以被完全挤压。如果发现任何故障或者非正常现象，则门锁的部件或者整组必须被更换。

1.- INTRODUCTION

This technical documentation relates to the locking device incorporated in landing doors made and homologated by TECNOLAMA, S.A., used in model «50/11» landing doors.

2.- GENERAL DESCRIPTION OF LOCKING DEVICE FOR LIFT LANDING DOORS

Each landing door shall be provided with a locking device such that it shall not be possible during normal operations of the lift, to open a landing door unless the car has stopped, or is on the point of stopping, in the unlocking zone of that door.

The lift car shall not be able to start until the locking device is properly engaged.

Emergency unlocking: Each of the landing doors shall be capable of being unlocked from the outside with the aid of a key to fit the unlocking triangle. Keys of this type shall be given only to a responsible person in order to avoid accidents which could result from an unlocking which was not followed by effective relocking.

3.- DESCRIPTION OF COMPONENTS CERTIFIED

This documentation is limited to describing the locking devices utilised in model «50/11» landing doors manufactured by TECNOLAMA, S.A.

4.- ASSEMBLY AND ADJUSTMENT

Using the two screws at «A» (M8), place the lock beak shaft at 100 mm from the edge of the hanger plate.

With the lock roller mounting plate touching the rubber stop, adjust the contact support plate until there is 1 mm between the lock beak and the contact support plate when the lock is fully engaged. By means the screws M6 x 15 m DIN 603, verify and adjust that the lock beak and the contact support are centred with the support and the electric contact.

Fit the rubber stop (A2) in the beak support and adjust so that the beak remains in the horizontal position when locked. Then adjust rubber stop (B2) leaving sufficient clearance for the beak to clear the lock when the door is opening.

By means of 2 screws M6 (8), adjust the lock so the centre line between the lock rollers is 145 mm from the leading edge of the hanger, (100 mm in 4 Centre Panels, from CO 600 to CO 915). Check that the skate passes centrally between the rollers of the locking device.

5.- MAINTENANCE

Maintenance of the lock is minimal. However it is a safety device and therefore important that the lock be inspected by trained personnel during every maintenance visit to the installations.

5.1.- At the landing of every floor, check that the landing doors are fully closed and can only be opened using the emergency key. Partially open the door and check to ensure that the spring closer fully closes the door and the lock fully engages and remains locked.

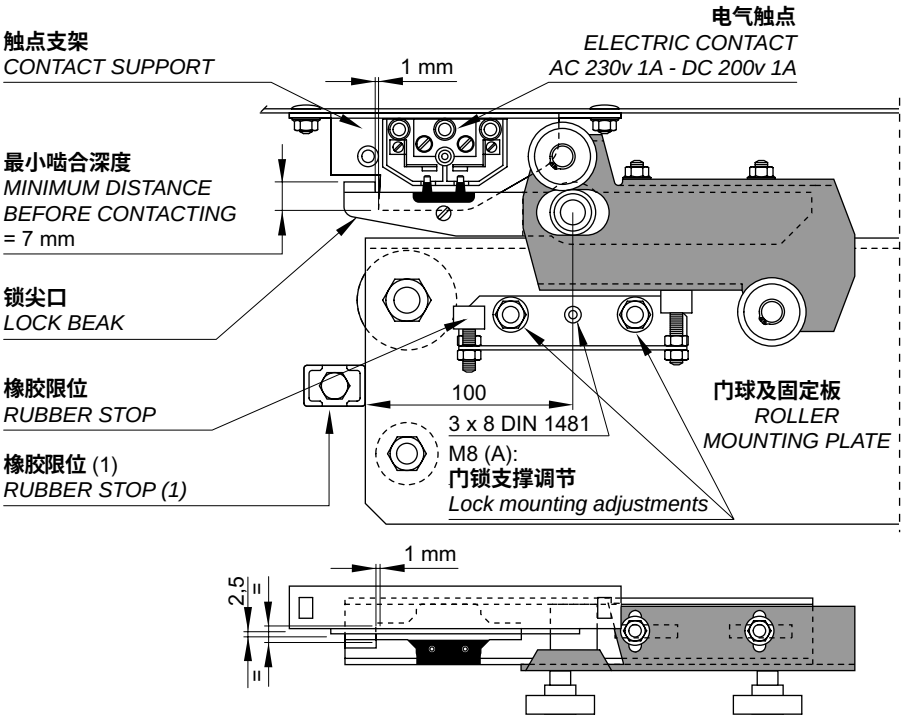
5.2.- Check the information on the identity label, which must be visible from the back of the door:

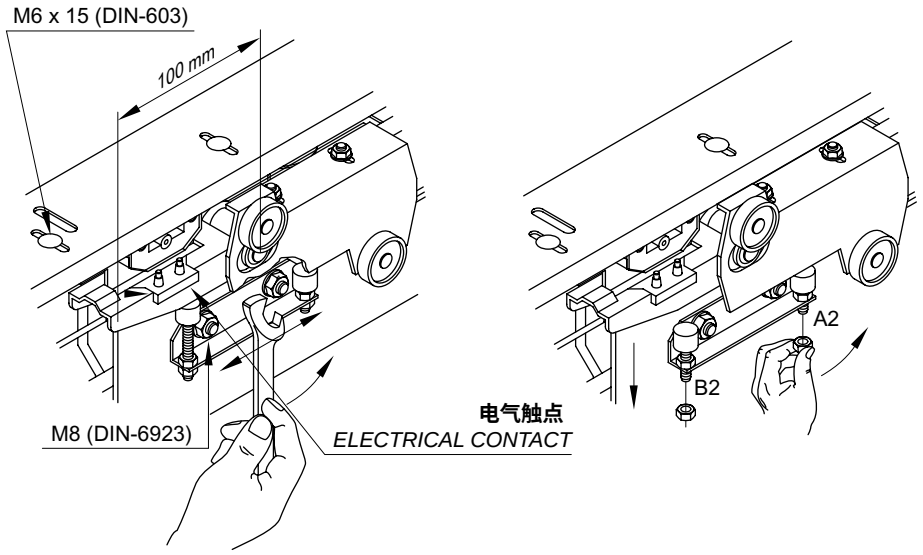
a) That it bears the name of the company that issued the compliance certification.
b) That it bears the CE mark.

5.3.- Check that the electrical contact operates and is correctly installed.

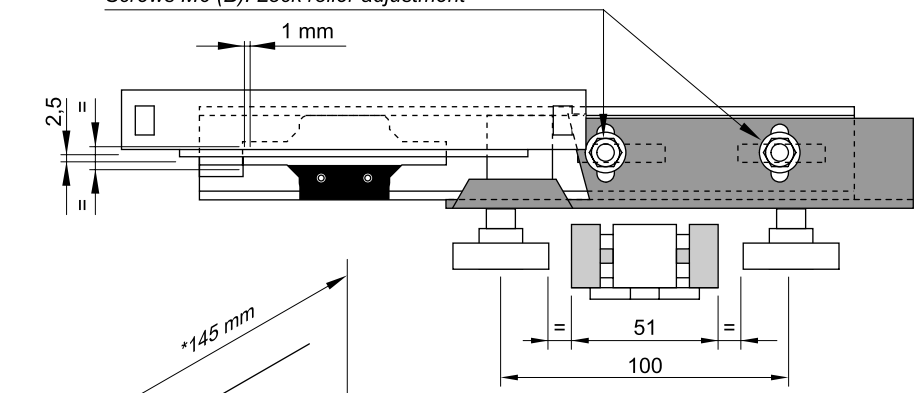
Check that the male contact at the electric bridge enters to female contact correctly, that there is adequate «wipe» on the contacts and the female contact are not fully depressed.

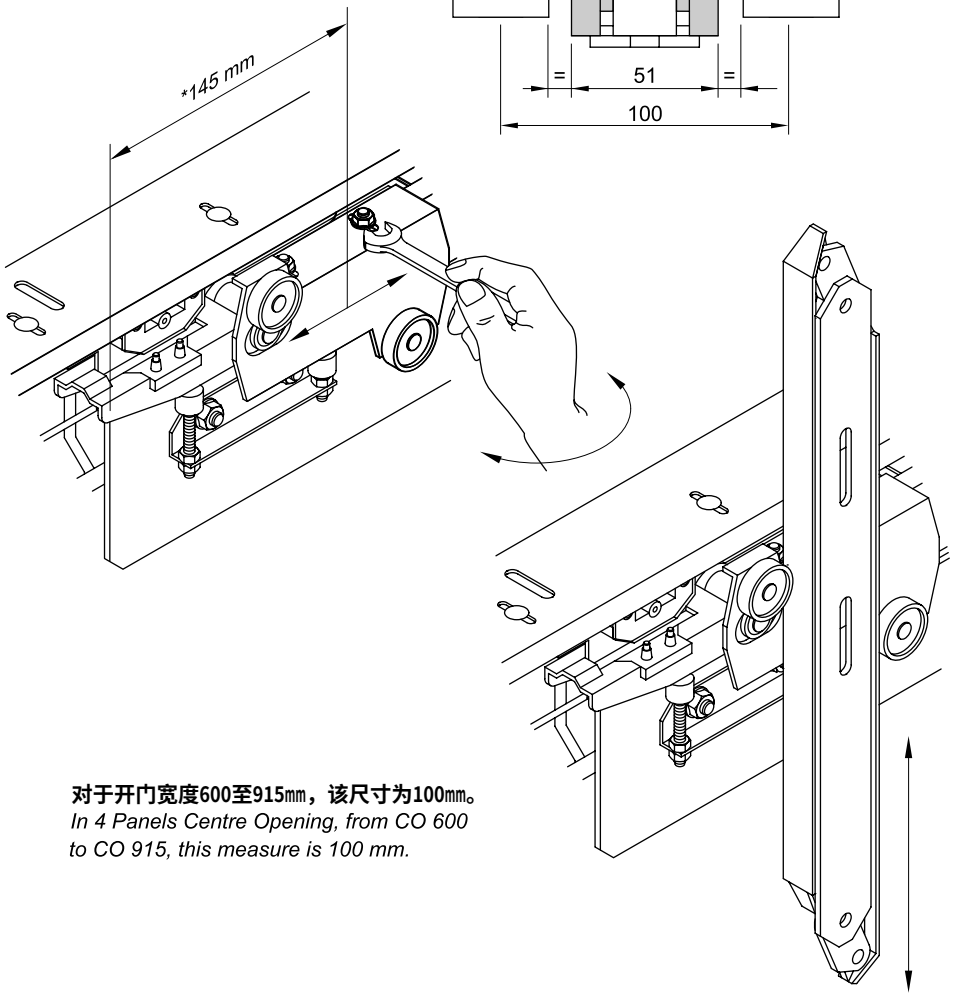
If any fault or anormaly be detected in the lock or electrical contacts, the defective components or complete unit must be replaced.


触点支架
CONTACT SUPPORT
1 mm
电气触点
ELECTRIC CONTACT
AC 230v 1A - DC 200v 1A
最小啮合深度
MINIMUM DISTANCE
BEFORE CONTACTING
= 7 mm
锁尖口
LOCK BEAK
橡胶限位
RUBBER STOP
橡胶限位 (1)
RUBBER STOP (1)
100
3 x 8 DIN 1481
M8 (A):
门锁支撑调节
Lock mounting adjustments
门球及固定板
ROLLER
MOUNTING PLATE
1 mm
2,5


M6 x 15 (DIN-603)
100 mm
M8 (DIN-6923)
电气触点
ELECTRICAL CONTACT
A2
B2

螺栓M6(B):调节门锁开启滚轮
Screws M6 (B): Lock roller adjustment





对于开门宽度600至915mm，该尺寸为100mm。
In 4 Panels Centre Opening, from CO 600 to CO 915, this measure is 100 mm.

Fermator

中文

ENGLISH

VVF-4 控制器技术手册 与电气调整

TECHNICAL MANUAL AND ELECTRONICAL MODULE REGULATION VVVF-4

- VVVF-4**控制器**
  VVVF-4 Electronical module 33
- VVVF-4**控制器尺寸**
  Dimensions of VVVF-4 Electronical module 34

- **导言和设定** 37
- **输入信号** 38
- **设定实例** 42
- **门机参数** 43

- *Introduction and programming* 47
- *Inputs* 48
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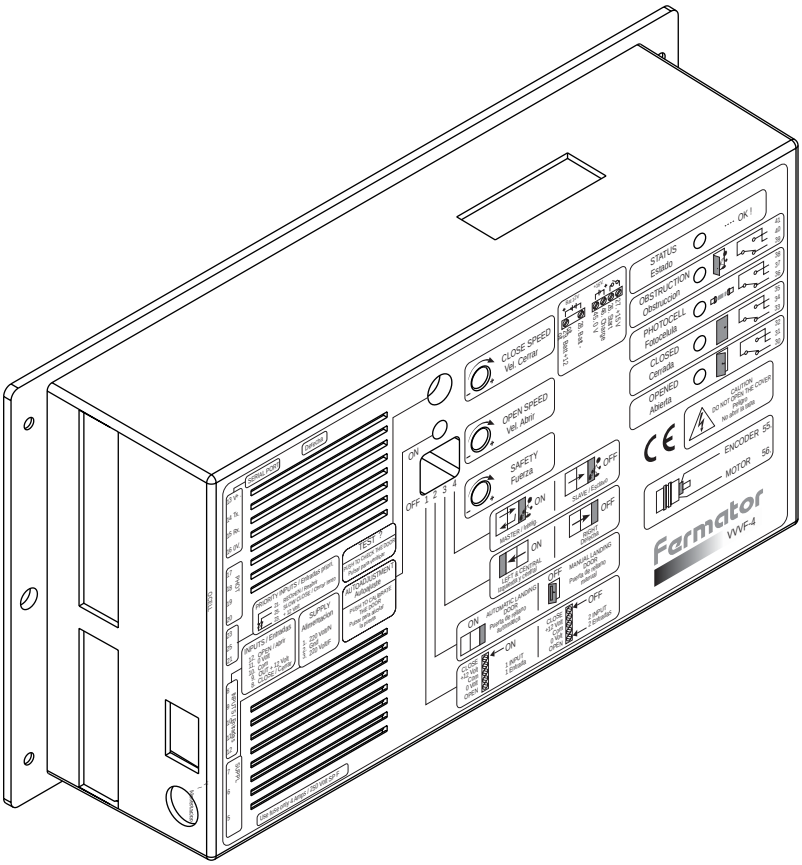
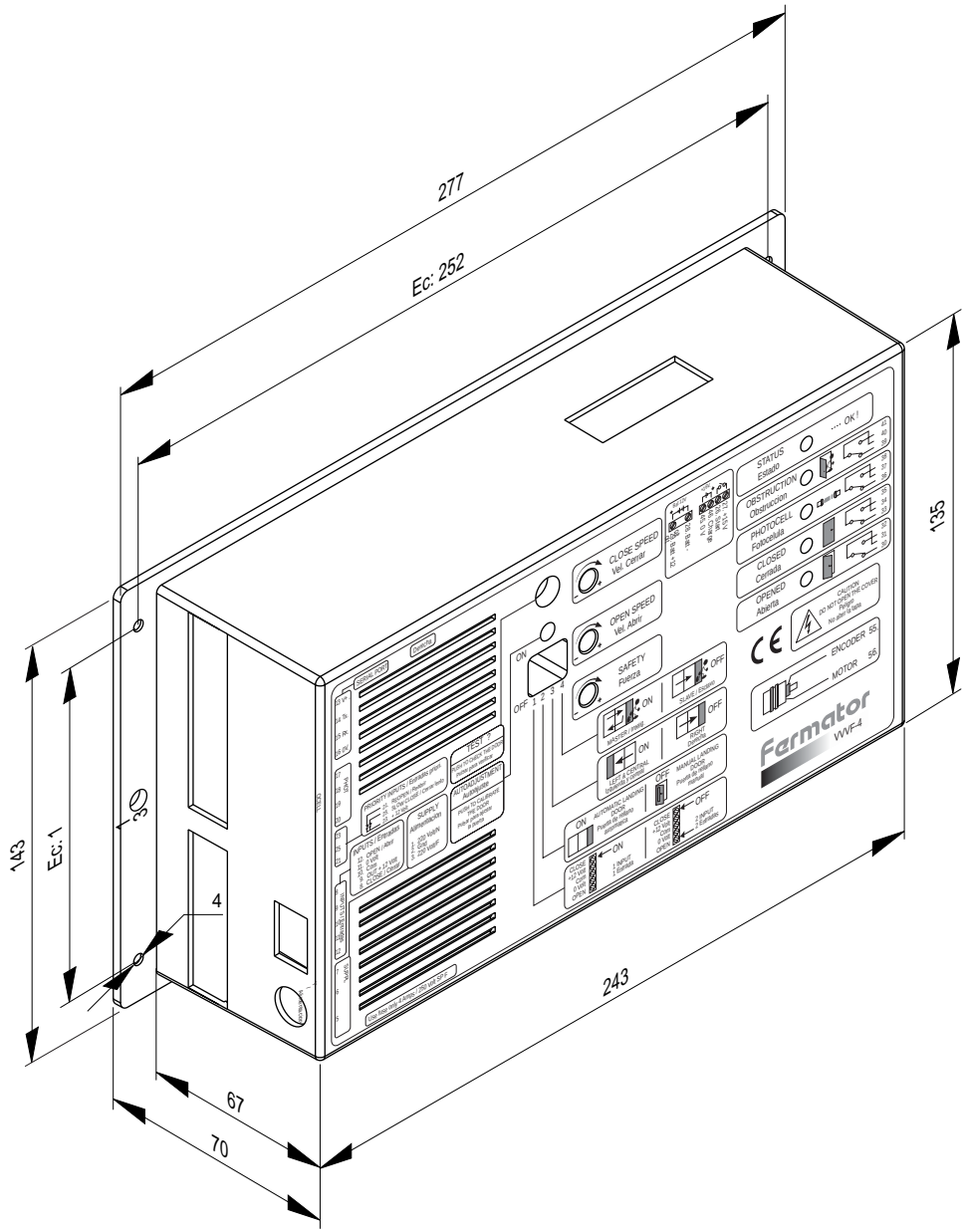
06.2002


CLOSE SPEED
Vel. Cerrar
OPEN SPEED
Vel. Abrir
SAFETY
Fuerza
STATUS
Estado
OBSTRUCTION
Obstrucción
PHOTOCELL
Fotocélula
CLOSED
Cerrada
OPENED
Abierta
ENCODER
MOTOR
Fermator
VVVF-4


277
Ec: 252
135
143
Ec: 1
50
4
243
67
70

Fermator

中文

VVVF-4 控制器调试

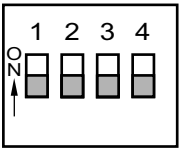
06.2002

导言

本文的目的是说明*FERMATOR*门机所使用的*VVVF4*控制器如何应用、调试及设定。

开关说明

控制器可以通过面板上的*DIP*开关进行设定。如果这些开关的设定位置有任改变必须将控制器主电源关断后重新打开以使新的设定生效。

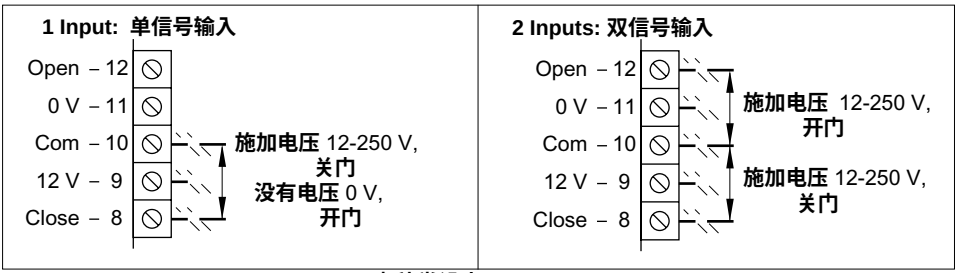


这些开关的功能如下：

- ***1.-*** ***1 & 2 Inputs.***

  ON: *1 Input.* 单信号输入。开关置于*ON*位置，由单一关门信号控制开关门。任何加在端子*8*和*10*之间的*12-250V*直流电或交流电均会使门闭，去处这一电压信号，门将打开。当门开始关闭时，开门输入无效。

  OFF: *2 Inputs.* 双信号输入。由两个独立的输入信号分别控制开门和关门。任何加在端子*8*和*10*之间的*12-250V*直流或交流电均会使门闭；任何加在端子*12*和*10*之间的*12-250*直流电或交流电均会使门打开。如果没有任何信号，门将保持静止不动；如果同时有开门和关门信号输入，开门信号优先。



- ***2.-*** ***Type of landing door.*** 厅门种类设定

  ON: 自动型厅门。全自动控制开/关的厅门

  OFF: 半自动厅门。手动控制开关的厅门

- ***3.-*** ***Rotation sense.*** 开门方式设定

  ON: 控制器被设定为驱动左开门和中分门。

  OFF: 控制器被设定驱动右开门
  左或右开门定义如下：在轿厢外面对电梯门，门打开的方向。

- ***4.-*** ***Master and Slave.*** 主从状态设定

  ON: *Master.* 主状态。门机控制器直接发布指令。
  例如：光电侦测功能将在门机控制器的控制下使门立即重新打开。

  OFF: *Slave.* 从状态。门不会自己重开门，门机将只接受电梯中央控制器发出的输入指令。例如：安全触板动作的信号将传递给电梯中央控制器，然后电梯中央控制器将移除关门信号并给出开门信号。

电源输入*220-250 V* 单相交流 *(5,6,7)*

电源要求*230 Volts AC (+10%,-15%,50* **或** *60 Hz)*
电流消耗约为*1 Amp*。

控制器接地非常重要！！！

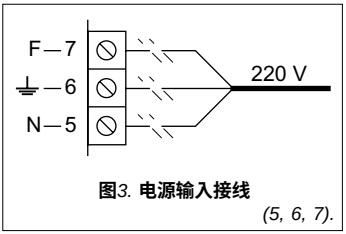
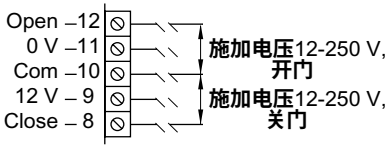


图*3.* **电源输入接线** *(5, 6, 7).*

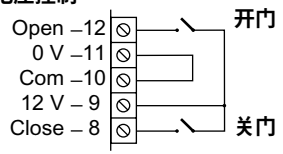
控制信号输入 *(8, 9, 10, 11, 12)*

控制器可由外部电压信号控制，也可由内部电压控制。

外部电压控制



内部12V电压控制



- ***12.-*** **开门信号**

  输入阻抗*20 KOhm*，**电压输入***12-250 V* **交流或直流。**

  与关门信号特征相同。

- ***11.-*** ***0* 电压**

  是内部*12 V (***端子** *9)* **的一部分 . 如果输入端子***9* **被使用，这个端子必须连接到公共端子***10*。
  参见内部*12V***电压控制示意图。**

- ***10.-*** **公共端子**

  这是一个参考电压端子，应用于端子*8***和***12***提供双信号开关门控制时。**

- ***9.-*** ***12 V*输出电压**

  独立的*12V***电压，用于内部***12V***控制开关门。**
  特征为：
  a) **只能应用于开关门控制。**
  b) **该端子必须与其他任何电源独隔离。**

- ***8.-*** **关门信号**

  与开门信号特征相同。

SERIAL PORT* 串行接口 *(13, 14, 15, 16)

串行接口用于连接扩展设备，如调试器、接口以及未来的扩展应用。
通讯速度*1200 Baud, 20 mA* **电流。**

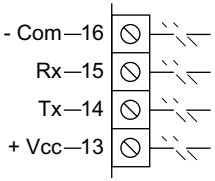


图*5.* **串行接口** *(13, 14, 15, 16).*

PHOTOCELL (17, 18, 19, 20) **电眼**

Fermator VVVF **控制器提供一套电眼，包括一个发射端和一个接收端。门机进行自学习时会自动侦测电眼是否安装。**

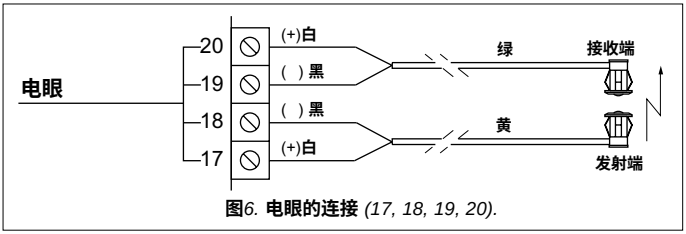


图*6.* **电眼的连接** *(17, 18, 19, 20).*

其它输入 ***(21, 25, 23)***

- ***21.*** ***Re-opening.*** **重开门**
  这个端子可连接开门按钮或安全触板信号提供重开门信号。这个信号优先于关门信号。

- ***25.*** ***Slow closing.*** **慢关门**
  通过继电器触点连接端子*25***和***23***可以提供优先于电眼安全侦测的慢关门功能。**
  可与火警系统配合使用。

- ***23.*** ***+ 12 V***
  这个端子通过继电器(常开)与端子*21***和***25***连接，以激活相应的功能。**

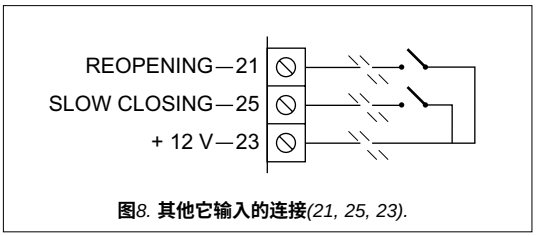


图*8.* **其他它输入的连接***(21, 25, 23).*

应急供电输入*(26, 27, 28, 29, 45, 46)*

Fermator VVVF **可选配一个*12V*的电池组以在停电时应急开门释放轿厢乘客。在停电时，由该*12V*电池提供电力，可让门机运行*15*秒钟，足以释放被困乘客。**
端*26*和*27*之间的继电器开关提供开门区信号以控制开门动作。

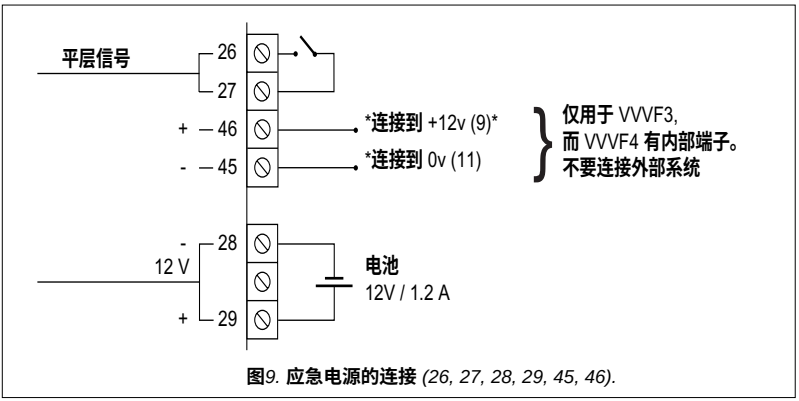


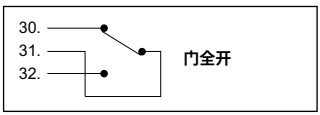
图*9.* 应急电源的连接 *(26, 27, 28, 29, 45, 46).*

输出继电器和LED指示*(自30 至41)*

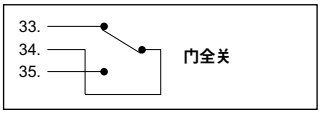
输出继电器连续地向电梯中央控制器提供关于门状态的信息。

每个继电器有一个 *2 A 150 V* 触点，电梯中央控制器可以获得“门全开”，“门全关”，“电眼动作”，“门障碍”以及“门正常”的信息。

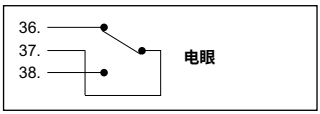
- ***Opened.*开门到位指示**
  门完全打开时，*Led* 指示灯亮，继电器吸合。



- ***Closed.*关门到位指示**
  门完全关闭并锁住时，*Led*指示灯亮，继电器吸合。

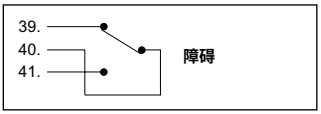


- ***Photocell.* 电眼**
  当电眼动作或有重开门信号时*Led* 指示灯亮，继电器吸合。



- ***Obstruction.*** **障碍指示**

  当关门过程中遇到一个将门制动的障碍时，*Led***指示灯亮继电器吸合。在门完全打开或关闭之后这个信号将被取消，继电器复位。**



- ***Status.*****状态指示**

  Led **指示灯闪烁表明工作状态正常。**

TEST PUSHBUTTON (50) **测试按钮**

按下测试按钮可以进行一个开门或关门的动作。

AUTOADJUSTMENT PUSHBUTTON (51)**自学习按钮**

自学习按钮用于初始化门机。门机将完成*3***个动作，首先门将完全关闭；接着门将慢慢打开直到被开门限位装置制动，在这个过程中，编码器将计算开门行程的脉冲。最后，在一个短暂的停顿之后门将关闭。微处理器根据收集的信息计算加减速度以及制动转距，给出优化的门机运行控制参数。自学习完成后，优化的参数将自动写入***EEPROM*****永久性存储器。**
门机在控制器电源关闭后再打开的第一次运行会慢速打开。只有在控制器初始化或者做出一些修改，如移除*Fermator*****安全探测器时才有必要进行自学习。**

中文

CLOSE SPEED (52) **关门速度**

关门速度可自*150 mm/s*** **至** ***600 mm/s*** **进行独立调节。**

OPEN SPEED (53) **开门速度**

开门速度可自*200 mm/s*** **至** ***1000 mm/s*** **进行独立调节。**

SAFETY (54) **安全力**

这个电位器用于设定关门时可以使门重新打开的障碍力的大小。*40*** **至** ***150 Nw*****。**

ENCODER INPUT (55) **编码器输入端子**

一个积分脉冲编码器连接到这个端子。编码器的功能是向控制器提供门的位置和速度信息。

MOTOR OUTPUT (56)**马达输出端子**

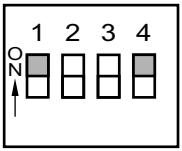
与*3***相电动机连接，输出变频变压的三相交流电以控制电机的速度和转距。**

ON / OFF SWITCH (57)**电源开关**

通断连接控制器的*230 V AC*****主电源。**

注意：主电源断开后，电路板上的电容仍保持短时间的充电状态，须在*60s*****之后再进行针对电路板和马达的操作。**

MASTER: 1 INPUT **主状态：单信号输入控制**



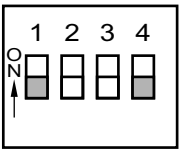
- ***Configuration*设定**
  1. ***ON: 1 Input. ON*位置：单信号输入控制。**
  2. ***Depends on type of door.* 根据门类型设定。**
  3. ***Depends on type of door.* 根据门类型设定。**
  4. ***ON: Master. ON*位置：主状态。**
- ***Inputs*输入**

1.	(8)	*Close.*关门	端子*8*和*10*之间的电压关门，移除电压则门关闭。
2.	(17...20)	*Photocell.*电眼	如果电眼光线被阻断则门重开。
3.	(21-23)	*Reopening.*重开	如果这个信号存在则门不关。
4.		*Obstacle.*障碍	如果侦测到障碍门将打开。
5.	(25-23)	*Slow closing.* 慢关	忽略电眼信号关门。

- ***Priorities*信号优先次序**

1.	(21-23)	*Reopening.*重开
2.		*Obstacle.*障碍
3.	(25-23)	*Slow closing.*慢关
4.	(17...20)	*Photocell.*电眼
5.	(8)	*Close.*关门

SLAVE: 2 INPUTS



- ***Configuration*设定**
  1. ***ON: 2 Inputs. ON*位置：双信号输入控制**
  2. ***Depends on type of door.* 根据门类型设定。**
  3. ***Depends on type of door.* 根据门类型设定。**
  4. ***ON: Slave. ON*位置：从状态。**
- ***Inputs***

1.	(8)	*Close.*关门	端子*8*和*10*之间的电压关门。
2.	(12)	*Open.*开门	端子*12*和*10*之间的电压开门。优先于关门。
3.	(17...20)	*Photocell.*电眼	动作时门并不打开，但是继电器可以向电梯中央控制器提供电眼已经动作的信号。
4.	(21-23)	*Reopening.*重开	如果这个信号动作门将不能关闭。
5.		*Obstacle.*障碍	侦测到障碍后门不能重开。
6.	(25-23)	*Slow closing.* 慢关	忽略电眼信号关门。

- ***Priorities*信号优先次序**

1.	(12)	*Open.*开门
2.	(21-23)	*Reopening.*重开
3.	(25-23)	*Slow closing.*慢关
4.	(8)	*Close.*关门

中文

供电电源：

- **交流电压范围：** 230v +10%, -15%.
- **供电频率：** 50...60 Hz.
- **最小耗电：** 70 mA, 13W.
- **开门功率：** 0.6 A 80W.
- **额定功率：** 0.93 A 140W.
- **最大功率：** 1.38 A 190W.

变频器：

- **载波频率：** 16 KHz.
- **频率范围：** 0.5...100 Hz.
- **电压范围：** 40...200 V.
- **最大输出电流：** 4 Amps.
- **位置控制：** **积分编码器**

马达：

- **异步三相：** 6 **极**
- **供电电压：** 250 V.
- **功率：** 250 W.
- **绝缘等级：** B-130°C.
- **额定速度** 900 RPM.

门参数：

- **开门速度：** Maximum: 1000 mm/s.
- **关门速度：** Maximum: 600 mm/s.
- **安全力：** 40...150 Nw **可调**
- **开门保持力矩：** 80 Nw.

输入：

- **输入阻抗：** 20 KOhm.
- **电压：** 12...230 Volts AC / DC.

输出：

- **输出电流：** **最大：**1.5 Amps.
- **电压：** 230 V **最大**

运动参数：

- **开门速度：** 200...1000 mm/s.
- **关门速度：** 150...600 mm/s.
- **最大加速度：** 800...1500 mm/s^2

中文

Fermator

TECHNICAL MANUAL AND ELECTRONICAL MODULE REGULATION VVVF-4

ENGLISH

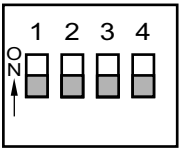
06.2002

INTRODUCTION

The objective of this documentation is to show the use, adjustment and programming of the electronic VVVF-4 unit, used in the FERMATOR car operators.

DESCRIPTION OF SWITCHES

The unit may be programmed using the DIL switches on the front of the unit. If any change is made to any of the above switch selections, the Mains Supply to the VVVF-4 unit MUST be switched OFF and ON again to read the new programming. The switches functions are:



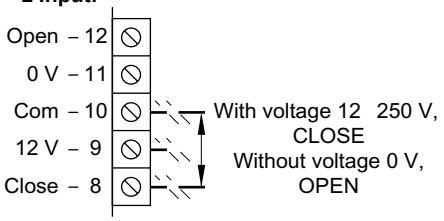
- ***1.- 1 & 2 Inputs.***

  ON: *1 Input.* *The door control unit will be controlled by a single input. Any voltage between 12 to 250 volts AC or DC applied between terminals 8 & 10 will open the doors. Without input active the door remains opened. When it activates the door close. Open input is not used.*

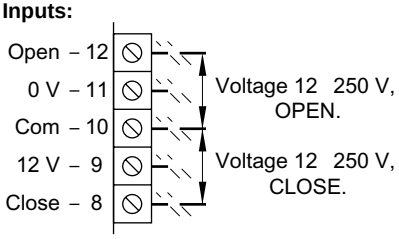
  OFF: *2 Inputs.* *The door control module will be controlled by two independent inputs. Any voltage between 12 to 250 volts AC or DC applied between terminals 8 & 10 will cause the doors to close. And between terminals 12 & 10 will cause the doors to open. In the absence of a signal, the doors will remain static. If both inputs are applied then the open signal has priority.*

ENGLISH

1 Input:



2 Inputs:



- ***2.- Type of landing door.***

  ON: *Automatic landing door.* *Fully automatic landing door control.*

  OFF: *Semiautomatic landing door.* *Semiautomatic landing door control, (car door with manual landing door).*

- ***3.- Rotation sense.***

  ON: *The control unit is expecting to control left hand or centre opening doors.*

  OFF: *The control unit is expecting to control right hand opening doors. The sense is defined from the outside of the car, refering to the direction taken when the door is opening.*

- ***4.- Master and Slave.***

  ON: *Master.* *The door control unit will execute instructions directly. Example: operation of the Photoelectric Detector will cause the doors to re-open immediately under control of the door control unit.*

  OFF: *Slave.* *There is no automatic reopen movements. The doors will only react to instruction given by the main lift controller by the inputs. Example: operation of the Safety Edge Detector will cause the door operator module to give a signal to the main lift controller via the PHOTOCELL output. The main lift controller then must remove the close signal and put the open signal.*

POWER INPUTS 220-250 VOLTS SINGLE PHASE AC (5, 6, 7)

The circuit has been designed to operate on a mains supply of 230 Volts AC (+10%,-15%, 50 or 60 Hz). The unit will consume approx 1 Amp from the supply.
It is important that the Door Operator Module has a GOOD EARTH CONNECTION.

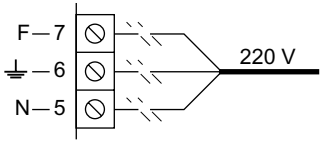
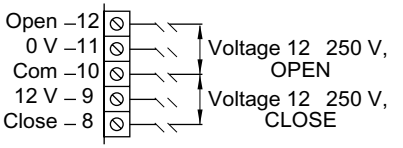


Fig. 3. Power input connections. (5, 6, 7).

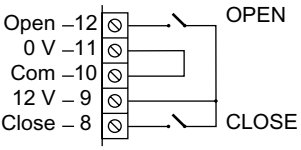
CONTROL INPUTS (8, 9, 10, 11, 12)

The circuit can work with external voltage inputs or by means a volt free contact input.

EXTERNAL VOLTAGE INPUT:



VOLT FREE CONTACT INPUT:



- ***12.- Open signal.***

  Isolated 20 KOhm impedance input activated with a voltage from 12 to 250 Volts AC or DC in order to open the door.
  It has the same characteristics as the close signal.

- ***11.- 0 Volt.***

  Is the return connection for the 12 Volts (input 9). If input 9 is used, this input must be connected to COMMON input (input 10). See the volt free contact input drawing.

- ***10.- Common.***

  This is the reference (return) used for the two input signals applied to terminals 12 & 8.

- ***9.- 12 Volt output power supply.***

  Isolated 12 Volts output available to control the door via a volt free contact. Features are:
  a) This supply must only be used for this purpose.
  b) This contact must be isolated from any other power supply.

- ***8.- Close signal.***

  It has the same characteristics as the open signal.

SERIAL PORT (13, 14, 15, 16)

The serial port is used to connect with external devices like the diagnostic console, interfaces and future expansion devices. Operating speed 1.200 Baud, 20 mA current loop.

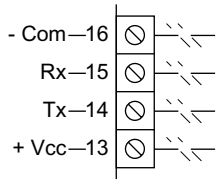


Fig. 5. Serial Port connection. (13, 14, 15, 16).

PHOTOCELL (17, 18, 19, 20)

The Fermator VVVF Door Control Unit is supplied with a Photocell comprising of a transmitter and receiver. When autosetup is operated the control module will search to detect if the Photocell is installed.

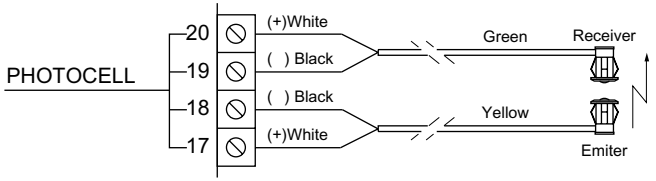


Fig. 6. Connection of the photoelectric detector. (17, 18, 19, 20).

OTHER INPUTS (21, 25, 23)

- ***21. Re-opening.***

  This input has been provided to accomodate a volt free contact from a Door Open Pushbutton or an external Safety Edge Detector. This signal will have priority over the door close signal.

- ***25. Slow closing.***

  Connection between terminals 25 & 23 via a volt free contact will cause the doors to close at a slow speed overriding the Photoelectric safety Detector. Useful in installations with fire alarm systems.

- ***23. + 12 Volt.***

  This terminal is used in association with terminals 21 & 25 via a volt free contact (normally opened) to activate them.

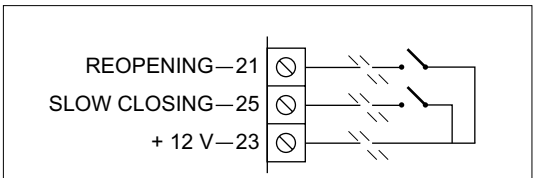


Fig. 8. Connection of «Other Inputs». (21, 25, 23).

EMERGENCY SUPPLY INPUTS (26, 27, 28, 29, 45, 46)

The Fermator VVVF Door Operator can be supplied with an optional Emergency Passenger Release System powered from a 12 volt battery. In the event of total power failure a DC / DC power converter will provide from a 12 volt battery source, power to give 15 seconds of door control, sufficient to release trapped passengers. The door opening manoeuvre is controlled by a separate door opening zone signal applied between terminals 26 & 27 via a volt free contact.

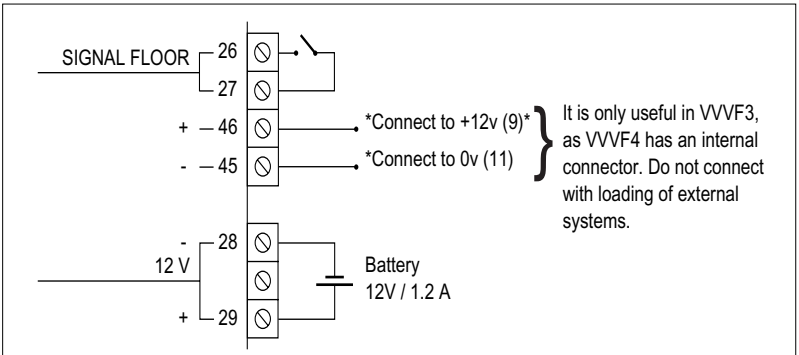


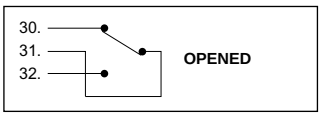
Fig. 9. Connection of emergency supply. (26, 27, 28, 29, 45, 46).

OUTPUT RELAYS AND LED INDICATORS (from 30 to 41)

Output relays have been provided to give continuous information to the main lift controller concerning the status of the doors.
One 2 Amp 150 Volts volt free change over contact is provided on each relay that may be used by the main lift controller to pilot such information as «doors fully opened», «doors fully closed», «Photoelectric detection», «obstruction in the doorway» and «door control O.K.».

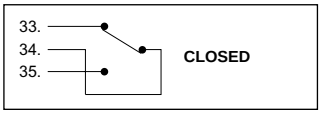
- ***Opened.***

  Led indicator and relay activated when the doors are fully open.



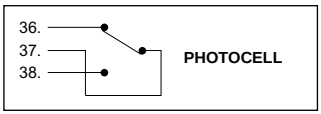
- ***Closed.***

  Led indicator and relay activated when the doors are fully closed and locked.



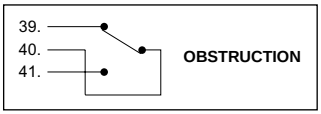
- ***Photocell.***

  Led indicator and relay activated when the photocell or the reopening input is operated.



- ***Obstruction.***

  Led indicator and relay activated when an obstacle is detected that stops the doors from closing. The signal will reset when the doors reach the opened or closed position.



- ***Status.***

  Blinking led indicating proper working conditions.

TEST PUSHBUTTON (50)

Operation of the Test pushbutton will cause a door open or close cycle.

AUTOADJUSTMENT PUSHBUTTON (51)

The Autoadjustment pushbutton is used to set up the doors. The doors will do 3 complete movements at first the doors will close completly, then the doors will open slowly counting the pulses from the encoder built into the drive motor until they reach the open mechanical stop, and after a short delay the doors will close. From the information gained the microprocessor will calculate the acceleration and deceleration ramps and the bracking torque required to give the optimum control of the doors. Once the autoadjustment has been completed the parameter are stored in non-volatile EEPROM and will be used to calculate the optimum performance. The doors will open slowly for the first operation after power has been removed from the door control unit. Autoadjustment only needs to be used when setting the initial parameters or when changes such as connecting or removing the Fermator Safety Detector are made.

CLOSE SPEED (52)

The door closing speed can be independently adjusted from 150 mm/s upto 600 mm/s.

OPEN SPEED (53)

The door opening speed can be independently adjusted from 200 mm/s upto 1.000 mm/s.

SAFETY (54)

This potentiometer is used to set the closing pressure onto an obstacle in the doorway. The closing pressure can be set between 40 and 150 Nw.

ENCODER INPUT (55)

An integral quadrature pulse encoder is connected to this input. The purpose of the encoder, which is situated inside the motor, is to inform the control of the exact position and speed of doors.

MOTOR OUTPUT (56)

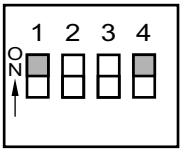
Output to the 3 phase motor varying the voltage and frequency to control speed and torque.

ON / OFF SWITCH (57)

Disconnects the unit from the 230 Volts AC mains supply.

Caution:When the supply is switched off, capacitors in the control system will remain charged for a short time. Allow 60 seconds before handling the Control Card or Motor.

MASTER: 1 INPUT



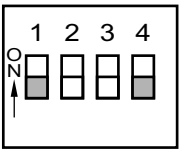
- ***Configuration***
  1. ***ON: 1 Input.***
  2. ***Depends on type of door.***
  3. ***Depends on type of door.***
  4. ***ON: Master.***
- ***Inputs***

1. (8)	*Close.*	*Closes the doors with voltage between terminals 8 & 10. Open the doors when the voltage between terminals 8 & 10 is removed.*
2. (17...20)	*Photocell.*	*Doors will reopen if the photocell beam is broken.*
3. (21-23)	*Reopening.*	*Doors will not close if this signal is active.*
4.	*Obstacle.*	*Doors will open if an obstacle is detected by the motor ceasing to rotate.*
5. (25-23)	*Slow closing.*	*Closes regardless of the state of the photocell.*

- ***Priorities***

1. (21-23)	*Reopening.*
2.	*Obstacle.*
3. (25-23)	*Slow closing.*
4. (17...20)	*Photocell.*
5. (8)	*Close.*

SLAVE: 2 INPUTS



- ***Configuration***
  1. ***ON: 2 Inputs.***
  2. ***Depends on type of door.***
  3. ***Depends on type of door.***
  4. ***ON: Slave.***
- ***Inputs***

1. (8)	*Close.*	*Closes the doors with voltage between terminals 8 & 10.*
2. (12)	*Open.*	*Open the doors with voltage between terminals 12 & 10. Priority to close.*
3. (17...20)	*Photocell.*	*Does not re-open the doors when activated but provides signal to main controller via the PHOTOCELL relay.*
4. (21-23)	*Reopening.*	*Doors will not close if this signal is active.*
5.	*Obstacle.*	*Doors will not re-open if an obstacle is detected by the motor ceasing to rotate.*
6. (25-23)	*Slow closing.*	*Closes regardless of the state of the photocell.*

- ***Priorities***

1. (12)	*Open.*
2. (21-23)	*Reopening.*
3. (25-23)	*Slow closing.*
4. (8)	*Close.*

POWER SUPPLY:

- AC voltage range: 230v +10%, -15%.
- Frequency supply: 50...60 Hz.
- Minimum supply: 70 mA, 13W.
- Open door power: 0,6 A 80W.
- Nominal power: 0,93 A 140W.
- Maximum power: 1,38 A 190W.

INVERTER:

- Carrier frequency: 16 KHz.
- Frequency range: 0,5...100 Hz.
- Voltage range: 40...200 Volts.
- Maximum output current: 4 Amps.
- Positional control: Quadrature encoder.

MOTOR:

- Asynchronous three phase: 6 poles.
- Voltage supply: 250 V.
- Power: 250 W.
- Thermic class: B-130°C.
- Nominal speed: 900 RPM.

DOOR:

- Opening speed: Maximum: 1.000 mm/s.
- Closing speed: Maximum: 600 mm/s.
- Safety force: 40...150 Nw adjustable.
- Maintenance torque (opened door): 80 Nw.

INPUTS:

- Impedance: 20 KOhm.
- Voltage: 12...230 Volts AC / DC.

OUTPUTS:

- Contacts: Switched.
- R contact: 50 mW
- Switch time: 5 ms.
- Output current: Maximum: 1,5 Amps.
- Voltage: 230 Volts maximum.

DINAMICS:

- Open speed: 200...1000 mm/s.
- Close speed: 150...600 mm/s.
- Maximum acceleration: 800...1500 mm/s^2

符合性声明

Tecnolama, S.A.
Ctra. Constantí Km. 3
43206 REUS
(España)

在此声明，以下产品符合欧洲标准：

CE

欧盟指令文件95/16/EC，EN81-1及EN81-2：

厅门门锁装置
(**型号** 210/10/40)

厅门门锁装置
(**型号** TÜV 40/10)

厅门门锁装置
(**型号** TÜV 50/11)

符合欧盟委员会电磁兼容指令89/336/EEC，
符合EN12015与EN12016标准，
关于电梯门机：
VVVF-4控制器
(EMI-368-C)

符合欧盟委员会电磁兼容指令89/336/EEC，
符合EN12015与EN12016标准，
关于电梯门机：
40/10电梯门机械操作系统
(EMI-370-C)

Tecnolama S.A., Marzo de 2001

Josep Vilà Gomis
Administrador

Declaration of Conformity

Tecnolama, S.A.
Ctra. Constantí Km. 3
43206 REUS
(España)

herewith declares that the products mentioned below conform with the following E.U. council directives:

CE

ENGLISH

E.U. council directive 95/16/EC, Norms EN81-1 and EN81-2:

Locking device for Landing doors
(model 210/10/40)

Locking device for Landing doors
(model TÜV 40/10)

Locking device for Landing doors
(model TÜV 50/11)

E.U. council directive of electromagnetic compatibility and immunity 89/336-CEE, conform with Norms EN12015 and EN12016, about lift doors:

VVVF-4 Electronical Module
(EMI-368-C)

E.U. council directive of electromagnetic compatibility and immunity 89/336-CEE, conform with Norms EN12015 and EN12016, about lift doors:

Manoeuvre system for lift doors 40/10 mechanical model
(EMI-370-C)

Tecnolama S.A., March of 2001

Josep Vilà Gomis
Administrator

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ATENTION: *any type of connection not reflexed in this manual, before testing it should be notified to our Technical Department.*
Tecnolama declines all responsability in the case of damages produced in the operator and installation, if the instructions given have not been followed.
TECNOLAMA *reserves the rights in modifying the products specifications of this technical brochure without any previous advise.*

TECNOLAMA

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