SESAMO

DUALCORE

LH100
LH140
RD100

AUTOMATED SYSTEMS FOR SLIDING DOORS

INSTALLATION MANUAL

ENGLISH

Thank you for choosing this product. So that you get the most out of your automated system, Sesamo recommends you read and follow the installation and usage instructions in this manual carefully. This automated system must only be installed by professional technicians, for whom this manual is intended. Improper installation can present a hazard for persons and objects. The packaging material (wood, plastic, cardboard, etc.) must be disposed of properly and must be kept out of the reach of children as they present a potential hazard. Each phase of installation must be carried out in accordance with current regulations and must in any case good working practice must be employed. Before beginning installation, ensure that the product is intact and has not been damaged during transportation or storage. Before installing the product, ensure that all architectonic and structural elements of the doorway (installation points for automated systems, fixtures, etc.) are suitable and strong enough to be automated. The door being automated must have a smooth opening and closing action without resistance. Carry out a careful risk assessment and make any modifications necessary to eliminate crushing or shearing zones and eliminate hazards in general. Never install the product in environments containing flammable gas, vapors or fumes. The manufacturer of the automated system is not responsible for failure to observe good technical practice or specific regulations in the construction of fixtures to be motorized or failures of these parts. All safety devices for the automatic door (e.g.: active infra-red sensors) must be installed in accordance with the regulations and directives in force, the risk assessment undertaken, the type of system, use, traffic, forces and inertia in play. Always pay particular attention to the areas that could lead to: crushing, shearing, conveying and any other hazard in general by placing appropriate signs if necessary. Include the identification data of the motorized door on each installation. Check that the electrical network to which the system is corrected is of the right size and has suitable protections (differential switch and surge protection). Only use original spare parts for maintenance or repairs. Do not tamper with or alter the internal equipment of the automated system or the safety devices present in the control CPU. The manufacturer denies any responsibility of internal parts on the automated system are tampered with or altered or if safety devices different to those indicated by the manufacturer are used. The technician installing the automated system must provide the person responsible for the automatic door with the user manual and any information necessary to use the door in automatic mode and in case of emergency. Pay particular attention to the messages in this manual identified by the hazard symbol. These may be warnings with the aim of avoiding potential damage to the equipment or specific warnings of potential hazards for the safety of the installation technician or other personnel. This device has been designed for the automation of sliding pedestrian doors. Any other use is considered contrary to the use intended by the manufacturer, who will therefore accept no liability for the consequences.

Before performing any operation on the machine, read this manual carefully and follow the instructions, paying particular attention to the areas with the following warnings:

DANGER:	instructions that, if not followed scrupulously, could cause dangerous or potentially fatal situations
WARNING:	indications that could generate malfunctions if not followed scrupulously

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MACHINES DIRECTIVE

The technician installing the motorization of a door becomes the constructor of the automatic door in accordance with directive 2006/42/CE and must:

- Provide the Technical File with the documents indicated in appendix VII of the Machines Directive and save them for at least 10 years.
- Edit the CE declaration of conformity according to appendix II-A of the machines directive and issue a copy to the user.
- Affix the CE mark to the motorized door in accordance with point 1.7.3 of appendix I of the machines directive.
- In particular, but not exclusively, if under regulation EN16005 it becomes necessary to install a monitored sensor/s, it must be connected and set up as described in this manual (see pp. 16-17), checking that they operate correctly as described in the manual of the sensor/s used.

DECLARATION OF INCORPORATION (DIRECTIVE 2006/42/CE, APPENDIX II, PART B)

Manufacturer: SESAMO S.R.L.
Address: Str. Gabannone 8/10 - 15030 Terruggia - AL
Declares that:
The product **DUALCORE LH100/LH140/RD100**
- is made to be incorporated in a machine to construct a machine considered by Directive 2006/42/CE
- conforms with the essential safety requirements indicated in appendix I of the directive with the exception of the following points: 1.2.4.3, 1.2.4.4, 1.3.4, 1.3.5, 1.3.7, 1.3.8.2, 1.4, 1.5.3, 1.5.7, 1.5.14, 1.5.15, 1.5.16
- complies with the conditions of the following other CE Directives: 2014/30/UE Electromagnetic Compatibility, 2014/35/UE Low Voltage
and that
- the following (parts/clauses of) agreed regulations have been applied:
EN 60335-1 EN 61000-6-2 EN 50366 EN 61000 -6–3 EN16005
and also declares that:
- the relevant technical documentation has been completed in accordance with part B of appendix VII; this documentation, or parts of it, will be delivered electronically or by traditional post upon justified request from the competent national authorities
- the relative technical documentation will be compiled by: SESAMO SRL, Strada Gabannone, 8/10 - 15030 Terruggia (AL) - Italy
- it is not permitted to use the product until the machine in which it will be incorporated or will become a component of has been identified and has received the declaration of conformity with the conditions of Directive 2006/42/CE and the national legislation that transposes it, in other words, until the machinery referred to in this declaration forms a single unit with the machine.

SESAMO S.R.L. Aldo Amerio
November 2019 (Manager)

TECHNICAL SPECIFICATIONS

SIZES	See Fig.1
POWER SUPPLY	230V ±10% AC 50/60Hz
RATED POWER	LH100 = 150 W LH140/RD100 = 180 W
EXTERNAL DEVICES POWER	15Vdc - 12W MAX
BATTERY BACKUP POWER	LH100/LH140 = 24V 1,3Ah RD100 = 24V 2Ah
OPENING SPEED	1 Leaf = 70cm/s 2 Leafs = 140 cm/s
PASSAGEWAY	1 Leaf LH100/LH140 = 700 ÷ 3000 mm 1 Leaf RD100 = 800÷ 3000 mm 2 Leafs LH100/LH140 = 900 ÷ 3000 mm 2 Leafs RD100 = 900÷ 3000 mm
PAYLOAD	LH100 1 Leaf = 140 kg LH100 2 Leafs 100+100 kg LH140 1 Leaf = 160 kg LH140 2 Leafs = 140+140 kg RD100 1 Leaf = 150 kg RD100 2 Leafs 130+130 kg
OPERATING TEMPERATURE	-10°C +55°C
ANTI-CRUSHING	Automatic limitation of the force in the presence of obstacles
WEIGHT	around 11 kg/m
SERVICE	Continuous
PROTECTION	IP20

INTENDED USE

LH100/LH140/RD100 automated systems must be used exclusively for the movement of sliding pedestrian doors. In particular, the RD100 version is designed for doors installed on exit ways in compliance with the requirements of EN 16005 standard - paragraph 4.7.2. RD100 adopts some components in redundant form and is equipped with two gearmotors and two electronic control units. The two control units (Master (G) –Slave (P) fig. 5/A) allow continuous and crossed monitoring of the operation and a special algorithm assigns control to one control unit in case the other is faulty. The double motor with alternating drive at each maneuver ensures continuous operation self-test and guarantees safe opening and positioning in case of failure of one of the two motors. RD100 control units are equipped with a special input to operate in conjunction with sensors in compliance with EN 13849-1 performance level "d" Cat.2 specially designed to guarantee the safe opening of the doors installed on exit ways.

WARNINGS FOR THE TECHNICIAN (GENERAL SAFETY OBLIGATIONS)

1) ⚠ It is important to install the automated system according to instructions in order to ensure the safety of people. Improper installation or incorrect use of the product can cause serious injury to people.

2) Read the instructions carefully before starting to install the product.
3) Keep the instructions for future reference.
4) This product was designed and built exclusively for the use indicated in this manual. Any other use not expressly indicated could compromise the integrity of the product and/or represent a source of hazard.
5) SESAMO declines any liability arising from improper use or use other than the intended use.
6) Do not install the device in an explosive atmosphere: the presence of flammable gas or fumes represents serious hazard for safety.
7) SESAMO is not responsible for non-compliance with Good Practice in the construction of the locks to be motorized, as well as for deformations that may occur during use.
8) Disconnect the power supply before carrying out any work on the system.
9) Make sure there is a differential switch upstream of the system.
10) Make sure that the earthing system is made in a workmanlike manner.
11) The safety devices (standard EN 12978) allow protecting any hazard areas from Mechanical movement risks, such as crushing, conveying, and shearing.
12) Use only SESAMO genuine parts for maintenance.
13) Do not make any changes on the components that are part of the automated system.
14) The technician must provide all information relating to the manual operation of the system in case of emergency.
15) The user must refrain from any attempt to repair or direct intervention and contact; only qualified personnel are allowed.
16) ⚠ The installation must be done only by qualified and experienced personnel and in full compliance with current regulations.
17) Anything that is not expressly provided in these instructions is not allowed.
18) ⚠ This manual is intended for qualified technicians or competent persons only.

RECYCLING AND DISPOSAL

WARNING! This product falls under Directive 2012/19/EU concerning the management of waste from electrical and electronic equipment (WEEE). The device must not be disposed of with domestic waste as it consists of different materials that can be recycled at the appropriate facilities. Request information from the municipal authority regarding the location of the ecological platforms suitable for receiving the product for disposal and its subsequent correct recycling. Keep in mind that when purchasing equivalent equipment the supplier is required to collect the product to be disposed of free of charge. The product is not potentially dangerous for human health and environment, as it does not contain harmful substances under Directive 2011/65/EU (RoHS), but if left in the environment it has a negative impact on the ecosystem.

The crossed-out bin symbol indicates that this product complies with the legislation on waste electrical and electronic equipment. Leaving the equipment in the environment or illegal disposal is punishable by law.

PREPARATIONS FOR INSTALLATION

The automated device is designed to work with different accessory and peripheral devices configurations. Fig.4 shows an example of a complete installation where possible access points are highlighted in the automated device box for connecting the following peripheral devices:

A. Left side opening safety sensor
B. Internal safety sensor during closing and opening control - for RD100 version use only a sensor compliant with EN 13849-1 performance level "d" Cat.2 for exit ways
C. External safety sensor during closing and opening control
D. Right side opening safety sensor
E. Differential switch (230Vac mains power supply)
F. Operating logic selector
G. Electric lock release lever (Optional, only if the electric lock is present)

I Emergency button

Prepare the access points inside the automated system to allow connection with external peripheral devices. Use the notch on the head for the passage of the mains power cable, or make one inserted in the aluminum profile as shown in fig. 34. Protect the cable with the special rubber supplied.

DANGER: do not damage the cable during the described fixing activities.

PARTS DESCRIPTION

The **LH100 /LH140** automated systems consist of the following parts (ref. fig.1 and fig.5):

A- extruded aluminum box
B- extruded aluminum sliding guide
C- anti-vibration rubber for sliding guide
D- extruded aluminum cover
E- brush (Optional, available in 3 sizes)
F- extruded aluminum filling profiles (Optional)
G- electronic control unit
H- gearmotor with encoder - type 63x25 for LH100, type 63x55 for LH140
I- belt support and tensioning device
J- Battery (optional)
K- electric lock (Optional)
L- door limit switch
M- adjustable carriages equipped with wheels and anti-derailment wheel
N- belt coupling with toothed traction belt
P- n° 1 matching part for electric lock (Optional)

The **RD100** automated system (in addition to the parts from A to F and from K to P) consists of the following parts (ref. Fig. 5/A):

Q- emergency battery
R- Master gearmotor with encoder - type 63x55
S- Master control unit
T- bistable electro lock (optional)
U- Slave control unit
V- Slave gearmotor with encoder - type 63x55, including belt tensioning

CASE WALL FIXING

DANGER: the phases of installation and fixing of the automated system involves the movement of heavy parts and tools at heights greater than 2 or 3 meters. Accidental falling of the heavy tools and parts presents a high risk to personnel and objects in the vicinity. To reduce this risk, before performing the installation or maintenance, cordon off a safe zone around the working area and prohibit access to any personnel not involved in the operation and remove any objects that may be damaged. To reduce the risk to the personnel in charge of the operations, the personnel must wear personal protective equipment, in particular a helmet, safety shoes and cut-resistant gloves.

Remove the screws then remove the cover following the sequence shown in fig.7.
Remove the carriages following the procedure below:

- disconnect the belt attachment bracket from the carriage ref.A fig.11 by undoing screws C.
- loosen the screw of the anti-derailing roller ref.D fig.9 and lower it fully.
- remove the carriage

To make it easier to fix the case to the wall, the internal components can be moved or removed by undoing the screws that attach it to the screw channel on the roof of the automated system, as shown in Fig.6.

WARNING: before moving or removing the internal components, note their positions or trace markers on the case so that they are reinstalled in the correct positions.

Inspect the surface to which the case will be fixed. If the surface is not sufficiently smooth, level it using spacers. The automated device crossbeam can be deformed if fixed on a too irregular surface.
Ensure that the structure to which the case and subsequently the sliding leaves will be fixed is strong enough and well anchored to the building.
Fix the case to the support via the hexagonal screws M8, of a suitable length, through the eyelets provided (fig.8). Ensure the screws and washers are suitable for use with the material of the structure to which the case is being fixed.

DANGER: failure to observe the indications relating to fixing the case to the wall can compromise the stability of the fixture, causing it to detach from the wall and parts to fall. It is important to perform a careful assessment of the support structure, the hold of the screws or washers and to stop the installation and perform further assessments if in any doubt.

WARNING: the case must be fixed using all the eyelets/holes provided in the aluminum case.

DANGER: before tightening the case fixing screws, ensure that the crossbeam is level in length and depth as shown in fig.8. Positioning errors that exceed those indicated in fig.8 can compromise the proper functioning of the automated system and present a safety risk.

HEIGHTS FOR CASE FIXING

For two leaf doors, the automated system must be centered in the doorway so that the two leaves meet in the center of the opening (Fig. A). A).
In the case of a single leaf door, respect the indications and the machine quotients shown in Fig. B. Extendible crossbeams (unused areas of the case) should be positioned with the extensions added to the QMC and QMT.
For the abbreviations used in fig.A and B refer to the list below:

- **Lup:** Usable doorway width:
- **A:** Sliding leaf width
- **St:** Mount over leaf
- **Sc:** Mount below leaf
- **T :** Total case length
- **QMC:** Thickness of side covers 5mm approx.

The crossbeams must be positioned at the heights shown in figures 1, 2 and 3 and the following tables in relation to the type of profile selected for the leaves:

SIZE	DESCRIPTION
HAS	Sliding door height
HCO	Under cover height from the ground
HUP	Usable passage height:
HCA	Box bottom height from the ground
IH	Height clearance (suggested value 5mm.)

SIZE	COMMERCIAL PROFILES (FIG.1)	SESAMO PROFILES MAGNUM (FIG.2)	SESAMO PROFILES TWENTY (FIG.3)
HAS	= HUP + 8	= HUP + 9	= HUP + 8
HCO	= HUP	= HUP + 6	= HUP
HUP	= HCO	= H – 152 - IH	= H -125 -IH
HCA	= HUP + 40 mm	= HUP + 46	= HUP + 40
IH	-	5 mm	5 mm

CARRIAGES INSTALLATION

DANGER: carefully check the weight of the leaves to ensure they are within the maximum capacity of the automated system; in case of doubt, do not proceed beyond the installation phase; if leaves with weights near to the capacity limits are installed, more frequent maintenance intervals and periodical checks to assess the state of wear of the components must be adopted; always replace parts that show even slight signs of wear.

Fix the carriages to the leaves in the positions shown in fig.5

The positions shown in fig.5 depict the leaf seen from the inspection side (cover) of the automated system.
To fix the door, use M8 screws (fig. 9 part. with hexagonal head with appropriate flat and notched washer.
NOTE: for leaves equipped with a 'break glass' emergency system or glass leaves equipped with clamps, use the mounting positions shown in the manuals of the relative accessories.

DANGER: incorrect installation could compromise the correct functioning of the automated system and present a risk.

Ensure that the anti-derailing wheels (fig.9 ref.E) are fully lowered. Lift the leaf and place the wheels of the carriages delicately on the guide rail, taking care not to damage the parts by dropping or banging them.

DOOR ADJUSTMENT

The leaves can be adjusted on three axes (x,y,z) according to the requirements of the installation.

LATERAL ADJUSTMENT (Y) FIG.9 - FIG.10

loosen the screws F and slide the leaf along the Y axis to the position where it will operate correctly.
Take care to align the carriages correctly and ensure they are parallel to the guide rail, as shown in Fig.10. To check the correct alignment, ensure that the distances "E" measured between the leaf and the carriage are the same for all the carriages on both the left and right sides. To further check the alignment, move the leaves manually: they should slide with the minimum of effort without any impediment or abnormal friction. When the leaves are in the correct position, tighten the screws F progressively, alternating between different screws until they are all fully tightened.

WARNING: turning the screws F when tightening can cause the carriage to go out of alignment. To avoid this, tighten alternate between screws F and tighten progressively.

WARNING: misalignments between carriages and sliding guide can cause wear, excessive noise and malfunctions of the automated system.

VERTICAL ADJUSTMENT (Z) FIG.9

To adjust the height of the leaves and ensure they are perfectly perpendicular to the floor, proceed as follows (ref.fig.9):

- Loosed screws G slightly.

DANGER: do not undo the screws G fully as the leaf could fall.

- Use the level screws H to adjust the height of the leaf
- Tighten the screws G taking care not to alter the alignment.

HORIZONTAL ADJUSTMENT (X) FIG.11

necessary to adjust the meeting point of the two leaves which must be near the center of the doorway. The components of the automated systems are positioned so as to match with the doors in a central position. If it is necessary to change the meeting point during installation, proceed as follows (ref. fig.11):

- Loosen screws D relating to the clamp A on the passing branch of the belt (i.e. the one without joint) so that the comb B allows the belt E to be moved.
- Move the clamp to the desired position
- Tighten the screws D, ensuring that the teeth of the belt E sit correctly in the slots in the comb B

BELT ASSEMBLY AND TENSIONING

to adjust the tension of the belt, proceed as follows (ref.fig.12):

- ensure that the motor group is positioned and fixed according to the default set-up and is in a position that ensures the belt is centered in the running area.
- make sure that D nuts are loose so that the whole assembly can move laterally
- ensure that screw E is loosed and does not compress spring F
- ensure that the nuts B are loosed so that slider A is free to move
- place the toothed belt over the motor pulley and the conduct pulley.
- move the support unit C to the left until the belt is under a first level of tension. Check that the two belt branches are visibly taut (without sag)
- tighten the nuts D of the pulley group on the case
- turn screw E until the spring F is almost completely compressed (the spirals should almost be touching). The length of the compressed spring should be between 11-12 mm.
- Tighten screws B

CARRIAGES COMMISSIONING

Fix the belt clamps part. N fig.5 to the carriages using the screws provided and match them with the positions indicated in fig.5 for 1 or 2 leaves.
Adjust the anti-derailment device part. E fig.9 by operating on the appropriate screw part. D fig.9 so that the roller is not in contact with the aluminum profile during sliding, maintaining a play of 0.5-1 mm fig.9a. Tighten screw D fig.9 without affecting the adjustment.
Check that all the screws on the carriages are correctly tightened.

DANGER: lose screws on the carriages can come undone allowing parts to become detached, causing the leaves to fall or the belt to come off, leading to the leaf being out of control when in movement and presenting a serious risk of injury.

WARNING: incorrect adjustment of the anti-derailing device that leaves the wheel in contact with the aluminum profile causes excessive wear and noise during operation.

DOOR LIMIT SWITCH ADJUSTMENT

Position the limit switches of the leaves as shown in fig. 5 making sure that in the case of two leaves the central limit switch acts only on the right leaf and the opening limit switch on the left leaf:

- place the special rubber fig. 13 part. B on the side of the bracket part. A in contact with the carriage
- adjust the position of bracket A by loosening screws C and sliding the nuts into the appropriate channel
- when the limit switches are in the desired position, tighten screws C firmly

DANGER: before operating the automated system, check that the screws of the limit switches are tightened properly part.C fig.13 fig.13

INSTALLATION OF THE ELECTRIC LOCK (OPTIONAL)

WARNING: install only the bistable safety electric lock for RD100 automated system.

WARNING: for LH100/LH140 automated systems it is possible to install standard (fail secure), reverse (fail safe) or bistable electric locks

H. install the electric lock inside the automated system using the appropriate fixing screws in the channel of the box as shown in fig. 16
I. make sure that the matching part slide on the carriage part. P fig. 5 is positioned in compliance with what is indicated in fig. 5 according to the types of inputs provided
J. bring the leaf/leaves to complete closure
K. move the electric lock up to bringing the locking rod B fig.16a to about 2mm from the matching part A fig.16a on the carriage and then tighten the fixing nuts of the electric lock
L. **WARNING**: set parameter 13 according to the type of electric lock installed - see *commissioning of the automated system paragraphs*

INSTALLATION OF THE EMERGENCY RELEASE LEVER

If the electric lock has been installed, secure the emergency release cable by following the instructions below (fig.17):

- before proceeding with the assembly, make sure that spring D is correctly inserted in pipette A
- insert stop B at the end of the cable under bracket C and pass it through the appropriate slot
- secure spring D between bracket C and F
- insert the threaded part E of pipette A of the appropriate compartment on bracket F
- completely screw nut G

position the sheath in such way as to reach the position where you want to install the release lever. It can be fixed on the automated system's head (fig. 19) or in an easily accessible point of the window or wall. It is possible to position the sheath in the cable compartment of the box using the cable fasteners provided (fig. 14).

DANGER: the sheath must be positioned so that it does not have small creases and is properly fixed to the supports. If the path of the sheath is too complicated or the attachment too slack, the function of the emergency release system can compromised and constitute a safety risk.

Insert the nut supplied (part. B fig. 18) in the special seat obtained in the lever body (part. A fig.18). Fix the release lever in its definitive position using the screws provided (part.C fig.18). fig.18

With reference to fig. 17a, cut the sheath and cable A using the tip of the lever in the open position as a measure for cutting. Pull out cable B by around 160mm pulling it from the stop on the electric lock. Cut the sheath again at the definitive measurement using the tensioner on the lever as a gauge. Extract the cable which should protrude by around 160 mm from the sheath.

DANGER: ensure that while cutting the sheath, no obstructions or offcuts is created that can compromise the sliding of the cable.

Refer to fig.18 and insert the sheath F and cable B in the tensioner E and screw the tensioner into the hole on the lever. Insert the small barrel G equipped with grain bolts H ensuring they do not obstruct the hole in the barrel. Insert the cable D into the hole of the small barrel G. Close the lever and pull lightly on the cable to remove any play. Keeping the cable taut, tighten the grain bolts H with an Allen wrench H. Check that the release handle works correctly and that it has sufficient space to open and fully release the electric lock. If the tension of the cable needs to be adjusted, do so via the tensioner of the lever or the nut of the pipette on board the electric lock. At the end of the checks, cut the steel cable.

DANGER: carefully test the correct function of the release lever. Any errors could prevent the release of the leaf in the event of a failure of the electric lock and constitute a safety risk.

DANGER: the release mechanism must be checked periodically for loose fastenings, dirt, wear, corrosion or other unexpected phenomena that could compromise the correct function of the mechanism.

COVER FIXING

With reference to fig.15, fix the cover in the special seats of the heads using screws **A**.
As an alternative, it is possible to fix the cover from the bottom using the screws/inserts art. PF25.60 (optional) as follows:

- drill 2 holes **C** diameter 5.5mm under the cover at 6mm distance from the ends
- fix the cover with 5x10 screws **B** by screwing them into the inserts to be positioned inside the heads

MECHANICAL ASSEMBLY FINAL CHECKS

Before commissioning the automated systems, check and carry out the following operations:
- carefully remove any dust or burr residue from the slide rails and carriage wheels
- check that all screws of the components of the automated system are properly tightened
- check the correct tension of the belt
- check that the cables are fixed and that no cables run near the transit area of the carriages or belt
- check that the limit switches are positioned correctly and that the belt clamps do not knock against the toothed pulleys
- apply a thin layer of standard grease to the bearings on the slide rail and transmission belt

WARNING: The slide rail and the transmission belt do not need lubrication and can work without showing signs of wear. Nevertheless, lubrication prevents the onset of noise emission if parts are not perfectly aligned.

WARNING: for proper operation it is very important to make sure that there are no mechanical impediments or frictions that hinder the movement throughout the sliding area of the leaves: in case of doubt, perform a manual dragging test with a dynamometer to identify any points with excessive friction.

DUALCORE PROCESSOR: FUNCTION AND WARNINGS

The Dualcore processor is designed to manage automated systems produced by Sesamo, complies with the specifications of EN16005 and can function with peripherals that comply with the same regulation in order to allow the creation of fully automated doors in line with the highest safety standards.
The Dualcore processor may only be used for automated systems produced by Sesamo of the Dualcore series and must be configured and installed by professionally qualified personnel, following the instructions provided in this manual with particular attention to the information marked: danger, warning, note. **hazard, warning, note.**
The Dualcore processor is designed to configure its own operating parameters through self-learning, guaranteeing quick and easy installation.

DANGER: do not wash, disassemble, modify, repair or remove the protective covers of the electronic components and the Dualcore processor, as this could lead to fatal electric shock or irreparably damage the product.

DANGER: do not carry out any operation on the Dualcore control unit, except for the adjustments by means of the specific buttons, without having previously disconnected the power supply plug (fig. 21 part. L), otherwise fatal electric shocks or irreversible damage of the product could occur.

DANGER: the Dualcore electronic processor is designed to work in products manufactured by Sesamo according to the precise specifications of the manufacturer. Any other use not explicitly considered by the manufacturer may expose personnel and or objects to risks of death or damage of various natures that are unforeseeable by the manufacturer. As such, these uses are strictly forbidden.

DANGER: the Dualcore processor is designed to work in dry environments, sheltered from any atmospheric elements or the infiltration of water or other liquids. This could lead to fatal electric shock or irreparably damage the product.

DANGER: the processor contains parts under high voltage greater than 600V that pose a risk of fatal electric shock. To avoid this risk, the protective guards must be under no circumstances removed and liquids must be kept away from the components as they can cause fatal electric shock or irreparably damage the product.

ELECTRONIC CONTROL UNIT DESCRIPTION

The Dualcore control unit consists of the following main parts (fig. 21 and 22):

A- input for PC connection through the appropriate optional signal converter made by Sesamo;
B- terminal block set-up for connections to additional peripheral devices and accessories;
C- connector for motor encoder connection;
D- connector for motor power supply connection;
E- connector for battery connection - connect only on the Master board for RD100 version;

WARNING: check the correct orientation of the battery connector, only use batteries provided by Sesamo, only use board/battery wiring with fuse protection at 6.3AT. Failure to do so could lead to electric shock, and circuit protection may be compromised leading to risk of fire and irreversible damage to the product.

F- connector for inserting the battery recharge board - insert only on the Master board for RD100 version;
G- switching power supply: transforms the power supply of the mains cable (230Vac) (part. L) into an 40V output voltage for the control unit

DANGER: the switching power supply at point G contains parts under a voltage of around 600V that pose a risk of fatal shock. Do not remove the protective base and cover G for any reason, do not splash liquids on these parts, no not insert objects (especially metal) between the vents in the cover. This could lead to fatal electric shock or irreparably damage the product.

H- protection fuses of 1AT located at the switching power supply input;
I- display with keys for adjusting operating parameters and selecting operating modes;
J- main key: removable memory stick for internal programming data of the processor;

WARNING: carefully check the main key is fully inserted (ref.J) before starting the electronic processor. Otherwise unpredictable product malfunctions may occur.

K- terminal for sensors and accessories;
L- 90° connector of the electrical network power supply (230VAC);
M- connection screws for the earth connection (fig.22 part. M).

Earthing system

Through the earth connection, the Dualcore processor offers an additional protection for the aluminum case and metal parts connected to it. To ensure the earth connection is effective, tighten screws M (fig.22) and the nut of bolt O (fig.22) so that the aluminum case is electrically connected to earth pole L1 (fig.2X).

WARNING: check that screws M (fig.22) and bolt O (fig.22) are correctly tightened and check the electrical continuity between the earth pole L1 (fig.22) and the surface of the automated system crossbeam. If this is not the case, an important safety feature of the entire system may be compromised, with a risk of electric shock or malfunctions in the product.

PROCESSOR/SENSORS COMPLIANT WITH EN16005

WARNING: the P56001 control unit CANNOT WORK with photocells connected directly to the terminal board. The direct connection and switching on of the ELECTRONIC BOARD WILL LEAD TO IREVERSIBILE DAMAGE.
The use of photocells can ONLY be done with the purchase of the photocell kit and the dedicated firmware.

Fig.4 shows the sensors that can be connected to the Dualcore processor:

A- left opening safety sensor
B- internal opening/safety sensor
C- external opening/safety sensor
D- right opening safety sensor

opening sensors B. and C. perform the following 3 functions:

1- opening control: detects movement in M1 or M2 areas and controls door opening - for RD100 version the internal sensor B must be exclusively in performance level d
2- closing safety: detects obstacles in zone A1 or A2 and in case of obstruction stops the doors from closing
3- test: check that the closing safety (function 2) is working correctly and, if not, prevents the leaves from closing (ref.EN16005 performance level C)

safety sensors A. and D. perform the following 2 functions:

1- opening safety: detects obstacles in zone A3 or A4 and in the case of obstruction stops the movement of the opening doors
2- test: check that the opening safety (function 1) is working correctly and, if not, prevents the leaves from opening (ref.EN16005 performance level C)

The table below shows the connections of sensors A, B, C, D with the terminals provided on the processor. The 2 cables of the power function are the power supply chords. The default column shows the factory setting values of the contacts (NO/NC):

WARNING:

LH100/LH140 versions: for connections with B/C sensors model VIO DT1/2 - IXIO DT1 see fig. 24, for connections with Axis T model B/C sensors see fig. 26
RD100 version: for connections with sensor B model IXIO DT3 and sensor C model VIO DT1/2 - IXIO DT1 see diagram fig.25
LH100/LH140/RD100 versions for connections with A/D sensors model PRESENCE T see diagram fig. 28 or sensors model VIO ST/IXIO ST see fig. 27
For other types of sensors, see the diagram in fig. 29/30

sensor	functions	Terminal board fig.23.2	default
A	power	19 (-)	
		20 (+)	
	1. (Safety opening)	16	NC
		17	
	2. (Test)	14	NO
		15	
B	power	6 (-)	
		7 (+)	
	1. (opening control)	2	NO (For RD100 version the connection must be in current mode as shown in fig.25)
		5	
	2. (safety closing)	10	NC
		13	
	3. (test)	8	NC
		9	

C	power	6 (-)	
		7 (+)	
	1. (opening control)	1	NO
		2	
	2. (safety closing)	10	NC
		11	
	3. (test)	8	NC
		9	
D	power	19 (-)	
		20 (+)	
	1. (Safety opening)	17	NC
		18	
	2. (Test)	14	NO
		15	

NOTE: for more detailed information on the colors of the cables and terminals, refer to the specific manual supplied with the sensor for the selected model.

DANGER: select and install the sensors to suit the architectonic design of the doorway according to a thorough risk assessment in compliance with EN16005. If not, the automatic movement of the doors can cause serious injury or damage to persons or objects with the risk of fatal lesions.

SETTINGS AND CONNECTIONS FOR RD100 VERSION

The arrangement of the components for the RD100 version automated system is that of fig. 5/A.
The connections to the peripheral devices must be made on the Master control panel (part. S).
The Master and Slave control units must be connected together as shown in fig. 25
Parameters: set only on Master control unit:

- parameter **21** (Start2 input polarity) set to **1** (NC)
- parameter **27** (Aux In2 input polarity) set to **1** (NC)
- parameter **13 type** electric lock for RD100 version set to 4 (Bistable). To complete the setting and keep the ENT button pressed for 5 seconds.

WARNING: for the RD100 automated system, the only electric lock that can be installed is exclusively the bistable safety electric lock, which requires the setting of parameter 13 to 4. During the setting, press and hold the ENTER button for 5", so as to allow the MASTER board to acquire the parameter correctly; if no button is pressed, the setting returns to default value 1 (normal electric lock).

WARNING: make sure that the Main Keys - detail J - Fig. 21 - are correctly inserted in the respective control units; see the following table:

Control unit	Description
Master	Main key type SM (C2 indication on display)
Slave	Main key type SS (C3 indication on display)

WARNING: the sensor on the exit way side (sensor B - figure 4) must be IXIO DT3 model - set in radar mode "current" output and connected as shown in the diagram fig.25

WARNING: the jumpers between terminals 3 and 4 of the Master and Slave boards must be removed.

WARNING Proceed with commissioning following the instructions in the *Commissioning* paragraph. Operate only on the Master control unit for commissioning.

TERMINAL BOARD CONNECTIONS EN16005

Connect all parts of the automatic doorway to the Dualcore processor with suitably sized cables, in accordance with the indications in the table below:

N	Ref.	Default	Description	Figure
1	START1	NO	external sensor for opening control	Fig.24/25/25A/26
2	COM		Standard signal: for inputs 1 and 5 in the LH100/LH140 versions - only for input 1 in the RD100 version	
3	OPTOREF		For LH100/LH140 versions jumper - For RD100 version remove the jumpers and connect as shown in the diagram fig.25	
4	-OO-			
5	START2	NO	internal sensor for opening control	
6	OUT 15VDC	(-)	Power supply negative for internal external opening control sensors: 15Vdc – max. 0,25A	
7	OUT 15VDC	(+)	Power supply positive for internal external opening control sensors: 15Vdc – max. 0,25A	
8	TEST CLOSE	(-)	negative test circuit of the internal/external sensor	Fig.24/25/26/29
9	TEST CLOSE	(+)	positive test circuit of the internal/external sensor	
10	COM		standard signal for input: 11, 13	
11	SAFE CLOSE 1	NC	Area A2 external presence sensor active safety	
12	PHOTO COM		Disposition not to use	
13	SAFE CLOSE 2	NC	Area A1 internal presence sensor active safety	
14	TEST OPEN	(-)	negative test circuit of the right/left side opening safety sensor	Fig.27/28/29
15	TEST OPEN	(+)	positive test circuit of the right/left side opening safety sensor	

16	SAFE OPEN 1	NC	area A3 right side opening safety sensor	
17	COM		standard signal for input: 16, 18	
18	SAFE OPEN 2	NC	area A4 left side opening safety sensor	
19	OUT 15VDC	(-)	Positive power supply right/left side opening safety sensor: 15Vdc – max. 0,25A	
20	OUT 15VDC	(+)	Negative power supply right/left side opening safety sensor: 15Vdc – max. 0,25A	
21	OUT 15VDC	(-)	Negative peripheral device supply: 15Vdc – max. 0,25A	Fig.31
22	OUT 15VDC COM	(+)	Negative peripheral device supply: 15Vdc – max. 0,25A; additional standard signal	
23	KEY	NC	night closing control	
24	AUX OUT		auxiliary output	-
25	AUX IN 1		auxiliary input	-
26	AUX IN 2		auxiliary input	-
27	LOCK	(+)	blocking device	Fig.32
28	LOCK	L	blocking device	
29	-	(-)	set-up	-
30	GND		logic selector gnd cable	Fig.33
31	DATE		logic selector data cable	
32	PWF		logic selector pwf cable	
33	RST		logic selector rst cable	
34	AUX SEL		auxiliary output	-

DANGER: observe the connections in the table, observe the polarities where applicable, and do not connect systems with absorptions greater than the limits shown in the table. Remove the jumpers between all the terminals used. Otherwise an important safety function may be disabled and the automatic movement of the doors may cause serious injury or damage to persons or objects, risking potentially fatal lesions.

AUTOMATED SYSTEM COMMISSIONING

The commissioning of the Dualcore automated system with P56001 version board and sensors compliant with EN16005 standard requires the following sequence:

1- mains power connection (230Vac) and batteries (optional);
2- Learn Parameters (LP) procedure;
3- Learn Sensors (LP) procedure;
4- possible adjustment of parameters;
5- check of the correct tightening of all screws, of the carriages anti-derailment, of the box and of all the parts subject to stress and vibrations during operation;
6- final check of the correct operation of all the safety devices installed with the use of the specific equipment required by EN16005;

DANGER: each of the activities 1 to 6 listed above is fundamental to the safety of the system; ensure the person responsible is suitably qualified and do not skip any steps or checks. Otherwise an important safety function may be disabled and the automatic movement of the doors may cause serious injury or damage to persons or objects, risking potentially fatal lesions.

Connect the batteries (if present) and the mains cable (230VAC) to the control unit then proceed with the self-learning Lp. Refer to fig. 34 of the manual for the passage of the mains cable from inside to outside of the automated system.

WARNING: if no optional device for night closing control is installed, make sure that the KEY input is shorted out with the appropriate COM input (terminals 22 and 23); conversely, it is not possible to start the automated system. For RD100 model, the connection to the KEY input is in series with the selector switch. Make sure that the key is set to ON position (led key access).

WARNING: for model RD100, make sure that the emergency button is ON = contact closed and AUX IN2 led on

PARAMETER ACQUISITION PROCEDURE (LP)

The parameter acquisition procedure (LP = learn parameters) allows the control unit to acquire essential data for operation such as the size of the sliding compartment, the weight of the leaves and the opening direction.

IMPORTANT: before carrying out the LP, make sure that there are no obstacles or excessive frictions that hinder the sliding of the leaves. Carefully check all the mechanical parts inside the automated system that interact with the sliding (wheels, carriages, anti-derailment devices, belt, etc.) and all fixtures in the mobile and fixed parts with particular reference to the floor guides and the air tightness gaskets or brushes which can be a brake on the sliding of the leaves. Otherwise, the procedure may not end and could lead to product malfunctions or excessive wear of some parts.

DANGER: during the LP procedure the safety sensors - Fig.4 ref A/B/C/D of the manual - are not connected. Make sure people are not passing. If not, the automatic movement of the doors can cause serious injury or damage to persons or objects with the risk of fatal lesions.

Make sure that the factory jumpers are present between terminal boards 3/4, between terminal boards 16/17/18, and between terminal boards 22/23.

IMPORTANT: slide the leaves to the closed doors position making sure that the limit switch is in contact with the carriage (see paragraph on leaf limit switch adjustment in the manual).

Activate the (LS) procedure as described below using the keys and display (fig 23.1):

1- connect the control unit to the 230 V ac mains power supply
2- after a few seconds, the display shows E1 flashing
3- press the - key several times until the display shows **LP**
4- press the ENT key: the display shows **--**
5- press again and hold the ENT key (about 5 sec.) until the segments of the display start to rotate, then release the ENT key
6- after a few seconds, the display shows **St** and the control unit waits for about 15 seconds before starting the Lp procedure,
7- the Lp procedure is enabled and the automated system performs some openings and closings (max. 5) useful for measuring the parameters; at the end the leaves are positioned completely open and the display shows Op.
8- proceed with the connection of the safety sensors and the subsequent LS procedure.

SENSORS ACQUISITION PROCEDURE (LS)

The sensor acquisition procedure (LS = learn sensors) allows the Dualcore control unit to automatically detect the connected sensors with particular reference to the presence and quantity of sensors monitored according to EN16005 standard. After detection, the processor shows on the display the configuration and type of sensors it has detected: it is the responsibility of the installation technician to verify that the configuration shown on the display corresponds with the actual installation and then definitively confirm the configuration if it is correct for the purpose. From that moment, the processor with use the configuration confirmed.

DANGER: DANGER: before confirming the acquisition, carefully check that the configuration detected by the processor is suitable for the system and check that all the safety devices are detected correctly. If not, the safety devices could fail to work and the automatic movement of the doors could cause serious injury or damage to persons or objects with the risk of fatal lesions.

DANGER: to carry out the LS procedure correctly, all the sensor and processor inputs must have correct NO and NC values. Check the default values of the processor inputs in the table and those of the inputs of the sensor in the manual of the sensor. If they are incompatible, reprogram the specific input in the processor by following the procedure described in this manual. If not, the safety devices could fail to work and the automatic movement of the doors could cause serious injury or damage to persons or objects with the risk of fatal lesions.

Activate the (LS) procedure as described below using the keys and display (fig 23.1):

1- press the +/- keys on the display until the LS code appears then press ENT: the display will show the code -- ;
2- press again and hold the ENT key (about 5 seconds) until the counter displays seconds from 60, 59, 58, ... to 0: the procedure has started correctly, release the ENT key
3- 60 sec are available to: close the cover of the automated system, check that the sensors are in the correct position, clear the detection area by removing any obstacles under the sensors - note: it is possible to reset the count by pressing the ESC key, and immediately passing to step 4
4- after about 60 sec. the control unit acquires the sensors in about 10 sec - it is possible to recognize the end of the LS procedure when the sensors remain in the standby state
5- open the cover and read the code on the display: if it is type S, proceed to point 6, if it is type F flashing, proceed to point 7
6- the S. code indicates which sensors have been detected according to the correspondence of the table below; make sure that the indication on the display corresponds to the sensors actually installed and if successful, press ENT to confirm and save the configuration; otherwise press ESC, check the sensor wiring and repeat the LS from point 1.

Report	Safe Open 2	Safe Open 1	Safe Close 2	Safe Close 1
S0	NO	NO	NO	NO
S1	NO	NO	NO	YES
S2	NO	NO	YES	NO
S3	NO	NO	YES	YES
S4	NO	YES	NO	NO
S5	NO	YES	NO	YES
S6	NO	YES	YES	NO
S7	NO	YES	YES	YES
S8	YES	NO	NO	NO
S9	YES	NO	NO	YES
SA	YES	NO	YES	NO

Sb	YES	NO	YES	YES
SC	YES	YES	NO	NO
Sd	YES	YES	NO	YES
SE	YES	YES	YES	NO
SF	YES	YES	YES	YES

NOTE: YES/NO indicates whether an active safety device with the test function in compliance with EN16005 has been detected in the input.

7- the flashing F. code indicates that the LS cannot terminate because one or more of the inputs of the safety devices are active instead of at rest; use the table below to identify the inputs from the code on the display:

Report	**Safe Open 2**	**Safe Open 1**	**Safe Close 2**	**Safe Close 1**
F1	On break	On break	On break	Active
F2	On break	On break	Active	On break
F3	On break	On break	Active	Active
F4	On break	Active	On break	On break
F5	On break	Active	On break	Active
F6	On break	Active	Active	On break
F7	On break	Active	Active	Active
F8	Active	On break	On break	On break
F9	Active	On break	On break	Active
FA	Active	On break	Active	On break
Fb	Active	On break	Active	Active
FC	Active	Active	On break	On break
Fd	Active	Active	On break	Active
FE	Active	Active	Active	On break
FF	Active	Active	Active	Active

note the error code, press ESC to exit the LS procedure and look for the cause of the error on the individual input from the following possible errors:

- polarity setting error of supervised inputs/outputs
- setting error logic values NO/NC of the inputs or outputs of the safety circuit of the sensors
- presence of persons or objects in the detection field of one of the safety sensors
- hardware malfunction of one of the components

eliminate the causes of the error and repeat the LS procedure from point 1.

NOTE: it is possible to exit the LS at any time by pressing the ESC key.

DANGER: once the LS procedure is complete, modifications must not be made to the system or the connection or configuration of the sensors. If modified, the LS procedure must be repeated. If not, the safety devices could fail to work and the automatic movement of the doors could cause serious injury or damage to persons or objects with the risk of fatal lesions.

PARAMETERS SETTING MODE:

After completing the LS and LP procedures, the Dualcore processor is ready to operate with the default parameters or with the latest parameters set by the installation technician. It is possible to change the settings using the keys of the processor and relative display.

To modify the settings of the table below proceed as follows:

1- press the + key several times to display the number of the parameter to be modified: 1 opening speed, 2 closing speed, etc. see table
2- press the ENT key: the value of the selected parameter is displayed
3- select the desired value with the + or - keys and then press ENT to confirm the chosen value: the value is stored by the control unit and the display returns to showing the modified parameter;
4- if you want to change other parameters proceed from point 1 or press ESC to end the procedure; the segments of the display begin to rotate and after few seconds the display shows the status of the CL door (door closed).

NOTE: if the keys are not pressed for 10 seconds during the adjustment, the processor exits the procedure and returns to normal operation mode.
The table below shows the parameters and relative display code:

ID	Description	Adjustment	Default
01	Opening Speed	20cm/s ÷ 70cm/s adjustment step 5cm/s.	60
02	Closing speed	10cm/s ÷ 40cm/s , adjustment step 5cm/s.	20
03	Stop time	0 - 60 seconds adjustment step 1 second	0
04	Anti-crushing Opening	1 – 9 (1 minimum, 9 maximum)	9
05	Anti-crushing Closing	1 – 9 (1 minimum, 9 maximum)	7
06	Partial percentage	30 - 90 percentage of opening compared to the total	50
07	Approach speed	3cm/s ÷ 10cm/s adjustment step 1cm/s.	5
08	Accelerations	10 – 30 adjustment step 1	24
09	Deceleration	5 – 20 adjustment step 1	16
10	Approach	4 cm - 40cm adjustment step 1cm modification of both values (opening equal to 1/2 closing)	20
11	Opening Limits	0% - 50% adjustment step 1%. Movement limitation compared to the leaf stroke	2

12	Keeping leaves closed force	0 - 9 adjustment steps 1, 0 disabled, 9 maximum	0
13	Type of electric lock	0 Not used 1 Normal - fail secure 2 Reverse - fail safe 3 Bistable 4 Safety bistable with door lock only with motor if KEY active	1
14	Door locking logic with electric lock or motor	0 Lock Disabled 1 Lock active in One Radar 2 Lock active in Two Radar 3 Lock active in One Radar and Two Radar If no electric lock is selected, the door is locked with the motor	1
15	Auxiliary input 1 configuration	0 Emergency opening 1 Master interlock 2 Slave interlock 3 Pharmacy opening 4 Repeat Start control 2 5 Semi-automatic 6 Stop movement 7 Single control for partial opening 8 Set partial opening on all inputs 9 Semi-automatic with automatic closing	1
16	Auxiliary input 2 configuration	0 Emergency opening 1 Master interlock 2 Slave interlock 3 Pharmacy opening 4 Repeat Start control 2 5 Semi-automatic 6 Stop movement 7 Single control for partial opening 8 Set partial opening on all inputs 9 Semi-automatic with automatic closing	0
17	Auxiliary output configuration	0 Not used 1 Interlock 2 Status Door open 3 Status Door closed 4 Failure 5 Ringer 6 Start 2 activated 7 Start 1 activated 8 Logic only output active 9 Electric lock activated	1
18	Multi Master address	0 No Multi Master management, 1–15 Unique address for Multi Master connections	0

19	Leaves weight selection	0 Automatic learning 1 <50kg per leaf 2 50kg-100kg per leaf 3 >100kg per leaf	0
20	Input polarity Start 1	0 NA 1NC	0
21	Input polarity Start 2	0 NA 1NC	0
22	Input polarity Safe Open	0 NA 1NC	1
23	Input polarity Safe Open 2	0 NA 1NC	1
24	Input polarity Safe Close 1	0 NA 1NC	1
25	Input polarity Safe Close 2	0 NA 1NC	1
26	Input polarity Aux In1	0 NA 1NC	0
27	Input polarity Aux In2	0 NA 1NC	0
28	Input polarity Key	0 NA 1NC	1
29	Output polarity Aux Out	0 NA 1NC	0
30	Output polarity Test Safe Close	0 NA 1NC	1
31	Output polarity Test Safe	0 NA 1NC	0
32	Key	0 Bistable 1 Monostable 2 Bistable - no movement on reactivation 3 Monostable - no movement on reactivation	0
33	Battery Management	0 Battery Not used 1 Battery Normal operation present 2 Battery Emergency operation present 3 Battery Safety operation with battery capacity control present - only for RD100	0
34	Not managed		
35	Safe Open (slow motion)	0 Not active 1 Active	0
36	Not managed		
37	Elastic management	0 Not present 1 Present	0
38	Reset speed	5cm/s ÷ 15cm/s adjustment step 5cm/s.	10
39	Emergency opening stop time	0 - 60 seconds adjustment step 1 second	5

40	Not managed		
41	Opening delay	0 - 99 adjustment step 0.1 second	0
42	Start = Safe close	0 Safe close does not activate opening with door closed 1 Safe close activates opening with door closed	0

DANGER: parameter 34 must be set to 0 as the default for the correct operation of the board. Otherwise it may cause damage to the control unit.

NOTE: With parameter 33 set to 0, the selector does not signal when the battery is low. If you want to have a low battery signal on the selector, select a value other than 0 according to the desired behavior in the absence of mains power. For RD100 versions the value is set at level 3 by the Main Key SM

NOTE: With AUX IN set to Semiautomatic mode, the opening control can be given via Start1 or Start2 while the closing control must be given via AUX IN (not usable on RD100)

NOTE: With AUX OUT set to Ringer mode, the AUX OUT output will be activated for about 2 seconds following the activation in succession of the Start1 and Safe Close 1 control. This function is disabled in the Stop Closed and 1 Radar logic.

NOTE: With Key set as monostable, use NO contact between terminal boards 22/23 and parameter 28 at level 1

PARAMETERS FACTORY SETTING

It is possible to restore all the values of the control unit to the factory settings by executing a default **Sd** set as described below:

1- press the - key on the display until **Sd** appears then press ENT: the display will show code --;
2- press again and hold the ENT (about 5 seconds) until the display turns off for a moment, then release the ENT key.
3- the display shows information on: type of firmware User controller, main key, firmware safety controller, sensor configuration and finally displays E1 flashing;
4- the control unit parameters have returned to the factory settings except for the LS setting which remains the one previously stored;
5- repeat the LP and/or LS procedures

CONTROL UNIT PASSWORD

You can enter a password that prevents modification of the Dualcore control unit settings.

To insert password proceed as follows:

1- press the - key on the display until the **Sp** (set password) code appears then press ENT: the display will show 0 flashing
2- press + the display will show 1 flashing
3- press and hold ENT (about 5 sec.) until the display shows 0 flashing
4- enter a 4-digit code **WARNING:** pay attention when choosing the code and save it separately - to enter the code press + or - to select the numbers from 0 to 9 and press ENT. E.g.: to enter the code 5392: select 5 and press ENT, select 3 and press ENT, select 9 and press ENT, select 2 and press ENT
5- the display shows – for about 2 seconds
6- the segments of the display rotate for a few seconds after which the control unit exits the password entry mode. The door works with the previously set parameters. Each time the + or - button is pressed, the display shows Ps. In order to change the parameters or carry out the LP/LS/Sd procedures, the board must be unlocked with the following procedure.

To unlock the board, proceed as follows.

1- press the – key and the display will show Ps flashing and after 2 seconds it will show 0 flashing
2- enter the password. E.g.: to enter the code 5392: select 5 and press ENT, select 3 and press ENT, select 9 and press ENT, select 2 and press ENT
3- the display shows – for about 2 seconds and then it will show 1
4- press – the display shows Sp
5- press ENT, the display shows 1 flashing
6- press - the display will show 0 flashing
7- press ENT
8- press ESC, the display segments rotate for a few seconds after which the control unit is unlocked. The door works with the previously set parameters

NOTE: it is possible to request an unlock password from Sesamo with the following procedure.

1- press "-" Ps flashes, after 2 seconds 0 flashes
2- press and hold ESC; after about 5 seconds the display shows a two-digit code, e.g. 00
3- Send the request for the unlock code to info@sesamo.eu indicating the two-digit code referred to in the previous paragraph together with the serial number of the S/N board shown on the label

DIAGNOSTICS

Memory data view

The Dualcore processor display allows you to view the values saved by the system during operation and programming, such as: firmware version loaded, number of maneuvers performed, etc.

To view the value desired, proceed as follows:

1- press the - keys on the display until the "In" code appears then press ENT: the display will show the code 0;
2- press the + keys to scroll through the codes (0, 1, 2, ...) to the one desired then press ENT: the table below explains the meanings of each of the codes;
3- the display will show the value of the parameter consulted for 20 seconds using a variable display type depending on the length of the value;
4- press ESC or wait to 20 seconds to return to the previous menu, at this point you can consult another parameter by following the same sequence or exit from the consultation by pressing ESC again;

Parameter	Description
0	firmware version of the user controller e.g. 2:00
1	firmware version of the safety controller e.g. 2.00
2	type of automated system C0, C1,… see table below
3	total weight of the moving mass: P0 (0-100kg); P1 (100-200kg); P2 (200-300kg)
4	total number of operations performed by the control unit.
5	sensor configuration installed: refer to the S code table in the description section of the LS procedure

Warning	Description
C0	LH100 automated system (**LI** indication on main key)
C1	LH140 automated system (**Pk** indication on main key)
C2	Master control unit RD100 automated system (**SM** indication on main key)
C3	Slave control unit RD100 automated system (**SS** indication on main key)

Note: each time the Dualcore control unit is powered or the reset button is pressed, the display shows the information 0/2/1/ and type of sensors used in order e.g. S3

DANGER: the total weight of the mass in movement refers to the weight of a single leaf for single leaf installations and the combined weight of the two leaves for double leaf installations

DANGER: check that the indications of the parameters stored in the processor comply with the actual characteristics of the system, with particular reference to the weight of the leaves saves, the type of automated system and the configuration of the sensors present. If necessary, correct the values before activating the system.

the Dualcore processor display gives information on the operating status of the system to make it easier to identify errors or malfunctions.
During normal operation the display shows the following information

Warning	Description
OP Steady	Door in a fixed open position
OP Flashing	Door in opening phase
CL Steady	Door in a fixed closed position
CL Flashing	Door in closing phase
St Steady	The door enters a stop state following the detection of an anti-crushing device, safety sensors enabled during opening or the Key contact activated

Note: with RD100 automated system, the opening operating mode is managed alternately by the Master control unit and the Slave control unit. Closing is always managed by the Master control unit.

Faulty operation, causes/solutions

Description	Warning on the display	Cause/solution
The door remains open	Op Steady	The logic selector is on the stop open-change logic position An opening control is inserted, e.g. start1/start2/photocell/emergency opening - check the respective inputs
The door does not open/start the acquisition of Lp parameters	St steady	Key contact inserted - check contact key
The door reverses during the closing phase	Op flashing	The movement of the door activates the opening control of the sensor or the safety of the sensor B/C - check and/or calibrate the sensor Friction activates the reversal of the movement - eliminate friction
During opening the door stops at about 15 centimeters from total opening and closes	Op flashing followed by Cl flashing	The A/D opening safety sensors are activated - check and/or calibrate the sensors

The door stops during the opening phase and then closes again	Op flashing followed by CI flashing	Friction activates the stop and the subsequent reversal of the movement - eliminate friction

Errors on inputs of active safety devices

Before each opening/closing maneuver, the processor checks the active safety devices (sensors) via the test circuit and if a fault is detected does not carry out the maneuver. In this case, the display will show an F code error (ref. table below) which refers to the pending test (awaiting completion) of one of the safety devices installed:

Warning	Description
F1 Flashing	Safe Close 1 supervision failed
F2 Flashing	Safe Close 2 supervision failed
F3 Flashing	Safe Open 1 supervision failed
F4 Flashing	Safe Open 2 supervision failed

The signal code indicates that the test on the safety device cannot be completed: this situation arises due to a fault with the sensor or if there is something activating the sensor (e.g. person or object in the field of action). Find the cause of the problem, first checking that the sensor's field of action is clear of persons or objects and that the wiring is intact and connected correctly.

Protection circuit errors

Warning	Description
F8 Flashing	Communication error with Safety Controller, active warning only when the door is stationary
F9 Flashing	Error in safety device output function test

Errors F8 and F9, if it not resolved automatically after a brief period, indicate a possible internal fault with the processor in the communication system between the two microprocessors or in the system installed for the emergency cut-off of the motor. If the problem persists, replace the processor.

Faulty states on start-up

The error message below indicates a fault detected when the system was started up:

Warning	Description	Solution
E1 Flashing	Failure to acquire door parameters	Perform LP procedure
E5 Flashing	Main key not inserted or not configured	Check the correct insertion of the main key or replace the main key with a functioning one.

E6 Flashing	Failure to acquire monitored sensors, continue with LS procedure	Perform LS procedure
E8-1 Flashing	Motor-Encoder connection error	Check encoder wiring - if the wiring is correct replace motor/encoder unit
E8-8 Flashing	Encoder diagnostic error	Replace motor/encoder unit

The following errors:
E3 / E4 / E7-2 / E7-3 / E7-4 / E7-5 / E7-6 /E7-7/ E7-8 / E7-9 / E7-A/ E7-b / E7-C / E7 -F / E8-2 / E8-3 / E8-4 / E8-5 / E8-6 / E8-7 / E8-9 /E8-A/ E8-b/E9

They are related to transient anomalies. If they persist, replace the board and send it to Sesamo with the indication of the error code reported.

Error messages for RD100

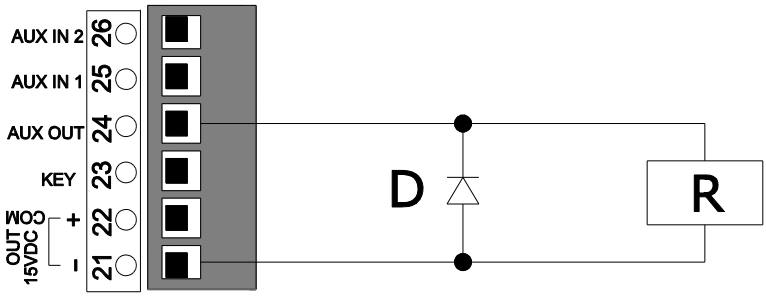
The error codes listed in the following table appear exclusively on the RD100 automated system:

Warning	**Description**
A1 Flashing	Communication error (between Master and Slave)
A2 Flashing	Slave board error (warning active only on Master)
A3 Flashing	Master board error (warning active only on Slave)
A4 Flashing	Battery management error
A5 Flashing	Mains power failure error
A6 Flashing	Master/Slave opening sensor signal synchronization error
A7 Flashing	Dead battery error

A1 check the wiring between MASTER and SLAVE and make sure that both boards work with the same firmware version.
A2 indicates that a problem has been found on the SLAVE board - make sure that all the connections are correct and that there is power.
A3 indicates that a problem has been found on the MASTER board - make sure that all the connections are correct and that there is power.
A4 check the battery charge, make sure that the battery charger board is installed inside the Master control unit, check the connections, check the fuse Fig. 21.
A5 check for mains power supply
A6 check the connection to the MASTER and to the SLAVE of the opening sensor B fig. 4
A7 emergency batteries low, replace the batteries.

RELAY BOARD CONNECTION (OPTIONAL)

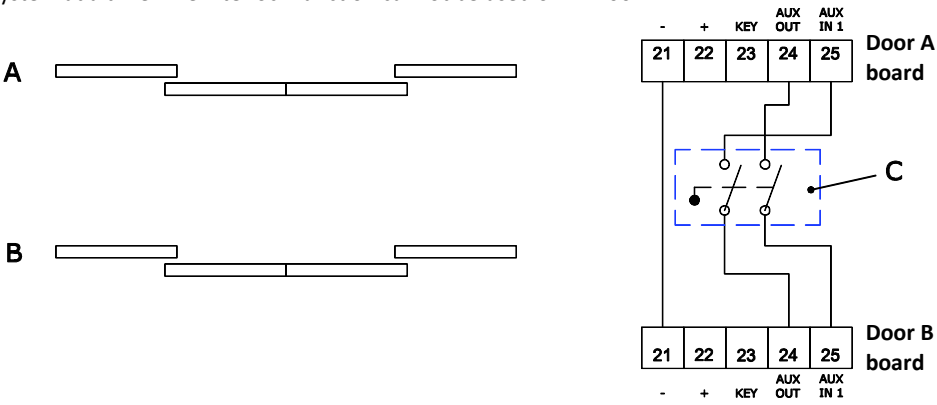
Install the optional relay board to use the auxiliary output for obtaining a signal according to parameter settings no.17 - connect as follows:



R = Relay 12V DC - 100mA MAX **D** = Protection diode
Note: relay board art.PF11.52 is available on request

INTERLOCK CONNECTION

In order to obtain the interlock function, connect two automated system to each other as shown in the figure below. The interlock function allows the movement of only one automated system at a time. The interlock function cannot be used on RD100.



A = MASTER parameter settings 15=1, 17=1
B = SLAVE parameter settings 15=2, 17=1
C = BIPOLAR SWITCH (not supplied/recommended):

- ON = interlock enabled
- OFF = interlock disabled

DELIVERY

After installation and in any case after a reset procedure, the automated system is ready to operate in dual sensor logic (input/output) if there are no selectors installed or in the logic selected by the selector if this has been installed.

Close the cover of the automated system following the reverse procedure used to remove it.
Make sure that the two fixing screws of the cover are well tightened.
Before finishing the installation of the automated system, remember to apply the stickers with the signs provided on the sliding doors.
Give the customer the technical documentation of the product, in particular the use and maintenance manuals.

USER MANUAL

Recipient and use of the manual

These instructions are intended for the operator or the user of a SESAMO DUALCORE SERIES automatic door system. So that you get the most out of your automated system, Sesamo recommends you read and follow the installation and usage instructions in this manual carefully. This device has been designed for the automation of sliding pedestrian doors. Any other use is considered contrary to the use intended by the manufacturer, who will therefore accept no liability for the consequences. Do not tamper with or alter the internal equipment of the automated system or the safety devices present in the control CPU. The manufacturer denies any responsibility of internal parts on the automated system are tampered with or altered or if safety devices different to those indicated by the manufacturer are used.

Description of the DUALCORE SERIES automated system operation

By feeding the automated system with 230V mains voltage, it performs a low-speed maneuver in closing phase; if the door is already closed it remains in this position, and after a few seconds it is ready to operate.
The basic or advanced selector will remain positioned in the logic preceding the lack of mains.

At this point the automated system is ready to operate in ways that depend on the type of peripheral devices and accessories installed and on the logic selected by means of the selector; it will perform automatic opening and closing of the window so as to allow the passage of people in complete safety and continuously.

The opening of the leaves can be controlled by detection sensors, by the advanced or basic selector and by buttons for manual control; the opening maneuver can be followed by a stop or by automatic re-closing according to the chosen logic (see selector logic description).

The stop of the doors in the open position allows the passage of people according to the customer's needs; the stop time can be adjusted during installation.

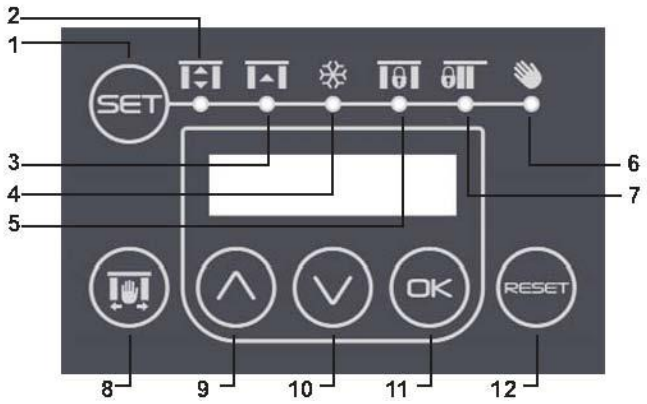
The closing of the leaves takes place automatically at the end of the stop time, with a lower speed than the opening.

During installation it is possible to select a particular type of operation called "semi-automatic"; in this condition the closing of the leaves does not take place automatically but must be controlled manually by means of a suitable button.

The safety of the automated system is entrusted to the active safety sensors that detect the presence of obstacles in the sliding area and possibly prevent the doors from closing again.

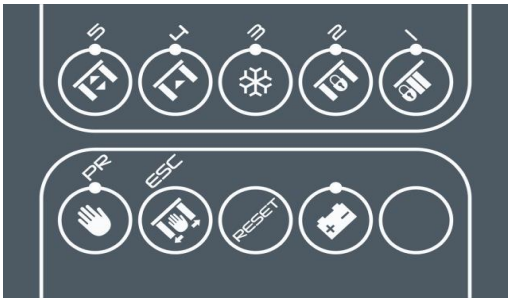
As an additional safety, the automated system is equipped with a sophisticated microprocessor device which limits the thrust force of the leaves in case of danger, so as not to represent a source of hazard for people in transit.
For safety reasons even in the absence of a mains power supply and battery, the automated system is designed so that it is always possible to manually move the leaves after unlocking the door locking device with the appropriate key if installed.

Installation with advanced selector for LH100/LH140 versions



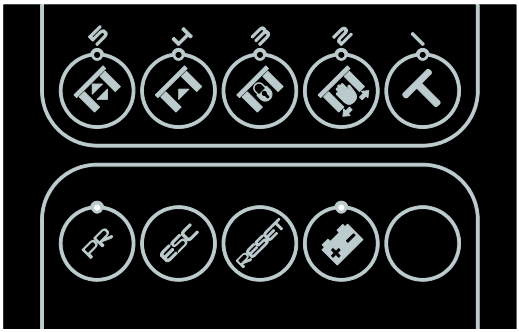
1 Logic selector: in order to select the logics described below, press the SET key several times until the LED flashes on the desired function. After a few seconds, the LED will remain on steady confirming the acquisition.
2 Entry and Exit: the door operates in entry and exit mode. If installed, the electric lock does not block the doors.
3 Exit Only: the door operates only in exit mode. If installed, the electric lock locks the doors every time they arrive in the closed position.
4 Reduced opening: the door operates in reduced opening mode. The factory setting corresponds to 50% of the passageway, a value that can be changed during installation or later. Function 4 can be combined with functions 2/3/5
5 Stop open: the doors remain permanently open
6 Manual Opening: the door works only by using button 8
7 Stop closed: the doors remain permanently open. If installed, the electric lock blocks the doors.
8 Opening button: controls the opening of the doors
9/10/11 Functions menu for schedule setting or for adjustments. See dedicated manual
12 Reset: press for a few seconds in case of door failure. If the door does not work properly, request technical assistance.

Installation with basic selector for LH100/LH140 versions



Logic selection: to select the logics described below, press the desired logic button. The LED will remain on and steady confirming the acquisition.
1 Stop closed: the doors remain permanently open. If installed, the electric lock blocks the doors.
2 Stop open: the doors remain permanently open
3 Reduced opening: the door operates in reduced opening mode. The factory setting corresponds to 50% of the passageway, a value that can be changed during installation or later. Function 3 can be combined with functions 2/4/5
4 Only Exit: the door operates only in exit mode. If installed, the electric lock locks the doors every time they arrive in the closed position.
5 Entry and Exit: the door operates in entry and exit mode. If installed, the electric lock does not block the doors.
PR Opening button: controls the opening of the door - in the second function it can be used by technical personnel for parameter adjustments.
ESC Manual opening: the door works only by using the PR button - in the second function it can be used by technical personnel for parameter adjustments**.**
Reset: press for a few seconds in case of door failure. If the door does not work properly, request technical assistance.
Battery Signal Led: if on and steady, it indicates the absence of mains power and the consequent battery operation of the automated system. If on and flashing, it indicates that the battery charge level is insufficient. In this case, if the LED does not go off after a few hours, the batteries must be replaced; request technical assistance.

Installation with selector for RD100 versions



Logic selection: to select the logics described below, press the desired logic button. The LED will remain on steady confirming the acquisition.
1 T: Test button for checking the operation of the automated system safety devices
2 Opening button: controls the opening of the doors
3 Stop open: the doors remain permanently open
4 Exit Only: the doors operate only in exit mode. If installed, the electric lock does not block the doors. The motors hinder the manual opening of the doors.
5 Entry and Exit: the doors operate in entry and exit mode. If installed, the electric lock does not block the doors.
Key: the key performs the night lock function. By turning the key to perform the night lock, the doors are set to closing mode and the electric lock, if present, locks the doors. In the absence of the electric lock, the motors hinder the manual opening of the doors. The selector indicates the night lock position by flashing the LED of the last selected logic. By bringing the key to the daytime position, the doors will perform two opening/closing cycles to check the operation of the automatic safety systems, after which the door is ready to operate according to the previously set logic. If the door does not work properly, request technical assistance.
PR Used by technical personnel for parameter adjustments
ESC Used by technical personnel for parameter adjustments
Reset: press for a few seconds in case of door failure. If the door does not work properly, request technical assistance.
Battery Signal Led: if on and steady, it indicates the absence of mains power and the consequent battery operation of the automated system. If on and flashing, it indicates that the battery charge level is insufficient. In this case, if the LED does not go off after a few hours, the batteries must be replaced; request technical assistance.

Manual release

For safety reasons, the electric door lock device is equipped with a manual release control. It is supplied and installed as follows:
Lever release: the release is obtained by acting on the special lever handle installed near the system or on one of the automated system heads; by acting on the release handle it allows the manual movement of the leaves. By resetting the handle to its initial position, the doors will be locked by the electric lock.

The release mechanism must be checked periodically to prevent loosening, dirt, wear, corrosion or other unexpected causes that could hinder its correct operation.

Electronic key/key selector

Using this accessory together with the electric lock device, it is possible to close the leaves from outside the room, regardless of the logic selected on the basic or advanced selector. Any lack of mains following this closure will not cause the opening of the doors
Each time the electronic key is inserted, the automated system switches from normal operating condition to locking condition in closing mode and vice versa. During the transition from locked to normal operation, the leaves perform a complete opening and closing maneuver in order to allow a person to enter.

Operation in the absence of mains with batteries installed

Panic mode: when there is no mains voltage, the leaves go into stop open. The doors can be closed using the closed stop function on the selector or using the RD100 selector key.

Continuous operation mode: in the absence of mains, the automated system continues to operate with the logic reset until the batteries are low.

The choice of the type of operation is carried out during installation by a qualified technician. For the RD100 version, where the batteries are always present as an integral part of the security system, the only possible mode is panic mode.

Cleaning and maintenance

Object	Mode
Painted surfaces	Clean with soap and water
Anodized surfaces	Clean with water and non-alkaline soap (pH 5.5/7)
Selectors	Clean with a damp cloth

Maintenance: the maintenance interval on the DUALCORE SERIES automated system is determined on the basis of the use intensity of the automation and the conditions of use.

In high-traffic systems (entrances to airports, supermarkets, shopping centers, refreshment rooms in motorway parking areas, etc.) or operating in particularly severe conditions (exposure to corrosive agents, proximity to the sea, very windy areas, leaves subject to frequent impacts with moving objects such as supermarket trolleys, etc.) it is recommended to carry out **half-yearly** scheduled maintenance by a specialized technician.
In low traffic systems (small businesses, private offices, homes, operating rooms, etc.), scheduled maintenance should be carried out **yearly** by a specialized technician.

Maintenance manual

The following checks and procedures should be carefully performed during a scheduled maintenance intervention carried out by an authorized technician:

- ❑ Disconnect the mains power supply using the bipolar switch upstream of the automated system.
- ❑ Open the automated system by removing the cover.
- ❑ Disconnect the batteries
- ❑ Check the tightness of the screws of the carriages and of the components installed inside the box.
- ❑ Check the wiring connections between the accessories, the sensors and the electronic control unit.
- ❑ Clean the slide rail with a cloth (No detergent products) and check its integrity.
- ❑ Check the smoothness of the window, its general conditions (evaluate any out of square caused by impacts) and above all that a minimum space of 5 mm remains between the floor and the leaf in order to guarantee correct sliding even in case of strong thermal expansion of the window.
- ❑ Clean the carriage wheels and check their wear; replace if necessary.
- ❑ If necessary, grease the slide rail with a thin layer of bearing grease.
- ❑ Check the wear state of the belt and grease if necessary.
- ❑ Reconnect the automated system to the mains power supply and to the batteries.
- ❑ Check the wear and proper functionality of the floor guide and if necessary grease or replace.

- Check the wear of the limit switches, and replace and adjust them if necessary.
- Check the correct operation of the electric lock, manual release and manual reset. If necessary, lubricate the release cable.
- Check the safety sensors (functionality and adjustment).
- Check the detection sensors (functionality and adjustment).
- Check the movement of the leaves during the braking and approach phases.
- Check the correct selection of the operating logics.
- Check the efficiency of the batteries by making the system operate temporarily in the absence of mains power.
- Test the correct operation of the panic closing down if installed.

PARTS REPLACEMENT

For the RD100 version it is necessary to proceed with the preventive replacement of the following components according to the number of opening/closing cycles detectable (from the master board). Consider that the Slave motor performs an opening every two cycles.

- Master Motor 1.000.000 cycles
- Slave Motor 1.000.000 cycles
- Belt replacement 1.000.000 cycles
- Carriage wheels 1.000.000 cycles

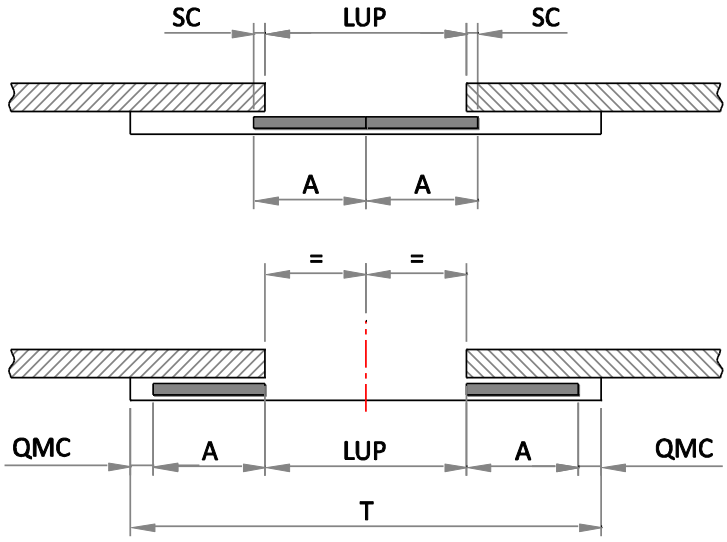


Fig. A

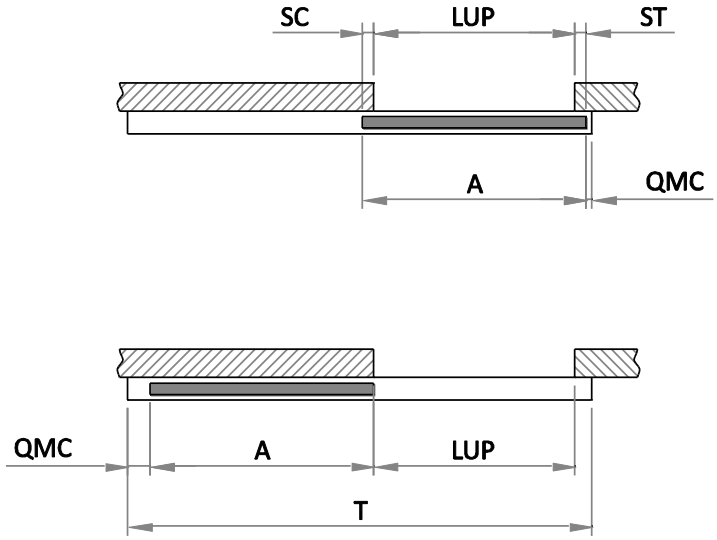


Fig. B

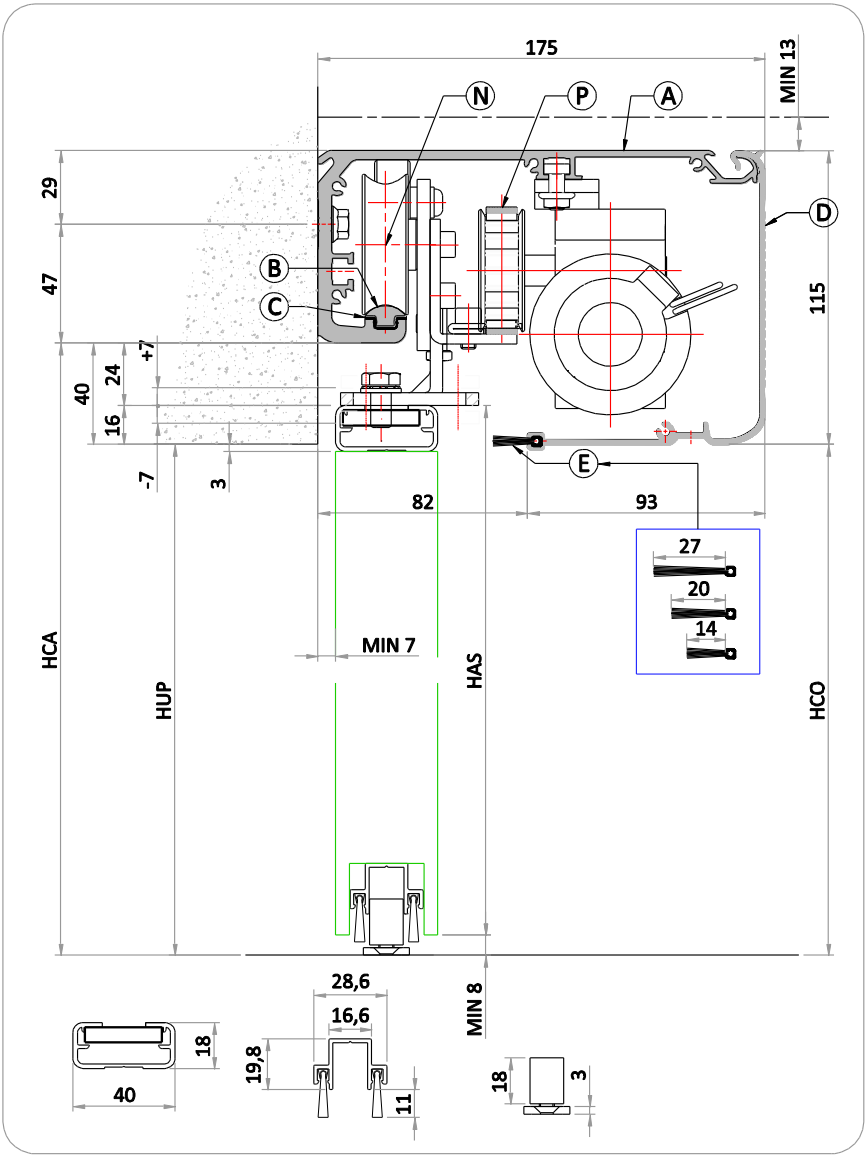

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Fig.1

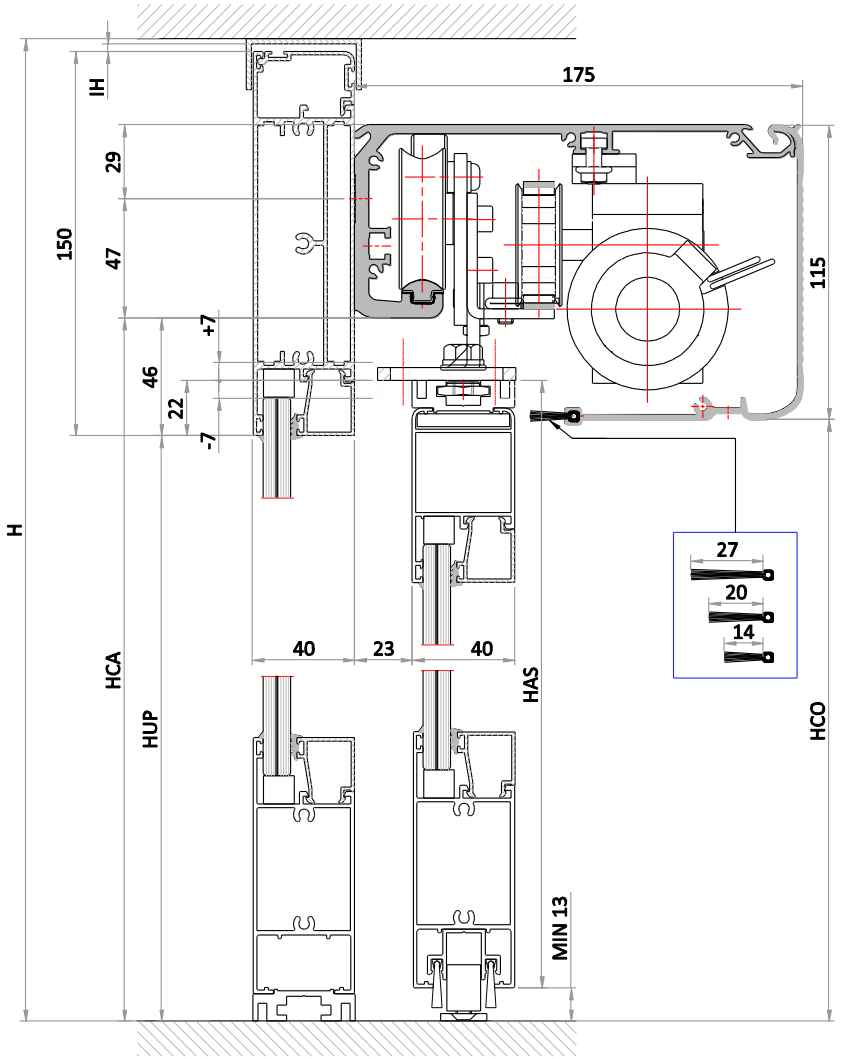
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Fig.2

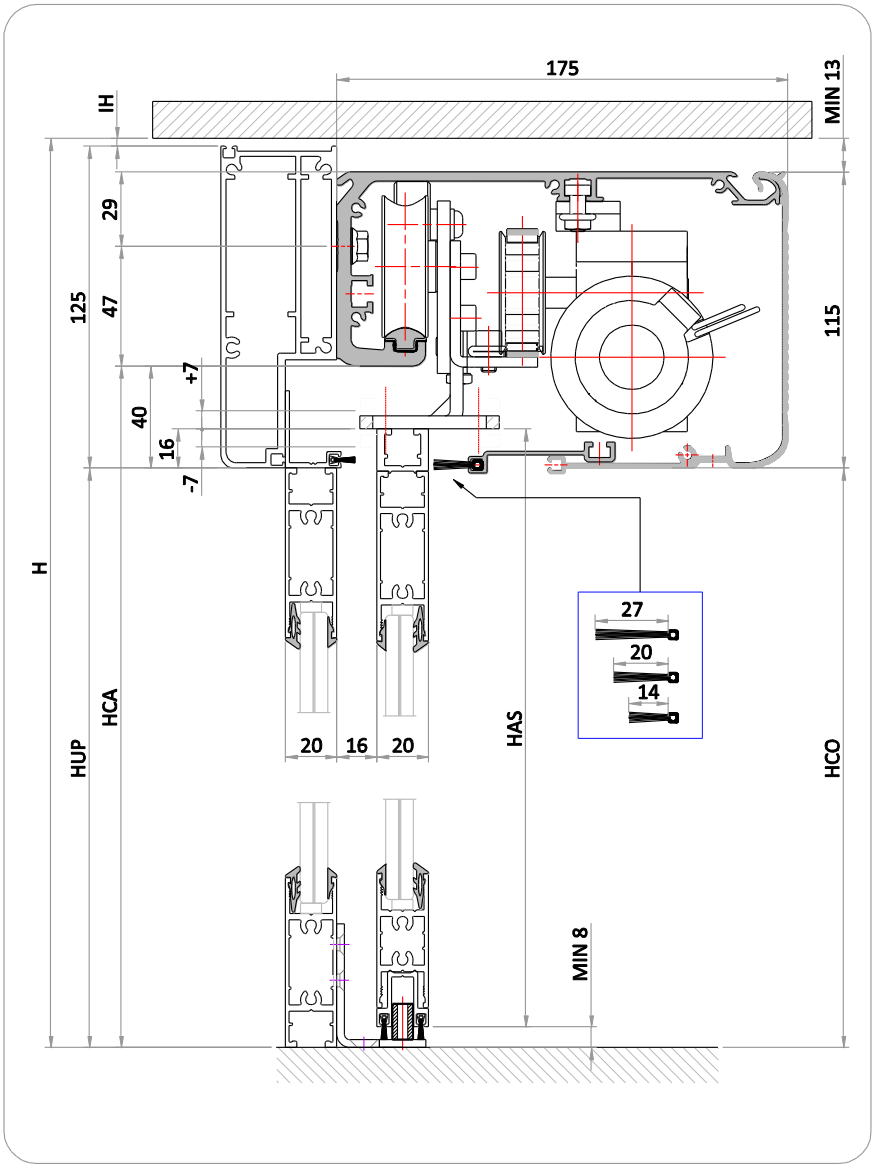
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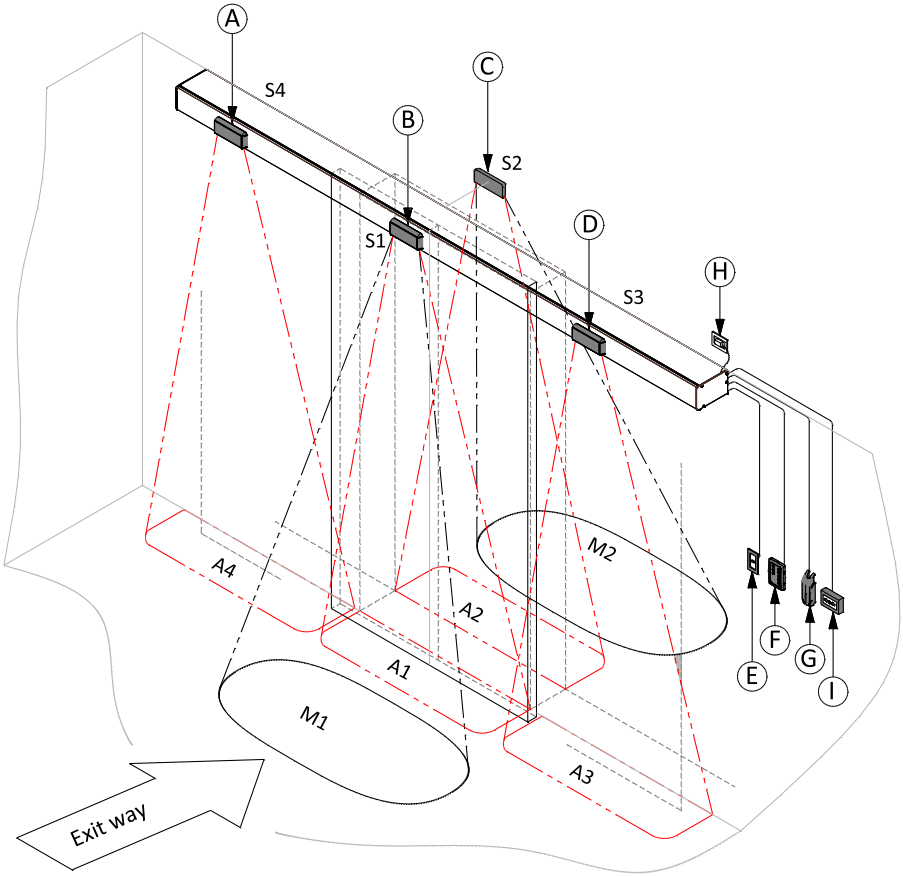
Fig.3



WARNING!! Exit way ONLY for RD100

Fig. 4

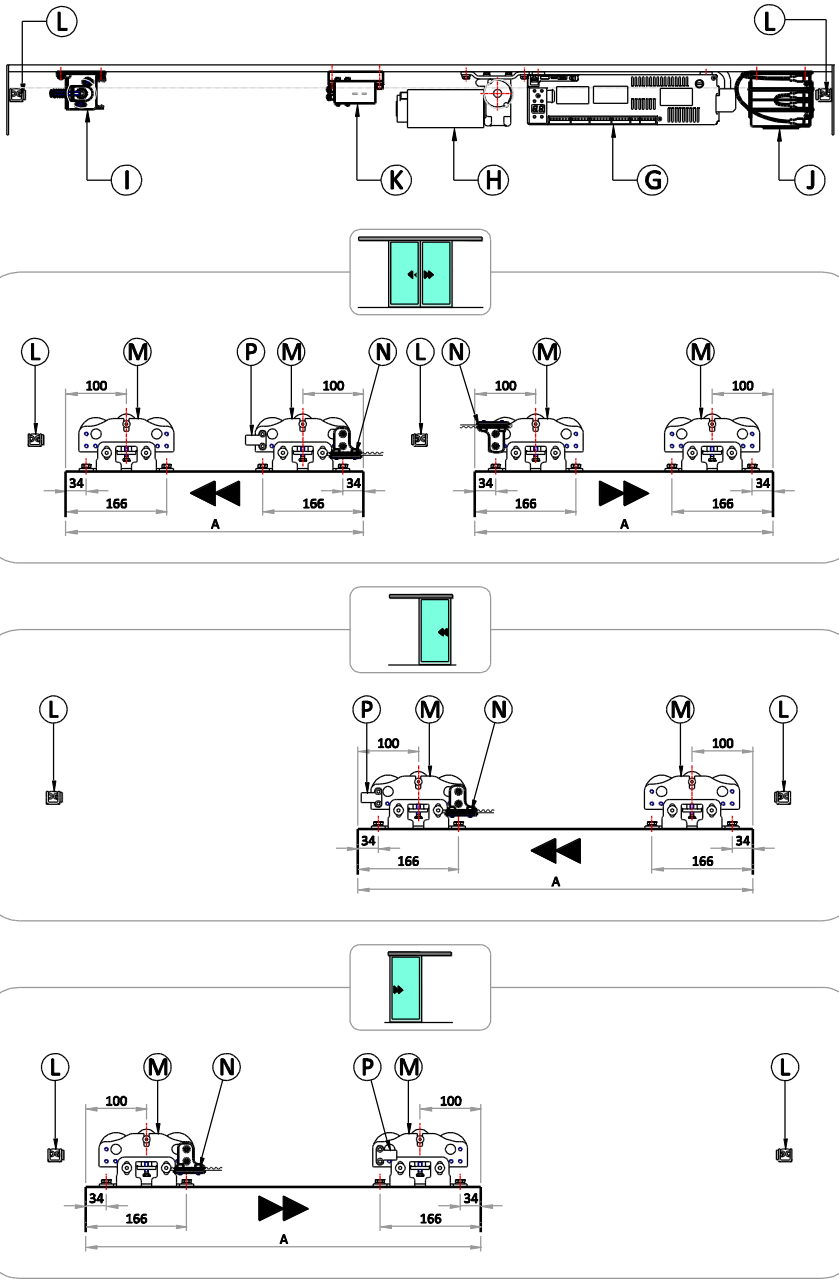

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Fig.5

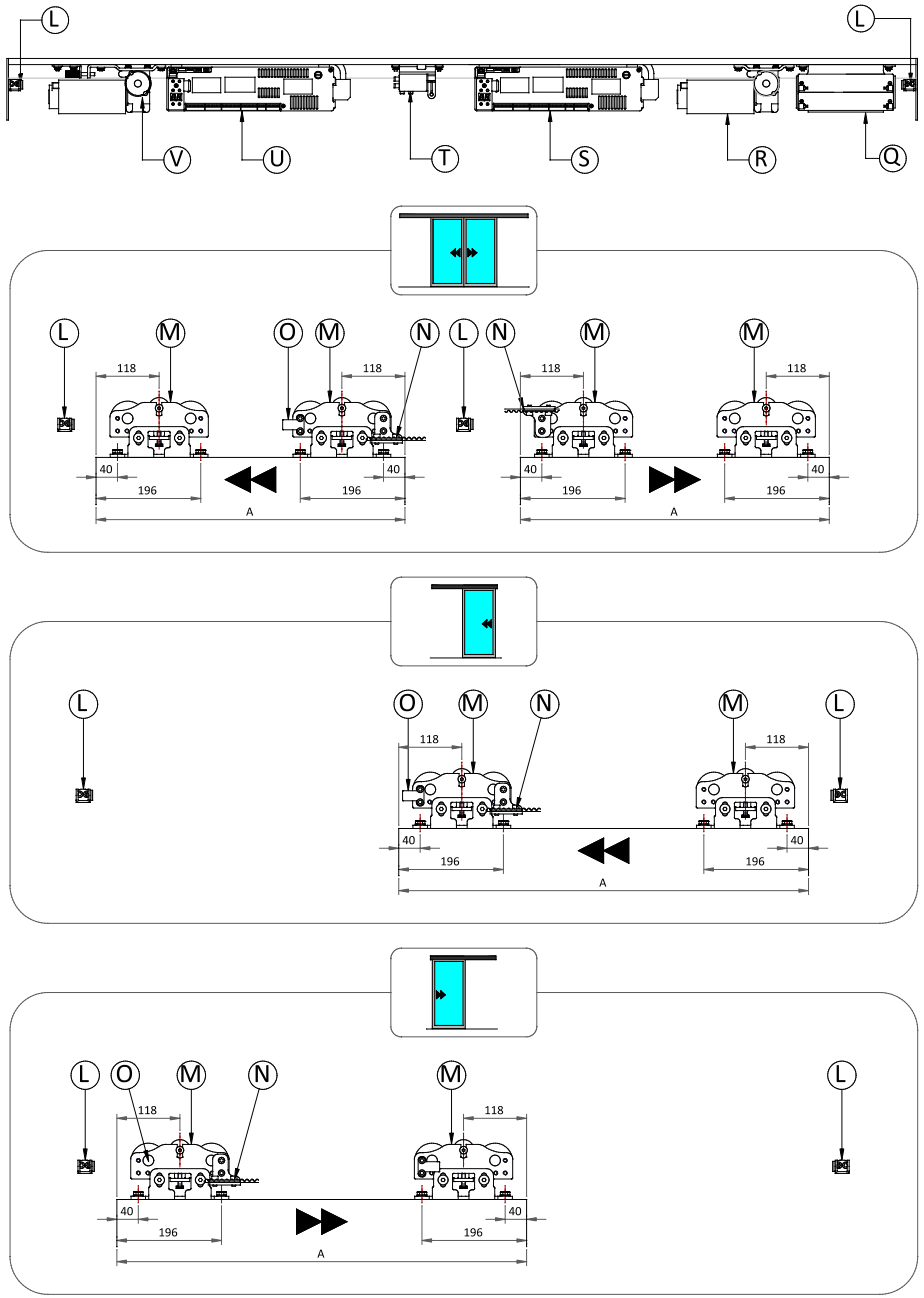
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Fig.5/A

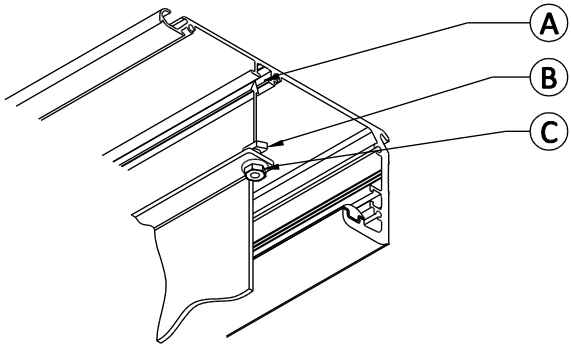


Fig. 6

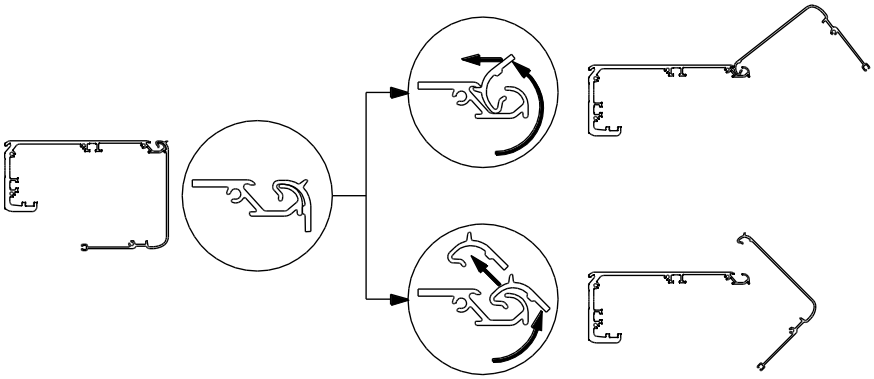


Fig. 7

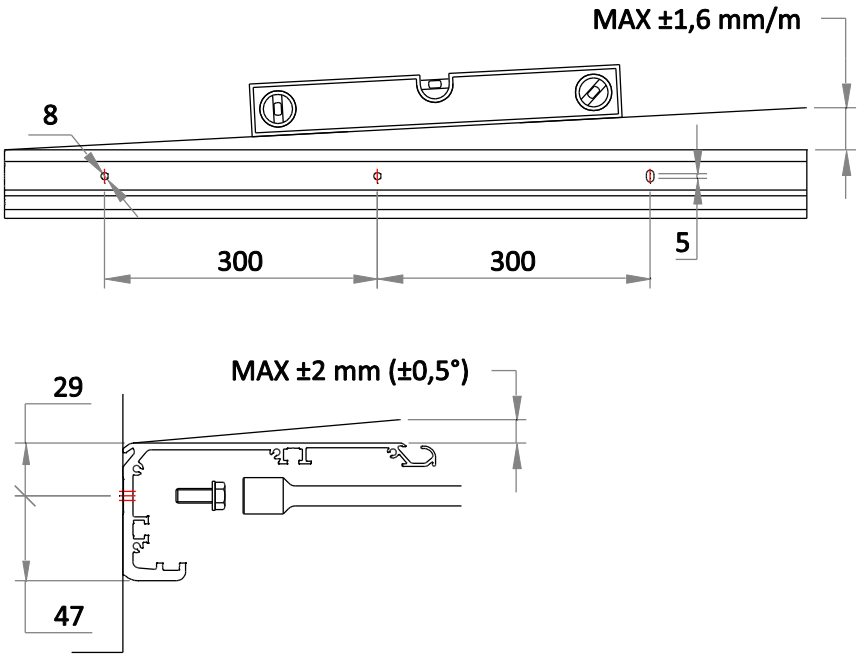


Fig. 8

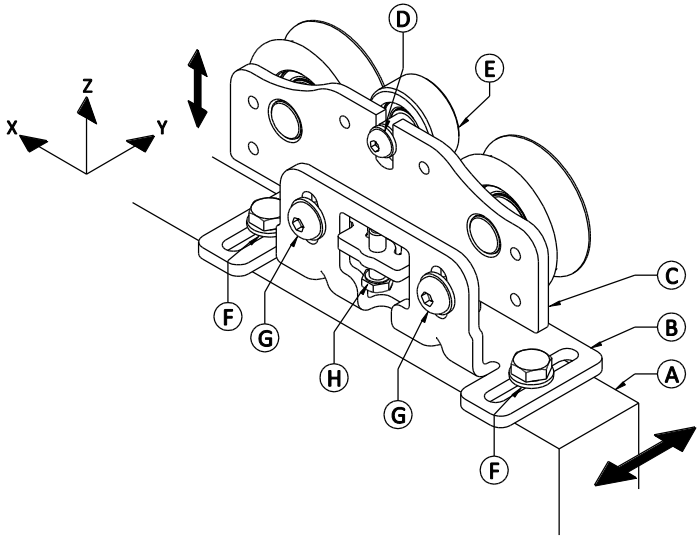


Fig. 9

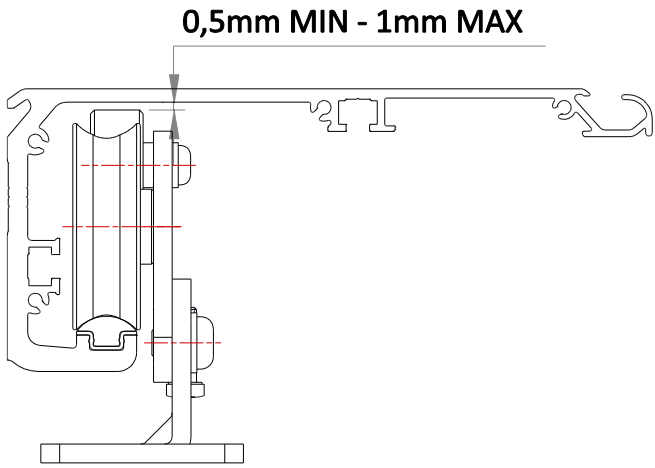


Fig. 9a

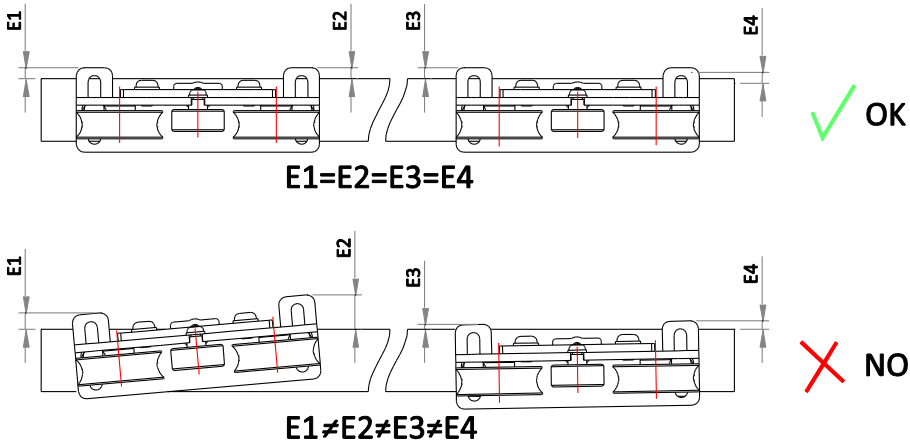


Fig. 10

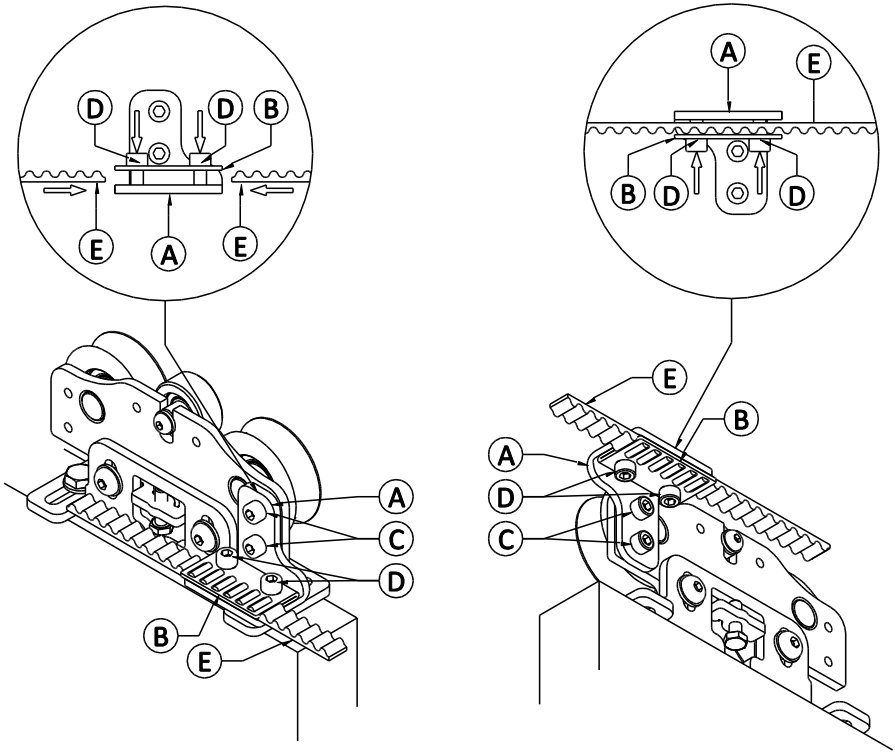


Fig. 11

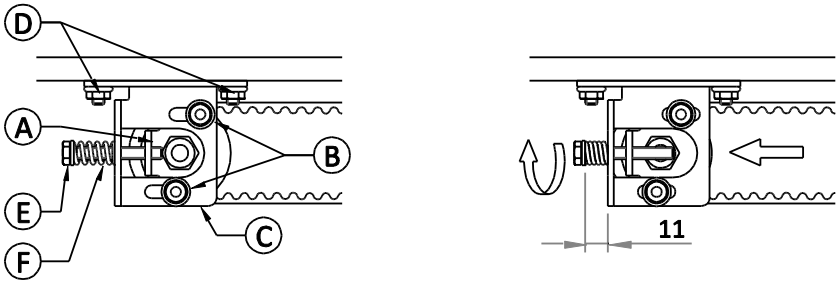


Fig. 12

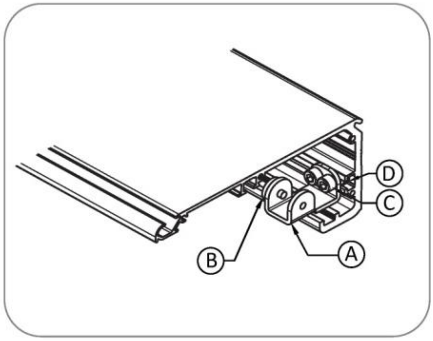


Fig. 13

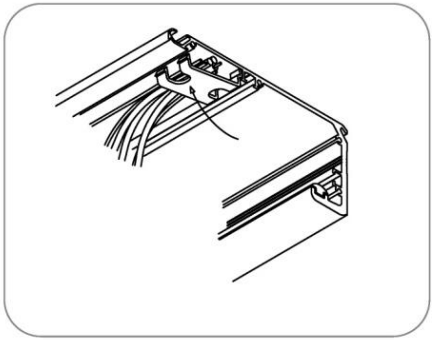


Fig. 14

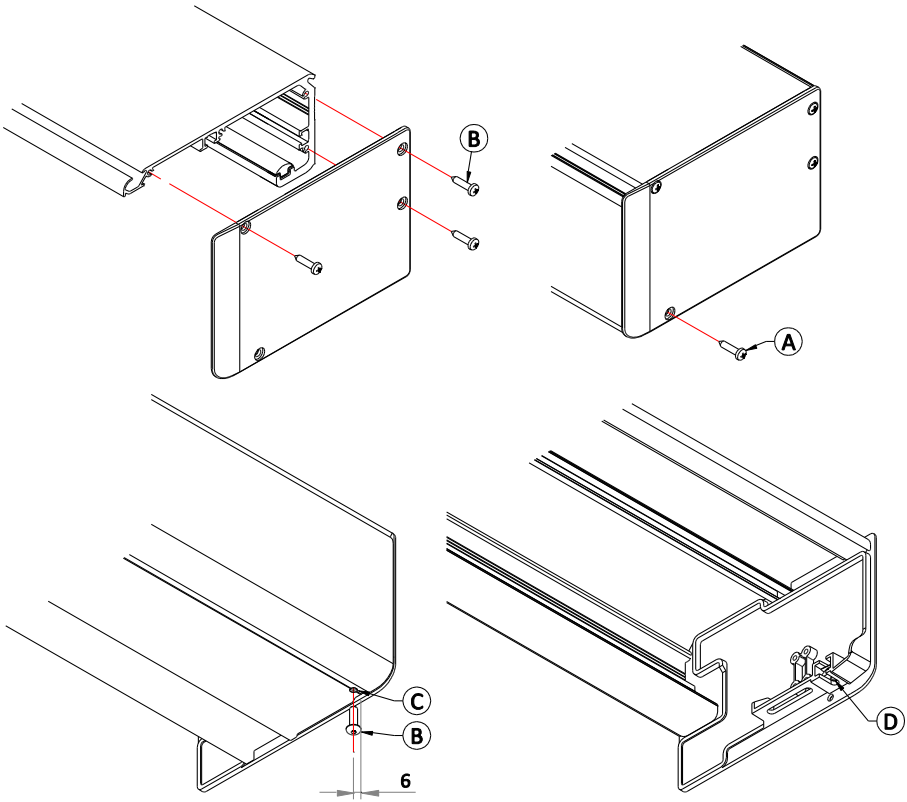


Fig. 15

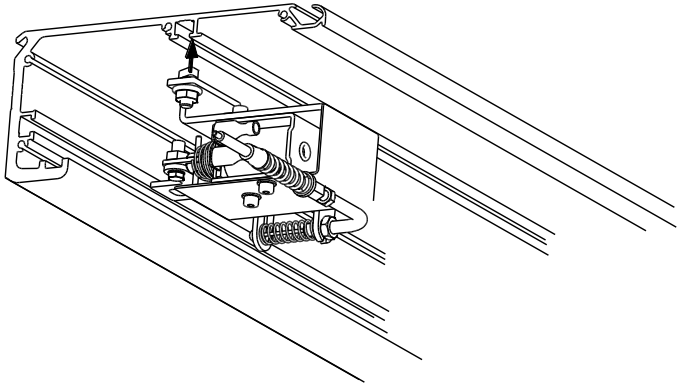


Fig. 16

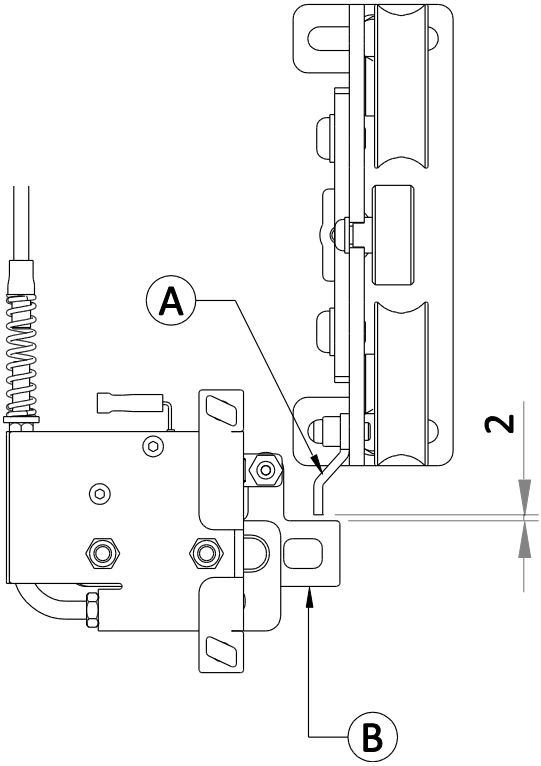


Fig. 16a

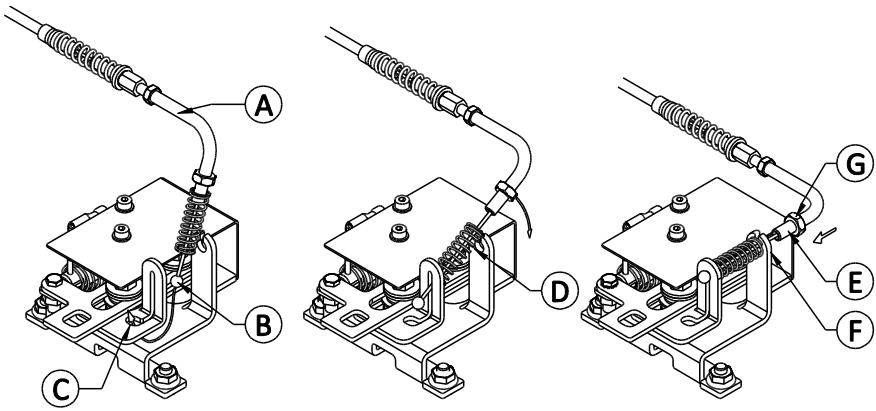


Fig. 17

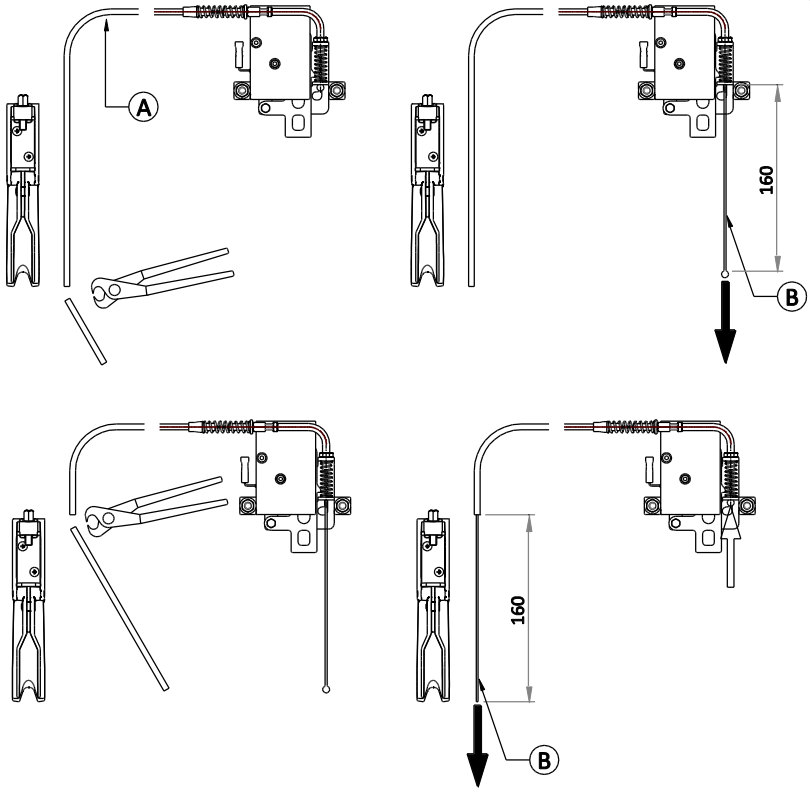


Fig. 17a

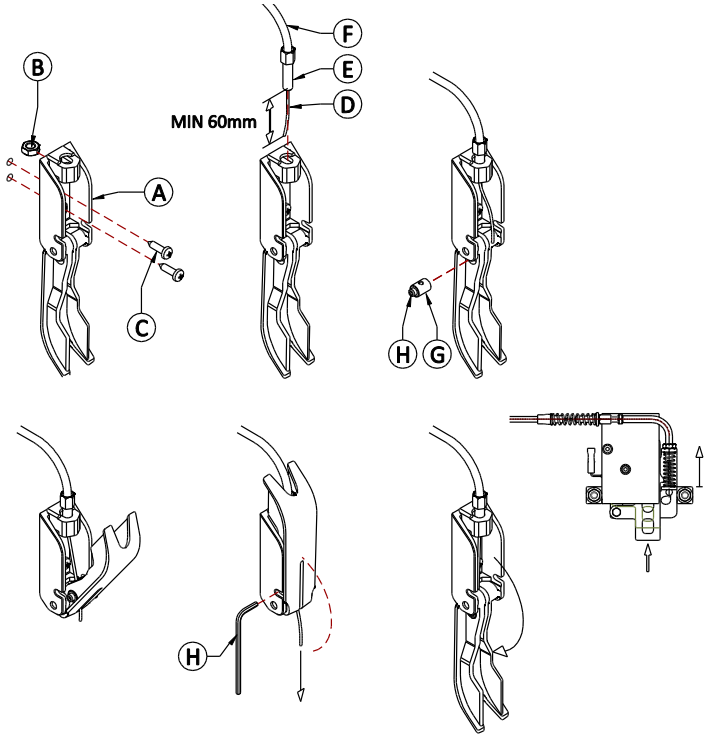


Fig. 18

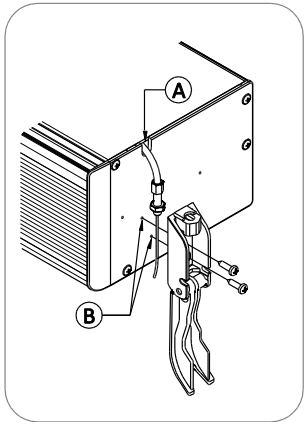


Fig. 19

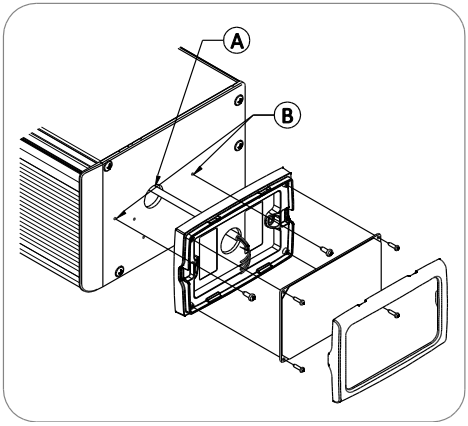


Fig. 20

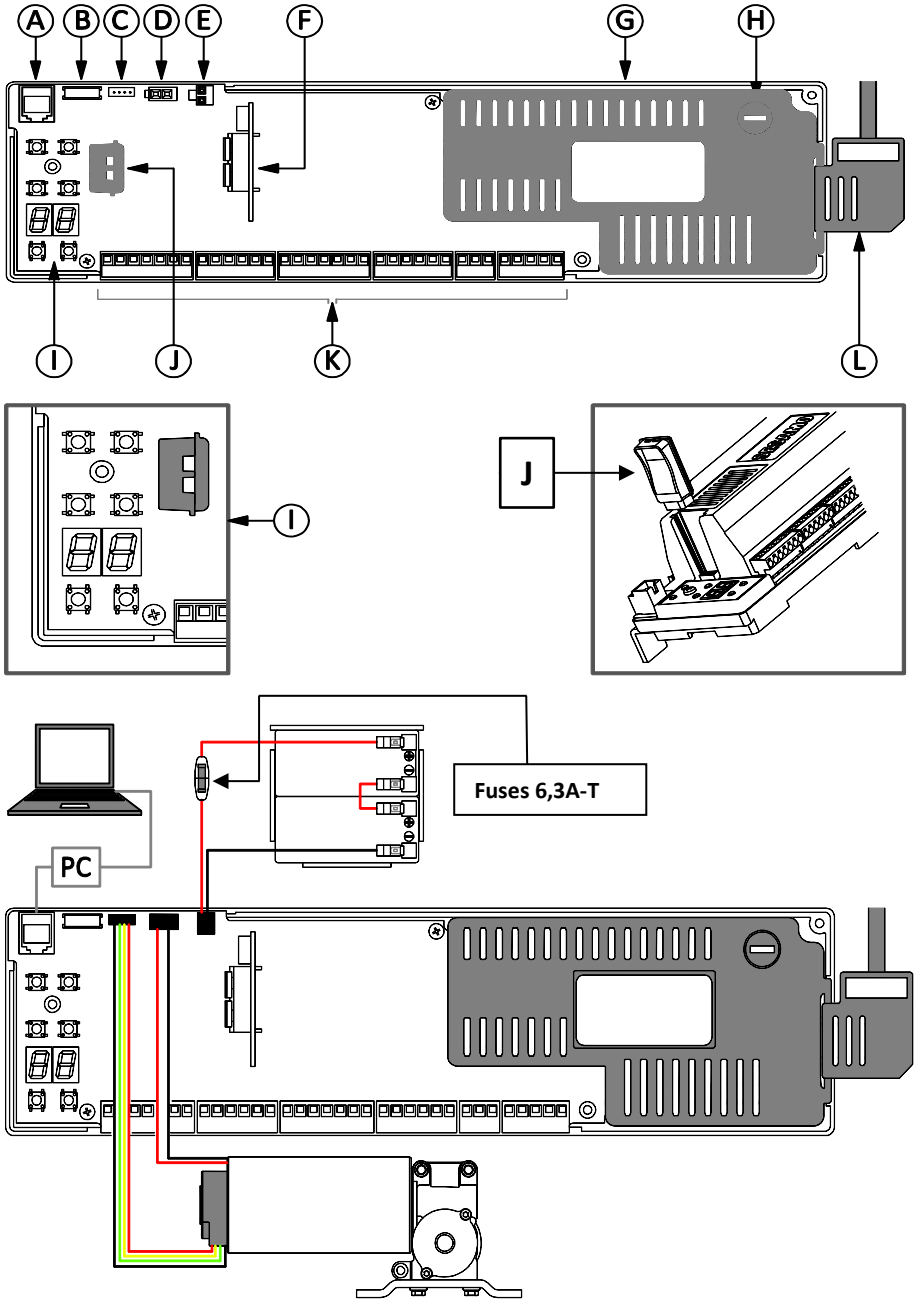


Fig.21

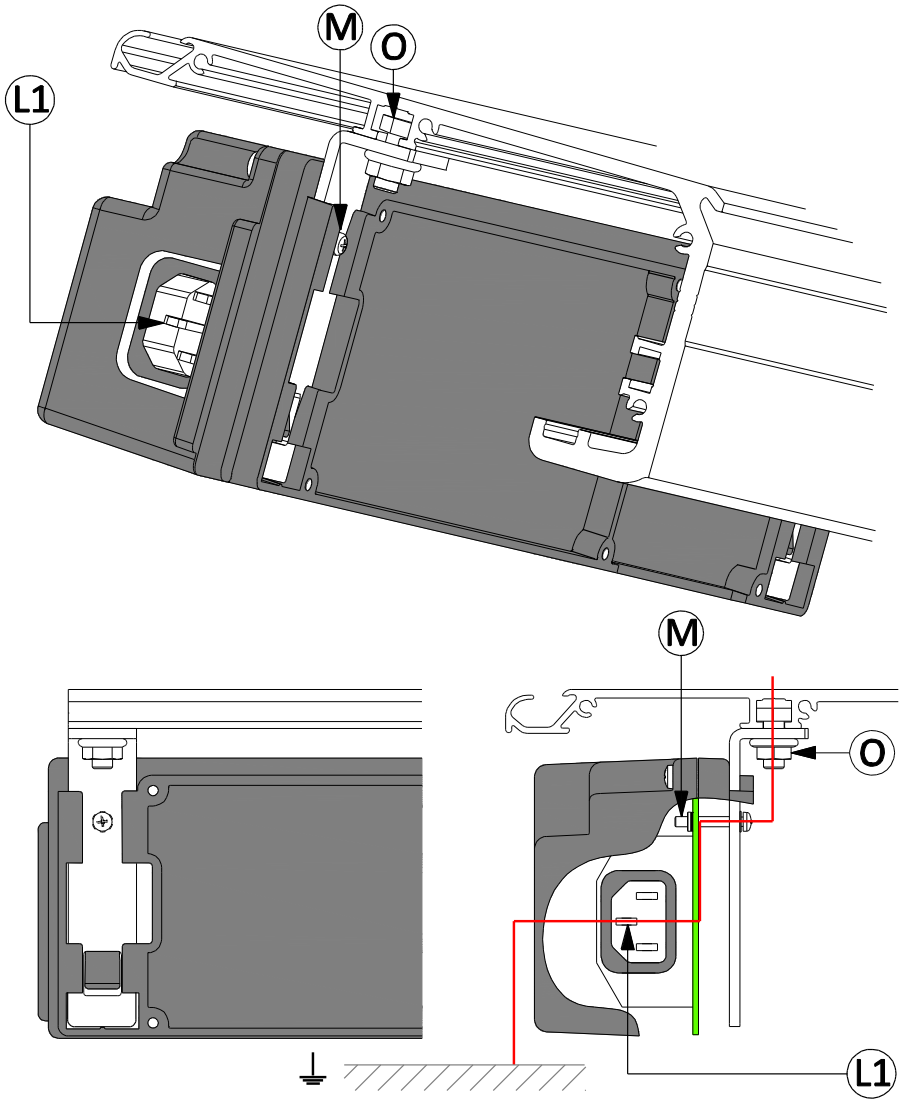
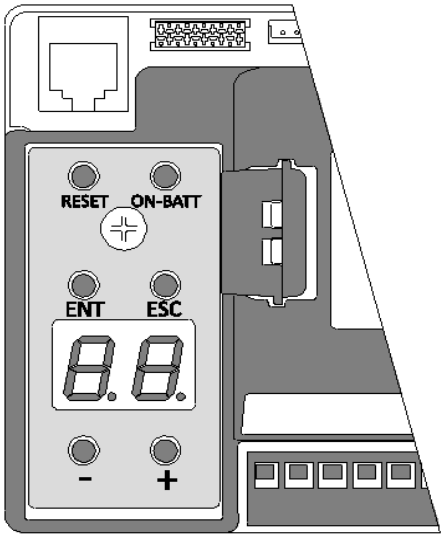


Fig.22

Fig. 23.1



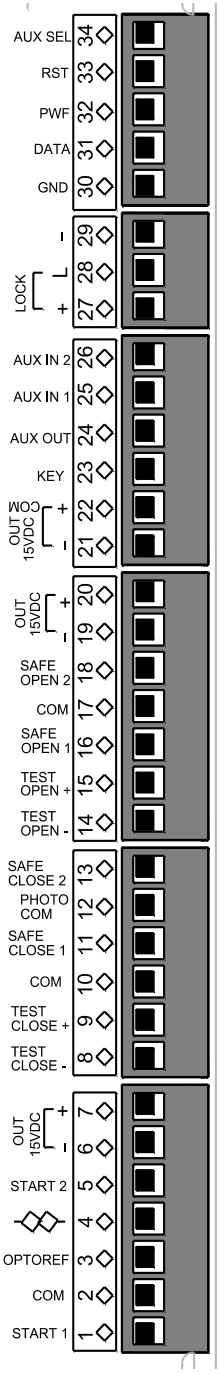


Fig. 23.2

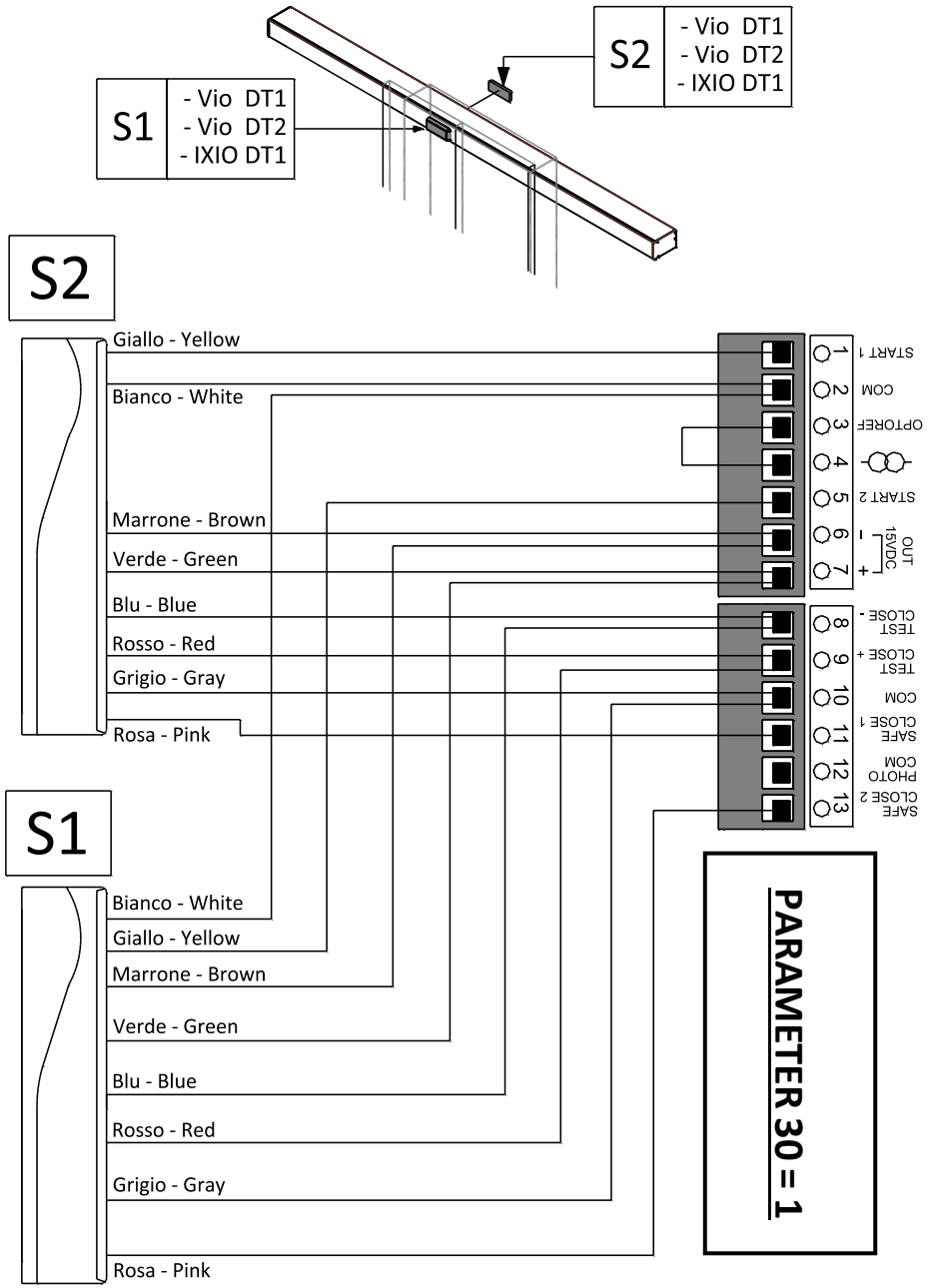

S2
- Vio DT1
- Vio DT2
- IXIO DT1
S1
- Vio DT1
- Vio DT2
- IXIO DT1
S2
Giallo - Yellow
Bianco - White
Marrone - Brown
Verde - Green
Blu - Blue
Rosso - Red
Grigio - Gray
Rosa - Pink
1 START 1
2 COM
3 OPTOREF
4
5 START 2
6 OUT 15VDC -
7 +
8 TEST CLOSE -
9 TEST CLOSE +
10 COM
11 SAFE CLOSE 1
12 PHOTO COM
13 SAFE CLOSE 2
S1
Bianco - White
Giallo - Yellow
Marrone - Brown
Verde - Green
Blu - Blue
Rosso - Red
Grigio - Gray
Rosa - Pink
PARAMETER 30 = 1

Fig.24

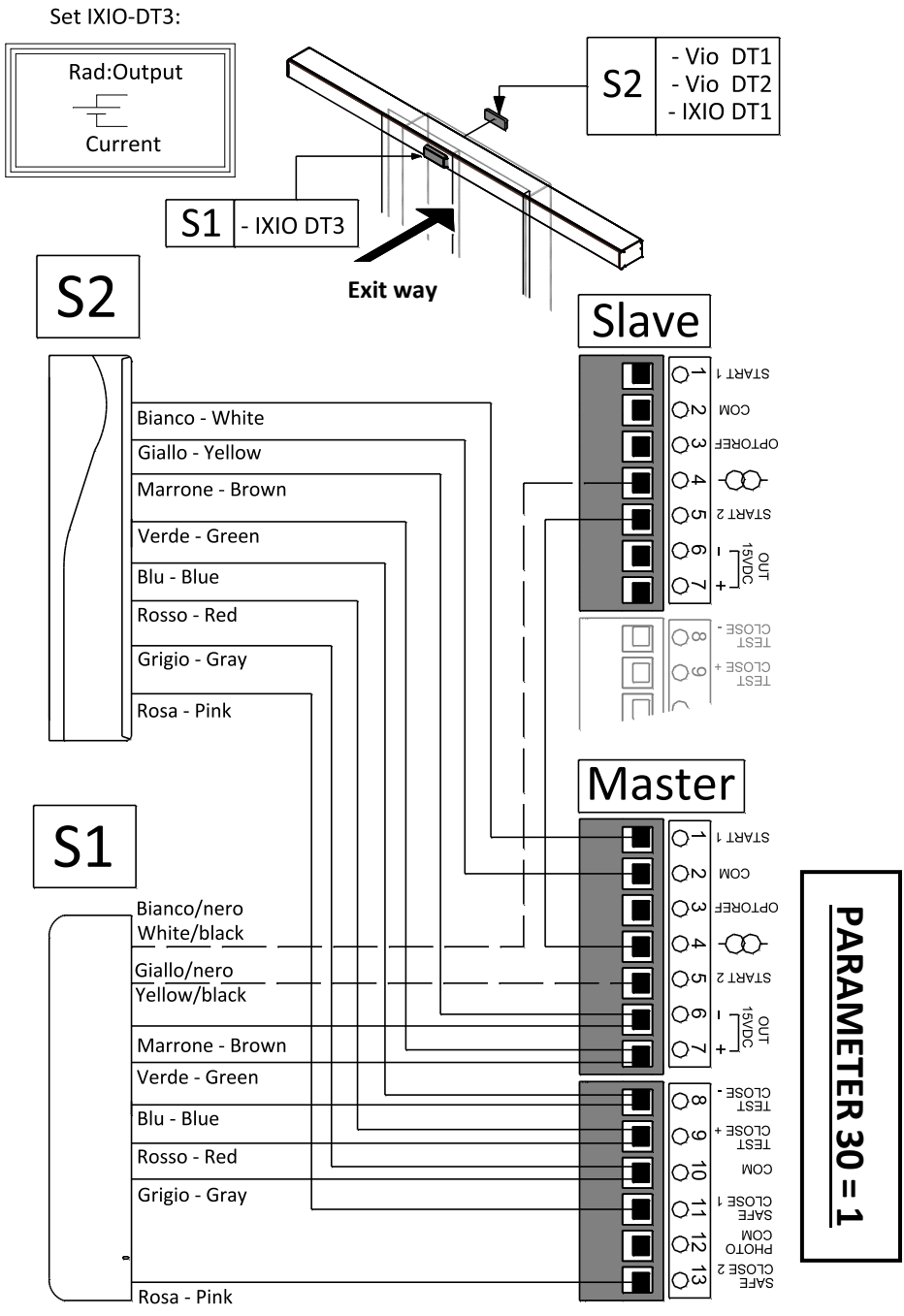

Set IXIO-DT3:
Rad:Output
Current
S2
- Vio DT1
- Vio DT2
- IXIO DT1
S1
- IXIO DT3
Exit way
S2
Slave
Bianco - White
Giallo - Yellow
Marrone - Brown
Verde - Green
Blu - Blue
Rosso - Red
Grigio - Gray
Rosa - Pink
START 1
COM
OPTOREF
START 2
OUT 15VDC
TEST CLOSE -
TEST CLOSE +
Master
S1
Bianco/nero
White/black
Giallo/nero
Yellow/black
Marrone - Brown
Verde - Green
Blu - Blue
Rosso - Red
Grigio - Gray
Rosa - Pink
COM
SAFE CLOSE 1
PHOTO COM
SAFE CLOSE 2
PARAMETER 30 = 1

Fig.25

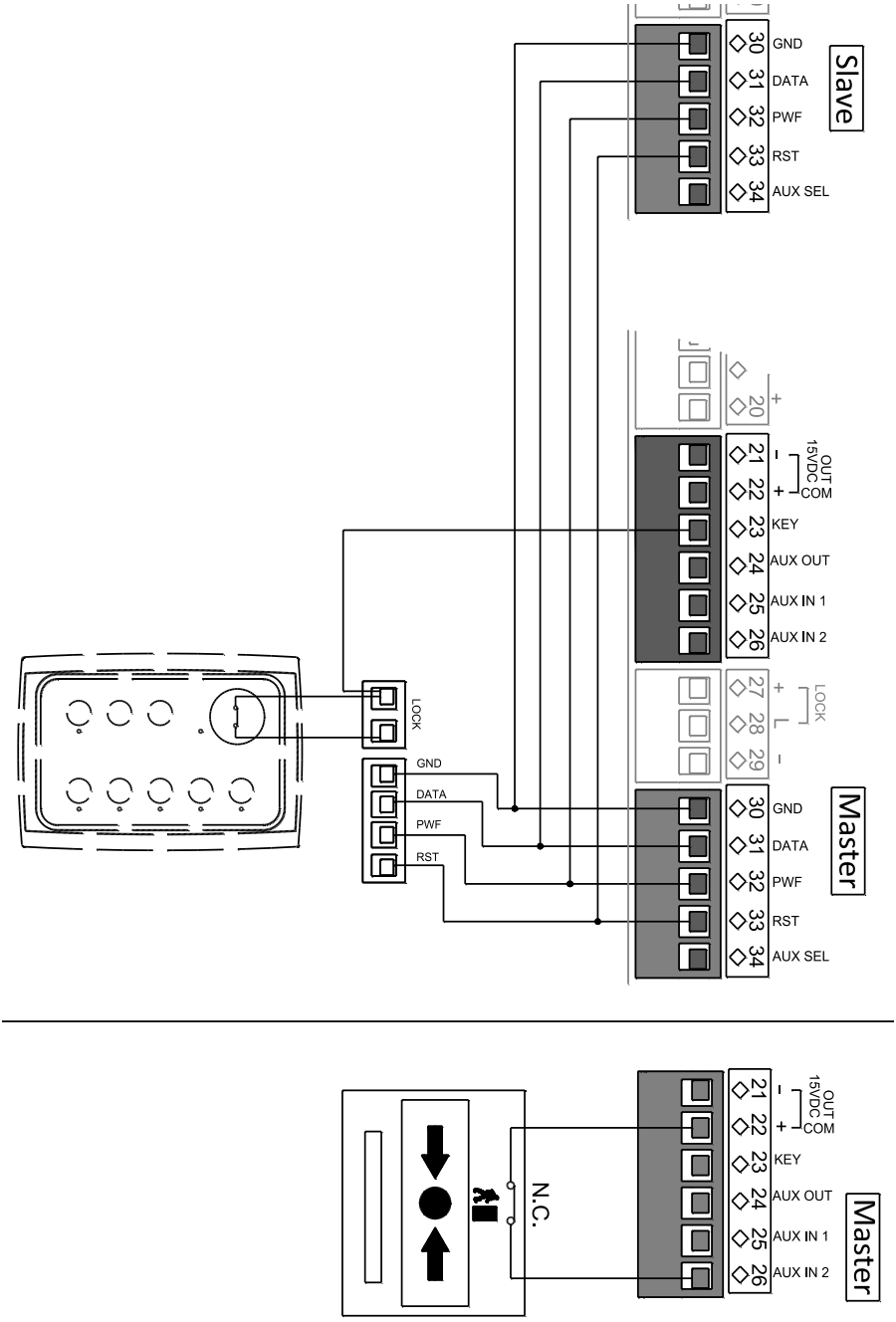

Slave
30 GND
31 DATA
32 PWF
33 RST
34 AUX SEL
20 +
21 -
22 +
OUT 15VDC COM
23 KEY
24 AUX OUT
25 AUX IN 1
26 AUX IN 2
27 +
28 L
29 -
LOCK
Master
30 GND
31 DATA
32 PWF
33 RST
34 AUX SEL
LOCK
GND
DATA
PWF
RST
N.C.
Master
21 -
22 +
OUT 15VDC COM
23 KEY
24 AUX OUT
25 AUX IN 1
26 AUX IN 2

Fig.25/A

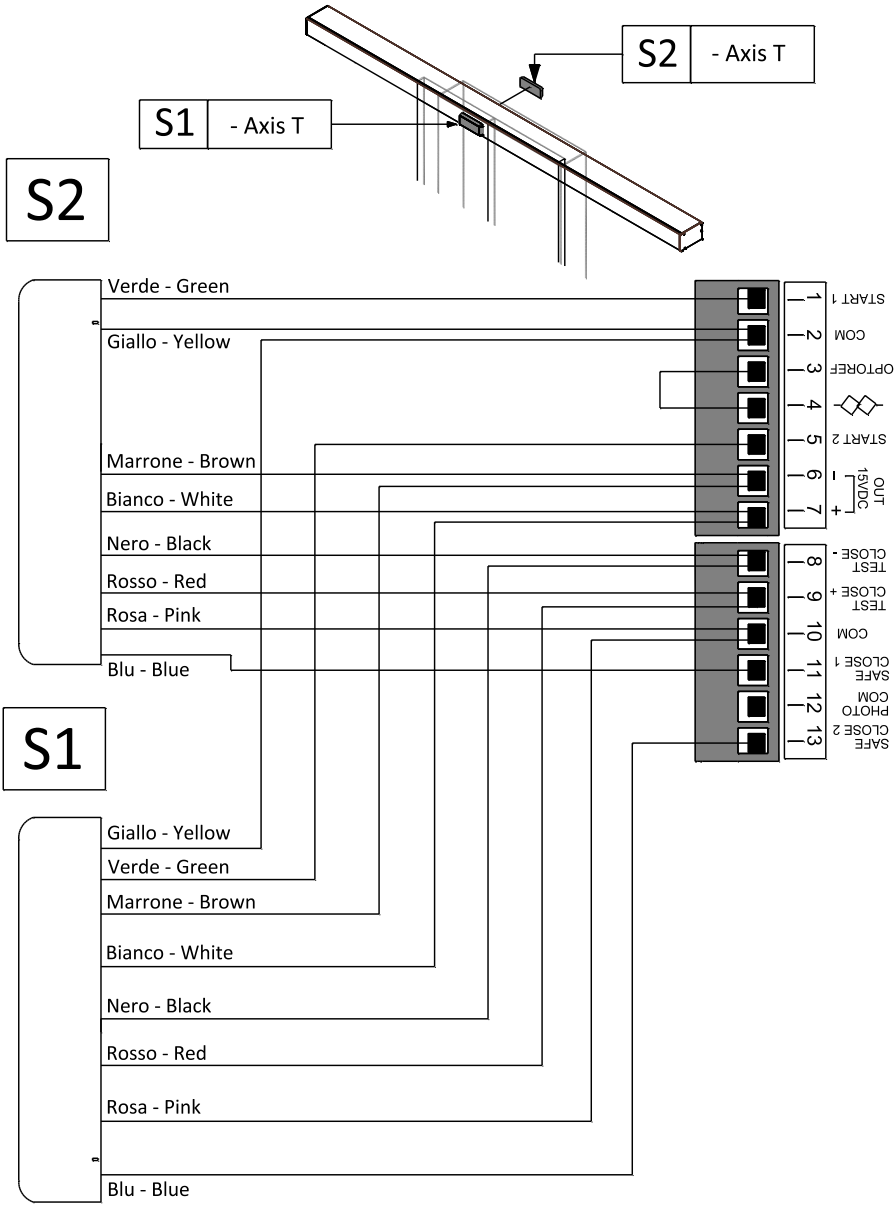

S2
- Axis T
S1
- Axis T
S2
Verde - Green
Giallo - Yellow
Marrone - Brown
Bianco - White
Nero - Black
Rosso - Red
Rosa - Pink
Blu - Blue
S1
Giallo - Yellow
Verde - Green
Marrone - Brown
Bianco - White
Nero - Black
Rosso - Red
Rosa - Pink
Blu - Blue
START 1
COM
OPTOREF
START 2
OUT 15VDC
TEST CLOSE -
TEST CLOSE +
COM
SAFE CLOSE 1
PHOTO COM
SAFE CLOSE 2

Fig.26

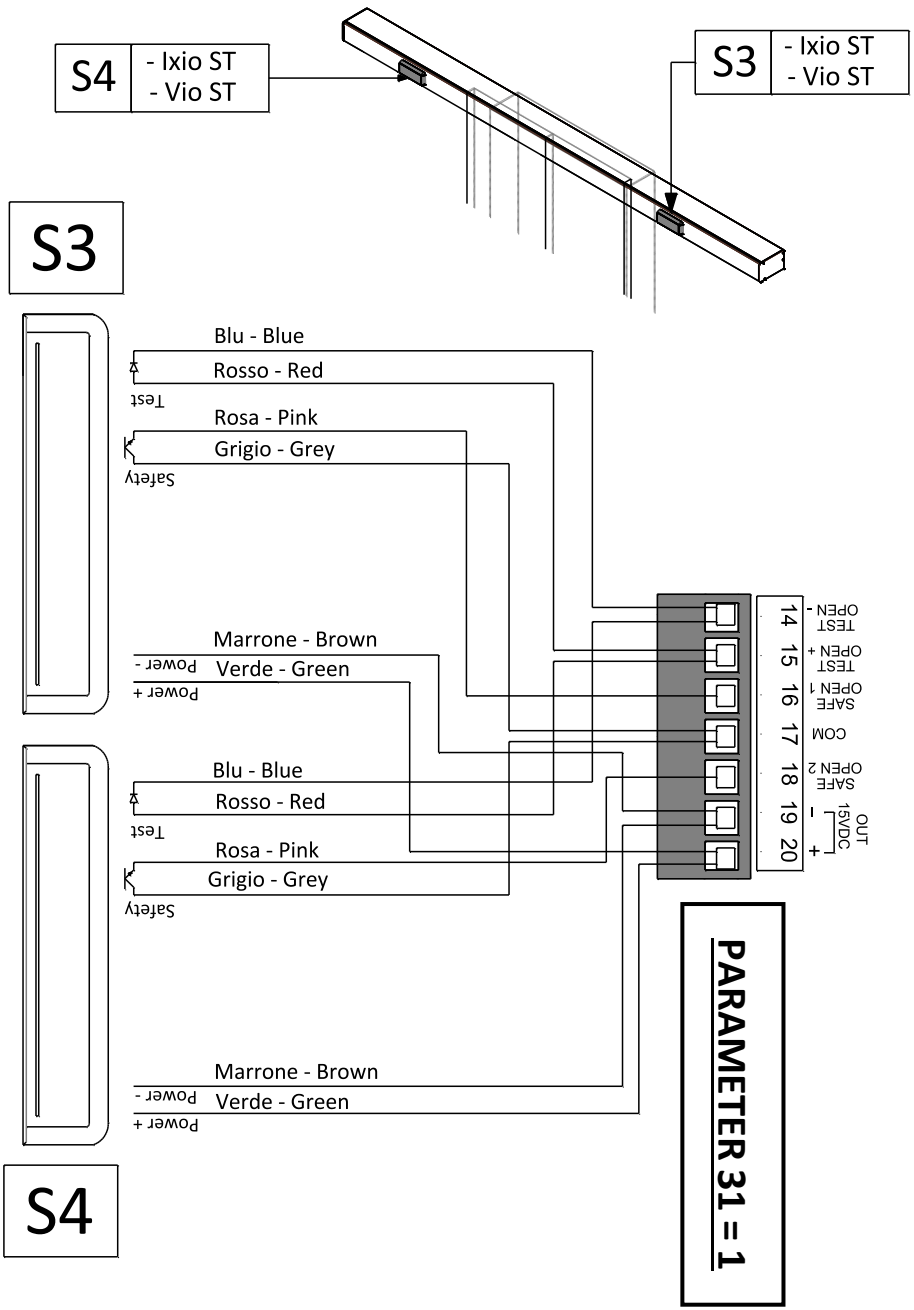

S4
- Ixio ST
- Vio ST
S3
- Ixio ST
- Vio ST
S3
Blu - Blue
Rosso - Red
Test
Rosa - Pink
Grigio - Grey
Safety
Marrone - Brown
Power -
Verde - Green
Power +
Blu - Blue
Rosso - Red
Test
Rosa - Pink
Grigio - Grey
Safety
Marrone - Brown
Power -
Verde - Green
Power +
S4
14 TEST OPEN -
15 TEST OPEN +
16 SAFE OPEN 1
17 COM
18 SAFE OPEN 2
19 OUT 15VDC -
20 +
PARAMETER 31 = 1

Fig. 27

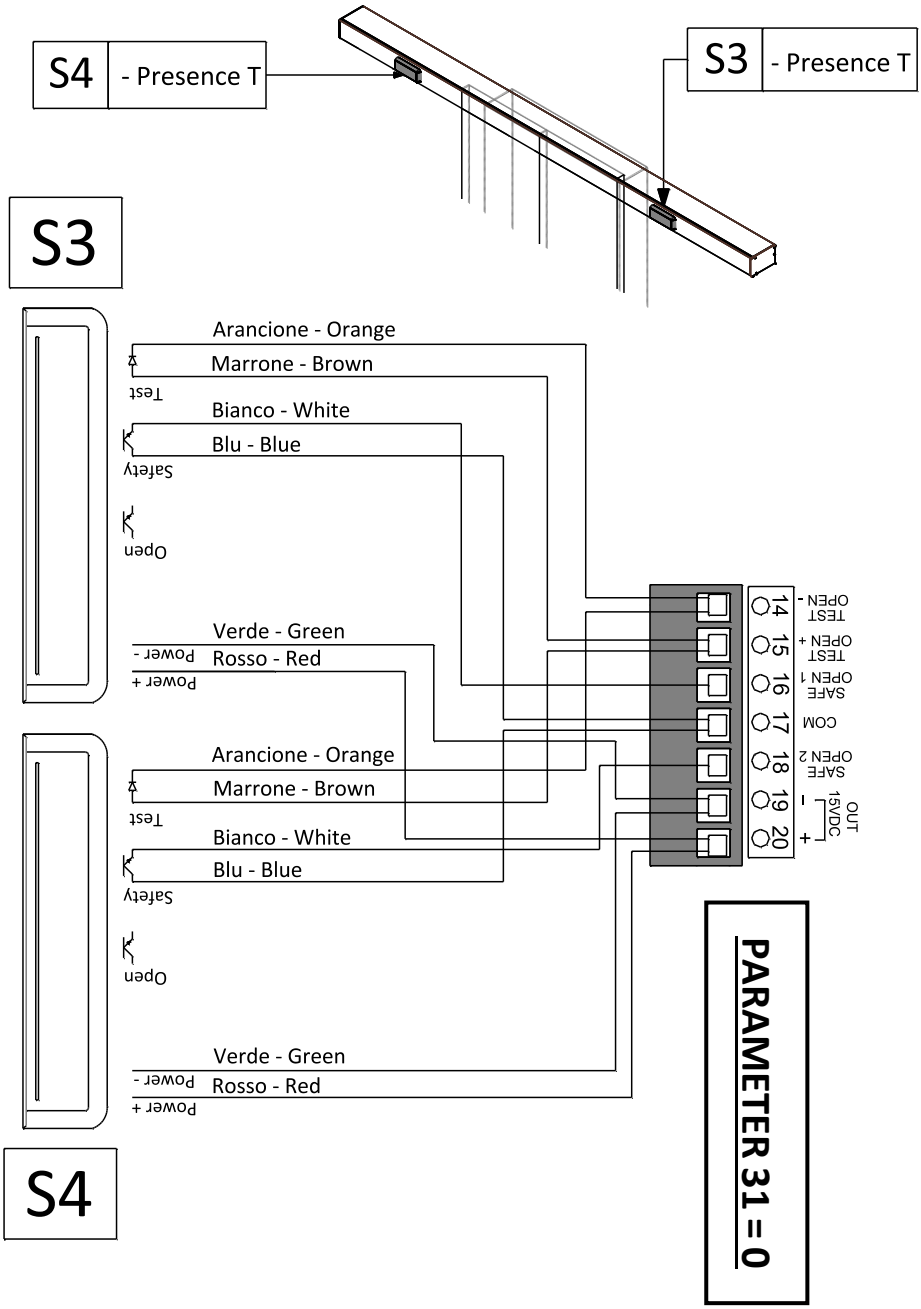

S4
- Presence T
S3
- Presence T
S3
Arancione - Orange
Marrone - Brown
Test
Bianco - White
Blu - Blue
Safety
Open
Verde - Green
Power -
Rosso - Red
Power +
Arancione - Orange
Marrone - Brown
Test
Bianco - White
Blu - Blue
Safety
Open
Verde - Green
Power -
Rosso - Red
Power +
S4
14 TEST OPEN -
15 TEST OPEN +
16 SAFE OPEN 1
17 COM
18 SAFE OPEN 2
19 -
20 + OUT 16VDC
PARAMETER 31 = 0

Fig.28

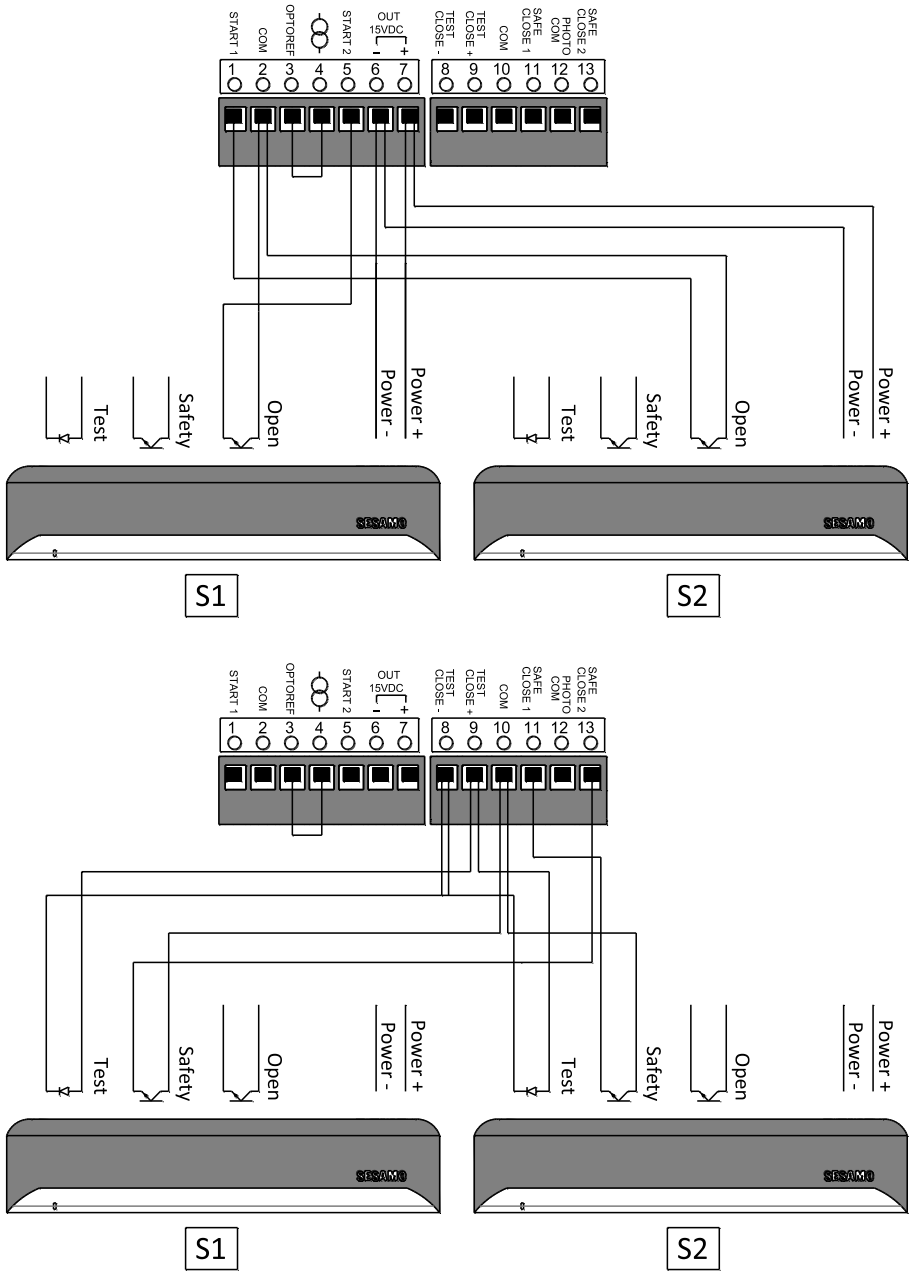

START 1
COM
OPTOREF
START 2
OUT 15VDC
TEST CLOSE -
TEST CLOSE +
COM
SAFE CLOSE 1
PHOTO COM
SAFE CLOSE 2
1 2 3 4 5 6 7
8 9 10 11 12 13
Test
Safety
Open
Power -
Power +
SESAMO
S1
S2

Fig.29

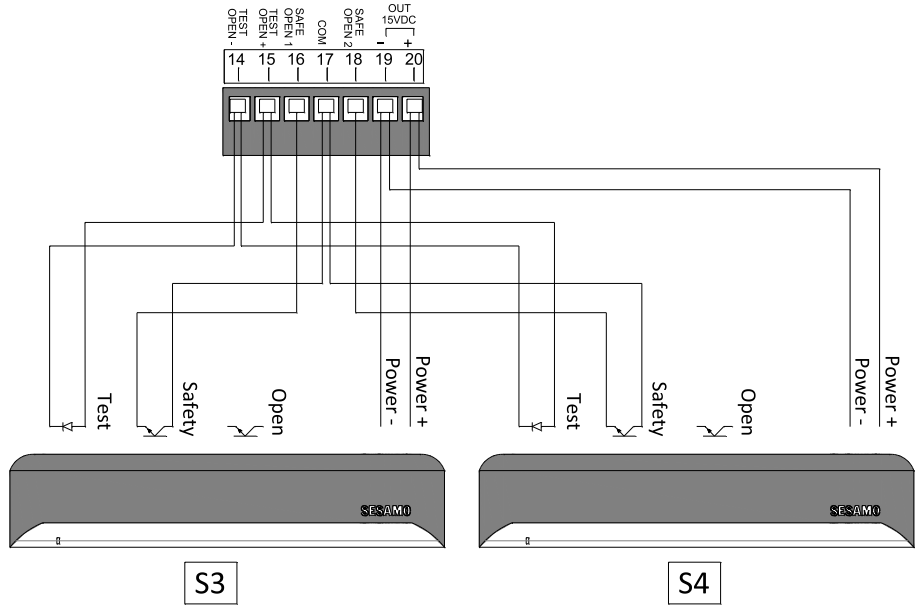

TEST OPEN -
TEST OPEN +
SAFE OPEN 1
COM
SAFE OPEN 2
OUT 15VDC
14 15 16 17 18 19 20
Test
Safety
Open
Power -
Power +
SESAMO
S3
S4

Fig.30

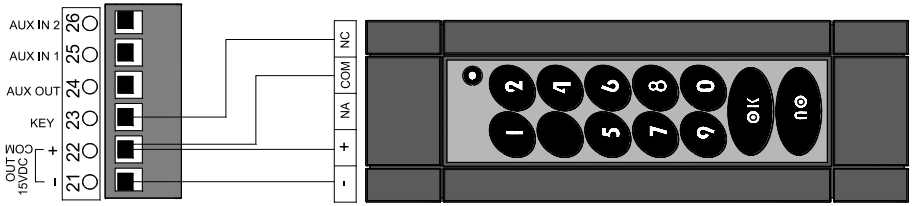
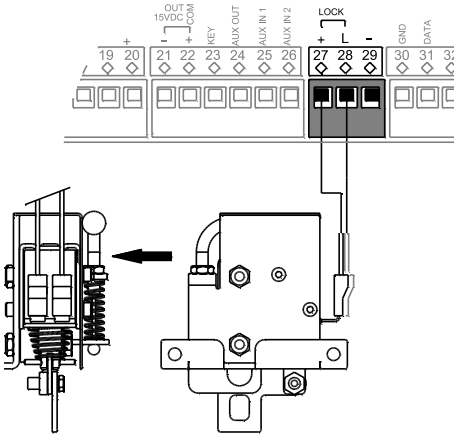

AUX IN 2
AUX IN 1
AUX OUT
KEY
OUT 15VDC COM
26 25 24 23 22 21
NC
COM
NA
+
-

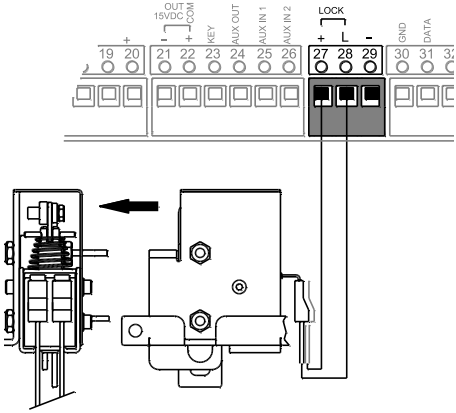
Fig.31



Standard:

- **LH100**
- **LH140**

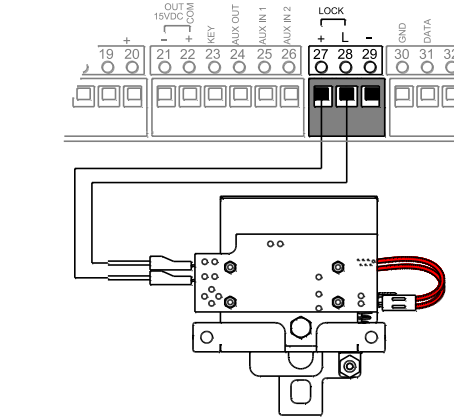
Parameter 13=1



Fail safe:

- **LH100**
- **LH140**

Parameter 13=2



Bistable:

- **LH100**

Parameter 13=3

- **LH140**

Parameter 13=3

- **RD100**

Parameter 13=4

Fig.32

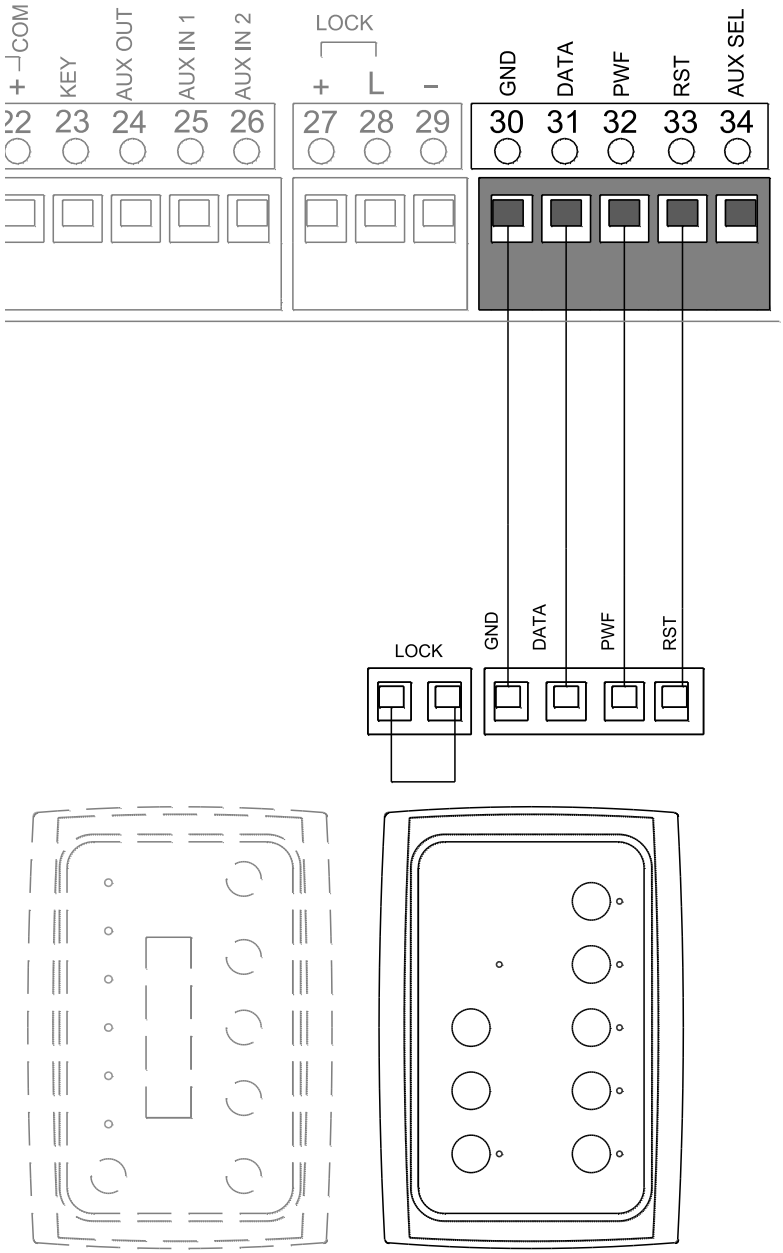

+
COM
KEY
AUX OUT
AUX IN 1
AUX IN 2
LOCK
+
L
–
GND
DATA
PWF
RST
AUX SEL
22
23
24
25
26
27
28
29
30
31
32
33
34
LOCK
GND
DATA
PWF
RST

Fig. 33

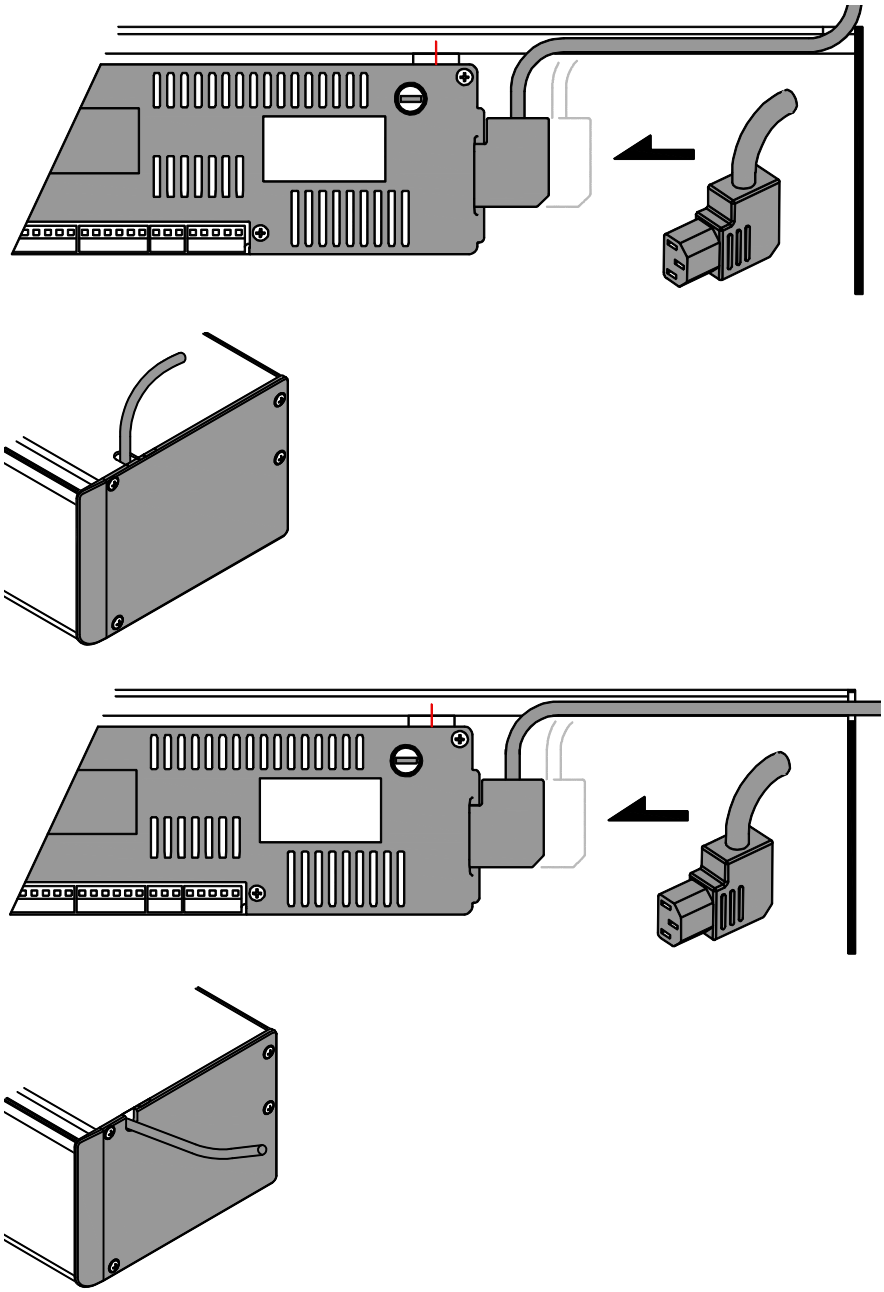


Fig.34

C187290_00

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