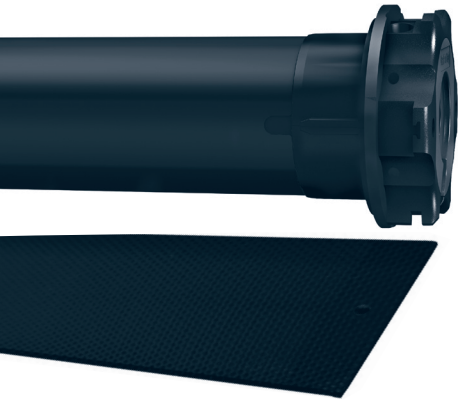
CHERUBINI

CRC RX

LUMEN S-RX



SOLAR TUBULAR MOTOR FOR ROLLER SHUTTERS
WITH ELECTRONIC LIMIT SWITCH

EN

CE

INSTRUCTIONS

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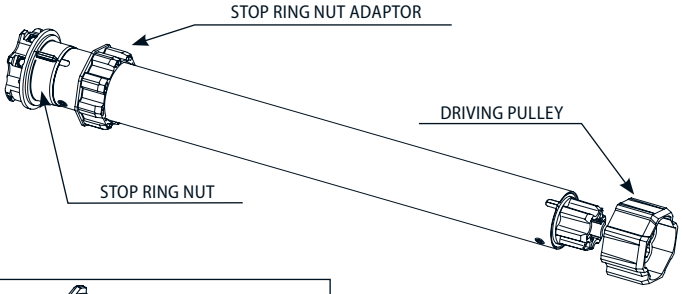
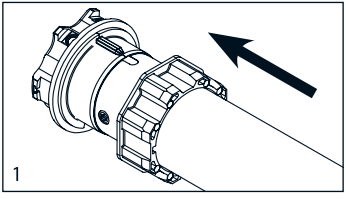
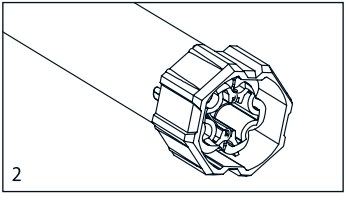
HOW TO PREPARE THE MOTOR

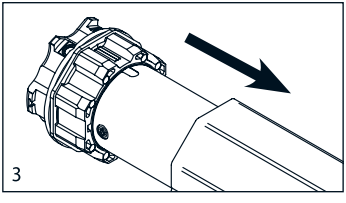




1. Insert the adaptor in the stop ring nut mating the groove with the reference notch and push till they touch.



2. Fix the driving pulley on the motor pin until the stop pin clicks.

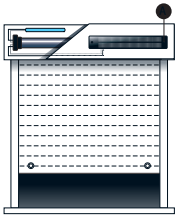


3. Insert the motor fully in the rolling tube.

NB: If you use tubes with a round form, the driving pulley must be fixed to the tube, and the installation is to be paid by the person who installs the system.

PHOTOVOLTAIC PANEL INSTALLATION

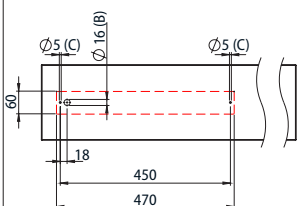
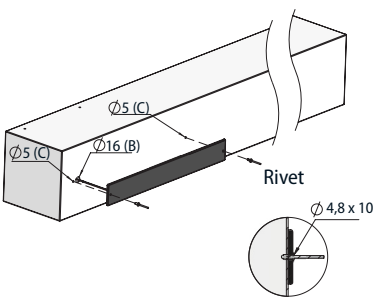
The photovoltaic panel (A) must be positioned in such a way as to optimise the incidence of the sun's rays. Correct positioning is essential to ensure high efficiency of the panel and autonomy of the solar motor. The panel is designed to be compatible with all roller shutter boxes and to ensure a constant flow of charge to the battery.



Two rivets or screws can be used to anchor the panel.
The procedure is as follows:

1. First, drill a 16 mm diameter hole (B) for the cable and two 5 mm diameter holes (C) for anchoring the panel to the front of the box, as shown in the drawing below.
2. Next, feed the photovoltaic panel's power cable into the box through hole B.
3. Finally, fix the photovoltaic panel to the 2 holes C using aluminium rivets (Ø 4.8 x 10) or screws with a diameter not exceeding 5 mm.

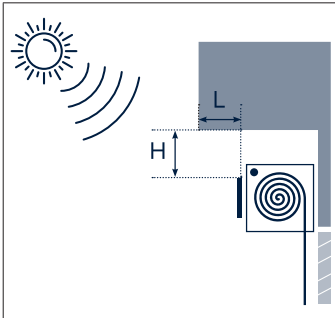
****WARNING**: It is recommended that you do not use oversized washers which may overlap the cells and cover or damage them. Stretch and secure the cable, avoiding excessive folds.**

Drilling diagram	Installation
 Dimensions are in mm.	

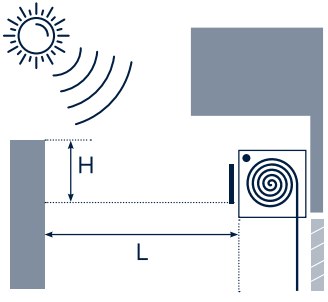
IMPORTANT WARNINGS:

- **Avoid putting pressure on the photovoltaic cells as they are extremely fragile and can break easily, especially if the screws are overtightened.**
- **When handling the photovoltaic panel, take care to avoid accidental shocks and falls that could cause the photovoltaic cells to break.**
- **Avoid placing the photovoltaic panel behind glass or in an area subject to strong shading.**
- **Make sure the cells are not obstructed and avoid placing anything in front of the cells.**
- **Prevent snow, leaves, dust, etc. from accumulating on the surface of the photovoltaic module.**
- **Keep the surface of the photovoltaic module clean. Use only water and a soft cloth for cleaning.**
- **Route the power cable so that it does not damage the shutter curtain.**
- **Clean the seat of hole B of any chips to allow the cable to pass through and to avoid any possible damage to it.**

FINDING THE OPTIMAL POSITION IN THE PRESENCE OF OBSTACLES



Roof overhang or similar coverings
L < 2 x H



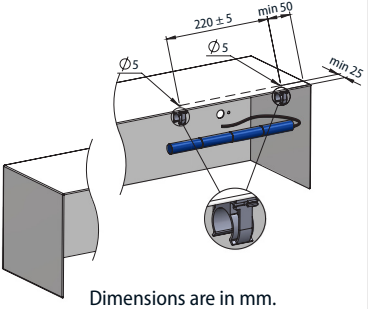
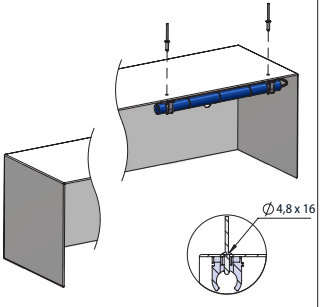
Obstacle in front of the solar panel
H < L / 2

In some geographical areas, solar radiation may be significantly reduced at certain times of the year. In such circumstances, the battery can be recharged using a special Cherubini charger sold as an accessory or a compatible model (optional).

BATTERY PACK INSTALLATION

- Ensure that the battery, the fastening and the cables don't touch the surface of the roller blind or the screen.
- The power cable must be installed with an upward slope and a drip line.
- Clean all drill holes to ensure that the rivets fit properly.
- The battery and connection cables must not come into direct contact with water.
- Fastening must be carried out using the support clamps supplied in such a way that the roller blind is not compromised.
- Do not use an extension cable to extend the connection cable to/from the motor/ battery/solar panel.
- Ensure that the connections are correct and secured.
- Disconnect the battery from the motor before working on the motor or the motor drive.

Mount the battery above the winding roller on the same side as the operator using the aluminium rivets supplied (Ø 4.8 x 16 mm).

Drilling diagram	Installation
 Dimensions are in mm.	

BATTERY PROTECTION FUNCTION

The motor is equipped with a temperature sensor: if a value below 0 °C is detected, the motor activates the battery protection function to prevent damage.
The battery protection function interrupts the charging of the battery from any energy source, either from the photovoltaic panel or from the external power supply.

BATTERY SAFETY WARNINGS

Cautions:

- **Use the battery only to power the LUMEN S-RX tubular motor.**
- **Keep the battery away from heat sources and water.**
- **Do not charge or use batteries that have been dropped or damaged.**
- **Do not connect the positive or negative terminals of the battery with metal objects.**
- **The battery loses efficiency after prolonged use or frequent discharging.**
- **Recharge with an AC adapter/charger that matches the specifications in this manual.**
- **Do not leave the battery on charge for an extended period of time if not in use.**
- **The battery must be installed inside the casing.**
- **If possible, recharge the battery before installation using an appropriate charger of the type described above.**
- **When installing the cables and plug-in connectors, ensure that they do not interfere with the movement of the shutter or screen.**
- **Do not open or drill the battery.**

Dispose of the battery separately from the motor and the photovoltaic panel by placing it in the appropriate containers at the public collection points set up by your local authority.

REPLACING A PHOTOVOLTAIC PANEL

Photovoltaic panels should only be replaced by a professional installer and only with an identical model. The photovoltaic panel must never be disposed of with household waste.

- **Disconnect the motor cable from the battery**
- **Disconnect the photovoltaic panel from the motor cable**
- **Remove the panel cable from the roller shutter box**
- **Remove rivets**
- **Remove the photovoltaic panel**
- **Install the new photovoltaic panel following the instructions given in the previous section.**

ELECTRICAL CONNECTIONS

Photovoltaic panel Ref. A4508_0U25

OPTIONAL ON DEMAND

Extension cable
Ref. A4508_0U17 - A4508_0U18

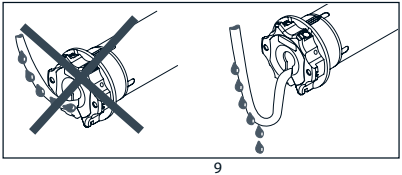
24 Vdc power adapter
Ref. A4508_0U16

green white

red black

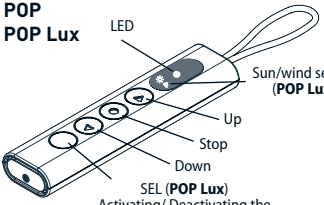
14.4 Vdc 3.5 Ah Li-ion battery - Ref. A4508_0U24

A4508_0U18 Solar motor extension cable kit L=1500 mm (Pack 10 pcs.)
A4508_0U17 Solar motor extension cable kit L=300 mm (Pack 10 pcs.)
A4508_0U16 Solar motor power adapter kit (Pack 5 pcs.)
A4508_0U24 Solar motor replacement battery
A4508_0U25 Solar motor photovoltaic panel replacement
A4508_0U53 LUMEN S-RX solar motor replacement

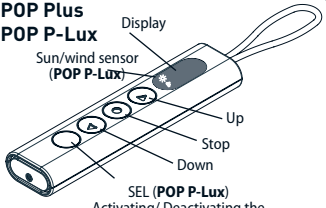


COMPATIBLE REMOTE CONTROLS

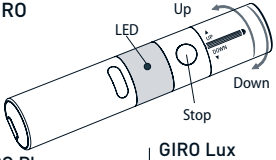
POP
POP Lux



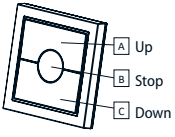
POP Plus
POP P-Lux



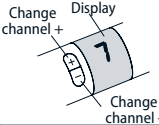
GIRO



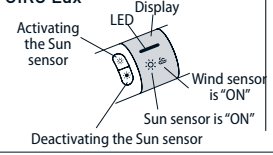
GIRO Wall



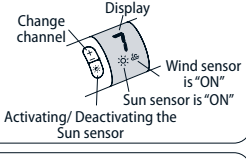
GIRO Plus



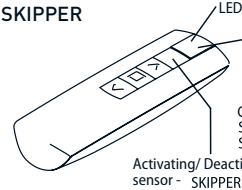
GIRO Lux



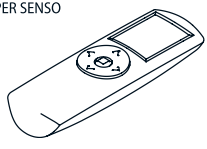
GIRO P-Lux



SKIPPER

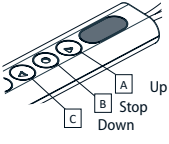


SKIPPER LCD
SKIPPER SENSO

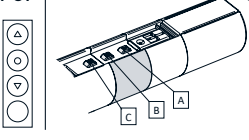


Check the specific instruction
book

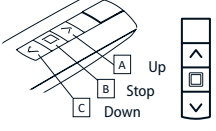
KEY TO SYMBOLS



POP

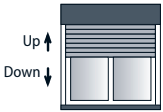


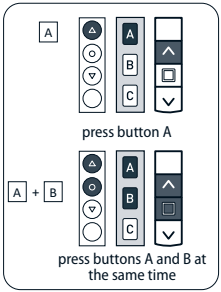
GIRO

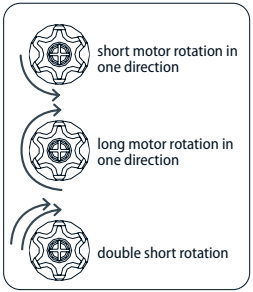


SKIPPER

KEY TO SYMBOLS



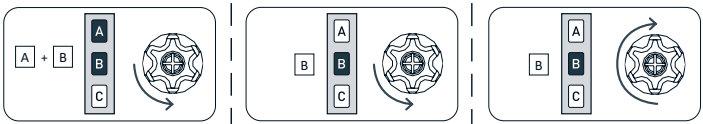




COMMAND SEQUENCES EXAMPLE

Most of the command sequences have three distinct steps, at the end of which the motor indicates if the step has been concluded positively or not, by turning in different ways. The buttons must be pressed as shown in the sequence, without taking more than 4 seconds between one step and the next. If more than 4 seconds are taken, the command is not accepted and the sequence must be repeated.

Command sequence example:

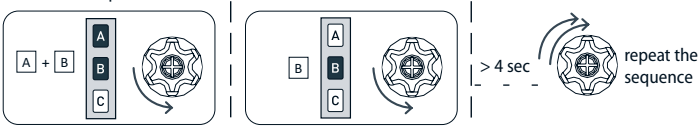


step 1 | step 2 | step 3

As we can see from the example, when the sequence ends positively, the motor returns to its starting position in one long rotation. In fact, two short rotations in the same direction correspond to one long rotation in the opposite direction. The motor returns to the starting position even when the sequence is not completed; in this case by performing one or two short rotations.

Example of a wrong sequence:

step 1



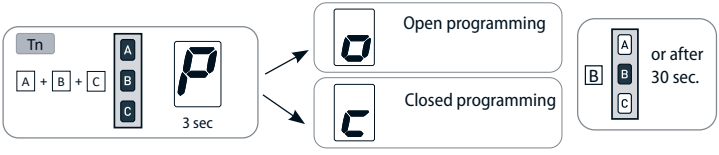
step 1 | step 2

FUNCTION OPEN/CLOSE PROGRAMMING

REMOTE CONTROL SKIPPER PLUS - SKIPPER LUX - SKIPPER P-LUX
REMOTE CONTROL POP PLUS - POP LUX - POP P-LUX

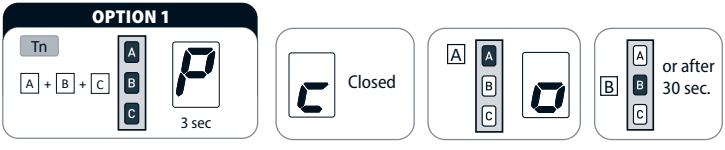
To prevent accidental changes to the programming of the motor during the daily use of the remote control, the possibility of programming is disabled automatically 8 hours after sending the last sequence (A+B or B+C).

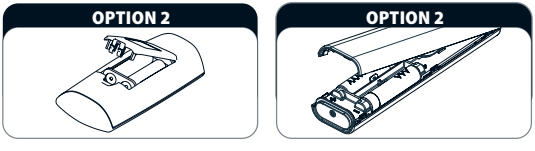
CHECKING THE STATUS OF THE FUNCTION



To change the status of the function, see the sequences ENABLE/DISABLE PROGRAMMING.

ENABLE PROGRAMMING

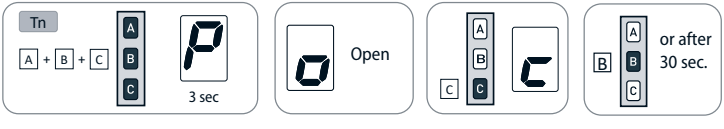




Remove one battery and wait minimum 10 seconds before replacing it.

Proceed with programming as per instruction booklet.

DISABLE PROGRAMMING

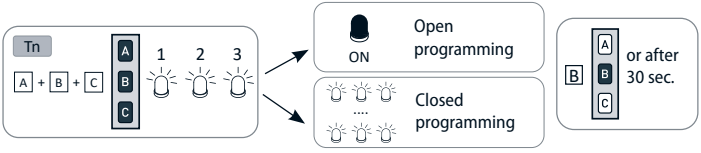


FUNCTION OPEN/CLOSE PROGRAMMING

REMOTE CONTROL SKIPPER - SERIES GIRO - REMOTE CONTROL POP

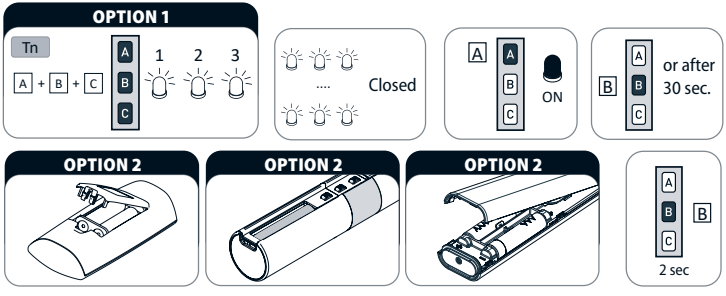
To prevent accidental changes to the programming of the motor during the daily use of the remote control, the possibility of programming is disabled automatically 8 hours after sending the last sequence (A+B or B+C).

CHECKING THE STATUS OF THE FUNCTION



To change the status of the function, see the sequences ENABLE/DISABLE PROGRAMMING.

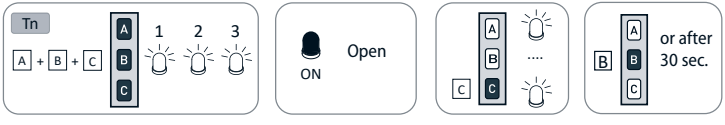
ENABLE PROGRAMMING



Remove one battery and wait minimum 10 seconds before replacing it.

Proceed with programming as per instruction booklet.

DISABLE PROGRAMMING

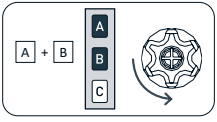


SETTING THE FIRST REMOTE CONTROL

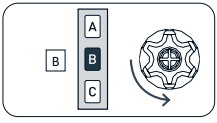
This operation can only be performed when the motor is new, or after a total delete of the memory.

During this step, power up only one motor at a time!

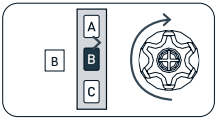
T1: First remote control to be set



T1



T1



T1 (2 sec)

AUTOMATIC DISABLING OF THE FIRST REMOTE CONTROL SETTING FUNCTION

Every time you connect the power supply to the motor, you have 3 hours to store the first remote control. After this time, the ability to store the remote control is disabled. To reset the timer of the function you have to disconnect both the photovoltaic panel and the battery from the motor for at least 15 seconds and then reconnect them.

MOTOR ACTIVATION

Connect the battery and then the solar panel to the motor cables.

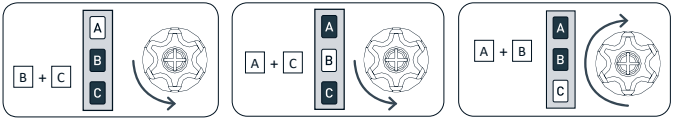
Note: The connectors on all cables are designed to prevent miswiring by using different colours and connection types.

WARNING: Once the connections have been made, the motor is active and ready for use.

PLEASE NOTE: If there are several motors to be installed, connect one motor at a time while keeping the others disconnected.

CHECKING THE CONNECTION STATUS OF THE PHOTOVOLTAIC PANEL

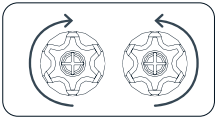
The motor is equipped with a function that indicates the connection status of the photovoltaic panel.



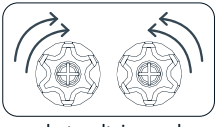
Tn (2 sec)

When this procedure is carried out with the remote control, the motor reacts with two long movements (one in one direction and one in the opposite direction) if the photovoltaic panel is NOT correctly connected;

Otherwise, the motor makes four short movements (two in one direction and two in the opposite direction) to indicate that the panel is correctly connected.



photovoltaic panel NOT connected

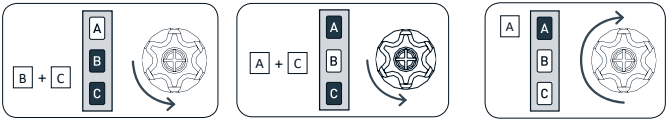


photovoltaic panel connected

BATTERY CHARGE STATUS CHECK

The motor is equipped with a function to display the remaining battery charge.

By performing the following procedure with the remote control, the motor responds with a series of movements corresponding to different states of charge, as illustrated in the table below.

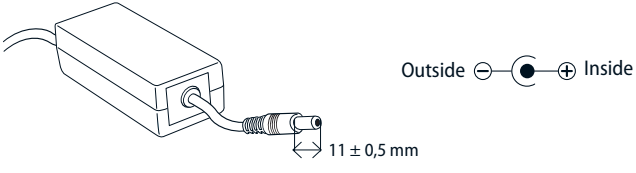


(2 sec)

No. of movements	Meaning
1	low charge level: 0-20%
2	sufficient: 20-40%
3	good: 40-60%
4	optimum: 60-80%
5	excellent: 80-100%

WARNING! If the battery charge is insufficient, the motor slows down considerably and switches to ECO mode, which allows certain operations to be carried out. It is recommended to recharge the battery with a battery charger. The full charging time with the charger is 5 HOURS.

Specifications of the battery charger to be purchased separately as an alternative to the one supplied by Cherubini (24 Vdc, 25 W, 2.1 mm jack).



ADJUSTMENT OF THE LIMIT SWITCHES

The LUMEN S-RX solar motors have an electronic limit switch system with an encoder. This system ensures great reliability and precision in keeping the positions. Limit switch regulation is performed simply with the remote control. During setting, the motor moves only as long as the up or down button is pressed, stopping when the button is released. At the end of setting, press either the up or down button briefly to move the motor. The adjustments of the limit switches can be done in different modes depending on whether the rolling shutter is equipped with lockdown hangers or physical stops and on the type of installation (in factory or on site).

SETTING IN MODE 1 (manual)

In this mode it doesn't matter whether or not the rolling shutter has got physical stops in the opening position and the lockdown hangers in the closing position. It is possible to choose whether to set the upper limit or the lower limit first.

The correct rotation direction will only be identified after the first position is set so it is sometimes necessary to use the "up" or "down" button.

Example 1: Setting first the high limit switch

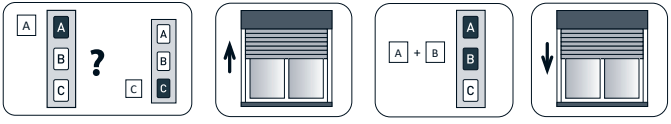
SETTING THE HIGH LIMIT SWITCH

If the rolling shutter is completely open, you have first to drive it down by around 20 cm.

Hold the button A or C pressed and drive the rolling shutter completely up. With physical stops: press button A or C until the motor stops automatically. Without physical stops: use the button A or C to drive the rolling shutter to the necessary high limit switch position.

To set the high limit switch, press buttons A (up) and B (stop) simultaneously for about 2 seconds, until the motor automatically performs a short "down" movement. This move is the visual confirmation of the setting operation.

Tn: Already programmed remote control

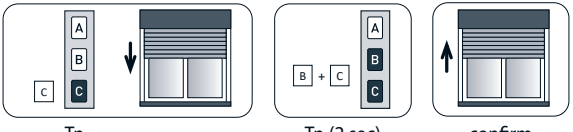


Tn | Tn (2 sec) | confirm

SETTING THE LOW LIMIT SWITCH

Pressing now the button C, drive the rolling shutter completely down. With lockdown hangers: press button C until the motor stops automatically. Without lockdown hangers: use the button A or C to drive the rolling shutter to the necessary low limit switch position.

To set the low limit switch, press buttons B (stop) and C (down) simultaneously for about 2 seconds, until the motor automatically performs a short "up" movement. This move is the visual confirmation of the setting operation.



Tn | Tn (2 sec) | confirm

If the photovoltaic panel is not correctly detected, the motor makes 2 long movements (1 sec each) in the 2 directions to signal a malfunction.

Example 2: Setting first the low limit switch

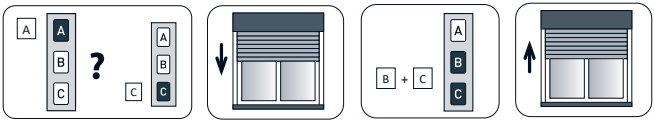
SETTING THE LOW LIMIT SWITCH

If the rolling shutter is already completely down, you have first to drive it up by around 20 cm.

Hold the button A or C pressed and drive the rolling shutter completely down. With lockdown hangers: press button C until the motor stops automatically. Without lockdown hangers: use the button A or C to drive the rolling shutter to the necessary low limit switch position.

To set the low limit switch, press buttons B (stop) and C (down) simultaneously for about 2 seconds, until the motor automatically performs a short "up" movement. This move is the visual confirmation of the setting operation.

Tn: Already programmed remote control

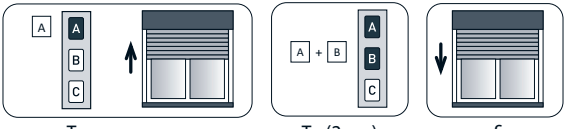


Tn | Tn (2 sec) | confirm

SETTING THE HIGH LIMIT SWITCH

Pressing the button A, drive the rolling shutter completely up. With physical stops: press button A or C until the motor stops automatically. Without physical stops: use the button A or C to drive the rolling shutter to the necessary high limit switch position.

To set the high limit switch, press buttons A (up) and B (stop) simultaneously for about 2 seconds, until the motor automatically performs a short "down" movement. This move is the visual confirmation of the setting operation.



Tn | Tn (2 sec) | confirm

If the photovoltaic panel is not correctly detected, the motor makes 2 long movements (1 sec each) in the 2 directions to signal a malfunction.

SETTING IN MODE 2 (semi-automatic)

To do the settings in this mode the rolling shutter has to be equipped with lockdown hangers in the closing position. It is not necessary to have upwards locking devices. This mode of setting is helpful in cases where the factory will set the high limit switch. The low limit switch will be set automatically during the normal use. In this mode, it's necessary to set first the high limit switch!! (Rolling shutter open!)

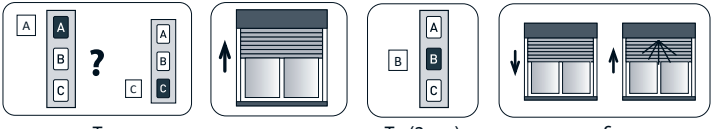
SETTING THE HIGH LIMIT SWITCH

If the rolling shutter is completely open, you have first to drive it down by around 20 cm.

Hold the button A or C pressed and drive the rolling shutter completely up. With physical stops: press button A or C until the motor stops automatically. Without physical stops: use the button A or C to drive the rolling shutter to the necessary high limit switch position.

To set the high limit switch, press button B (stop) for about 2 seconds, until the motor performs a short downwards movement. After this confirmation movement the motor brings the rolling shutter back up to the high limit switch.

Tn: Already programmed remote control



Tn | Tn (2 sec) | confirm

Now the drive direction is correctly detected. It is possible to disconnect the motor from the power and complete the setting of the low limit switch on site. When the motor is powered up again, the remote control can be used normally.

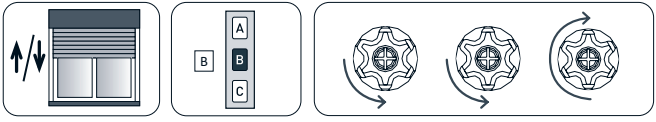
The low limit switch position will be set automatically the first time the rolling shutter stops automatically in the low position using the lockdown hangers. As the motor looks for a "mechanical" stop during each way down, if the Obstacle Recognition finds something is blocking the way (such as a protruding screw in the guide rails), it is necessary to raise the shutter again, remove the obstacle and to drive the motor back down to set the limit switch.

SETTING A MIDDLE POSITION

This function allows the rolling shutter to be set at a favourite middle position. When this middle position is memorised, you just press the stop button for 2 seconds and automatically the motor will move the shutter to this position.

To memorise the middle position, move the rolling shutter to the desired position and then hold the STOP button down (for about 4 sec) until the motor gives confirmation.

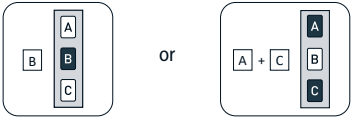
Tn: Already programmed remote control



Tn (4 sec)

MOVEMENT TO MIDDLE POSITION

It's possible to control the motor in the middle position in two ways:



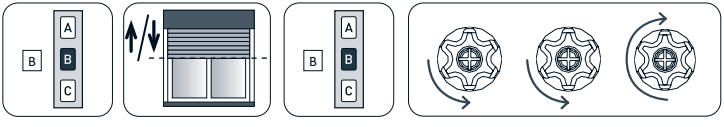
Tn (2 sec)

DELETING THE MIDDLE POSITION

If you want to delete the middle position, it can be done as described below. To change this position, it's also necessary to delete first the memorised middle position.

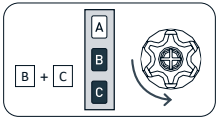
Before deleting it's necessary to drive the motor to the middle position (by pressing button B for 2 seconds), then press again button B (stop) for about 4 seconds until the motor confirms the operation by a longer movement.

Tn: Already programmed remote control

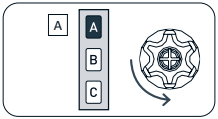


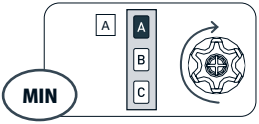
Tn (2 sec) Tn (4 sec)

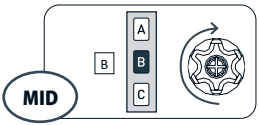
OBSTACLE SENSITIVITY SETTING

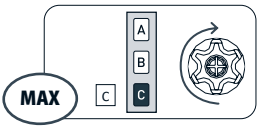


Tn









2 sec

The LUMEN S-RX motor has the option of changing the obstacle detection sensitivity on three levels.

For increased sensitivity select the MAX level, for reduced sensitivity select the MIN level.

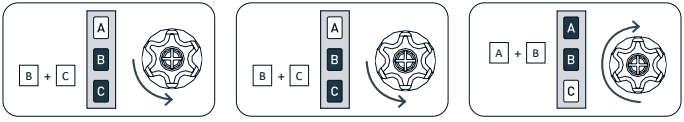
The LUMEN S-RX motor has MID level selected as the factory setting.

DELETING THE LIMIT SWITCH POSITIONS

HIGH LIMIT SWITCH DELETING

To delete only the high limit switch perform the following steps and proceed with "SETTING THE HIGH LIMIT SWITCH".

Tn: Already programmed remote control

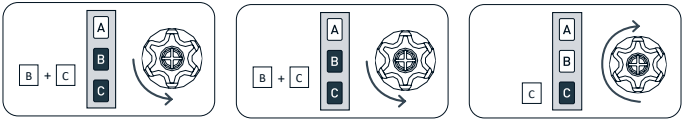


Tn | Tn | Tn (2 sec)

LOW LIMIT SWITCH DELETING

To delete only the low limit switch perform the following steps and proceed with "SETTING THE LOW LIMIT SWITCH".

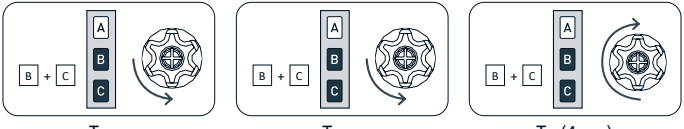
Tn: Already programmed remote control



Tn | Tn | Tn (2 sec)

TOTAL DELETING OF THE LIMIT SWITCHES

Tn: Already programmed remote control



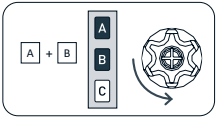
Tn | Tn | Tn (4 sec)

NB: by deleting the limit switches, the setting of the closing force is maintained.

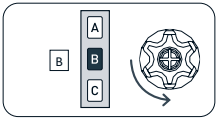
SETTING OF ADDITIONAL REMOTE CONTROLS

Up to 15 remote controls can be set.

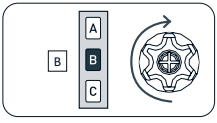
Tn: Already programmed remote control
Tx: Additional remote control



Tn



Tn

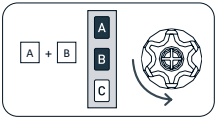


Tx (2 sec)

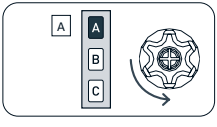
REMOTE CONTROL MEMORY CLEARING

It is possible to delete each stored remote control individually. When the last one is deleted the motor returns to its initial condition. The same applies to the single channels of a multichannel remote control: just select the channel to cancel before performing the sequence.

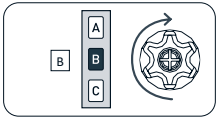
Tn: Remote control to be cleared



Tn



Tn



Tn (2 sec)

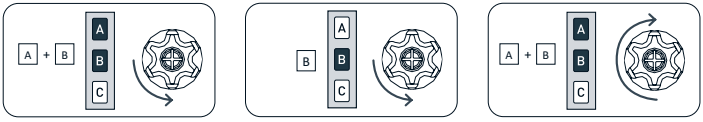
FULL MEMORY CLEARING

This full memory clearing does not delete the setting of the limit switch.

The full memory clearing can be performed in two ways:

1) WITH THE REMOTE CONTROL

Tn: Already programmed remote control

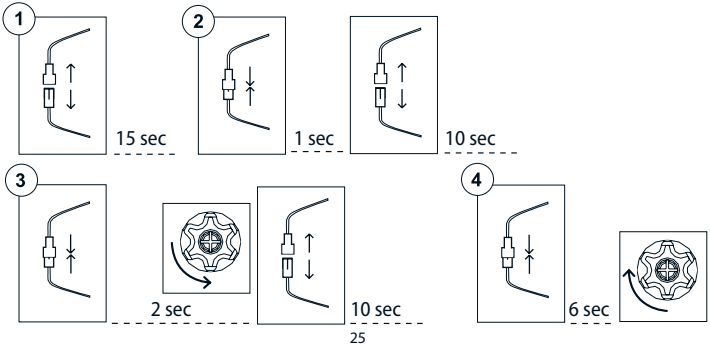


Tn Tn Tn (4 sec)

2) WITH BATTERY CONNECTION/DISCONNECTION SEQUENCE

Do this operation only in case of emergency, if all remote controls are no longer operating. To clear the memory, disconnect the photovoltaic panel and access the battery connection.

1. The sequence of this operation is the following:
2. Disconnect the battery and wait at least 15 seconds.
3. Connect the battery, after 1 second disconnect it and wait at least 10 seconds.
4. Connect the battery and after 1 second the motor will rotate briefly in one direction. Disconnect the battery immediately after the movement and wait at least 10 seconds.
5. Connect the battery and after 6 seconds the motor will make a short rotation in the opposite direction to step 3.
6. Reconnect the photovoltaic panel.
7. At this point it is possible to proceed with the setting of the first remote control.



SPECIAL FUNCTIONS

SHORT-TERM SETTING OF A REMOTE CONTROL

This function makes it possible to store a remote control temporarily, for example, with the purpose of setting the limit switches during assembly in the factory. A later final saving of the remote control will be possible using the appropriate command sequence (see: "SETTING THE FIRST REMOTE CONTROL").

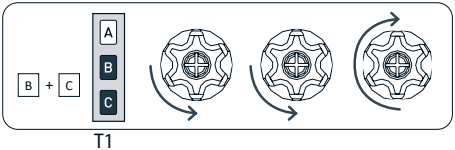
The operations described below can be carried out only when the motor has just come out of the factory or after a full memory clearing (see: "FULL MEMORY CLEARING"). The motor makes the following operations possible only within the time limits described in order to make sure that the short-term setting is used only in the installation or factory setting phase and not during daily use.

Power up the motor, make sure that no other motors having an empty memory are powered up in the same operating range.

Within 30 seconds after start, press the B and C buttons simultaneously until the motor gives a confirmation signal.

The remote control will remain stored for 5 minutes, while the motor is powered up. After 5 minutes or when the motor has its power cut off, the remote control will be cancelled.

T1: First remote control to be set



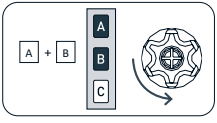
T1

SETTING THE A530058 POCKET REMOTE CONTROL

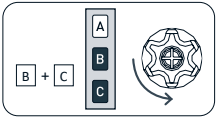
NB: The pocket remote control can only be used as a secondary remote control. So the programming can proceed only after previous programming of a traditional Cherubini remote control (Skipper, Giro or POP: 3 buttons Up-Down-Stop remote control).

HOW TO PROCEED TO SET THE BUTTON ON THE POCKET REMOTE CONTROL

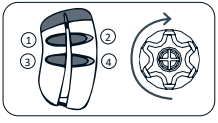
Tn: Already programmed remote control
Tx: Pocket remote control to be set



Tn



Tn



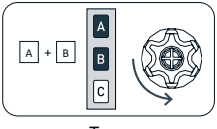
Tx (2 sec)

In the last step of the sequence, press the desired button on the pocket remote control for 2 seconds. The remote control can now control the motor in step-by-step mode (UP - STOP - DOWN - STOP). To associate the other buttons, repeat the sequence described above. Each button can be associated with a LUMEN S-RX motor.

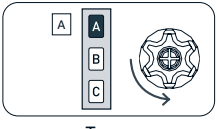
DELETING ONE BUTTON ON THE POCKET REMOTE CONTROL

The buttons saved may be deleted individually according to the following sequence:

Tn: Already programmed remote control
Tx: Pocket remote control with button to be deleted



Tn



Tn

Tx (2 sec)

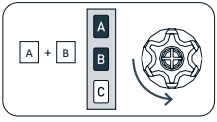
To confirm the operation the motor will do a short shunt and the button, which has to be pressed for minimal 2 second, will be deleted.

LOW POWER STORAGE MODE

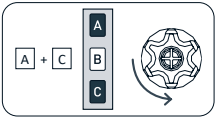
This setting puts the motor into low power mode. Activation is recommended when motors are stored already installed and programmed, in order to preserve the battery charge.

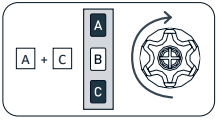
ACTIVATING THE STORAGE MODE

Tn: Already programmed remote control



Tn





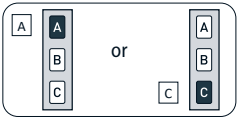
Tn (2 sec)

Note: When the setting is active, the motor does not respond to commands sent by the associated remote control.

EXITING THE STORAGE MODE

When installing on site, proceed as follows to return the motor to normal operation:

Tn: Already programmed remote control



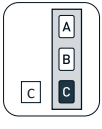
Tn (10 sec)

After 10 seconds the rolling shutter moves in the direction of the button pressed

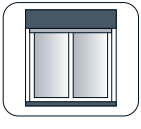
It is not necessary to enable programming on the remote control.

Example of exiting the storage mode

Tn: Already programmed remote control

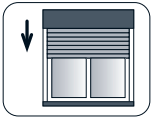


Tn



the motor does not move downwards

Tn (10 sec)



the motor moves downwards, confirming the exit from storage mode

EU DECLARATION OF CONFORMITY

CHERUBINI S.p.A. declares that the product is in conformity with the relevant Union harmonisation legislation:

Directive 2014/53/EU, Directive 2011/65/EU.

The full text of the EU declaration of conformity is available upon request at the following website: www.cherubini-group.com.

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