

# *EVO solar cover*

*for H1T-H1TX solar collectors*

TENDAEVO\_1T    TENDAEVO\_1TX  
TENDAEVO\_2T    TENDAEVO\_2TX

## INSTALLATION MANUAL



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# SAFETY WARNINGS

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## CONFORM USE



The materials are built based on current technical state-of-the-art and acknowledged safety rules. Nonetheless, dangers for the user or others as well as damages to material or property could occur following an improper use. Any different use is considered improper. The manufacturing company will not be liable for damages caused by improper use; if so, the user is fully responsible for any risks. The intended use also foresees the scrupulous compliance with the following instructions.

## INFORMATION FOR USER



The user must keep this documentation for consultation. In respecting current standards, control and maintenance must be carried out in compliance with the manufacturer prescriptions and schedule. This manual must always accompany the structure, whether it is sold or transferred to another owner or if moving, for consultation by the new owner and/or installer. Request another copy from the manufacturing company if it is damaged or lost. The materials must be used as set out by the manufacturer. The manufacturer is not liable for damages to persons, animals and property due to the non-compliance with the instructions herein.

## SAFETY WARNINGS



It is forbidden to disperse the packaging material or leave it within children's reach as it can be dangerous.



Safety standards in the work place must be observed and all protections, such as anti-fall protections, safety nets for scaffolding, overalls with safety or restraining belts etc., must be realised before assembling the structure. The used equipment must also be conform with current standards. Always wear protective goggles, safety shoes, cut resistant gloves and helmet during work.



TENDAEVO\_1T and TENDAEVO\_1TX models are not compatible with TEL2 e TEL2X mounting systems.



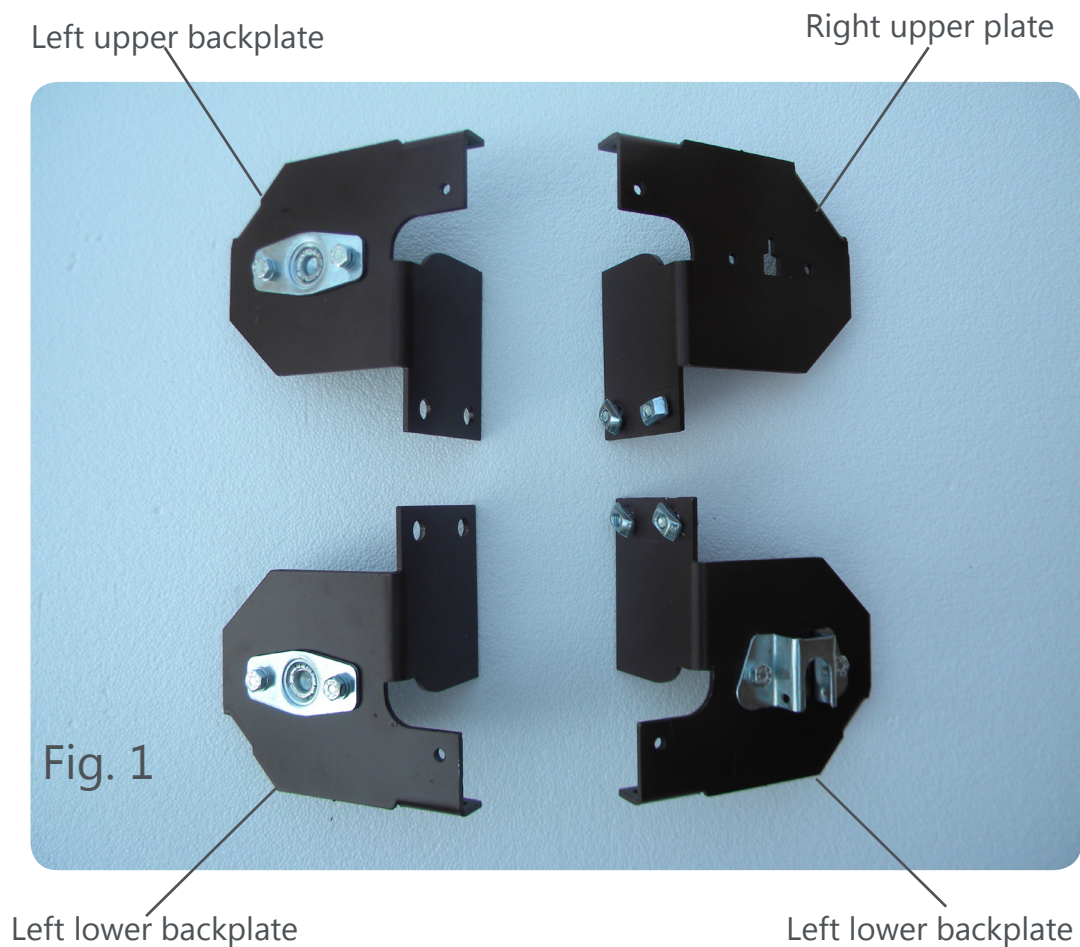
TENDAEVO\_2T and TENDAEVO\_2TX models are not compatible with TEL3 e TEL3X mounting systems.

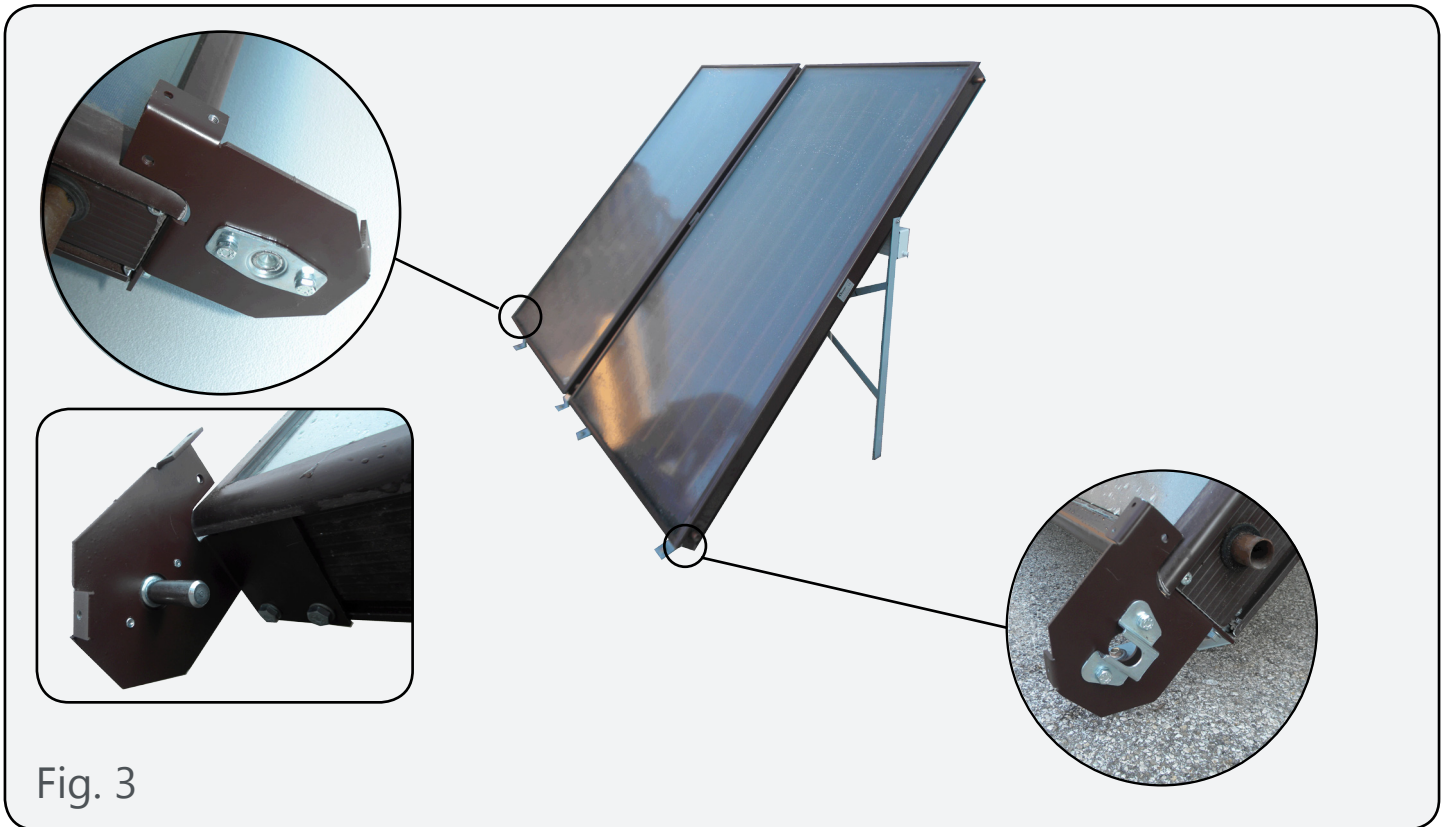
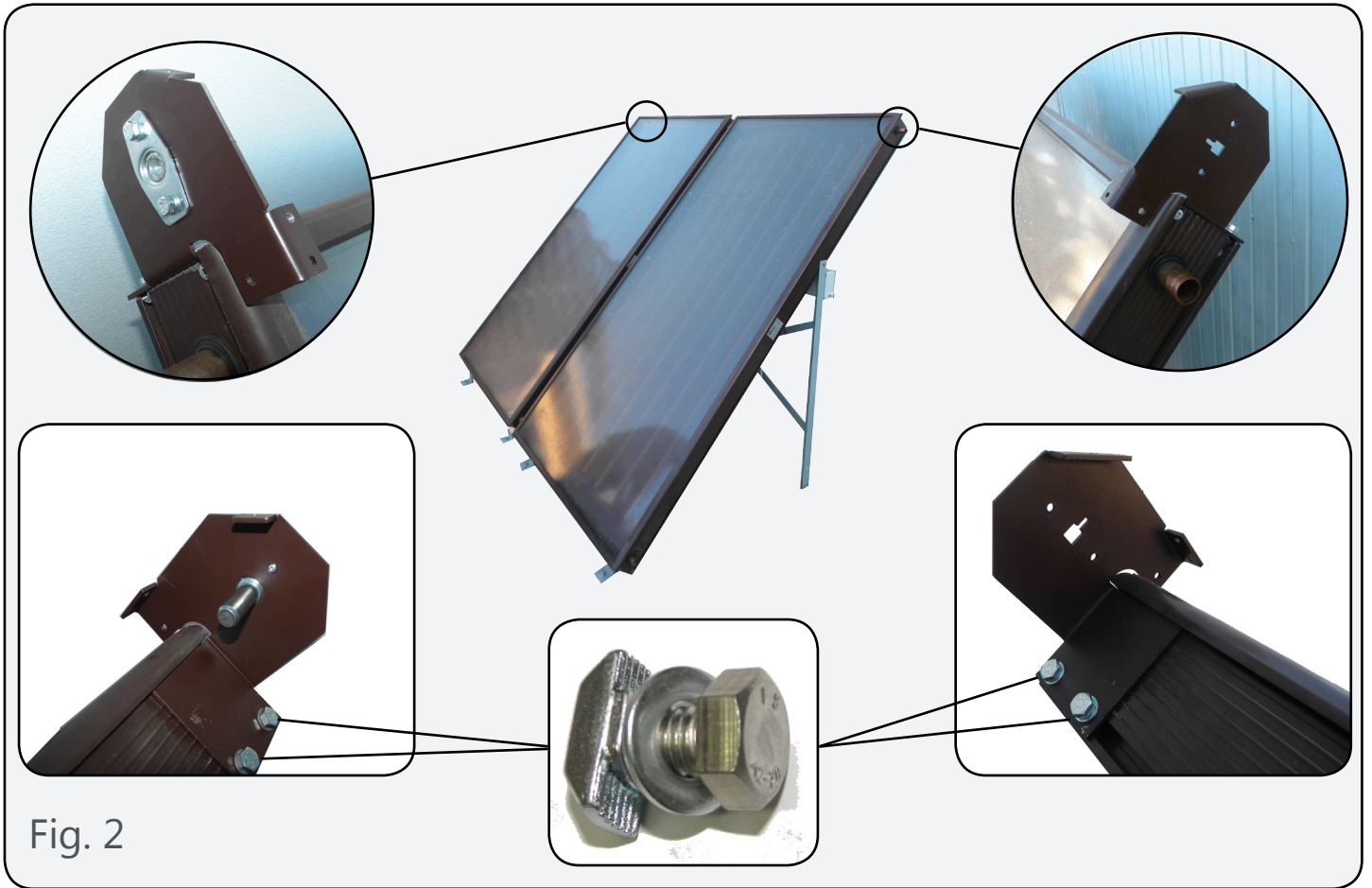
# INSTALLATION METHOD

**ATTENTION:** THE EVO SOLAR COVER CAN ONLY BE INSTALLED WITH SOLAR COLLECTORS H1T AND H1TX

1

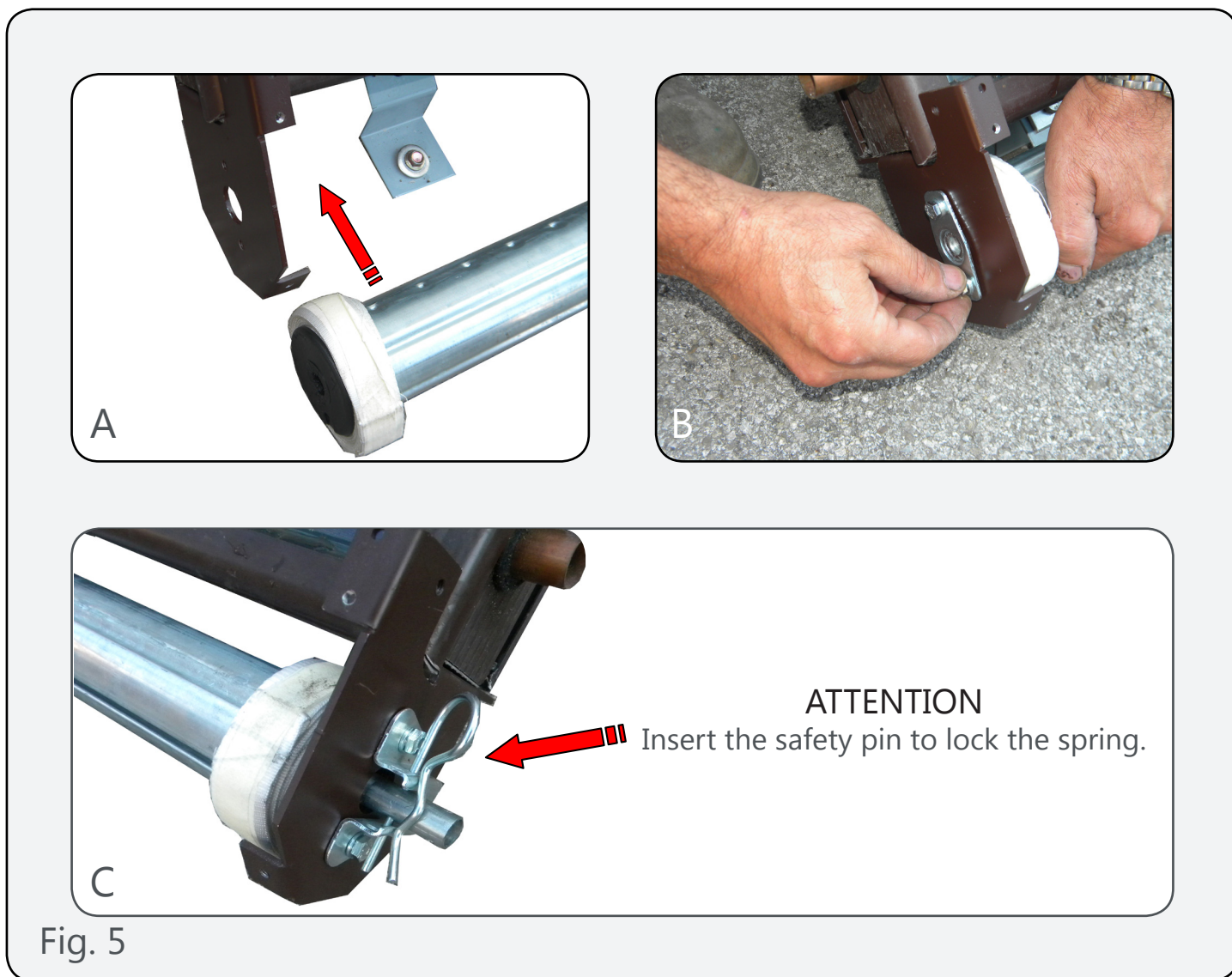
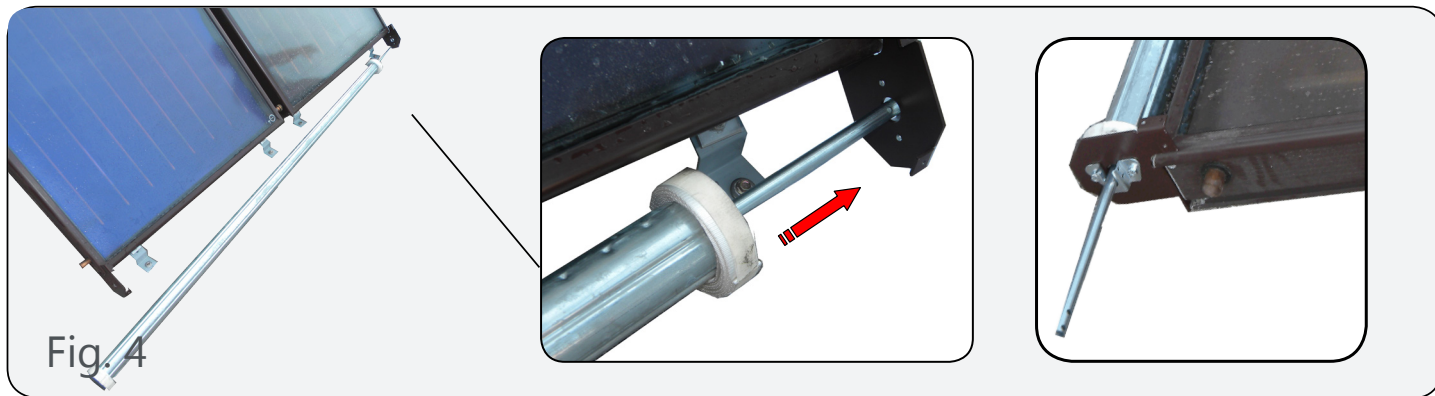
Assembly of plates and backplates on the collector's frame. (Fig. 2 and Fig. 3)





# 2

Roller-spring introduction on lower plate and backplate.



# 3

Introduction of cover and motor on upper plate and backplate.

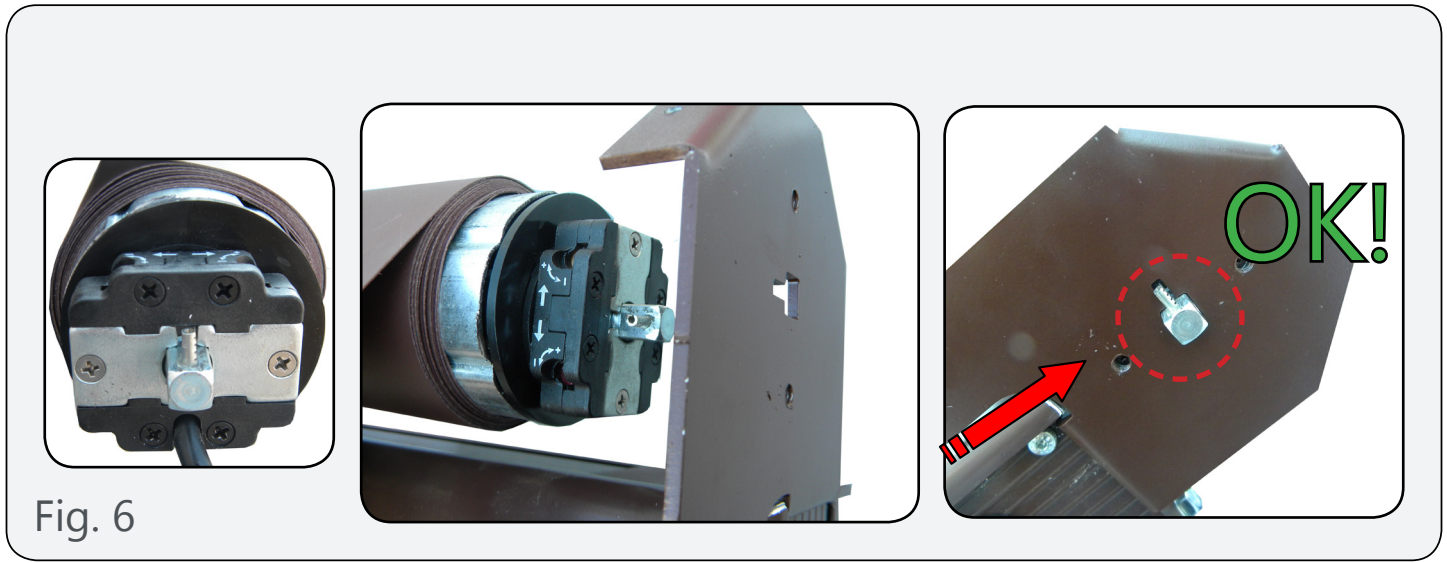
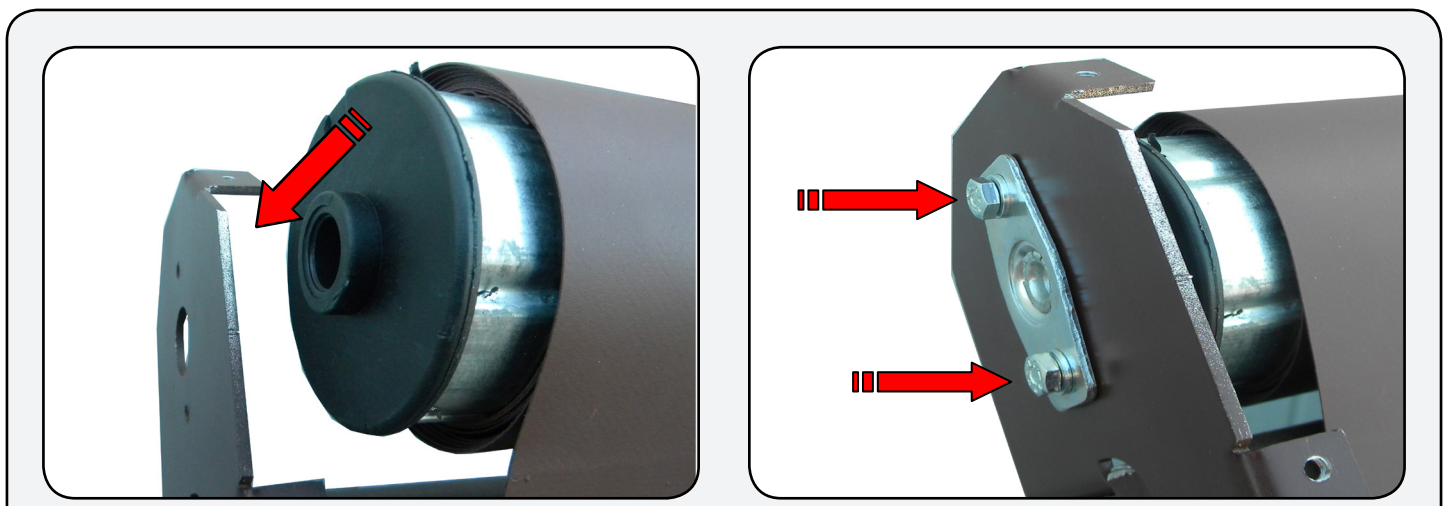


Fig. 6



Before the subsequent step, connect the control unit (see attachment A, page 8) and manually lower the cover against the lower end run (covered collector).



Don't unroll solar cover by hand, in order to keep limit switches functionality which are set in factory.



Unroll solar cover only electrically.

Fig. 7

# 4

## Roller-spring loading and fastening of cover tensioning belts.



MODEL H1T  
Make 5/6 rotations to perfectly load the roller-spring.

MODEL H1TX  
Make 5/6 rotations to perfectly load the roller-spring.

Fig. 8

**ATTENTION**  
keep the loaded roller-spring locked during fastening of the tensioning belts.

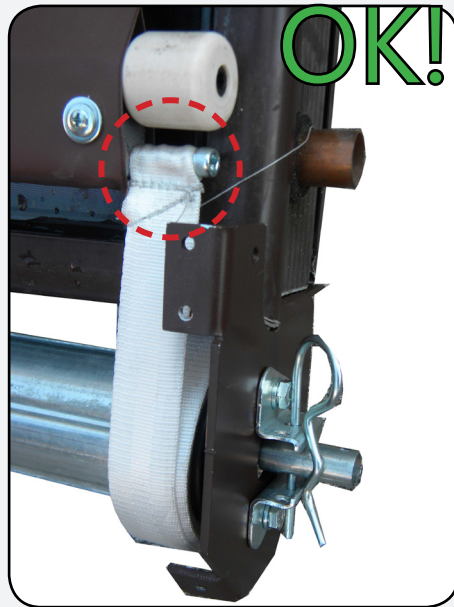
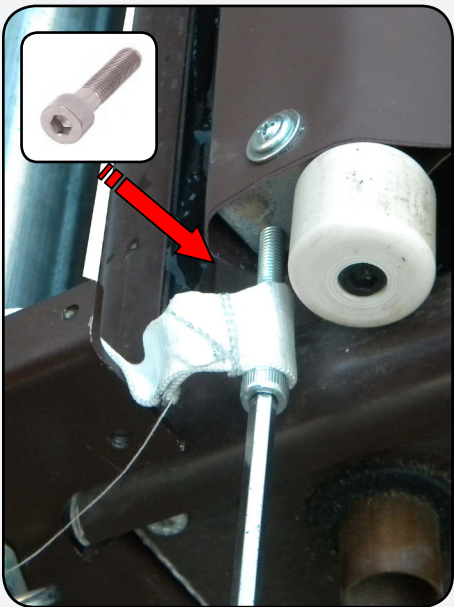


Fig. 9

# 5

(fig. 10a-b-c) and upper-lower (fig. 10d) protective guards assembly.

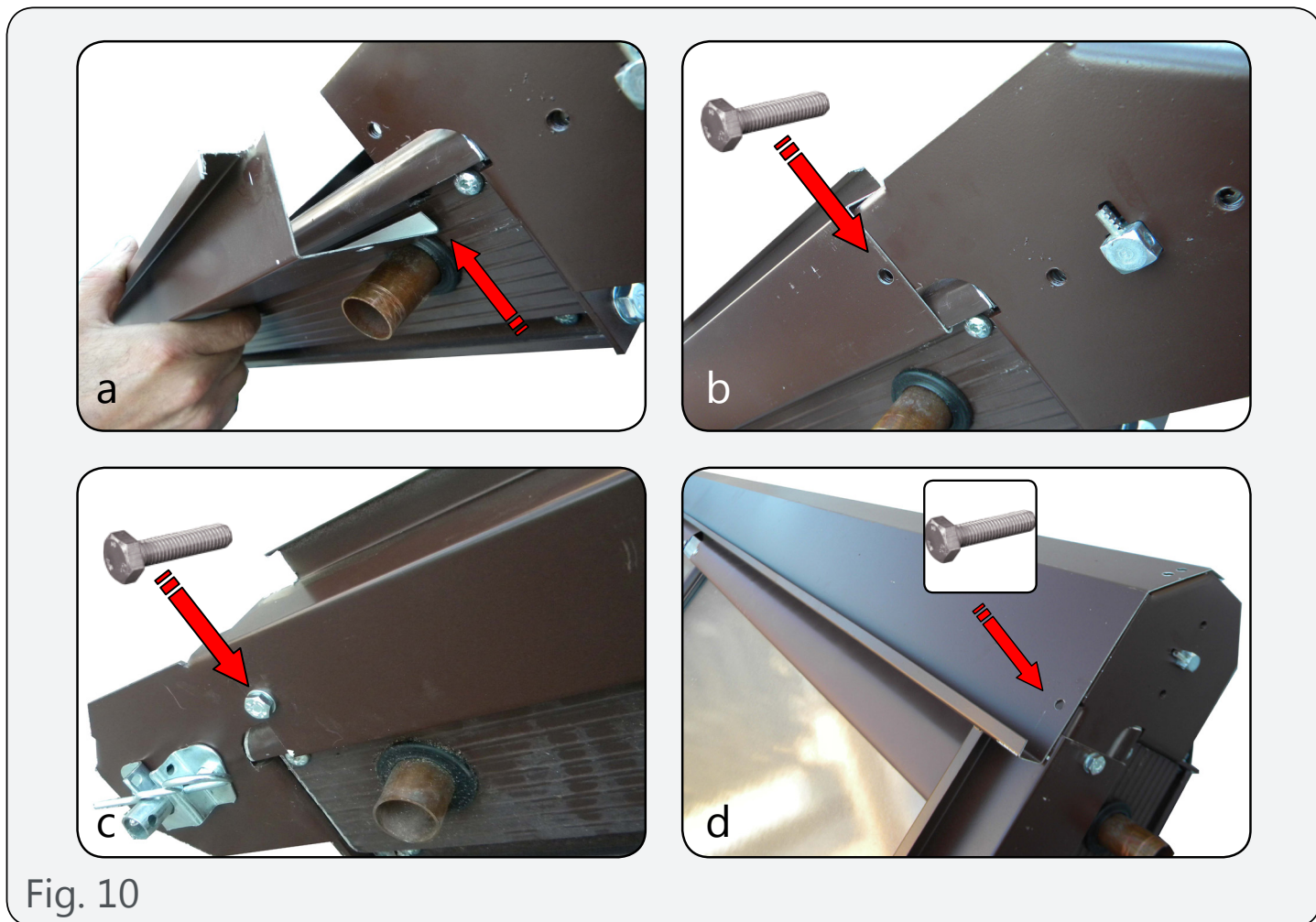


Fig. 10

The cover is now assembled.  
Make the electric connection.



If lateral guards holes don't match with backplate and plate holes, please drill guards and make a slot.



The board is housed in a ip64 water-tight container; connect the motor and temperature probe to this board.

A green LED (voltage present) and a red LED indicating the operating mode, light-up when the control unit is switched on:

- √ Permanent red LED ----- AUTOMATIC
- √ Flashing red LED ----- MANUAL

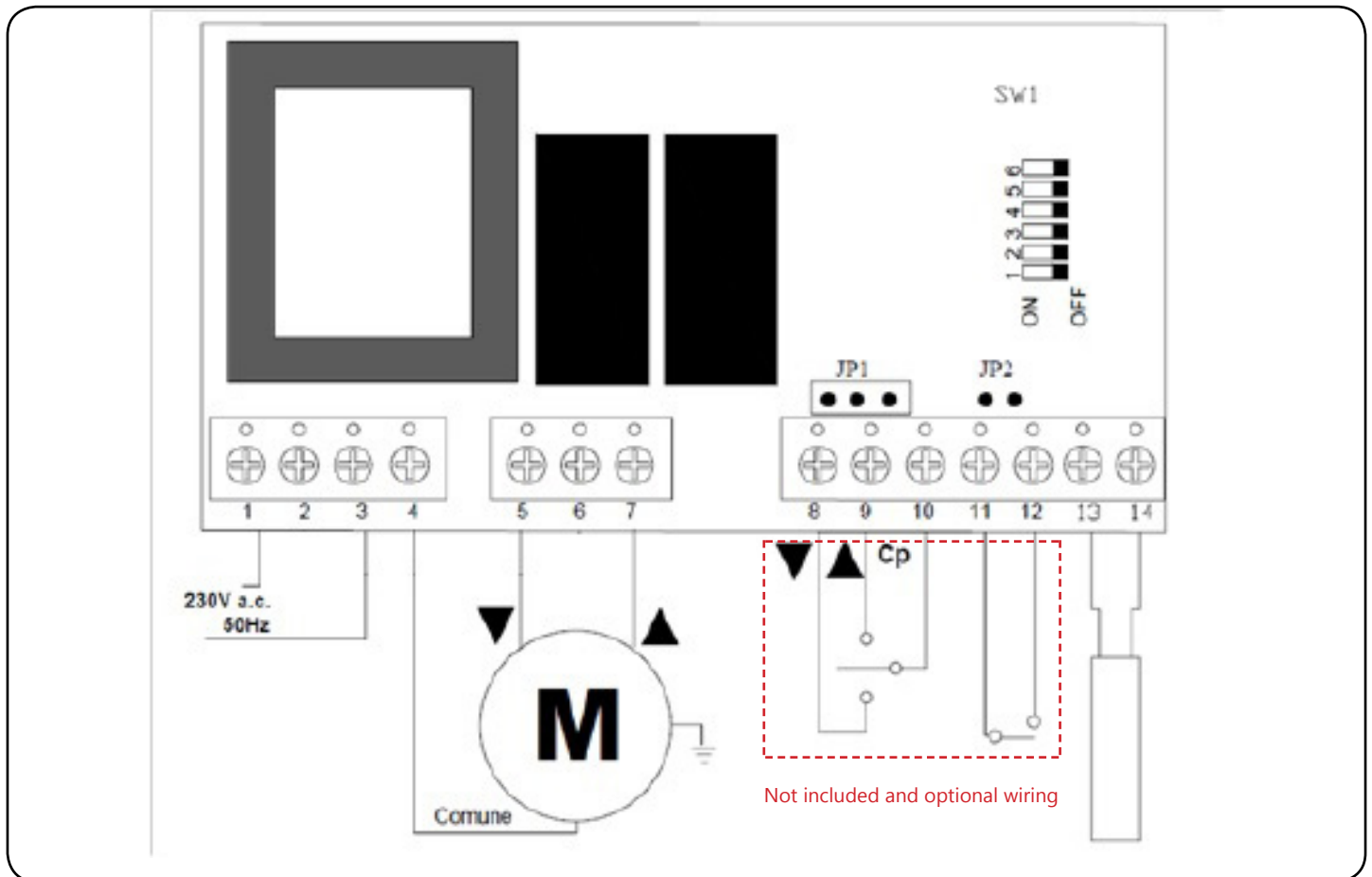
The control unit has a pushbutton panel to manually control the system and a jumper for choosing automatic or manual mode.

- 1) 1) Connect the motor to specific terminal box (see connection diagram).
- 2) Choose the temperature range by setting the SW1 deep switch.
- 3) Connect power supply. (without powering)
- 4) Connect the probe.
- 5) Select manual mode.
- 6) Power the board.
- 7) Adjust the end run points (set in factory) ONLY IF REQUIRED.
- 8) Select automatic mode.

Probe type: Ntc 100 kohm a 25°C

# WIRING DIAGRAM Centenda Model

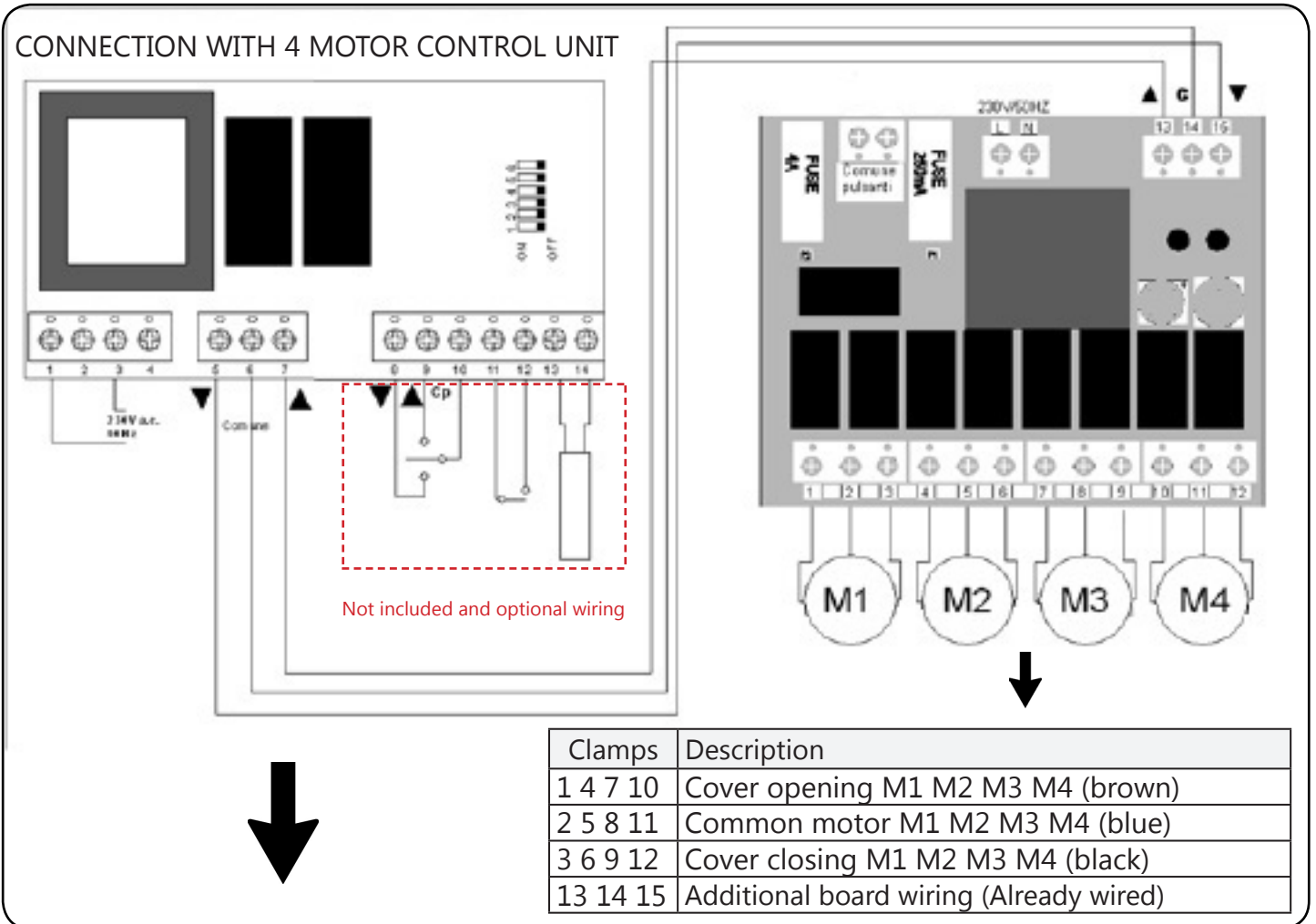
Connect the electric motor earth cable directly to power supply earth cable



Clamps	Description	
1 - 3	230V/50Hz Power supply	
2 - 4	Do not connect	
4	Common motor (BLUE wire)	
5	Cover opening motor (BROWN wire)	
7	Cover closing motor (BLACK wire)	
8	Switch input (Cover opening)	OPTIONAL-NOT INCLUDED
9	Switch input (Cover closing)	OPTIONAL-NOT INCLUDED
10	Common switch input	OPTIONAL-NOT INCLUDED
11 - 12	Manual/Automatic switch input	OPTIONAL-NOT INCLUDED
13 - 14	Probe input	

# MULTI-COVER WIRING DIAGRAM Centenda 4 Model

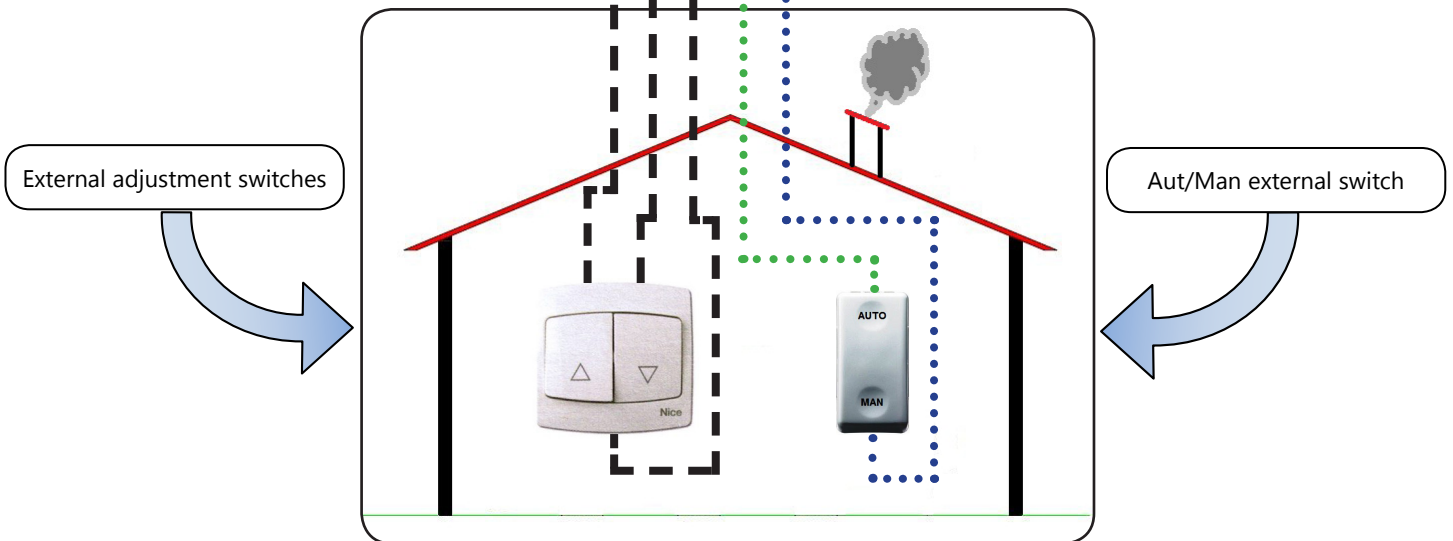
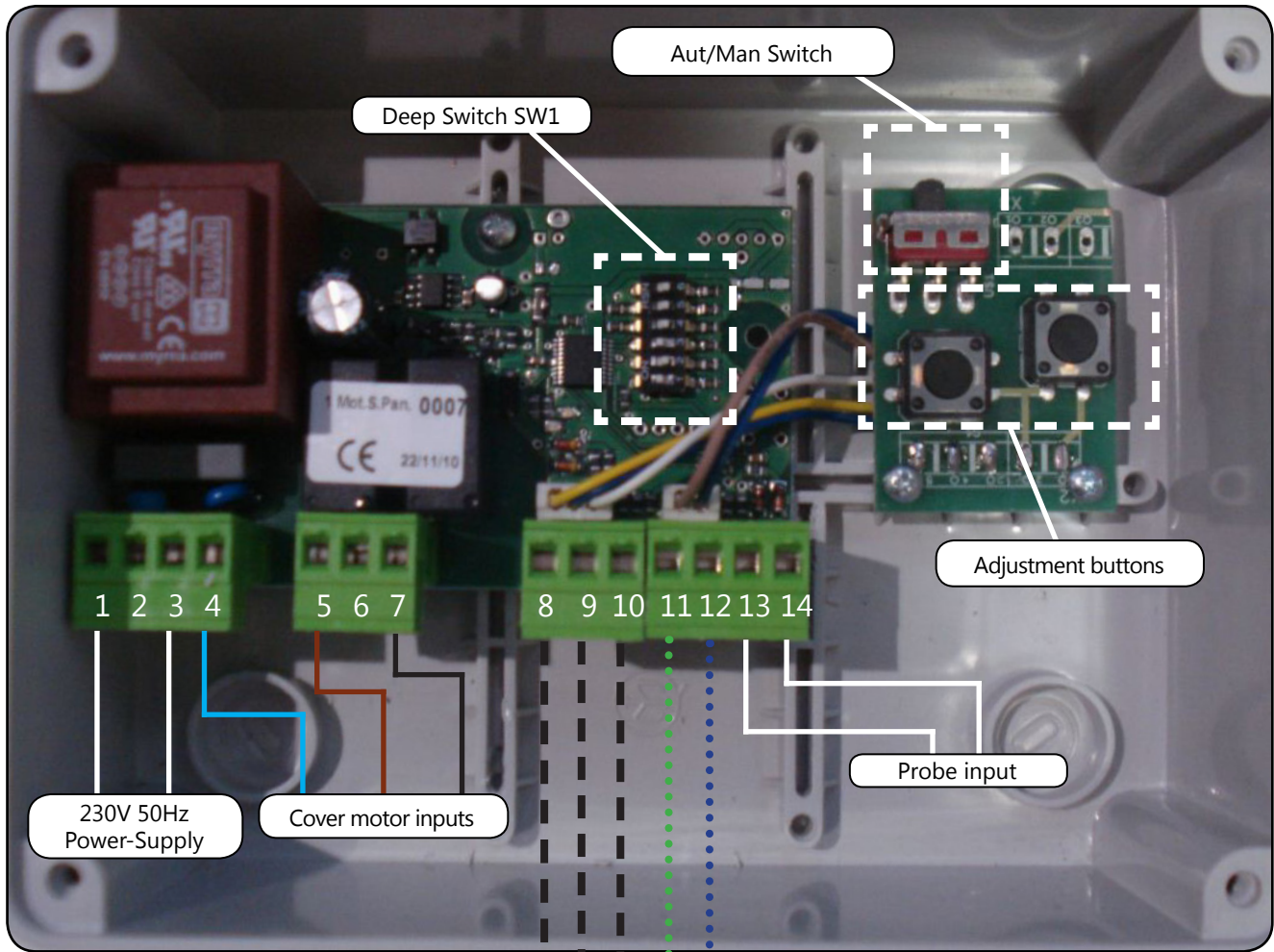
**Connect the electric motor earth cable directly to power supply earth cable**



Clamps	Description	
1 - 3	230V/50Hz Power supply	
2	Do not connect	
5 6 7	Additional board wiring	
8	Switch input (Cover opening)	OPTIONAL-NOT INCLUDED
9	Switch input (Cover closing)	OPTIONAL-NOT INCLUDED
10	Common switch input	OPTIONAL-NOT INCLUDED
11 - 12	Manual/Automatic switch input	OPTIONAL-NOT INCLUDED
13 - 14	Probe input	

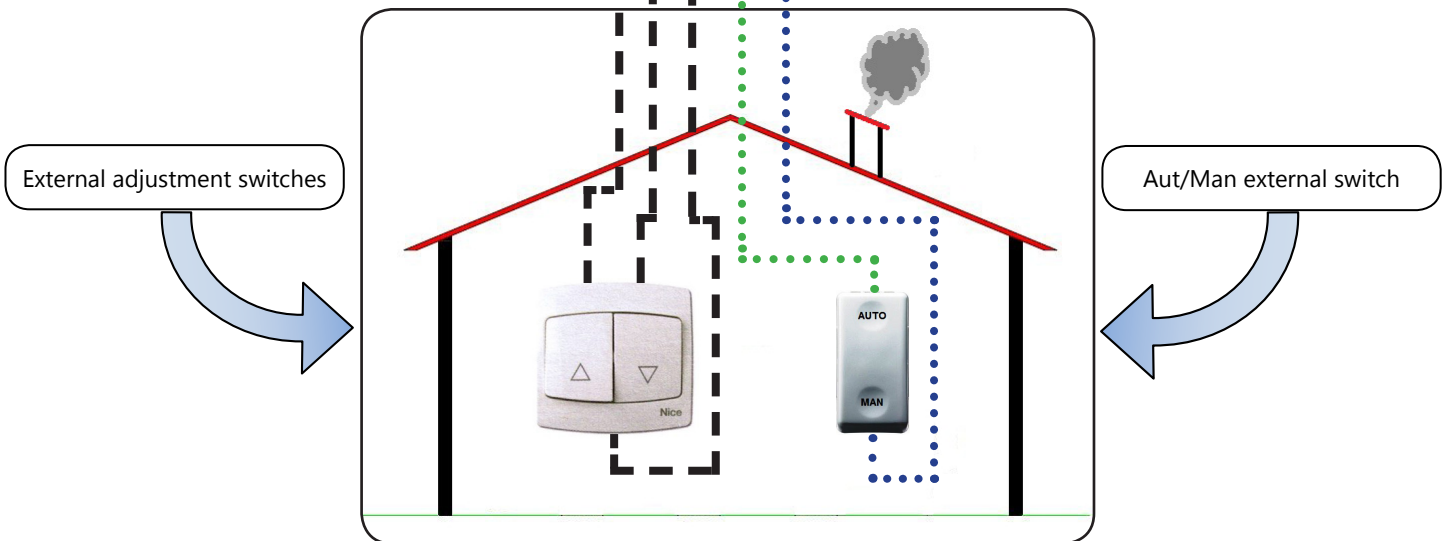
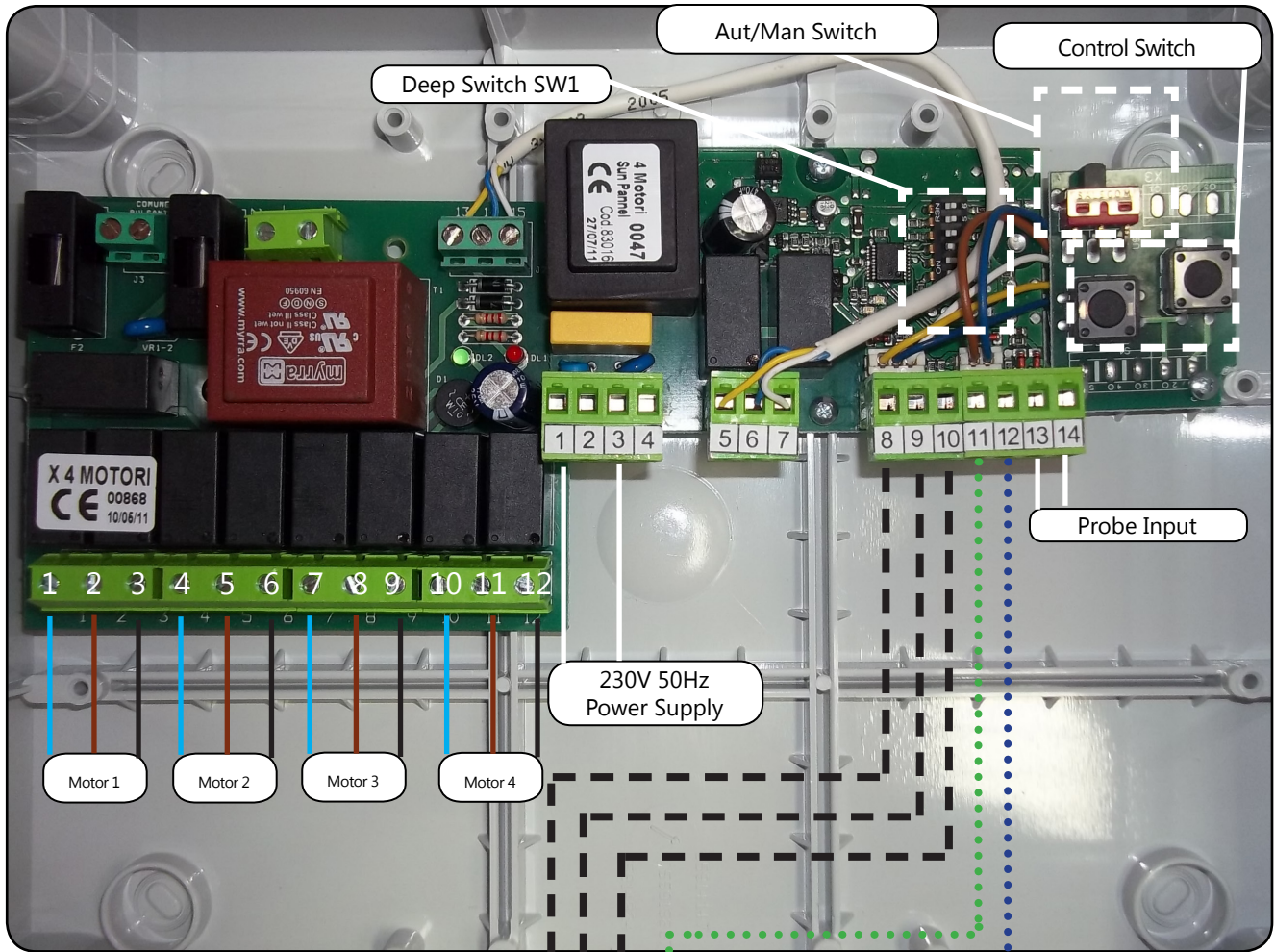
If the system has more solar covers, up to four can be connected to a prepared individual control unit.

# GRAPHIC DESCRIPTION Centenda Model



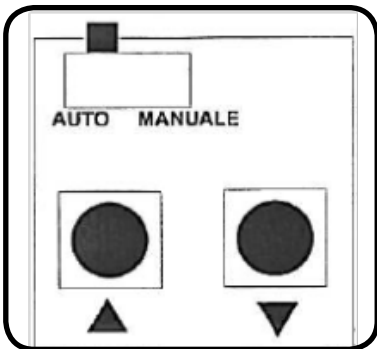
Not included and optional wiring

# GRAPHIC DESCRIPTION Centenda 4 Model



Not included and optional wiring

# CONTROL UNIT ADJUSTMENT

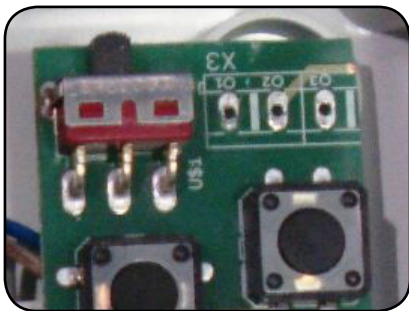


## AUTOMATIC/MANUAL SWITCH:

Switch positioning in manual: the motor is moved using the buttons; the red LED in the board flashes.

Switch positioning in automatic: permanent red LED, the motor cannot be moved using the buttons.

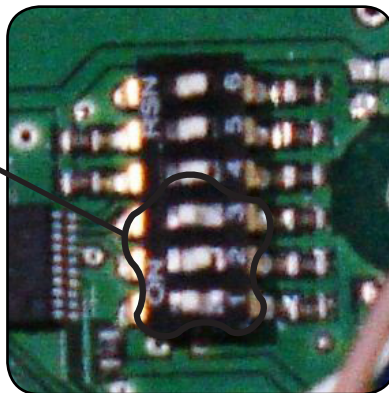
Attention: the buttons are of "dead man" type, if kept pressed the motor moves, released it stops.



## TEMPERATURES SETTING

The temperature is adjusted using Deep Switch SW1 with many combinations, to each corresponds a temperature minimum and maximum with 20° offset, except one combination where the offset is 25°C (Max 110° Min 85°).

1	2	3	Min. (°C)	Max. (°C)
on	on	on	55	75
on	on	off	60	80
on	off	on	65	85
on	off	off	70	90
off	on	on	75	95
off	on	off	80	100
off	off	on	85	105
off	off	off	85	110



The control unit is by default set on min 65° - max 85° range

N.B. The temperature range is chosen based on the probe location within the solar system (collector, boiler, etc...).

# SOFTWARE FEATURES

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## SOFTWARE FEATURES - SOFTWARE FEATURES

1. The control unit closes the cover and checks effective drop in temperature when the set temperature, as in diagram 1 in previous page, is exceeded.
2. The end run stop system, adjusted on 230V motor
3. Example, if the set temperature is 85°C:
  - when this value is exceeded the processor activates the descent relay output and keeps it active for 2 minutes.
  - The descent relay relaxes when the set time (2 min) expires, after 30 minutes the system controls a further jog to check the cover is effectively closed. (the control is given 3 times every 30 minutes)
  - The temperature must at least drop below 65°C for the processor to consider the alarm reset. When below 65°C, the processor considers the alarm reset and activates the relay output for the ascent and keeps it active for 2 minutes.
  - The processor will always control an ascent run ignoring the detected temperature when switched on in automatic. (Reset)
  - The ascent relay relaxes when the set time (2 min) expires, after 30 minutes the system controls a further jog to check the cover is effectively open (the control is given 3 times every 30 minutes)
  - The processor checks probe status and, if required, closes the cover when end run is reached.

# END RUN ADJUSTMENT

END RUN ADJUSTMENT - END RUN ADJUSTMENT



## ATTENTION!

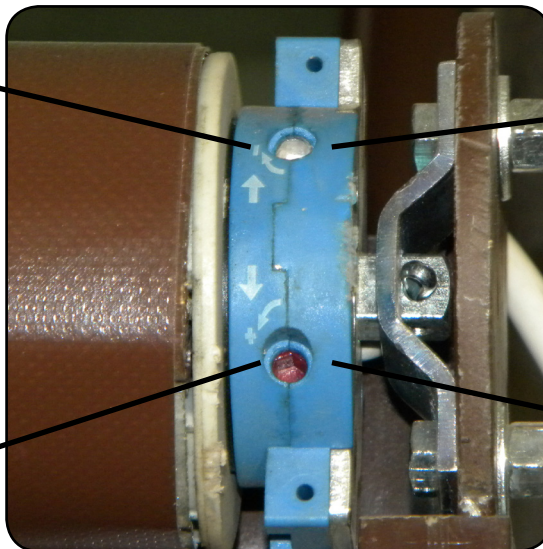
The following procedure must be implemented ONLY IF set adjustment is incorrect.



IT IS ESSENTIAL to be able to stop movement at any time during the end run adjustment to avoid damaging property, persons, animals and the device.

Lower end run regulator  
(covered collector)

Upper end run regulator  
(uncovered collector)

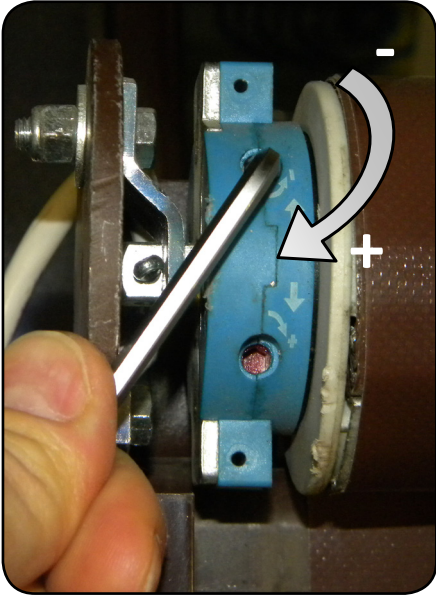




## LOWER END RUN

### LOWER END RUN - LOWER END RUN

#### THE COLLECTOR REMAINS TOTALLY OR PARTIALLY UNCOVERED:



If the solar collector is not totally covered by the cover, follow the instructions below:

- Place the AUT/MAN diverter on Manual.
- ROTATE THE REGULATOR CLOCKWISE (+).



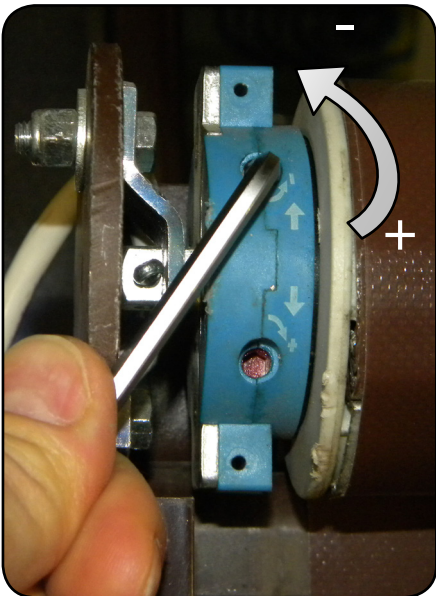
- Press the cover winding button for a few seconds.



- Press the cover unwinding button until it stops.

- Check whether the stopping point is correct, if not repeat the previous operations until it is.

#### THE COVER IS EXCESSIVELY UNROLLED.

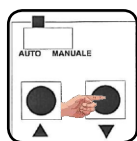


If during covering, the cover is excessively unrolled forming bumps, folds, etc., follow the instructions below:

- PLACE THE AUT/MAN DIVERTER ON MANUAL.
- ROTATE THE REGULATOR ANTI-CLOCKWISE (-).



- Press the cover winding button for a few seconds.



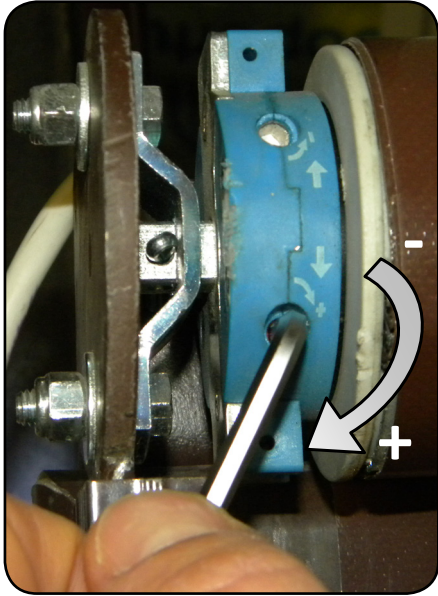
- Press the cover unwinding button until it stops.

- Check whether the stopping point is correct, if not repeat the previous operations until it is.

## UPPER END RUN

### UPPER END RUN - UPPER END RUN

#### THE COLLECTOR IS TOTALLY OR PARTIALLY COVERED:



If the solar collector is not totally uncovered but partially so by the cover, follow the instructions below:

- PLACE THE AUT/MAN DIVERTER ON MANUAL.
- ROTATE THE REGULATOR CLOCKWISE (+).



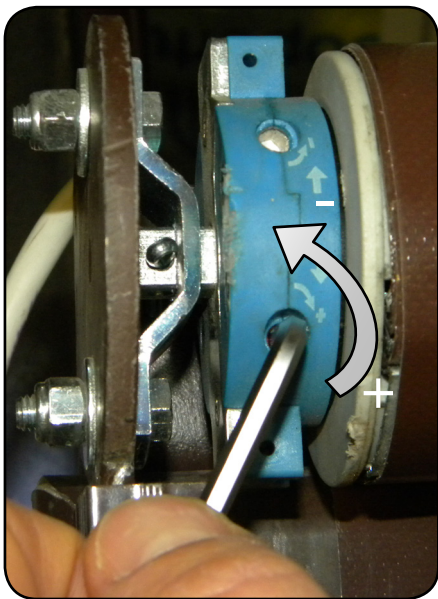
- Press the cover unwinding button for a few seconds.



- Press the cover winding button until it stops.

- Check whether the stopping point is correct, if not repeat the previous operations until it is.

#### THE COVER IS EXCESSIVELY ROLLED.

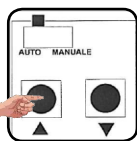


If the cover is excessively rolled forcing the motor, follow the instructions below:

- Place the AUT/MAN diverter on Manual.
- ROTATE THE REGULATOR ANTI-CLOCKWISE (-).



- Press the cover unwinding button for a few seconds.



- Press the cover winding button until it stops.

- Check whether the stopping point is correct, if not repeat the previous operations until it is.





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