



## Status Light Roof

Suitable for UFC 200 and UFC 500

# Installation and Service Instruction

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# 1 Document management

## 1.1 Change history

Date	Document Version	Created	Approved	Changes

## 2 Safety



This chapter contains general safety information, specific safety instructions and precautions as well as information concerning personnel qualification and proper use of the product.

Before installing the Status Light Roof, review this manual carefully and consult with a licensed contractor, and trained installation expert to ensure compliance with local building practices, climate conditions, safety standards, and state and local codes.



### 2.1 General safety information

The following four risk levels and one information level are taken into account in this manual.



#### Danger

	<b>DANGER</b>
	<b>Immediate pending danger</b> Indicates an immediately pending danger that will result in death or serious injury if not avoided. <ul style="list-style-type: none"><li>▶ Instruction 1 to avoid danger</li><li>▶ Instruction 2 to avoid danger</li><li>▶ Instruction n to avoid danger</li></ul>

#### Warning

	<b>WARNING</b>
	<b>Potential pending danger</b> Indicates a pending danger that could result in death or serious injury if not avoided. <ul style="list-style-type: none"><li>▶ Instruction 1 to avoid danger</li><li>▶ Instruction 2 to avoid danger</li><li>▶ Instruction n to avoid danger</li></ul>

#### Caution

	<b>CAUTION</b>
	<b>Potential pending danger</b> Indicates a pending danger that could result in minor injuries if not avoided. <ul style="list-style-type: none"><li>▶ Instruction 1 to avoid danger</li><li>▶ Instruction 2 to avoid danger</li><li>▶ Instruction n to avoid danger</li></ul>

Notice

**NOTICE**

**Danger of damage to property**

Indicates potential for damage to property. Is used to highlight actions that are not associated with personal injury.

- ▶ Instruction 1 to avoid damage to property
- ▶ Instruction 2 to avoid damage to property
- ▶ Instruction n to avoid damage to property

Note



Notes indicate important information about the product in the context of the manual.

- ▶ Info 1
- ▶ Info 2
- ▶ Info n

The safety instructions are supplemented by warning pictographs indicating the source and type of danger.

**2.2 Safety instructions**

All safety instructions in this manual are based on the results of the risk assessment carried out in accordance with the Machinery Directive 2006/42/EC Annex I and EN ISO 12100. Where applicable, the life cycle phases of the product were taken into account.



**WARNING**

**Electric shock**

Danger of electric shock or injury.



- ▶ Turn OFF power at the main distribution board before working inside the equipment or removing any component.
- ▶ Do not remove circuit protective devices or any other component until the power is turned OFF.
- ▶ Do not come into contact with electrical voltage.



**WARNING**

**Injury through suspended load or lifting equipment**

Persons in the vicinity of the installation site immediately before the Status Light Roof being installed can be injured by lifting equipment or suspended loads.



- ▶ Secure the installation site against unauthorised access.



**WARNING**



**Injuries from swinging load**

Risk of injury through Status Light Roof swinging while suspended. Through swinging, the danger zone increases.

- ▶ Pay attention.
- ▶ Keep the escape zone clear.



**WARNING**



**Squeezing or crushing of hands**

During installation of the Status Light Roof on the charger, hands can be squeezed or crushed between Status Light Roof and charger.

- ▶ Pay attention.
- ▶ Do not reach between Status Light Roof until the Status Light Roof is securely in position.



**WARNING**



**Injury from falling objects**

Risk of injury through Status Light Roof falling during setup.

- ▶ Do not stand under lifted loads.
- ▶ Use appropriate hoisting gear.
- ▶ If necessary, secure mechanically whilst lowering.



**WARNING**



**Electric shock**

Risk of electric shock through incorrect identification of wires or wire colours.

- ▶ Follow instructions when connecting wires.



**WARNING**



**Electric shock**

Risk of electric shock through insufficient grounding of local grid.

- ▶ Before starting work, ensure that the local grid is sufficiently grounded.



**CAUTION**



**Tripping over charging cable**

Charging cables pose a trip hazard.

- ▶ Secure cables when they are not in use.
- ▶ Pay attention during charging.



**CAUTION**



**Risk of cutting**

Risk of cutting hands on Status Light Roof enclosure during unpacking and installation.

- ▶ Wear protective gloves.



**CAUTION**



**Injuries through being struck by falling objects**

Loose equipment or quickly deposited tools may fall and cause injury.

- ▶ Ensure that you have enough room to carry out your work.
- ▶ Put tools away securely.
- ▶ Keep the workplace tidy.

## 3 About this manual

### 3.1 Validity

This instruction regards first commercial version of Status Light Roof (called SL Roof), which is intended to guide you through the tasks of installation and service on UFC 200 and UFC 500.



Read this manual before conducting works on SL Roof.

Follow all safety instructions in [Delta UFC 200 and UFC 500 Maintenance Manual](#) and working instructions in this manual.

#### 3.1.1 Hardware version

This manual covers Status Light Roof (SL Roof)

##### Hardware version

The hardware version code provides information about the charger and the available connectors

PN	Part description	Applicable for UFC 200 and UFC 500 chargers
5811144099	SL REWORK KIT TOP LEVEL	UFC 500 (rework kit)
5811144118	SL PRODUCTION VER TOP LEVEL	UFC 500 (production)
5811144124	SL REWORK KIT TOP LEVEL	UFC 200 (rework kit)
5811144125	SL PRODUCTION VER TOP LEVEL	UFC 200 (production)

Table 1: Hardware version

Abbreviations: SL Roof= Status Light Roof

The SL Roof does not fit with any other charger platform from Delta. It is also not possible to apply it on UFC 200/UFC 500, where the roof area is already used to attach other elements e.g. additional lightning, weather protection roof etc.

### 3.2 Target groups

This manual is intended for personnel performing SL Roof installation on the UFC 200 or UFC 500. Before conducting upgrade tasks on the UFC, review UFC Maintenance Manual and this manual carefully and consult with a licensed contractor, licensed electrician and trained installation expert to ensure compliance with local building practices, climate conditions, safety standards, and state and local codes.

## 3.3 Conventions

In this manual, the different types of content are presented differently.

### 3.3.1 Instructions in the text

Instructions in the text include safety instructions, notes, tasks in sequence and unordered lists of items or tasks.

#### Safety instructions

Safety instructions are covered in document [“Delta UFC 200 Maintenance Manual”](#) and [“Delta UFC 500 Maintenance Manual”](#).

#### Task instructions

Each step of a task is indicated by an individual step. Individual tasks are separated by blue bars, the tasks are numbered in sequence. Numbered tasks must be conducted in the order shown.

---

[image]	Task 1
[image]	Task 2
[image]	Task n

---

The task is completed.

#### Images and information

When information is provided together with an image these blocks are separated by black bars.

---

[image]	Information
[image]	Information
[image]	Information

---

#### Lists

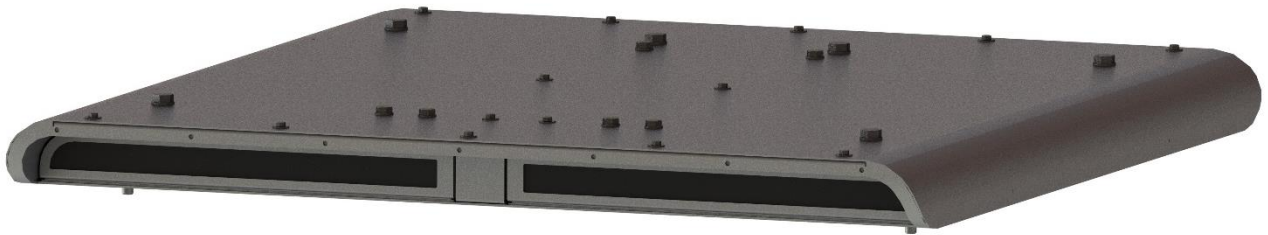
In unordered list the content is displayed with triangles which mark individual items.

- ▶ Item 1
- ▶ Item 2
- ▶ Item n

## 4 Product description

SL Roof is a product which goal is to show the working status of the charger.

SL Roof is shown on the following graph:

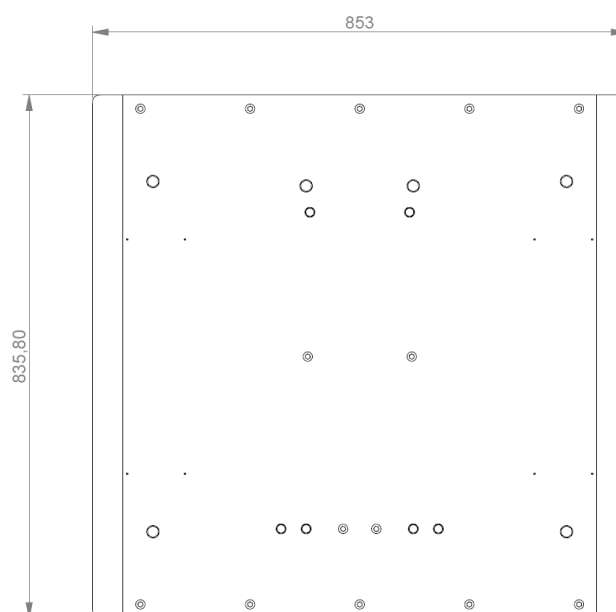


*Figure 1 - Cable Management System*

In the table below, the main points concerning the SL Roof device are presented:

Category	Value	Unit
Weight	29,1	[Kg]
Width	853	[mm]
Length	835,8	[mm]
Height	73,9	[mm]

*Table 3: Main dimensions*



*Figure 2 – SL Roof dimensions Width x Length*

## Product description

### Conventions

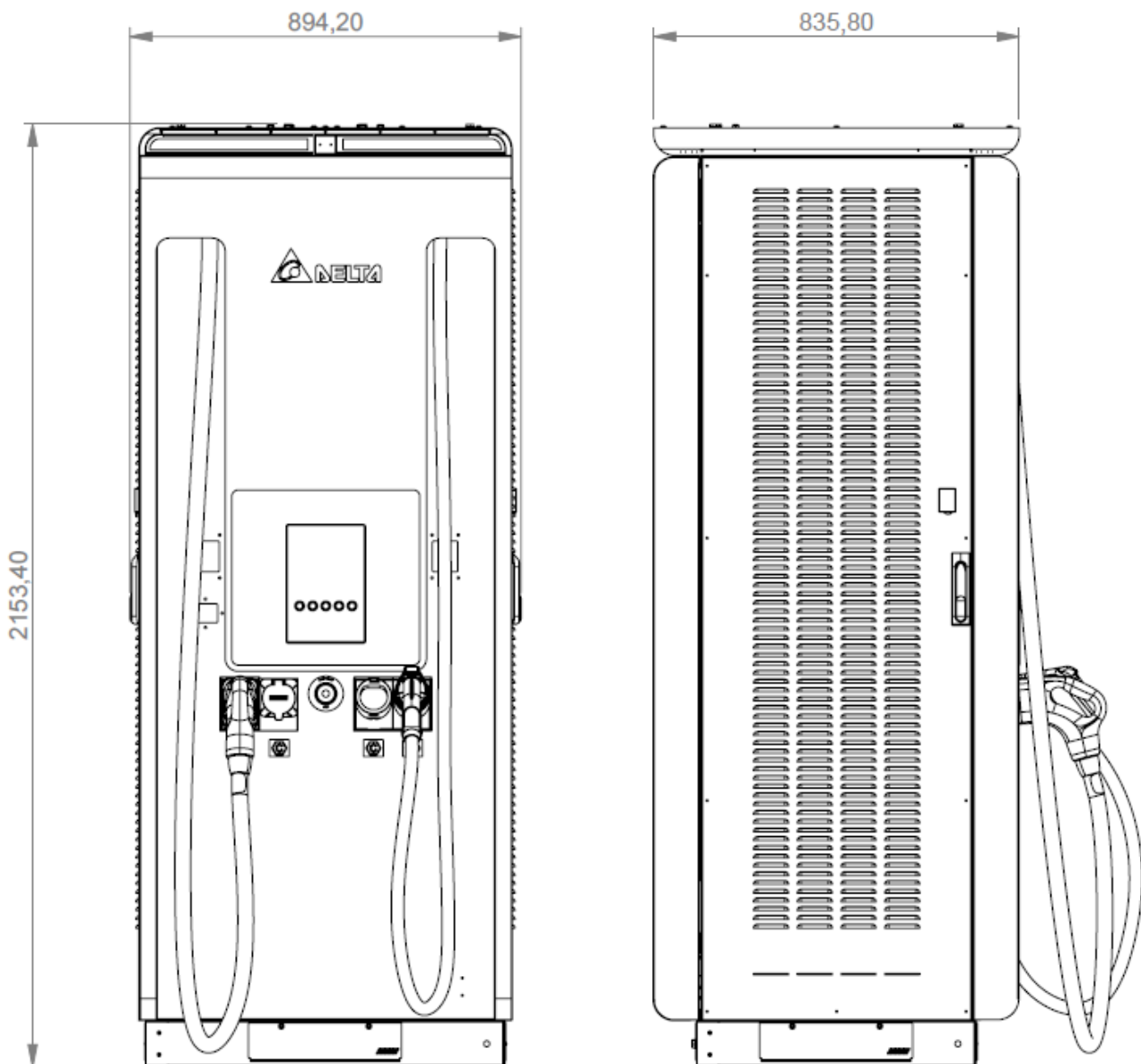


Figure 3 – SL Roof, dimensions on UFC200/UFC500

## 5 Packing and delivery

One SL Roof set will be delivered on a pallet containing 5 to 7 SL Roof units in different cardboards. This is illustrated in the photo below.



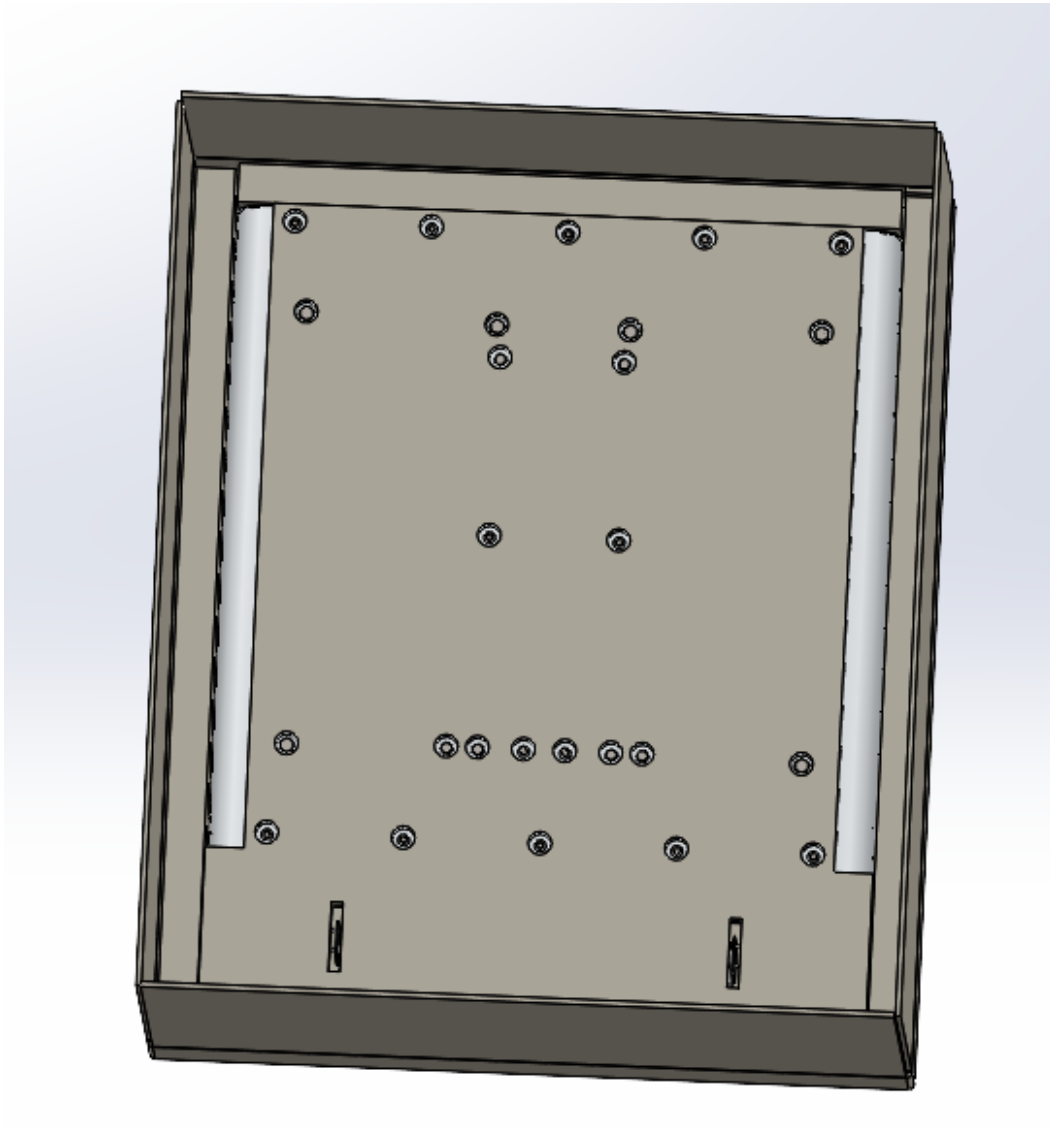
Figure 4 - Stacked 5 sets of SL Roof

### 5.1.1 Package contents

The package (SL Roof + PACKING) containing items shown in table below:

COMPONENTS		QUANTITY OF COMPONENTS IN EACH KIT (PCS)			
PART NUMBER	DESCRIPTION	5811144099	5811144118	5811144124	5811144125
3902627100	ROOF UNDER CM ONE-SIDED ASSY	1	1	1	1
5811143906	ASSY SL POWER SUPPLY 4IN1 [UFC500]	1	1	1	1
3924324400	ROOF UNDER CM DOUBLE-SIDED ASSY	0	0	0	0
3924326400	ROOF UNDER CM PACKING ASSY	1	0	1	0
3732632400	CABLE ASSY STATUS LIGHT UFC200 5V	0	0	1	1
3732629900	CABLE ASSY STATUS LIGHT UFC500 5V	1	1	0	0
3732629700	CABLE ASSY ROOF LUMINARY	2	2	2	2
3798106859	DOC EVC 500KW CIRCUIT DIAGRAM	1	1	0	0
3798103361	DOC EVC 200KW CIRCUIT DIAGRAM	0	0	1	1

Table 4: Packing – item numbers and quantity.



*Figure 5 - Packing solution*

### **5.1.2 Unpacking**

The following steps outline the tasks to be performed in order to safely unpack the SL Roof:

- Place cardboard with SL roof in place with easy access for 2 people
- Cut the top tape to open the carton
- Cut open the side walls of the carton and then remove the outer filling and accessories.
- Remove the SL Roof from the cardboard.

# 6 Preparation of the charger and space

To mount the SL Roof to the UFC 200 and UFC 500, the space around the charger and the charger itself must be prepared accordingly.

The points that need to be made are outlined below:

- Remove the screws together with the rubber washers from the loader.

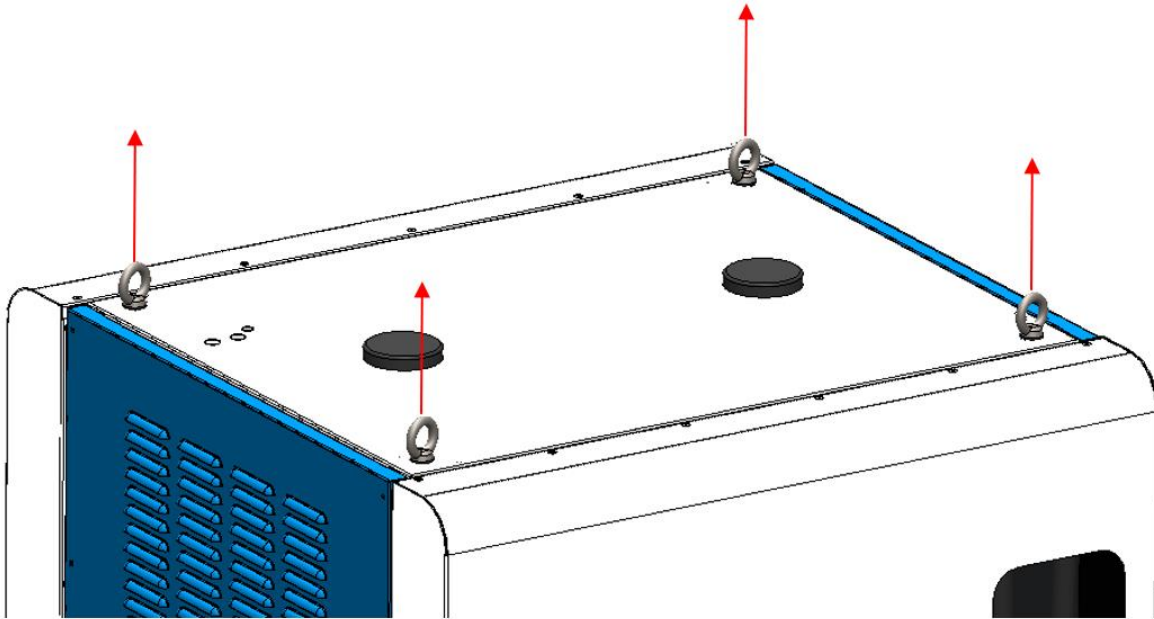


Figure 6 - Screws removal process

- Clean the roof of the charger of any debris such as dirt, dust, water.
- Mount the power supply inside the charger according to the electrical diagram dedicated to the type of the charger and lead the cables to the outside through special holes in the roof.
- Before installing the roof, verify whether there are holes for running cables outside. If there are no holes, drill them or replace the base roof of the charger. If the charger is equipped with holes, remove the plugs. For one-sided SL Roof it's needed 3 holes (1 for light sensor and 2 for lamps) and for double-sided SL Roof it's needed 5 holes (1 for light sensor and 4 for lamps).

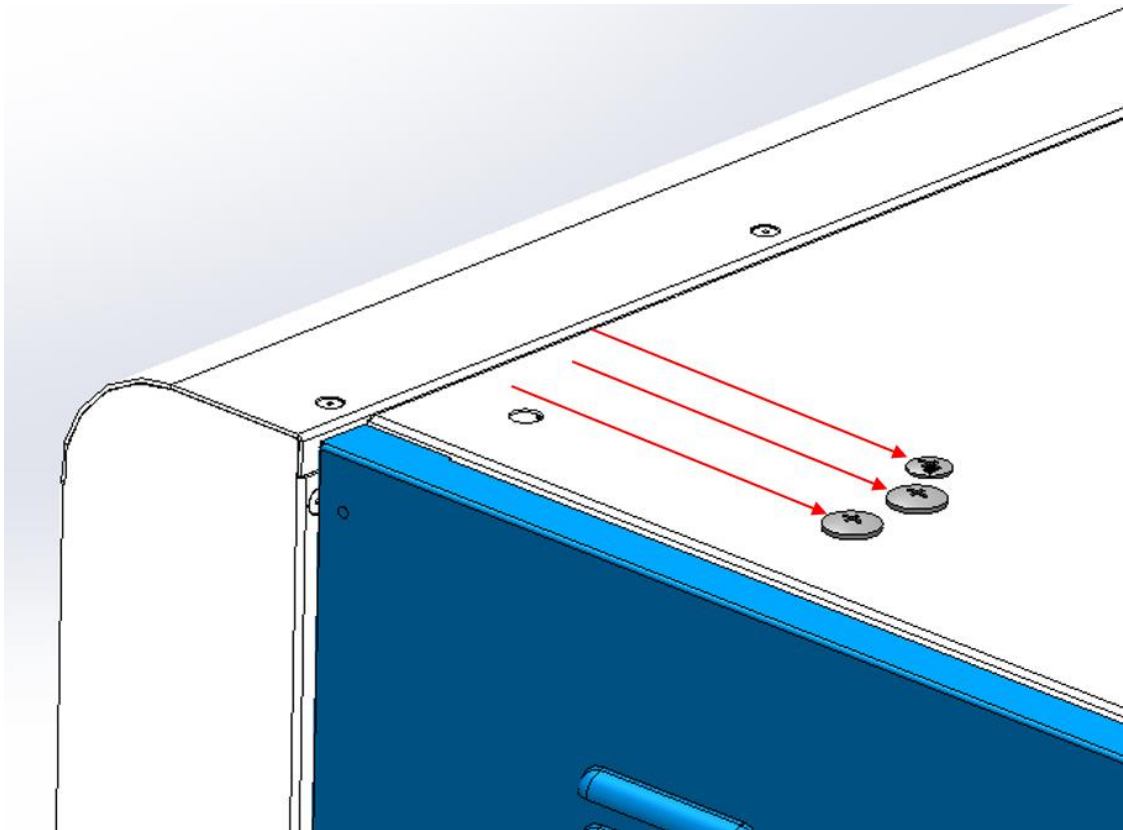


Figure 7 hole plugs

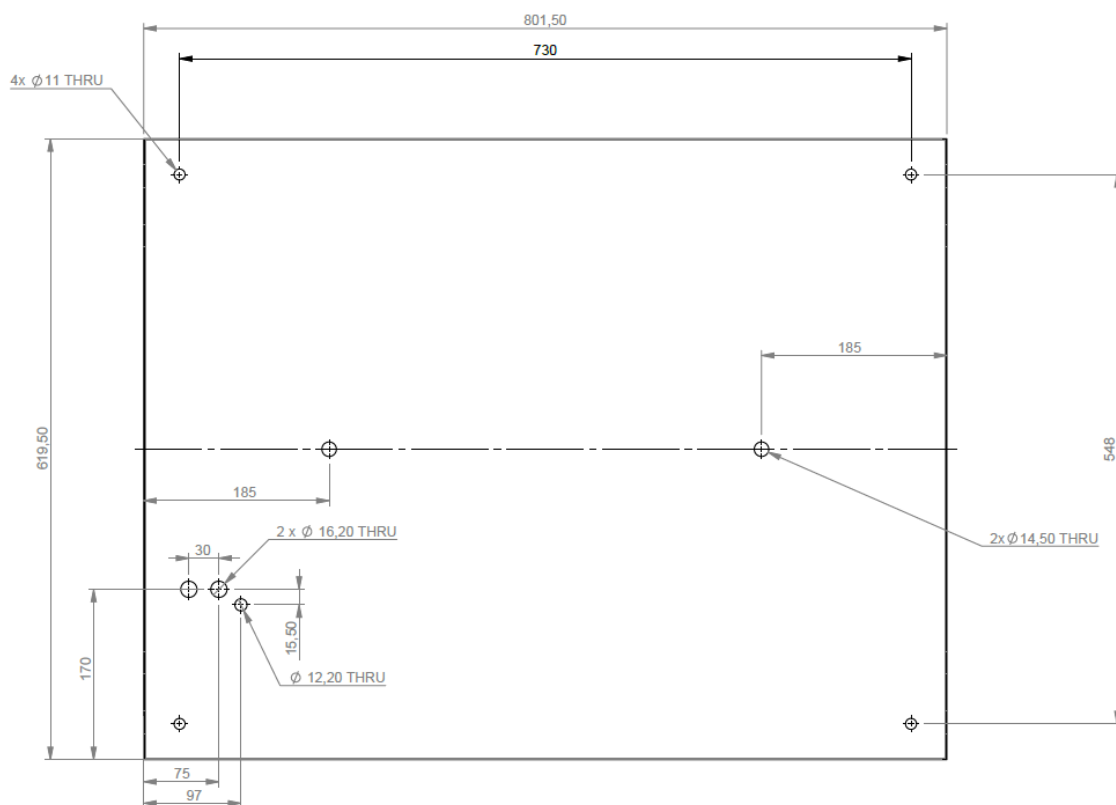


Figure 8 Hole arrangements for the 3 hole version

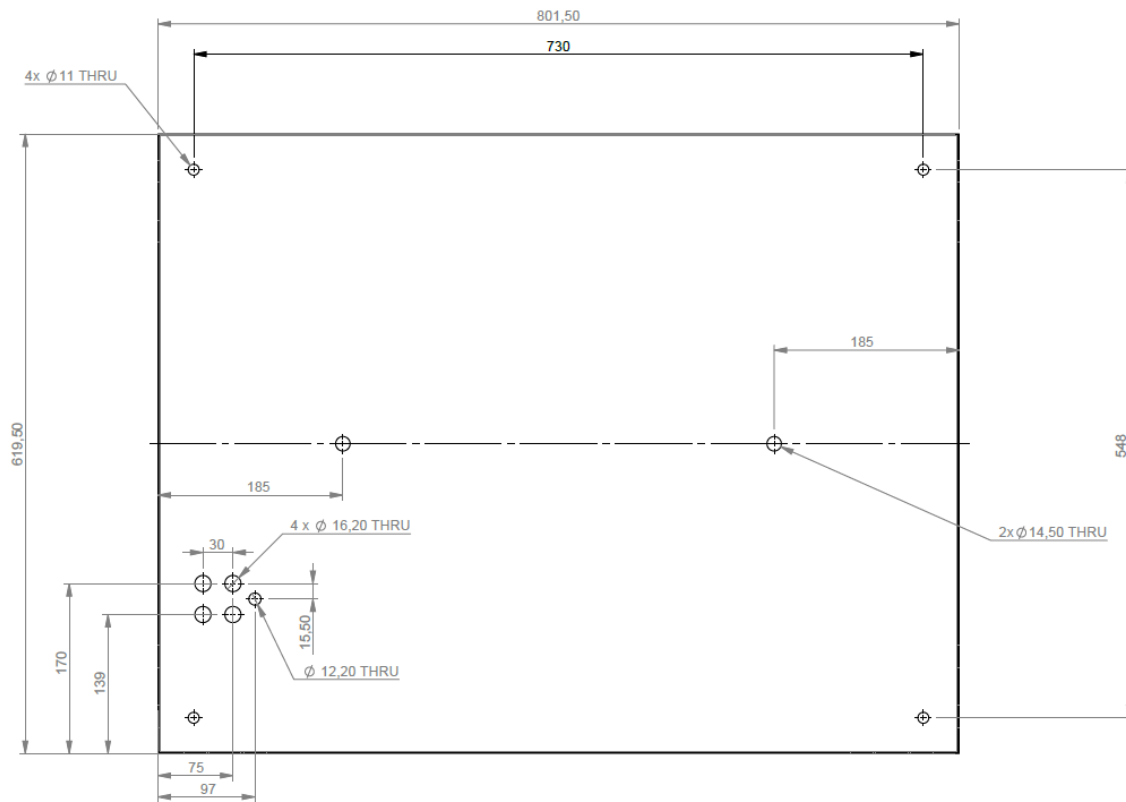


Figure 9 Hole arrangements for the 5 hole version

### After installation/service

After installing the system, leave the charger clean. Dispose of any waste in a suitable waste container. During and after servicing operations, any soiling, e.g. with grease, must be cleaned up.

# 7 Assembly instruction

This chapter covers the installation of SL Roof to the UFC 200 or UFC 500.

## 7.1 Requirements and restrictions:

- Installation must be performed by 2 persons and crane/forklift.
- Installation should take place under dry conditions to prevent against water entering the charger and between the CMS and the charger.
- Do not perform any tasks that are not listed in the manual.

## 7.2 Tools preparation

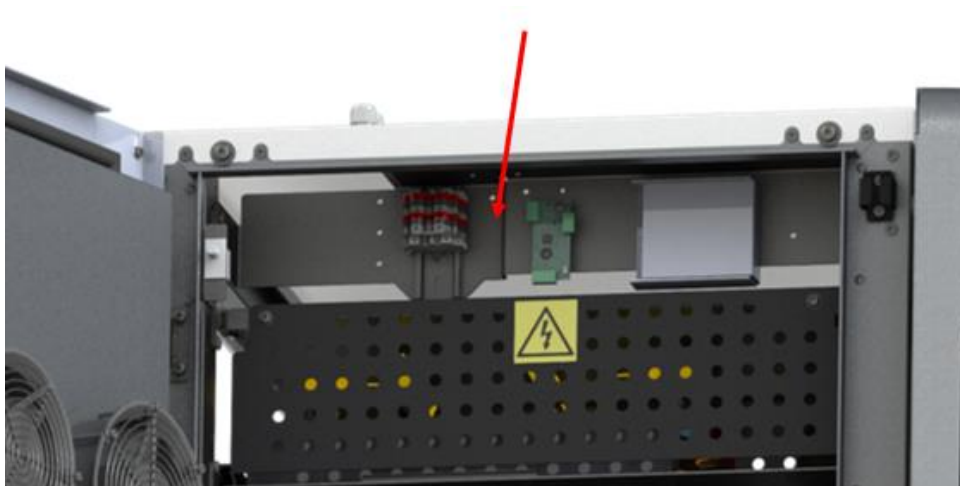
To perform the upgrade, following tools must be available

- ▶ Sealing Tape CMS
- ▶ Isopropyl alcohol
- ▶ Torque wrench 2-100Nm
- ▶ Screwdriver bit TX T25
- ▶ Hexagonal socket wrench key 8 mm
- ▶ Hexagonal socket wrench key 13 mm
- ▶ Hexagonal socket wrench key 17 mm
- ▶ Eyebolt M10 (4pcs.)
- ▶ Technician tent
- ▶ Ladder
- ▶ Safety helmet
- ▶ Protective gloves
- ▶ Safety shoes

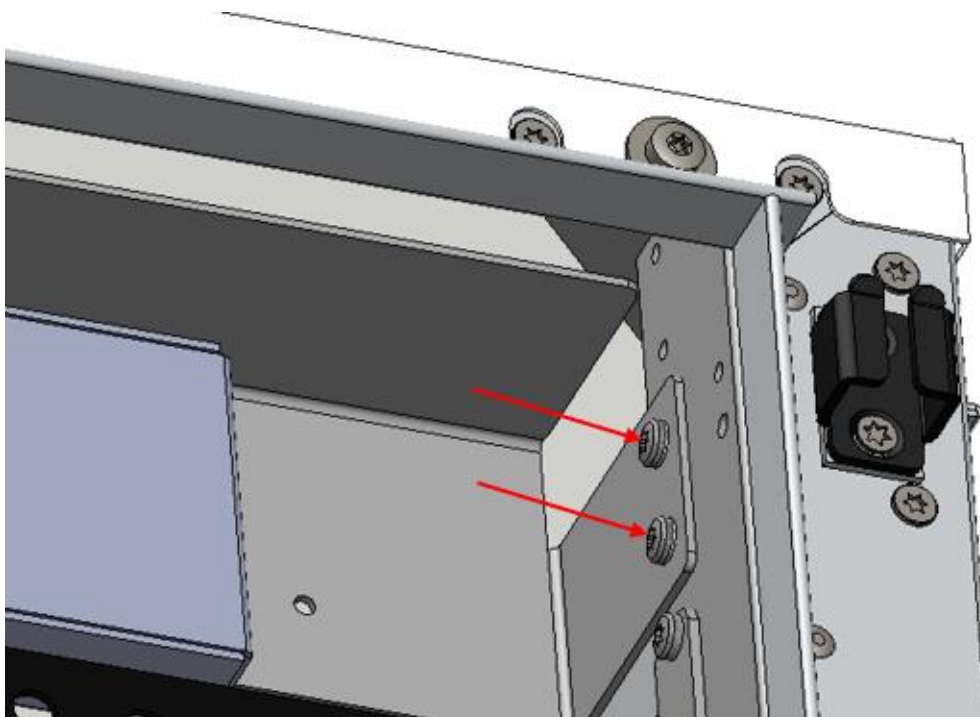
## 7.3 Installation instruction

This chapter shows the installation of the roof status light system to the UFC200 and UFC500.

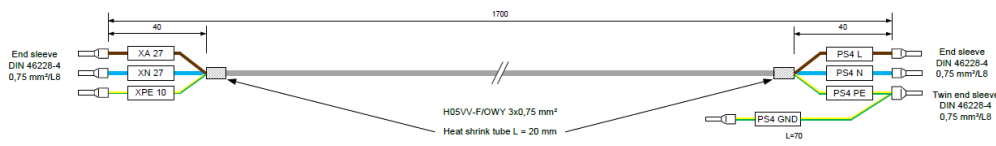
### 7.3.1 Electrical component assembly for UFC200



1. Status Light holder mounting location.



2. Screw in the screws in the places marked with the red arrows.



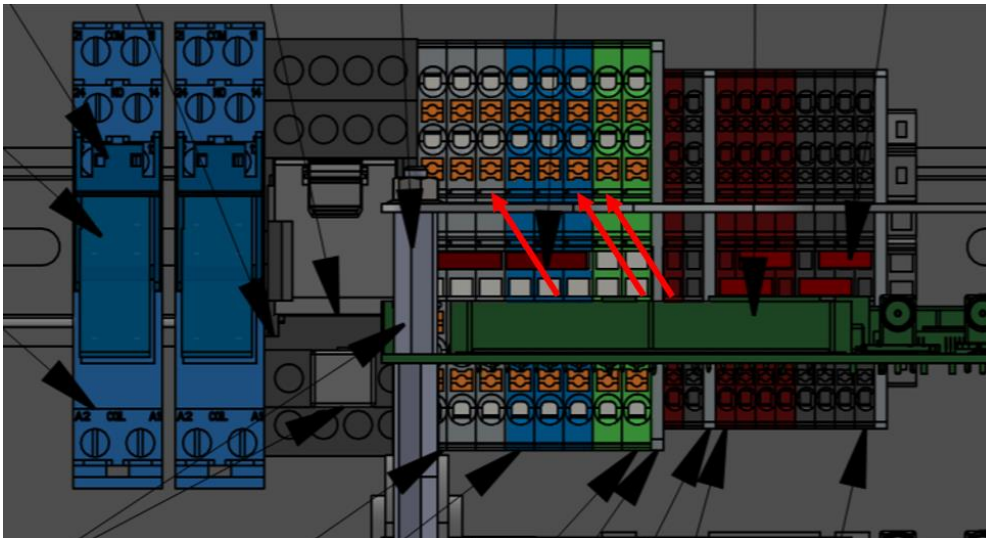
3. Power supply unit should be connected according to the pictures on the left and according to the following designations:

**Live (phase) wire:** XA 27 – PS4 L

**Neutral wire:** XN 27 – PS4 N

**Earth wire:** XPE 10 – PS4 PE +

PS4 GND

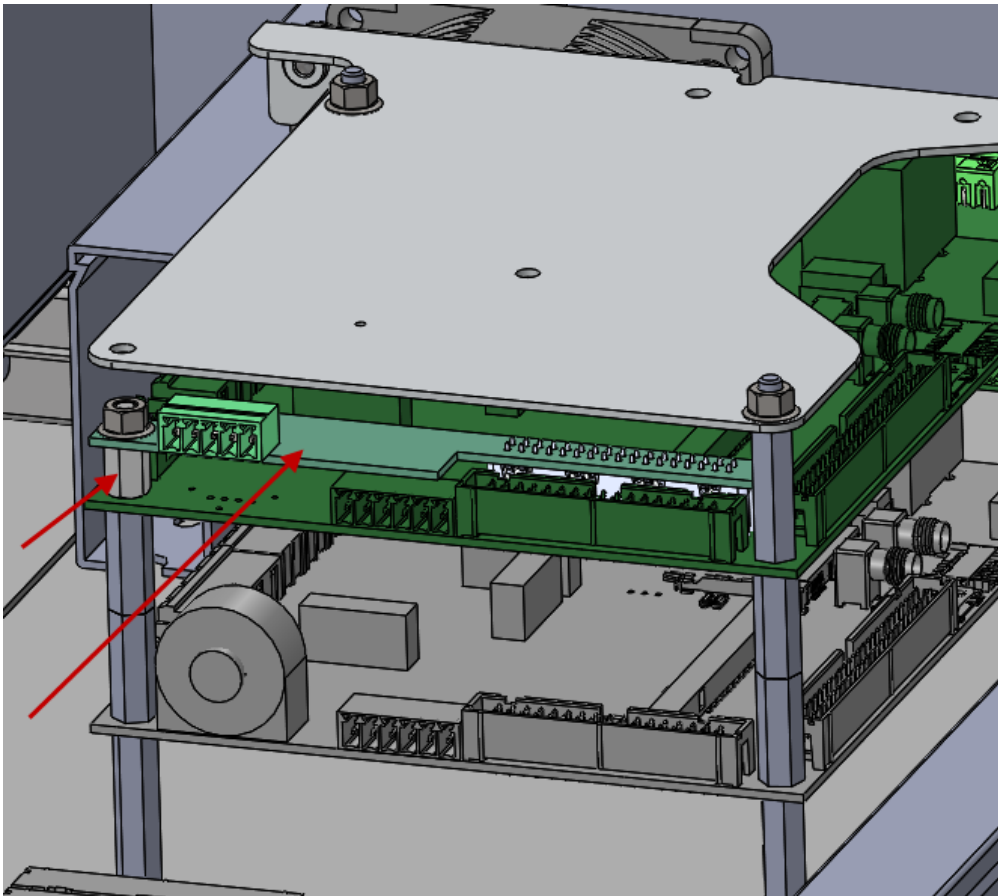
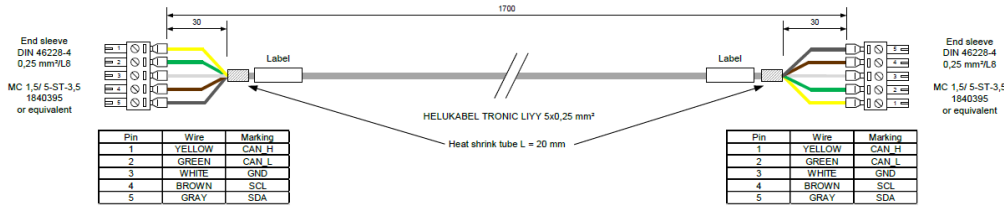


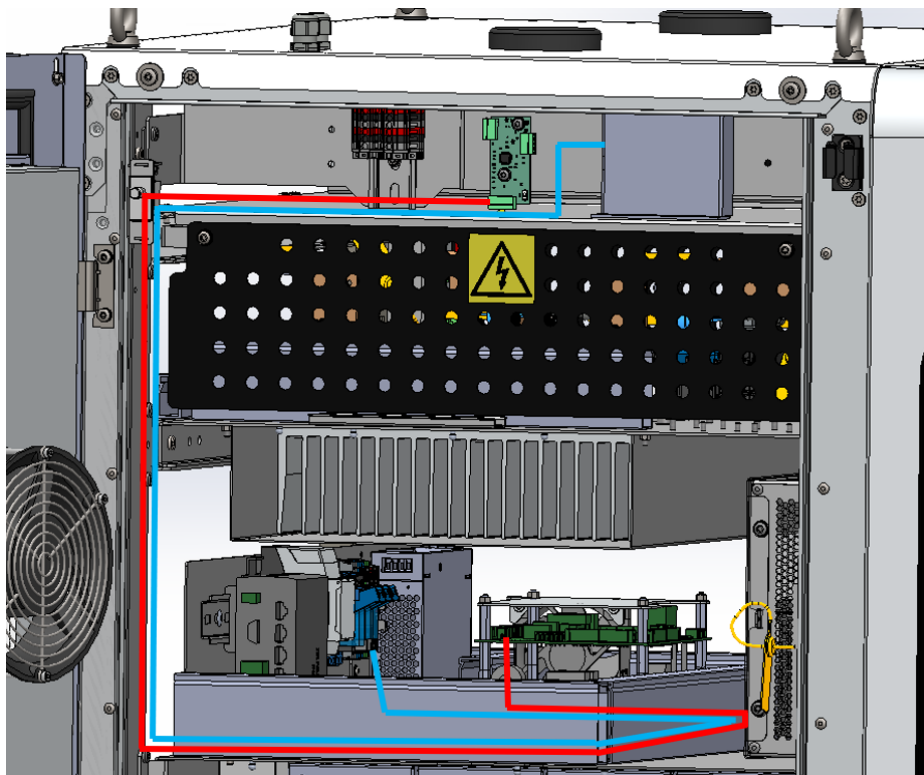
# Assembly instruction

## Installation instruction



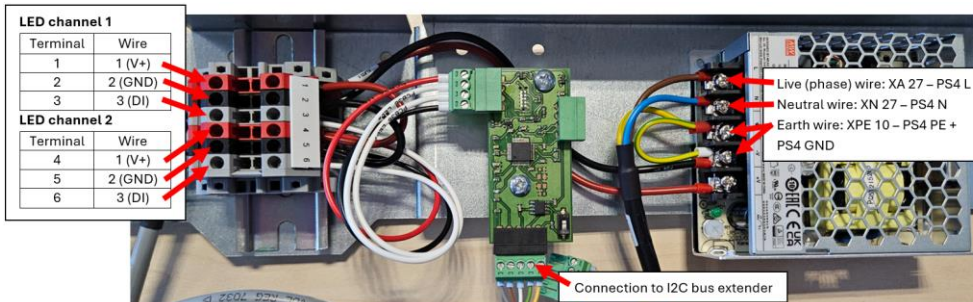
4. Connect the I2C bus extender to the Baseboard. Then connect signal cable to the status light.





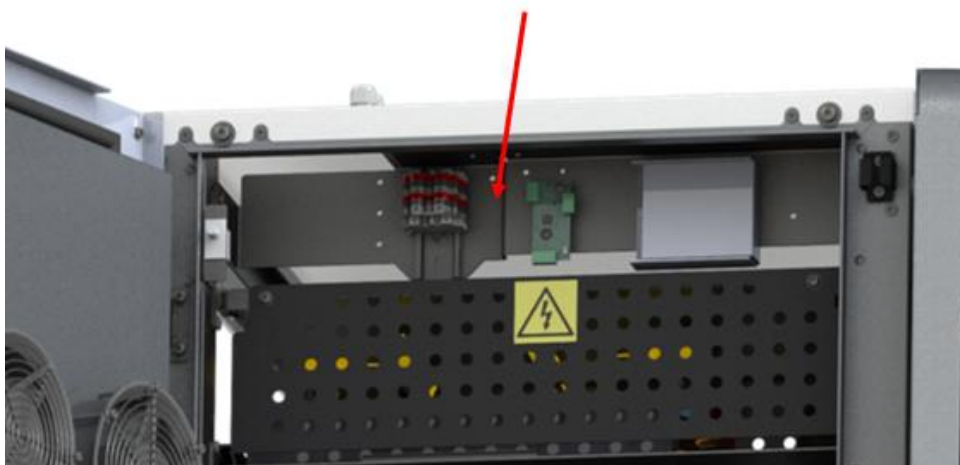
5. Route the cables like on the picture on the left.

**Power Supply Unit** – blue line  
**Controller** – red line

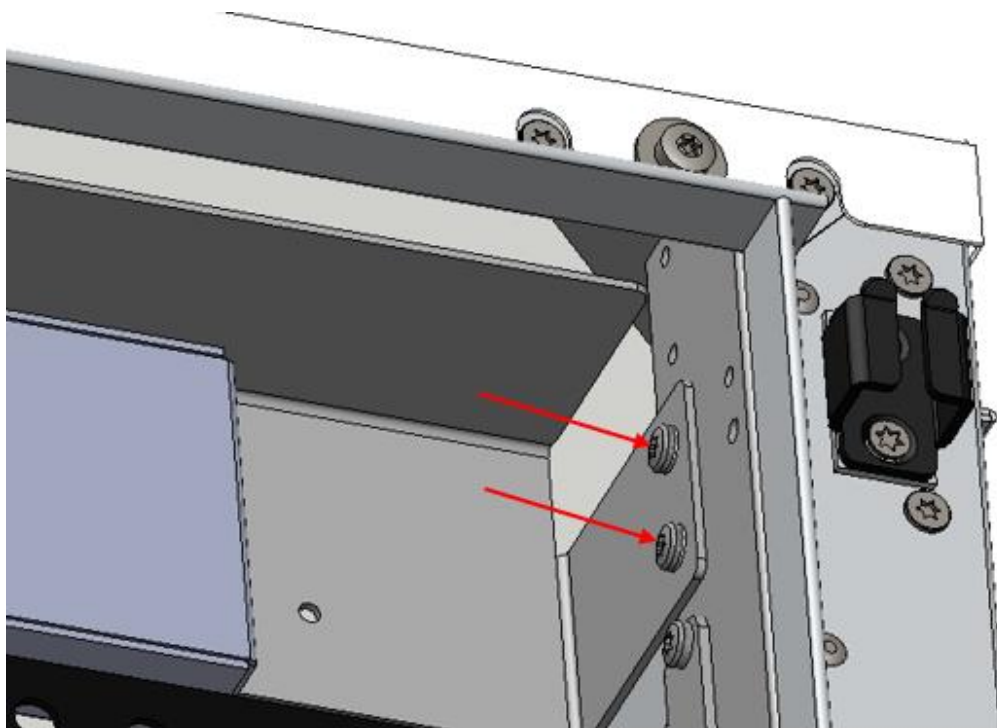


6. Connect cables to the power supply holder like on the photo on the left.

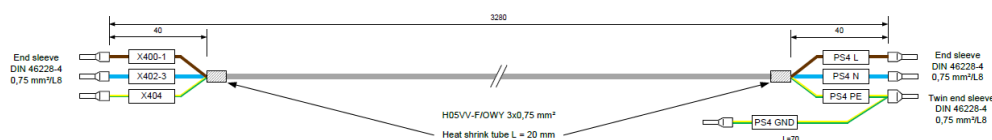
### 7.3.2 Electrical component assembly for UFC500



7. Status Light holder mounting location.



8. Screw in the screws in the places marked with the red arrows.

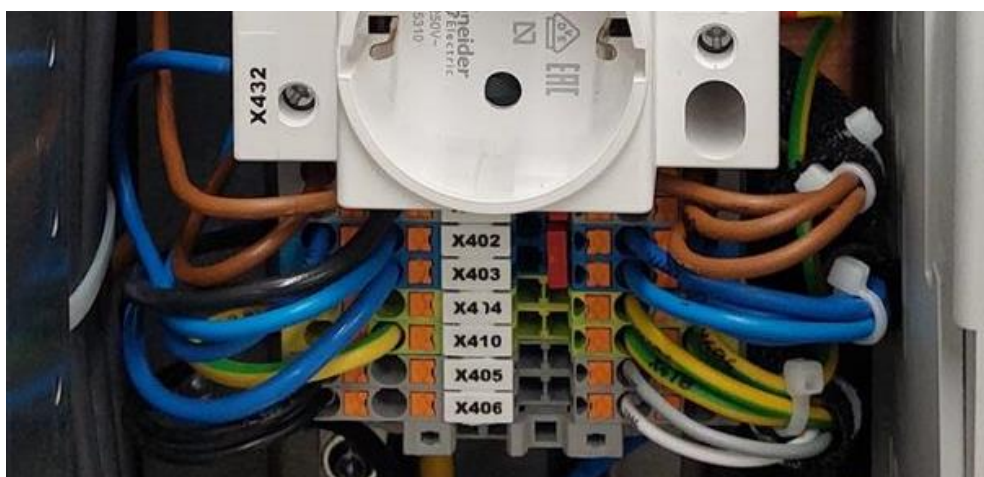


9. Power supply unit should be connected according to the pictures on the left and according to the following designations:

**Live (phase) wire:** X401 - PS4 L

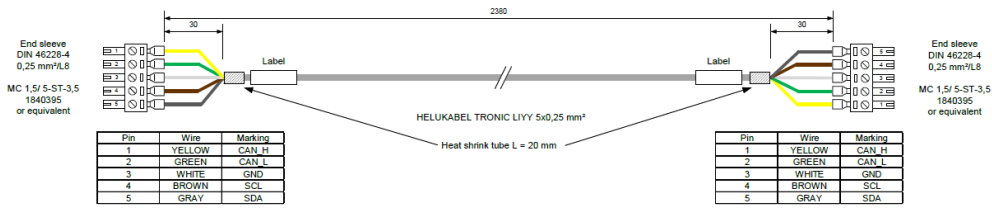
**Neutral wire:** X403 - PS4 N

**Earth wire:** X404 - PS4 PE + PS4 GND

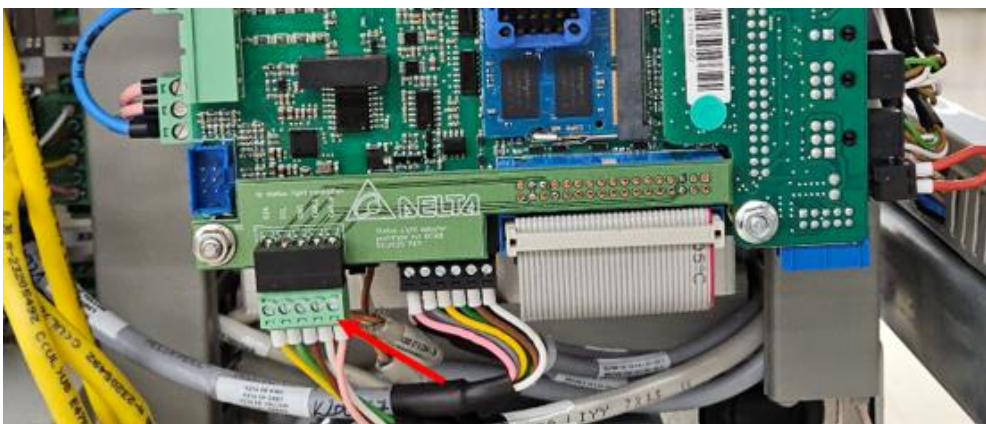
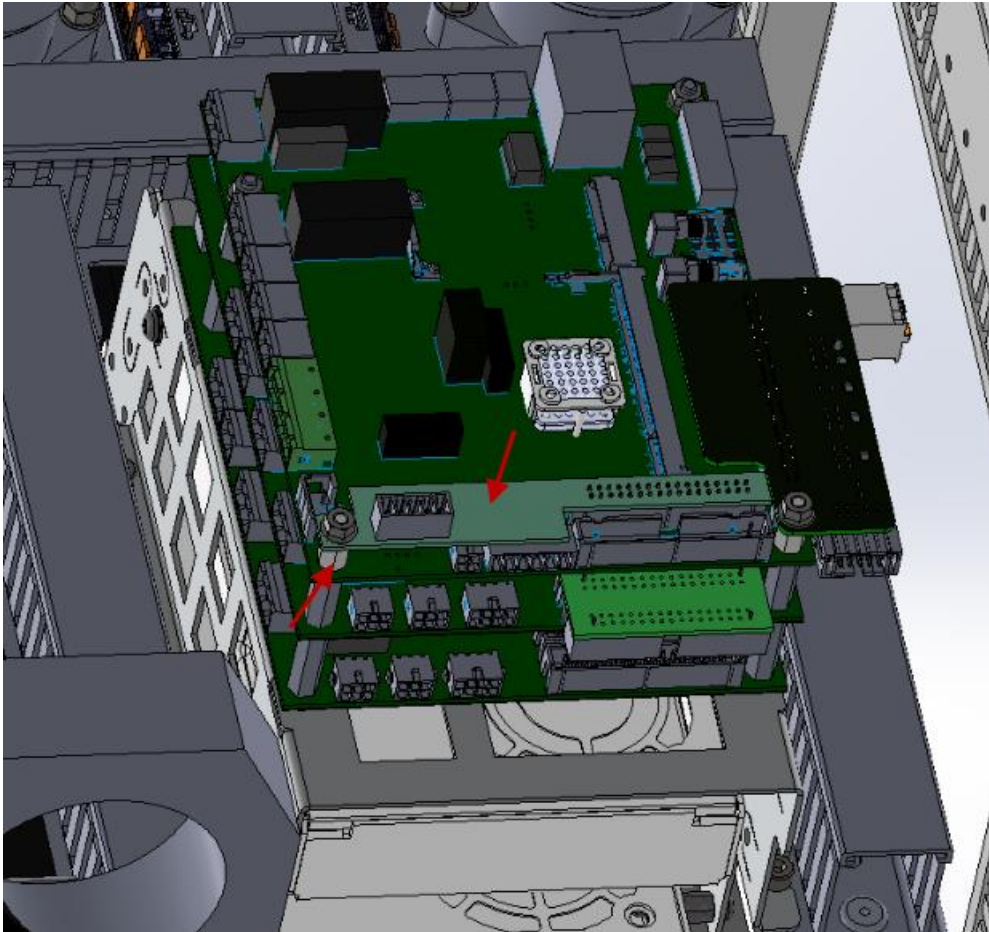


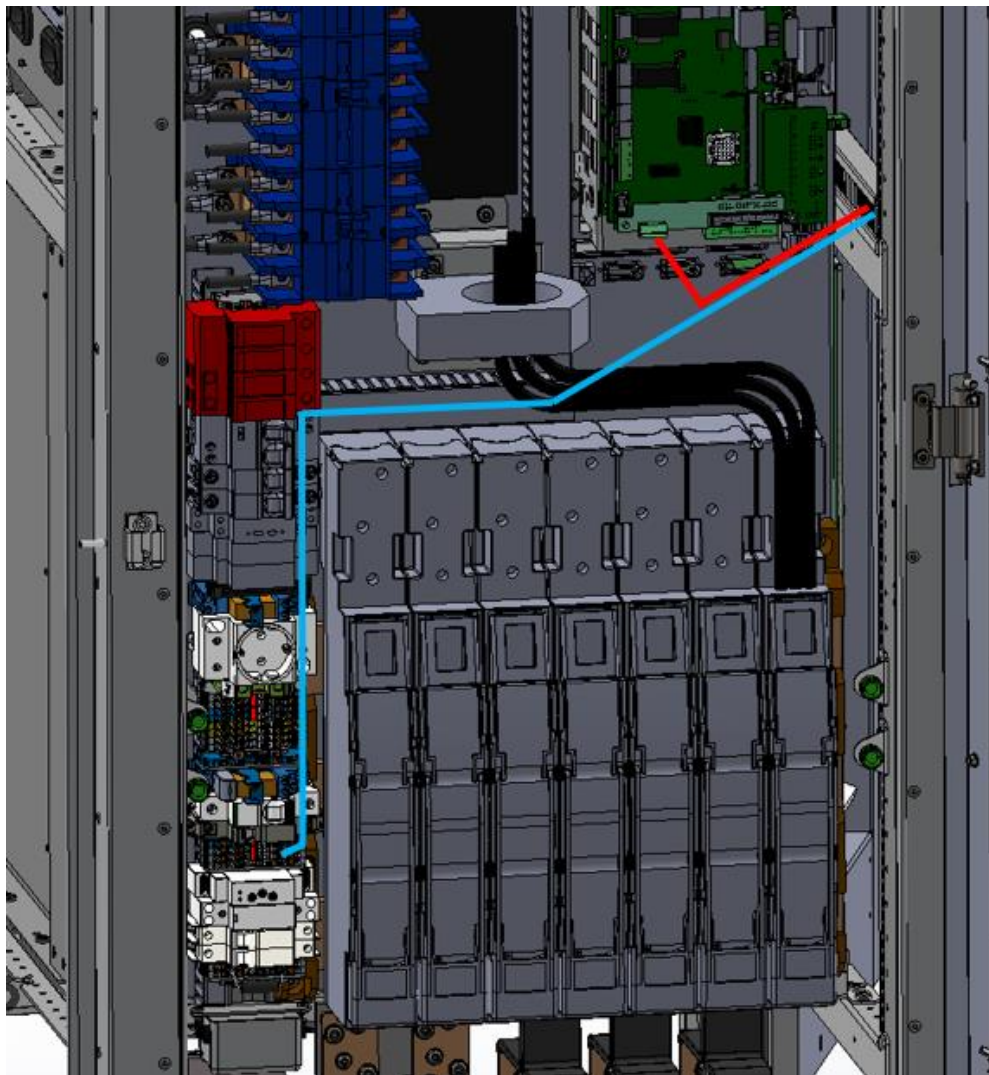
# Assembly instruction

## Installation instruction



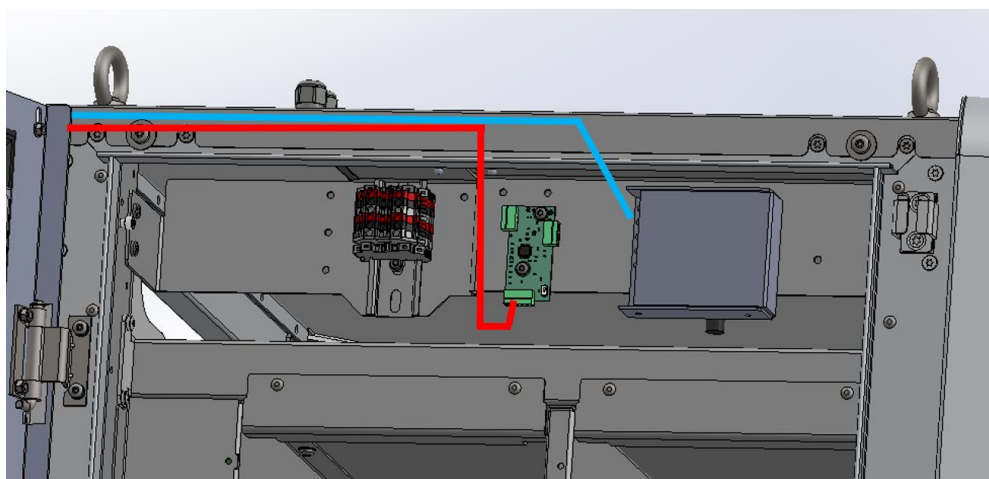
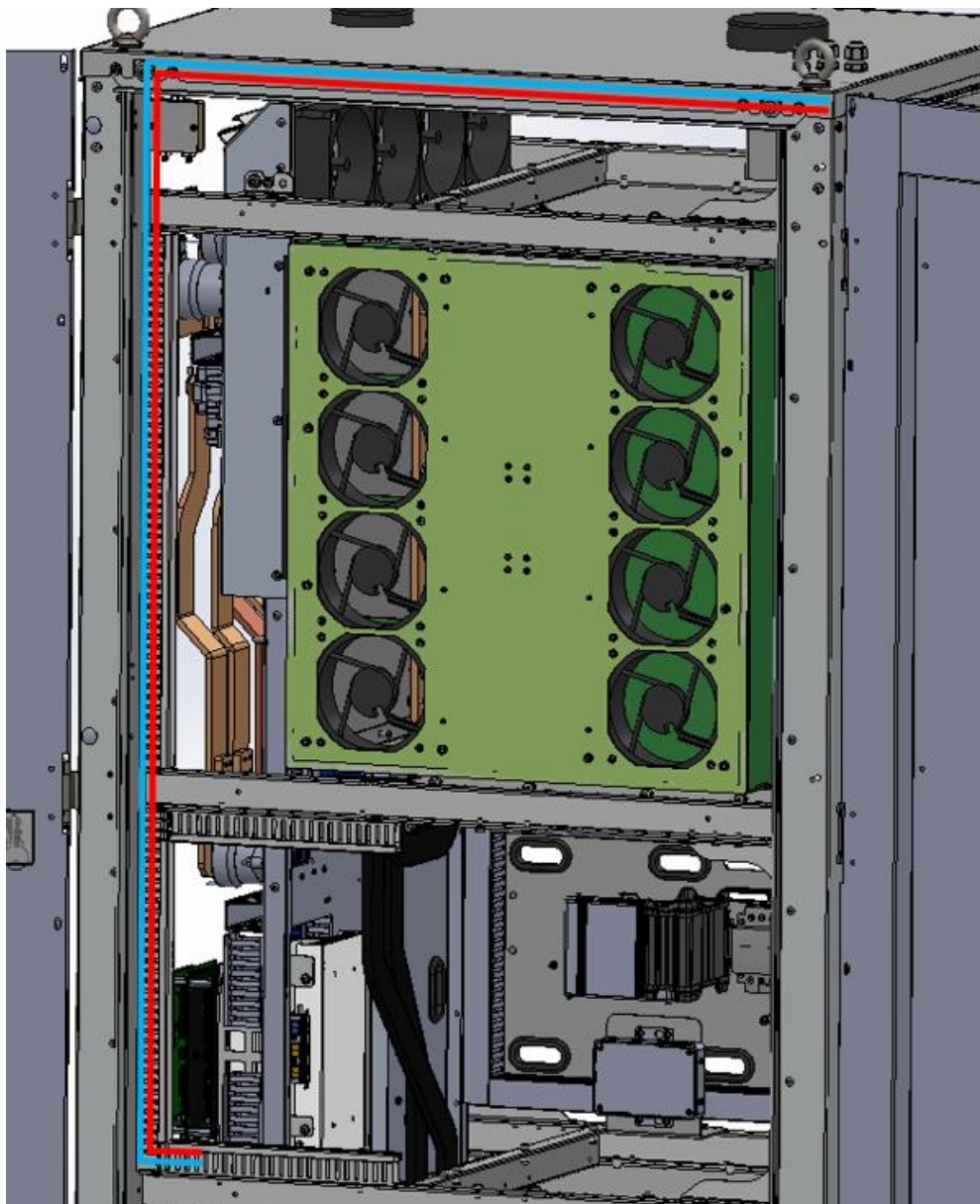
10. Connect the I2C bus extender to the Baseboard. Then connect signal cable to the status light.

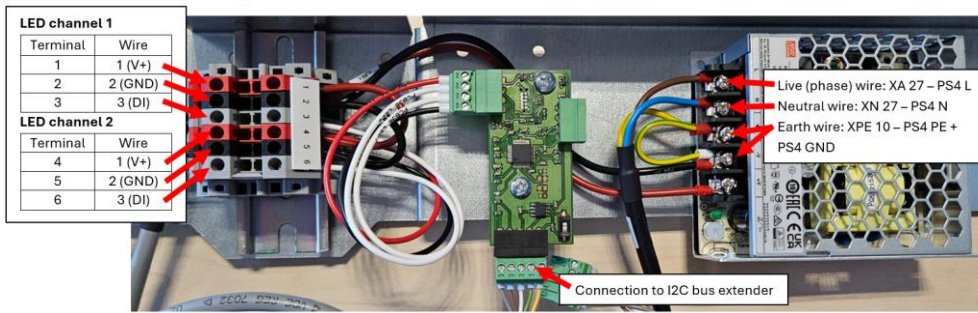




11. Route the cables like on the pictures on the left.

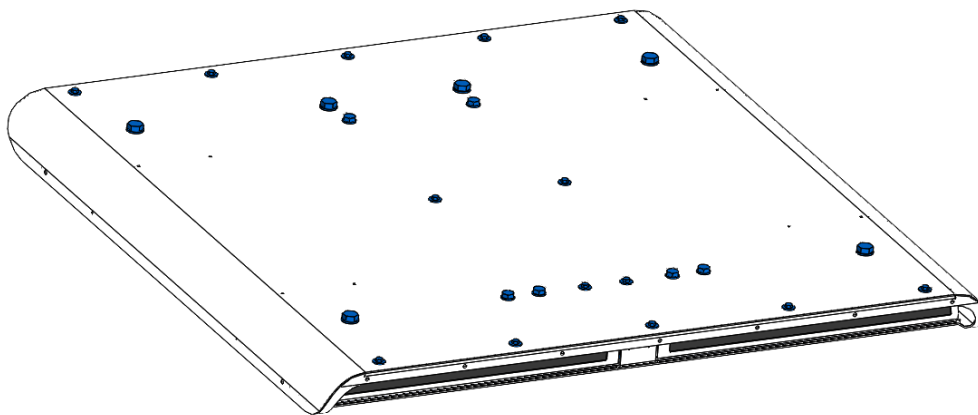
**Power Supply Unit** – blue line  
**Controller** – red line



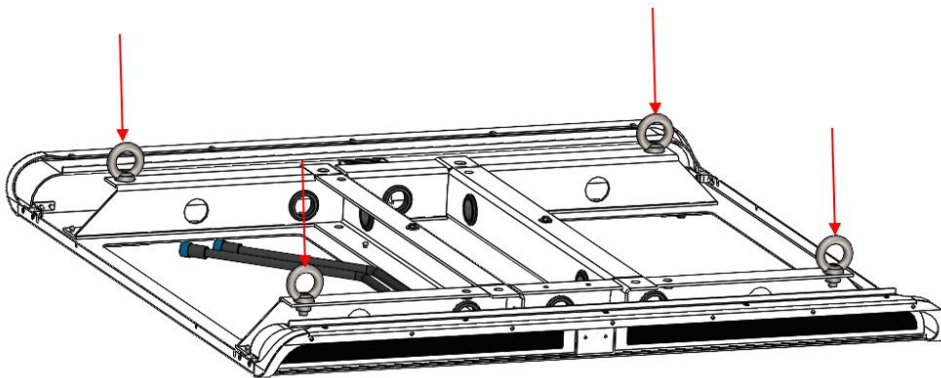


12. Connect cables to the holder like on the photo on the left.

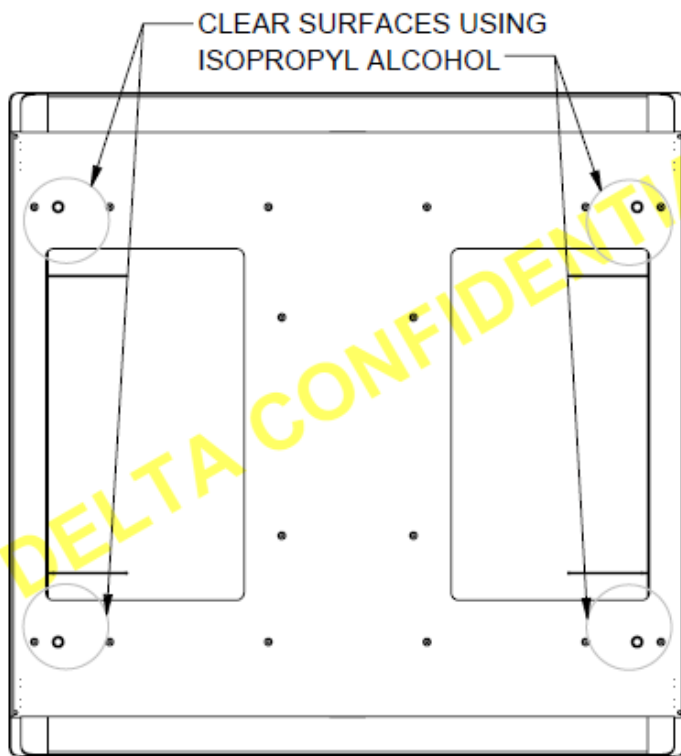
### 7.3.3 Structure assembly



13. Unscrew all screws from the upper surface and then pull the cover off in a vertical motion.



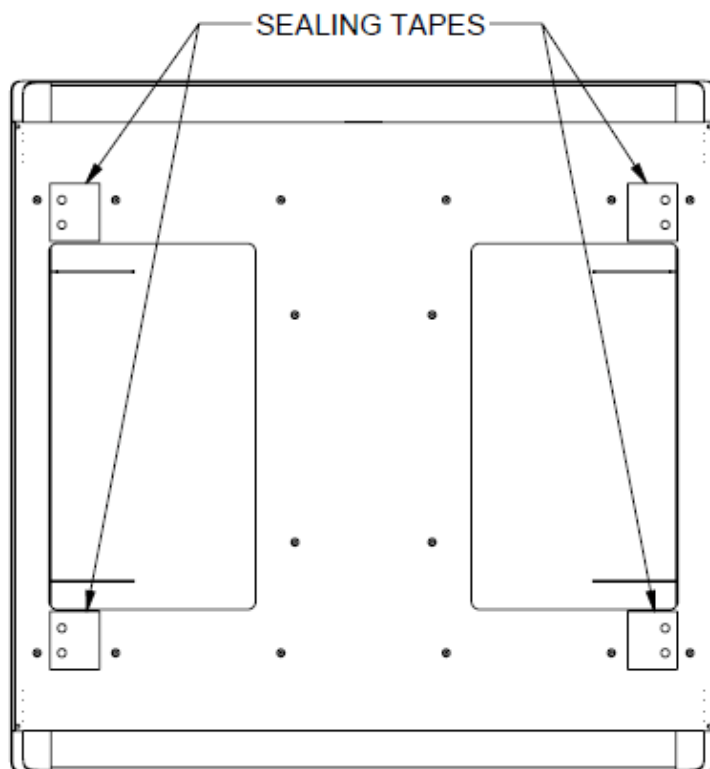
14. Screw in the eye bolts at the location marked with the red arrows.



15. Clean marked surfaces using Isopropyl alcohol and allow the surface to dry for about 2 minutes.



16. Remove white protective film from the sealing tape.

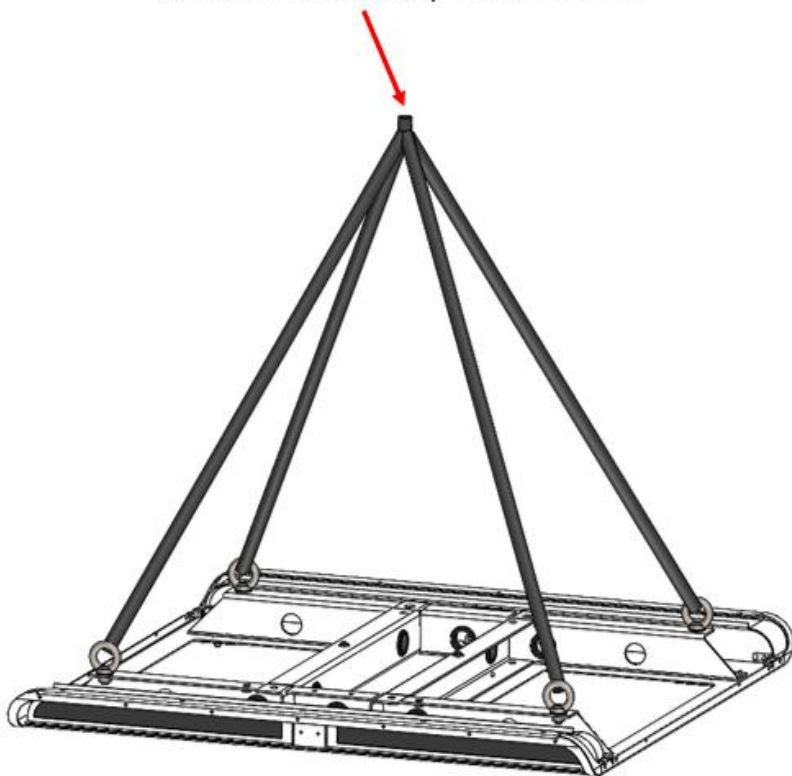


17. Connect sealing tapes with SL Roof like it has been shown on picture on left side.

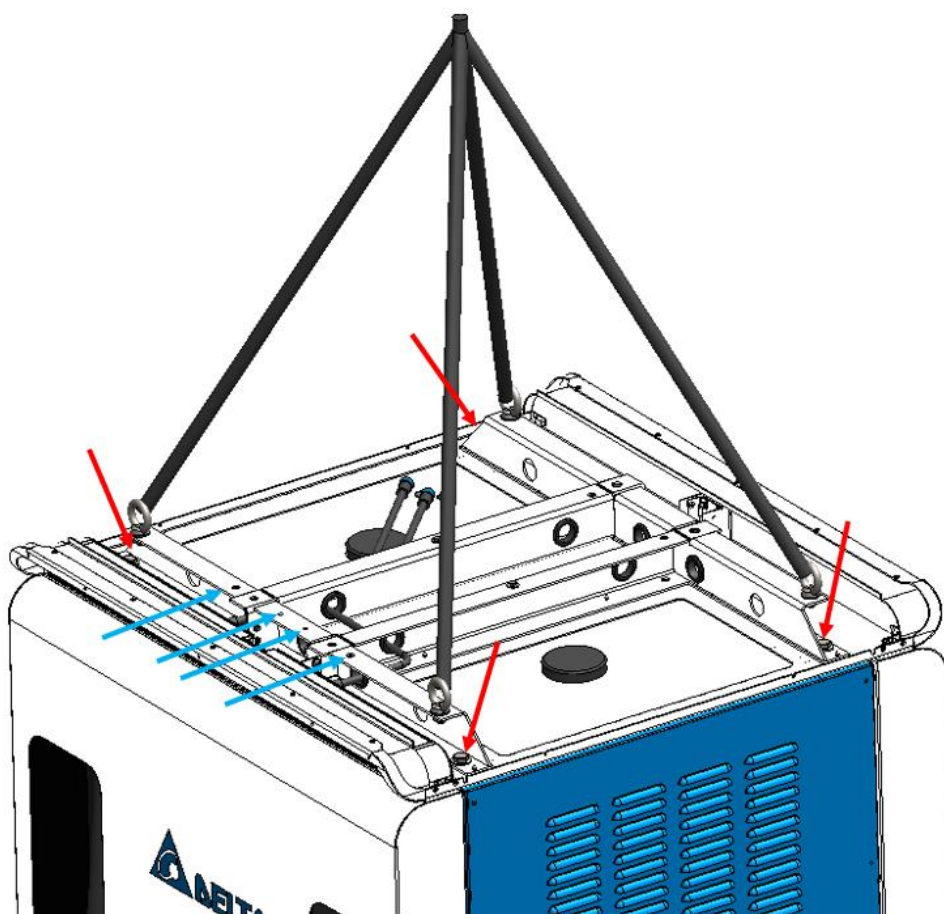


18. Remove transparent protective film from the sealing tapes.

ATTACH TO HOOK / SNAP HOOK

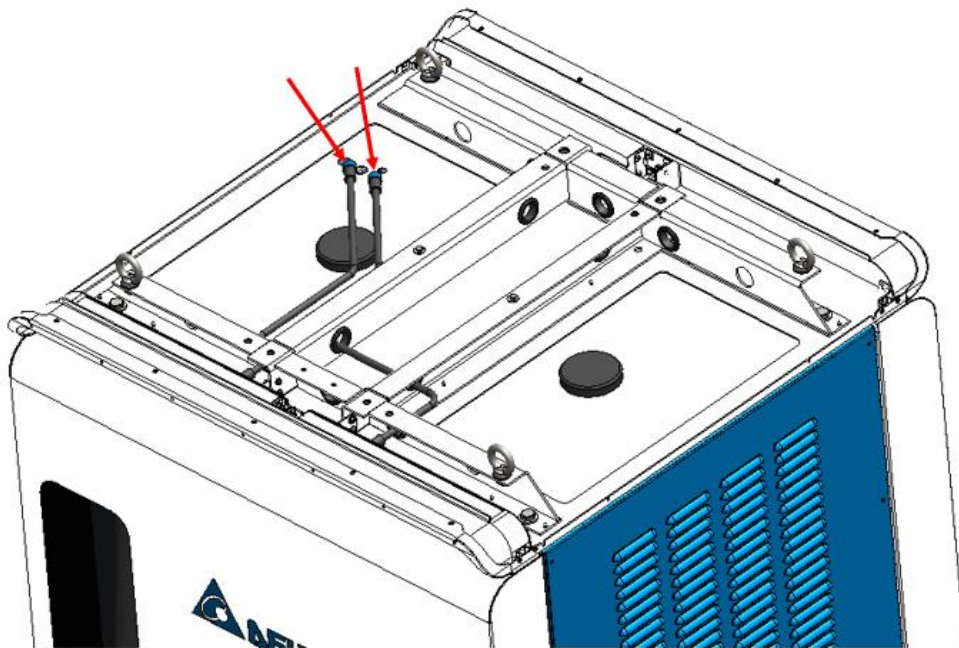


19. Put the transport belts through the eyebolts and attach to the crane hook. It is recommended to use belts with 2 loops.

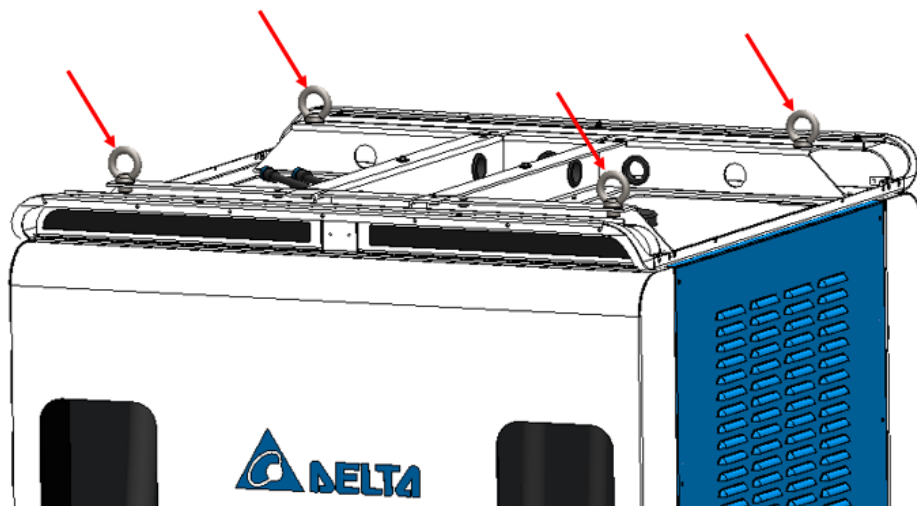


20. Place the roof on the UFC using a crane and then connect SL Roof to the UFC using 4 screws M10x25 and PA washers using torque 24 Nm in the places marked with the red arrows. Remove transport belts after screws have been tightened.

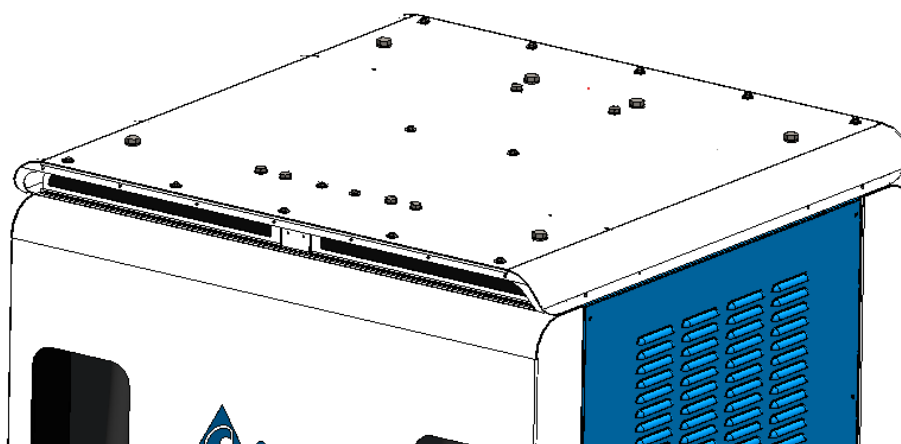
**CAUTION:** The roof must be installed in the correct orientation. Front of the roof is on the side where are the holes marked with the blue arrows.



21. Connect the cables to the status lights.



22. Unscrew the eye bolts and the washers.



23. Put on the top cover and tighten all the screws.

### 7.3.4 Configuration

Type	<input type="text" value="PCA9958_2x"/> <input type="button" value="save"/>
IlluminationProfile	<input type="text" value="Profile2"/> <input type="button" value="save"/>
RGBCharging	<input type="text" value="[0, 0, 255]"/> <input type="button" value="save"/>
RGBReady	<input type="text" value="[0, 255, 0]"/> <input type="button" value="save"/>
RGBError	<input type="text" value="[255, 0, 0]"/> <input type="button" value="save"/>
RGBUnavailable	<input type="text" value="[255, 255, 0]"/> <input type="button" value="save"/>
RGBPlugged	<input type="text" value="[255, 163, 0]"/> <input type="button" value="save"/>
RGBChargingEnd	<input type="text" value="[0, 255, 0]"/> <input type="button" value="save"/>
LEDUnit0Plugs	<input type="text" value="['Plug0']"/> <input type="button" value="save"/>
LEDUnit1Plugs	<input type="text" value="['Plug3']"/> <input type="button" value="save"/>

24. Configure the website (Interfaces-LED-StateIndication) like on the photo on the left.

# 8 Restrictions and guidelines for use

## 8.1 Restrictions

- ▶ Avoid installing the system near heat sources that may affect the internal temperature of the system. High temperature can affect system performance and security.
- ▶ Do not hang up on the SL Roof structure as this may damage it and cause it to malfunction and additional damage may be caused to the charger.
- ▶ It's forbidden to mount extra equipment on the SL Roof

## 8.2 Guidelines

- ▶ Mount the SL Roof by following the steps in the instructions
- ▶ At each periodic inspection of the charger, check the status of the system to make sure it is working properly and without damage. Repair immediately if there is any damage.
- ▶ Use the system only for its intended purpose Do not use it for other purposes that may damage it.

# 9 Maintenance operations

This chapter covers the maintenance operations for the CMS.

Do not perform actions that are not described in the following subsections.

## 9.1 General information

The Roof above CM is a complex piece of equipment and some of its components can wear out or fail. This chapter describes instructions for replacing components that could potentially fail.

## 9.2 Status light lamp replacement

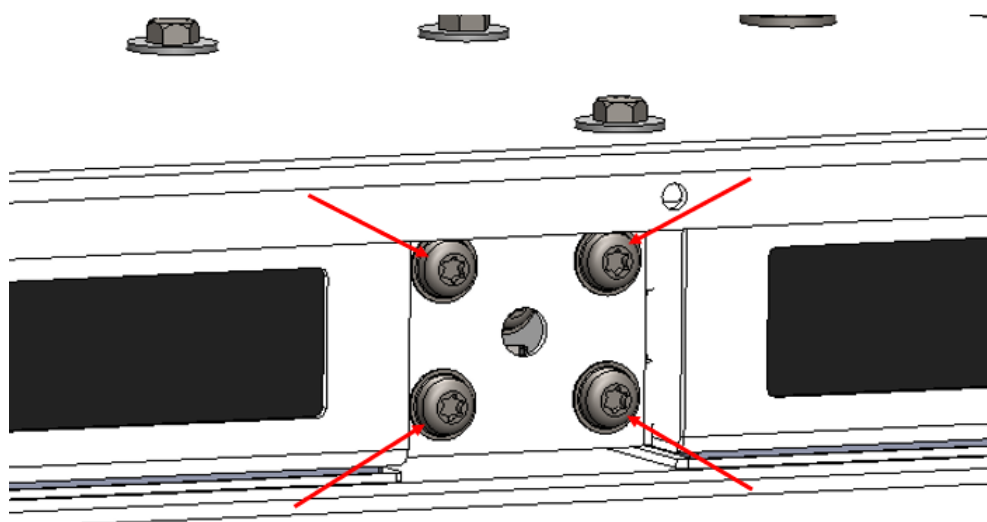
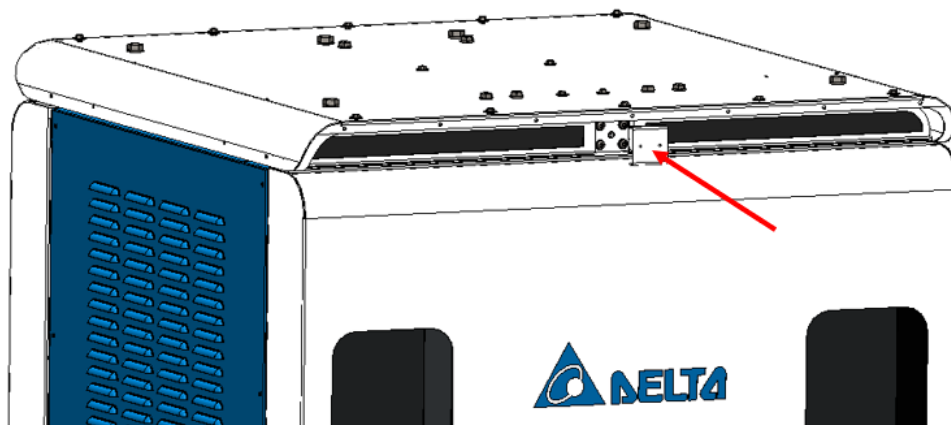
Symptoms of lamp damage may include: incomplete illumination surface, change of light colour, Light blinking, no illumination in one of the colours, etc.

## Maintenance operations

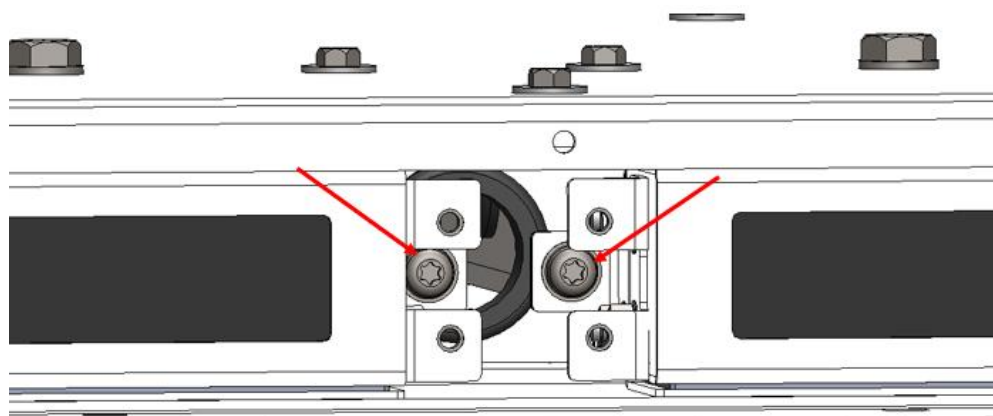
### Status light lamp replacement



1. Lift up and remove the cap located between the lamps. Be careful not to damage the paint.



2. Unscrew the screws marked with the red arrows, then remove the metal bracket.



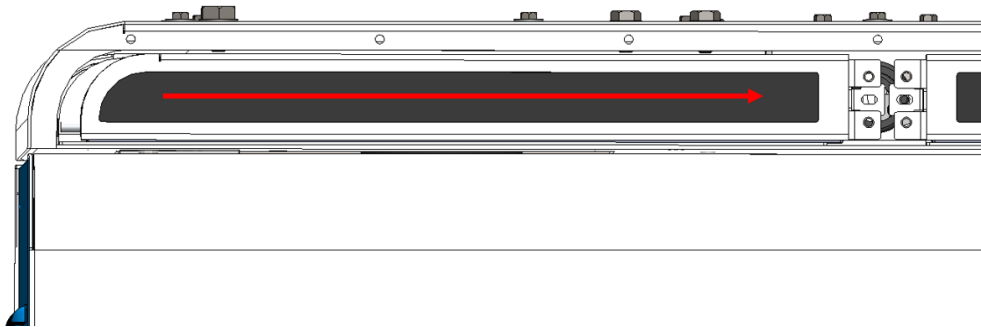
3. Unscrew the screws marked with the red arrows.

## Maintenance operations

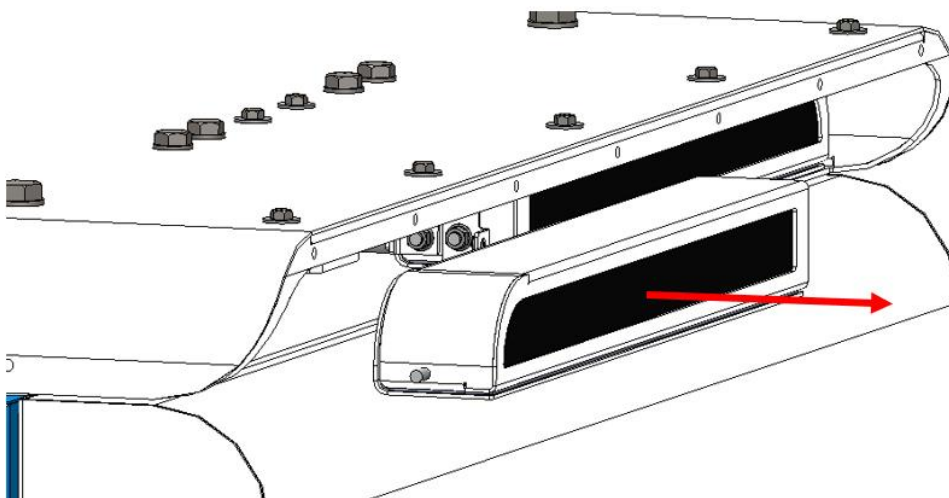
### Status light lamp replacement



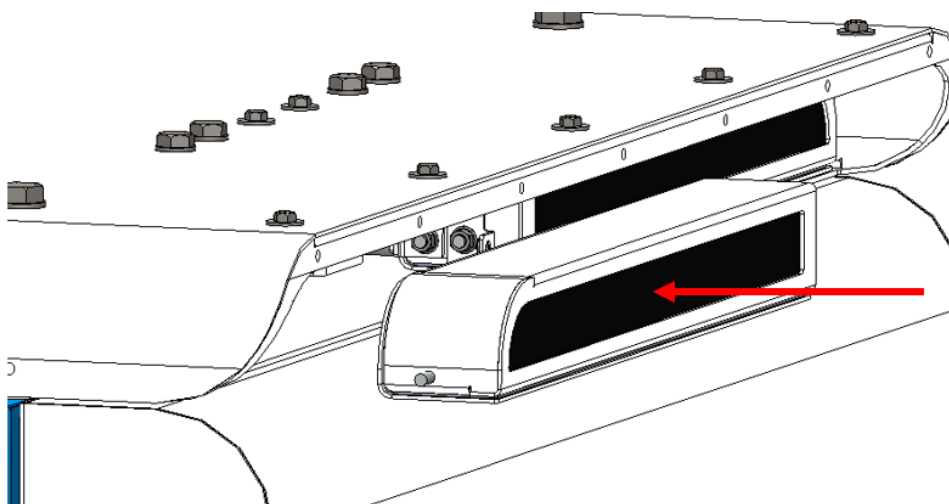
4. Move the lamp towards the centre so that it comes off the fixing pin.



5. Move the lamp outwards and disconnect the electric wires and remove the damaged lamp.



6. Take a new lamp and connect the electric wires and slide the lamp inside the Roof with Status Light.

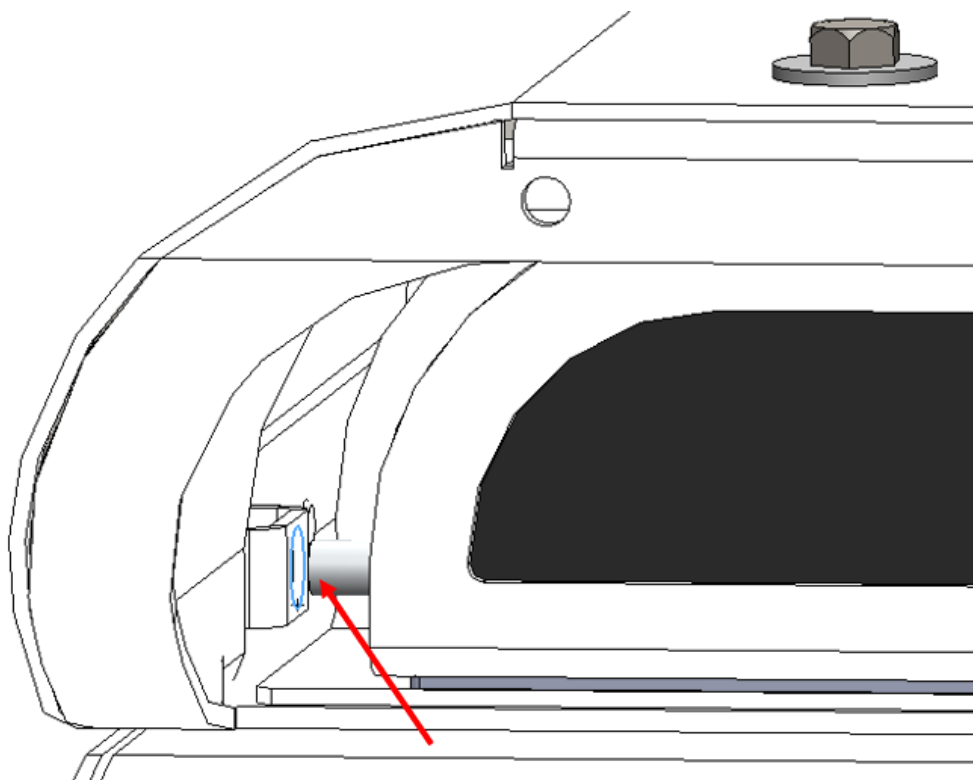


## Maintenance operations

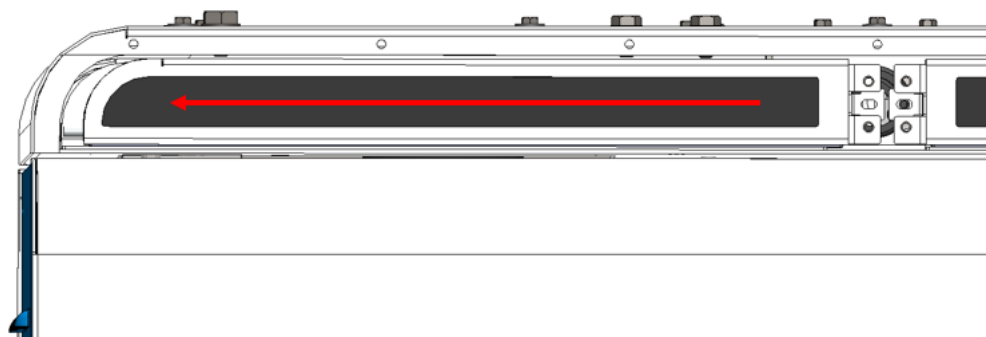
### Status light lamp replacement



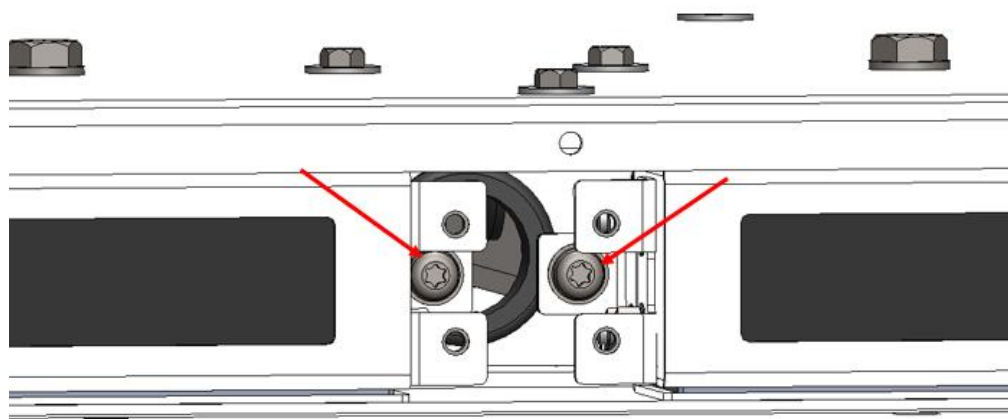
7. Insert the positioning pin in the hole



8. Push the lamp in an outward direction

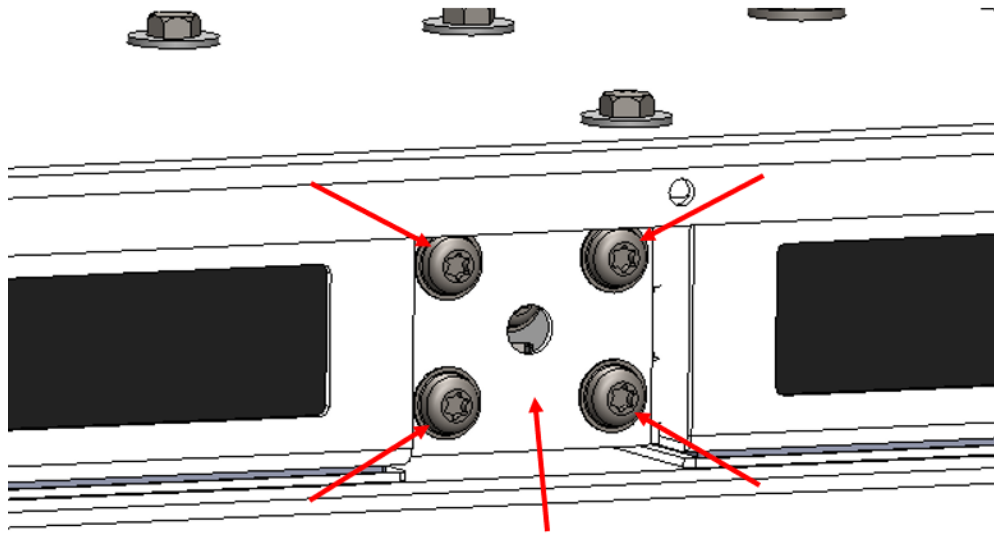


9. Screw in the screws marked with the red arrows.



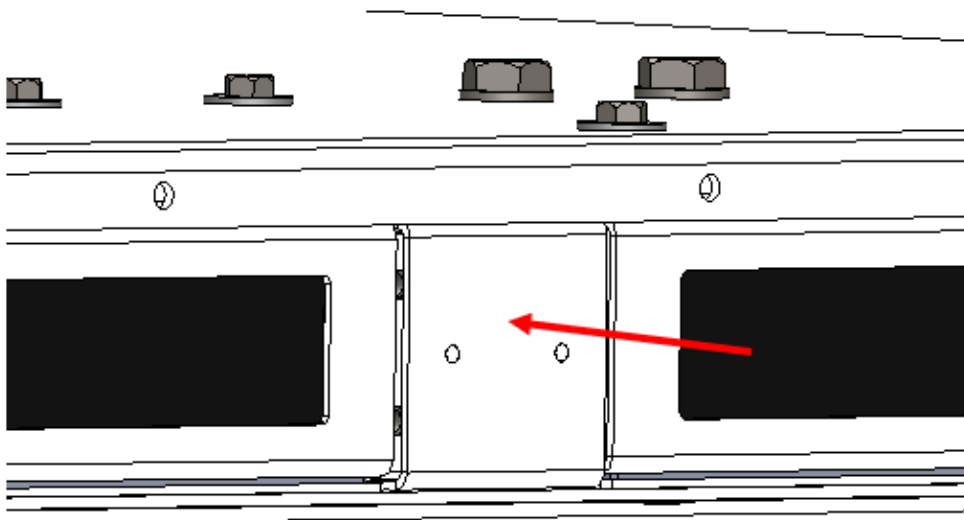
## Maintenance operations

### Status light lamp replacement



10. Place the bracket between the lamps and fasten with screws.

11. Push in the cap located between the lamps.







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### **Über Delta**

Delta wurde 1971 gegründet und ist ein weltweit führender Anbieter von Lösungen für das Energie- und Wärmemanagement. Wir wollen innovative, saubere und energieeffiziente Lösungen für eine bessere Zukunft bereitstellen und sind in unter anderem in den Bereichen Leistungselektronik, Energiemanagement und Smart Green Life tätig. Delta verfügt über Vertriebsniederlassungen, Fertigungsstätten sowie Forschungs- und Entwicklungszentren auf der ganzen Welt. Im Jahr 2014 rangierte Delta auf der höchsten Klassifizierungsebene A des Climate Performance Leadership Index des Carbon Disclosure Project (CDP). Seit 2011 ist Delta Teil des Dow Jones Sustainability Indices (DJSI) World Index.