



# Payter Apollo terminal EV Ultra Fast Charger



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# 1 Change logs

Change logs for this document:

Date	Document Version	Created	Approved	Changes
19.01.2024	00	MW		Initial version
14.03.2024	01	MW	TM	Updates to BOM, added variant for old hardware version
21.03.2024	02	MW	TM	Updated terminal PN

Table 1 Change log

## 2 Important safety and grounding instructions

### 2.1 Safety and compliance

- Before installing / upgrading the EV Ultra Fast Charger, review 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.
- Do not put tools, material or body parts into the electric vehicle connector.
- Do not use the EV Ultra Fast Charger if the chassis, power cord or charging cable are frayed, have broken insulation, or any other signs of damaged.
- Do not install or use the Ultra Fast Charger if the enclosure is broken, cracked, open or has any other indications of damage.
- The EV Ultra Fast Charger and its components should be installed / upgraded only by a licensed contractor, and/or a licensed electrician in accordance with all applicable state, local and national electrical codes and standards.
- To maintain environmental control of device, EV Ultra Fast Charger should be powered up immediately after installation.
- Make sure that the materials used and the installation procedures follow local building codes and safety standards.
- The information provided in this manual in no way exempts the user of responsibility to follow all applicable codes or safety standards.
- The manufacturer is not responsible for physical injury, damage to property or equipment caused by the installation of this device.
- This document provides instructions for the EV Ultra Fast Charger and should not be used for any other product. Before installation or use of this product, you should review this manual carefully and consult with a licensed contractor, licensed electrician, or trained installation expert to make sure of compliance with local building codes and safety standards.



**Warning! Danger of electrical shock or injury. Turn OFF power at the panel board or load center 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.**



**Caution! Before any installation or rework installation must be charger disconnected from AC grid and from energy storage.**

### 2.2 Grounding instructions

An equipment grounding conductor or a grounded, metal, and permanent wiring system is required for the EV Ultra Fast Charger connection. This should be run with circuit conductors and connected to the equipment grounding bar or lead on the EV Ultra Fast Charger.

## 3 Before installation

### 3.1 Target system

This manual can be used with Delta EV Ultra Fast Charger 200kW (UFC 200kW) single sided version where Payment terminal and metering system were not installed.

Product code before rework: EVC 200kW nin1 XX - XX - XXXEX – X00X

Product code after rework: EVC 200kW nin1 XX - XX - XXXEX – X0AX

where X can be replaced by any letter.

This manual is not applicable for other versions and configurations of UFC.

### 3.2 Safety requirements

Be sure to preview the standard operating procedures (SOP) and ensure local building and electrical codes are reviewed before installing the EV Ultra Fast Charger.

The EV Ultra Fast Charger should be installed / upgraded by a trained technician according to the instruction manual and local safety regulations.

Use appropriate protection when connecting to the main power distribution cable.

Single person is required to successfully upgrade kit installation.

### 3.3 Delivery content

No.	Part number	Name	Quantity
1	5630105265	KIT UPGRADE APOLLO PAY NO SWITCH [EVC200]	1
1.1	3902303700	APOLLO BRACKET SET ASSY	1
1.1.1	3488505300	PLATE COVER CARD READER AL 136*106.6*2	1
1.1.2	5042444300	PAYMENT TERMINAL APOLLO 4G WITH SIM	1
1.1.3	3732396700	CABLE ASSY APOLLO PAYTER [EVC200]	1
1.1.4	3901702000	SPLITTER 1120 ASSY	1
1.1.5	3080598100	CABLE SIGNAL RJ45 RJ45 L2000 BLK	1
1.2	3486840700	PLATE FRONT PAY SGCC 400*430*0.75 PAINT	1
1.3	3475419200	EVC DISPLAY COVER PLATE	1
2	3798105809	SWITCH FOR MID OR PAYTER KIT [EVC200]	1
3.1	5042253100	ETHERNET SWITCH 5P WITH AUTO MDI/MDI-X	1
3.2	3731966200	CABLE ASSY ETH SWITCH SUPP [EVC]	1
3.3	3081837300	CABLE SIGNAL RJ45 RJ45 L300 BLU	1
3.4	3081837700	CABLE SIGNAL RJ45 RJ45 L1500 BLU	1
3.5	3471306200	CLIP PA 94V2 48.5*5.15 GRAY	2

Table 2 Rework kit BOM (main packages marked in grey)

## 3.4 Recommended tools

The following tools and materials are recommended for the EV Ultra Fast Charger installation:

- Key for opening of EVC right / left doors.
- AKU Screwdriver.
- Screwdriver bit Torx T25.
- 7mm spanner.
- 18mm spanner.
- Side cutting pliers.
- 3M Adhesion Promoter AP111 or Primer 94 (if VHB tape applied at 10 °C and down to 5 °C)
- 3M Adhesive remover or equivalent,
- Isopropyl alcohol,
- Microfiber cloth,
- 0.25 – 0.5 mm fishing line,
- Utility knife blades,
- Technician tent,
- Heat gun.
- Bar clamp with rubber grips (2 pcs).

## 3.5 Estimated time

No.	Description	Number of people	Estimated time
1	Preparation of rework	1	20 min
2	Removal of display cover	1	30 min
3	Preparation o Payter terminal	1	10 min
4	Installation o Payter terminal	1	10 min
5	Installation of display cover	1	30 min
6	Installation of antenna splitter	1	60 min
7	Installation of Ethernet switch	1	60 min
8	Finishing rework	1	10 min
9	Commisioning and testing	1	30 min
		Total	4.5 hours

### 3.6 Important safety instructions

- **Save these Instructions.**
- **The EV Ultra Fast Charger should be installed / upgraded only by a licensed contractor, and/or a licensed electrician in accordance with all applicable state, local and national electrical codes and standards.**
- **Before installing / upgrading the EV Ultra Fast Charger, review 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.**

### 3.7 Terms, abbreviations, symbols

<b>Abbreviation</b>	<b>Name</b>
ECN	Engineering Change Notice
MID	Measuring Instruments Directive
EVC	Electric Vehicle Charger
EVCS	Electric Vehicle Charger Service
UFC	Ultra Fast Charger
ASP	Authorised Service Partner
CB	Circuit Breaker
RCD	Residual Current Device
AC	Alternating Current
DC	Direct Current
CCS	Combined Charging System charging plug
CHAdeMO	Charge de Move charging plug
AC Plug	Alternating current charging plug
AC Socket	Alternating current charging socket
PCB	Printed circuit board
PU	Power Unit
PUG	Power Unit Group
FM	Fiscal Module

### 3.8 System Description



Figure 1: UFC 200 - single side arrangement with CCS, AC socket and plug, CHAdeMO

Pos.	Name of interface	Pos.	Name of interface
1	Display with control buttons	5	AC charging socket up to 22 kW
2	RFID card reader	6	AC charging plug up to 22 kW
3	Credit card terminal (option)	7	DC fast charge CHAdeMO
4	DC fast charge CCS	8	Emergency Power OFF button (option)

## 4 Upgrade kit installation

### 4.1 Rework preparation

Step 1 Prepare rework kit according to Table 2.

Step 2 Prepare recommended tools and materials.

Step 3 Turn off the power supply of the charger and make sure it cannot be accidentally turned on.



**Caution! Rework procedure requires opening of front panel and service side doors. During rain or snow technician tent must be used to prevent water ingress into the charger.**



**Caution! Rework procedure requires applying 3M adhesive tape. Ideal temperature for application is 21-38°C. If procedure must be made in temperatures down to 5°C it is recommended to preheat the technician tent and use 3M Adhesion Promoter AP111 or Primer 94. Application in temperature below 5°C is prohibited.**

Step 4 Unscrew all 4 screws locking front panel.



Step 5 Open charger front panel.

Step 6 Unscrew 11 screws holding display back cover.



Step 7 Remove display back cover.



Step 10 Clean the remaining Sikaflex from display holder to provide smooth surface for payment terminal gasket.



Step 11 Disconnect all external cabling from display button PCB



Step 12 Unscrew 6x M5 nuts holding the display (HMI).



Step 13 Gently remove the display

## 4.2 Removal of display cover



**Caution! Special care must be taken not to damage paint of the cabinet during removal. Display cover can be damaged in the process.**

Step 1 Pour the isopropyl alcohol from the edges of the front cover to soak adhesive tape.

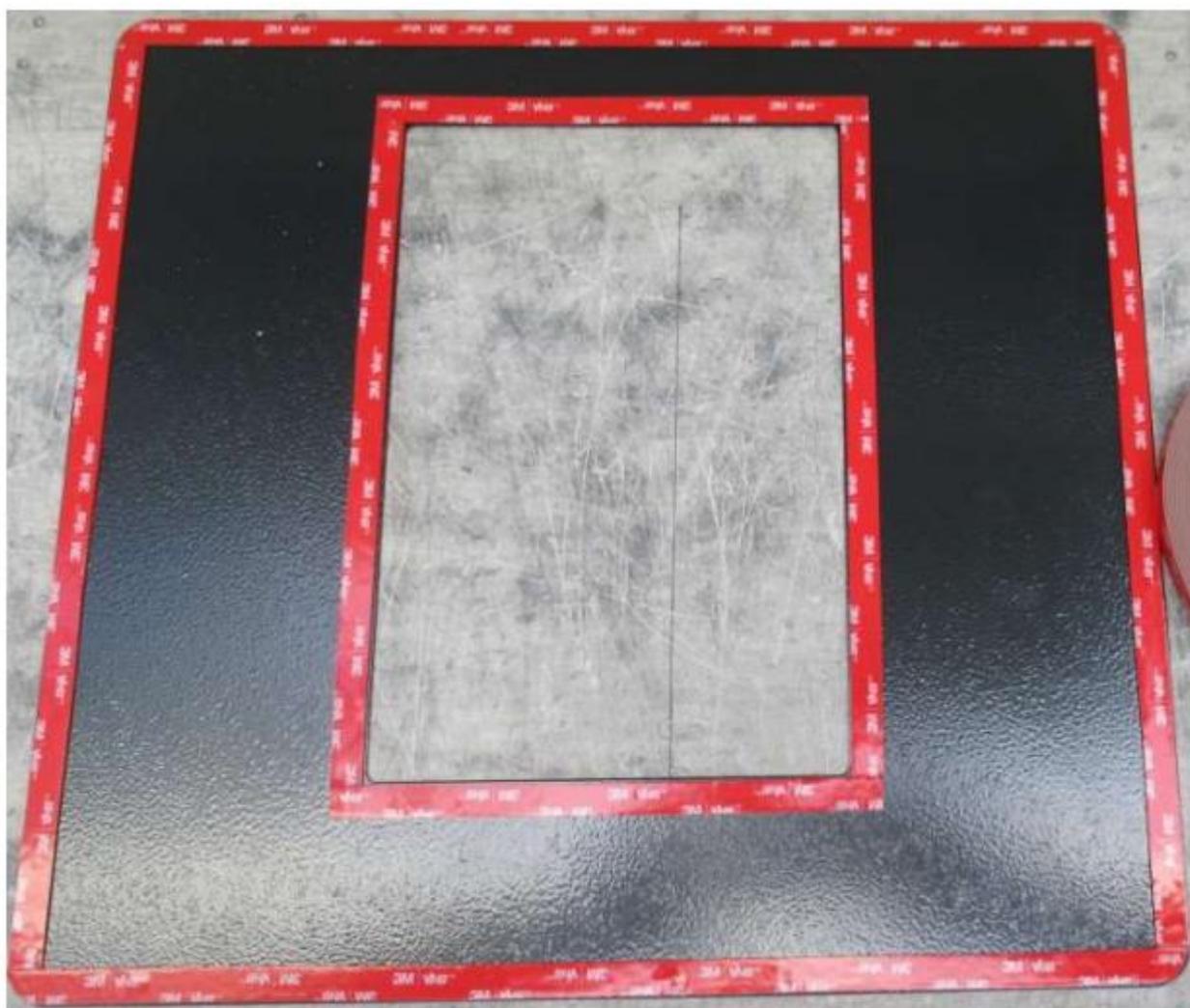


Figure 2: *UFC 200 – arrangement of 3M adhesive on default version of display cover (view from the inside).*

- Step 2 Carefully cut first layer of adhesive tape with fishing line or utility knife.
- Step 3 Heat gun can be additionally used to soften the adhesive.
- Step 4 Slowly bend panel to access to internal layers of tape.

- Step 5 Repeat steps 1-3 until display cover is removed.
- Step 6 Soak remaining adhesive with adhesive remover and wait 2-5 minutes.
- Step 7 Clean the adhesive with microfiber cloth.
- Step 8 Repeat steps 5-6 until all remaining adhesive is removed from the UFC cabinet.

## 4.3 Preparation of Payter Terminal

- Step 1 Prepare Payter Terminal kit 3902303700 APOLLO BRACKET SET ASSY



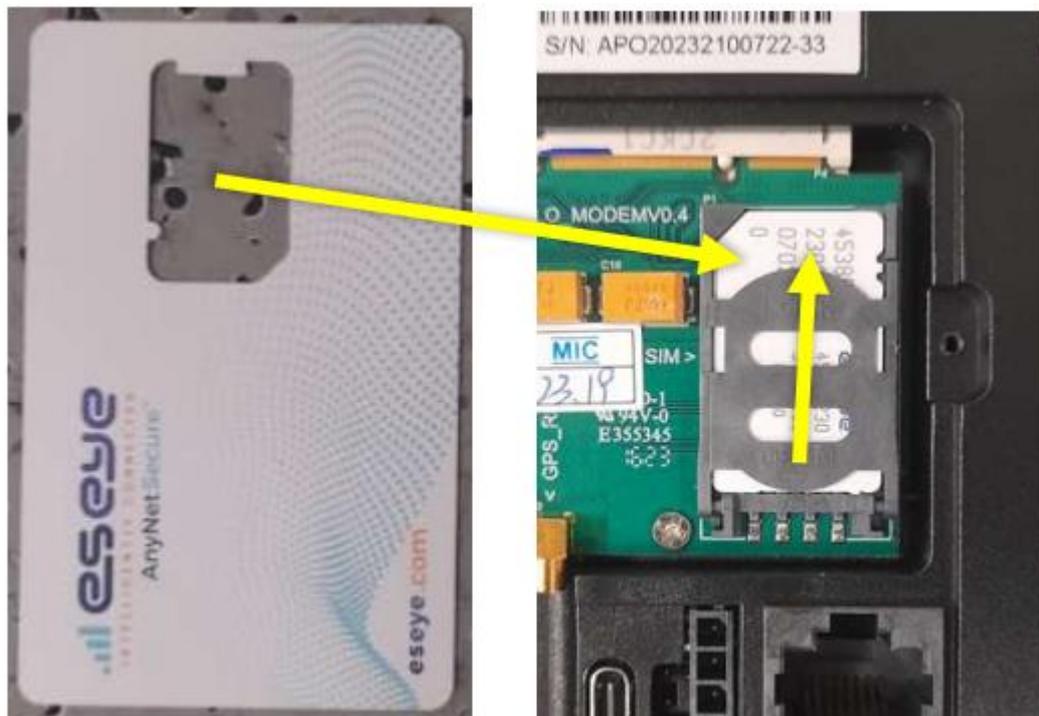
- Step 2 Put aside plastic terminal holder (will not be used for this rework).



Step 3 From the back side unscrew 1 screw fixing cover "MODEM" and remove it.



Step 4 Insert SIM card into SIM card slot.



Step 5 Screw back "MODEM" cover.

## 4.4 Installation of Payter Terminal (new Hardware version)

Step 1 Check the serial number for date code.

Serial No: \*113231937981041985\*



Digits 1-2 indicate production year, digits 3-4 indicate production week.



**Caution! Chargers produced after date code 2129 should use instruction from this chapter. For older chargers please use steps from chapter 4.5.**

Step 2 Insert first gasket to Payter terminal.



Step 3 Screw terminal with gasket to metal holder using 4x M4 screws. Do not tighten screws so terminal has still option to move relatively to holder.



Step 4 Place second gasket inside display holder.



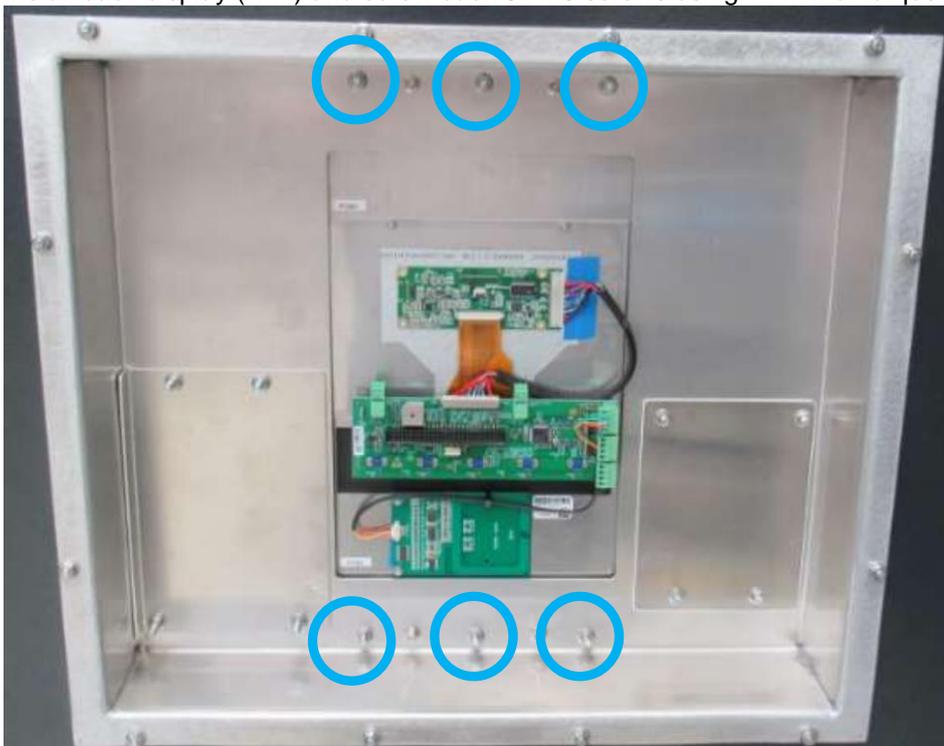
Step 5 Insert terminal on holder on top of the gasket.



Step 6 Screw 4x M5 nuts using 1.4Nm of torque.

Step 7 Ensure that metal holder is securely locked in place and no gaps are visible between gasket and plate of display holder.

Step 8 Install back display (HMI) and screw back 6x M5 screws using 1.4NM of torque.



Step 9 Connect back all external cables to the button board PCB.

## 4.5 Installation of Payter Terminal (old Hardware version)

Step 1 Check the serial number for date code.

Serial No: \*113231937981041985\*



Digits 1-2 indicate production year, digits 3-4 indicate production week.



**Caution! Chargers produced before date code 2129 should use instruction from this chapter. For newer chargers please use steps from chapter 4.4.**

Step 2 Insert first gasket to Payter terminal.



Step 3 Place second gasket inside display holder.



Step 4 Insert terminal holder on top of the gasket.

- Step 5 Screw 4x M5 nuts using 1.4Nm of torque. Placement of top screws may be different in old version of hardware.



- Step 6 Place terminal with gasket on metal holder from outside of the charger.

- Step 7 Screw terminal with gasket to metal holder using 4x M4 screws. Do not tighten screws so terminal has still option to move relatively to holder.



- Step 8 Ensure that metal holder is securely locked in place and no gaps are visible between gasket and plate of display holder.
- Step 9 Install back display (HMI) and screw back 6x M5 screws using 1.4NM of torque.



- Step 10 Connect back all external cables to the button board PCB.

## 4.6 Installation of new display cover



**Caution!** Rework procedure requires applying 3M adhesive tape. Ideal temperature for application is 21-38°C. If procedure must be made in temperatures down to 5°C it is recommended to preheat the technician tent and use 3M Adhesion Promoter AP111 or Primer 94. Application in temperature below 5°C is prohibited.

- Step 1 Prepare new display cover (3486840700 PLATE FRONT PAY SGCC 400\*430\*0.75 PAINT). Display cover should be delivered with 3M adhesive tape attached Figure 3.

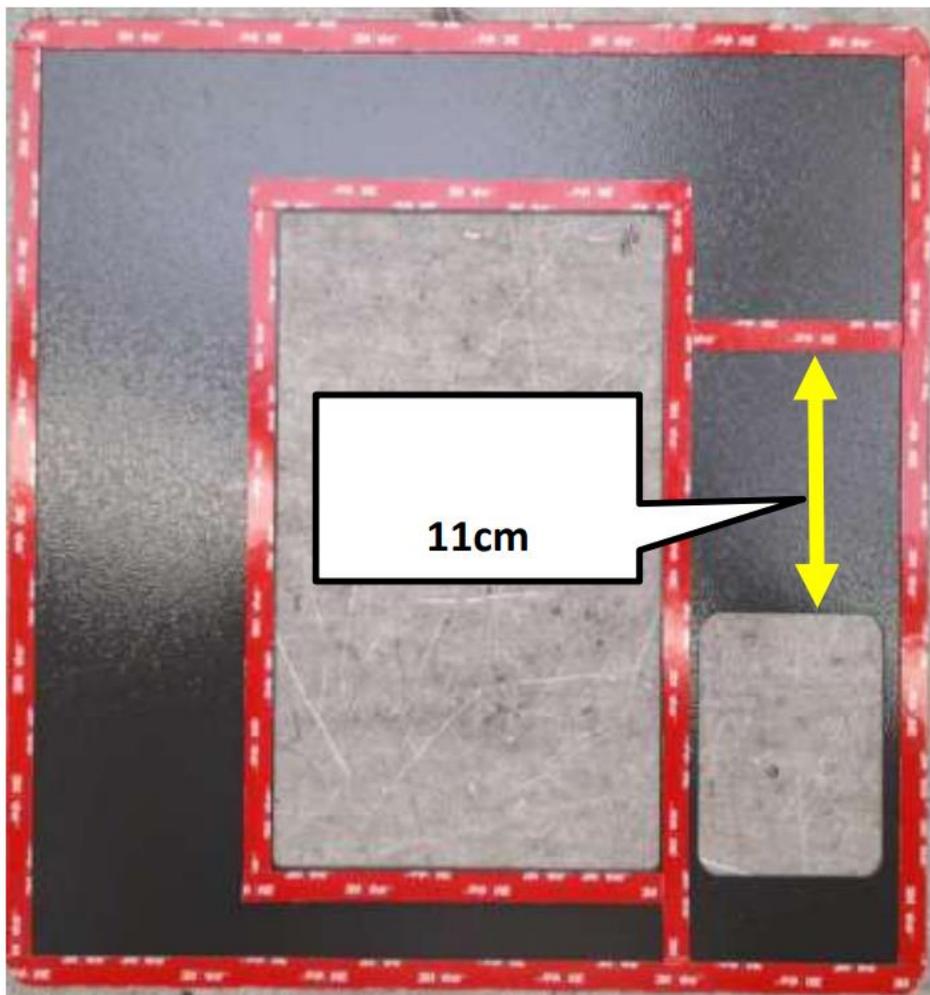


Figure 3: *Display cover in Payter version with adhesive tape attached.*

- Step 2 Make sure that UFC cabinet is clean and all remains of old tape was removed.
- Step 3 Remove 3M adhesive tape red protective layer to expose adhesive.
- Step 4 Carefully attach the display cover to the UFC cabinet.
- Step 5 Align Payter terminal with display cover.

Step 6 Tighten M4 screws using 1.2Nm of torque.



Figure 4: Payter terminal display cover installed.

## 4.7 Installation of antenna signal splitter

- Step 1 Prepare signal splitter 3901702000 SPLITTER 1120 ASSY
- Step 2 Consult circuit diagram to complete rework Figure 5.

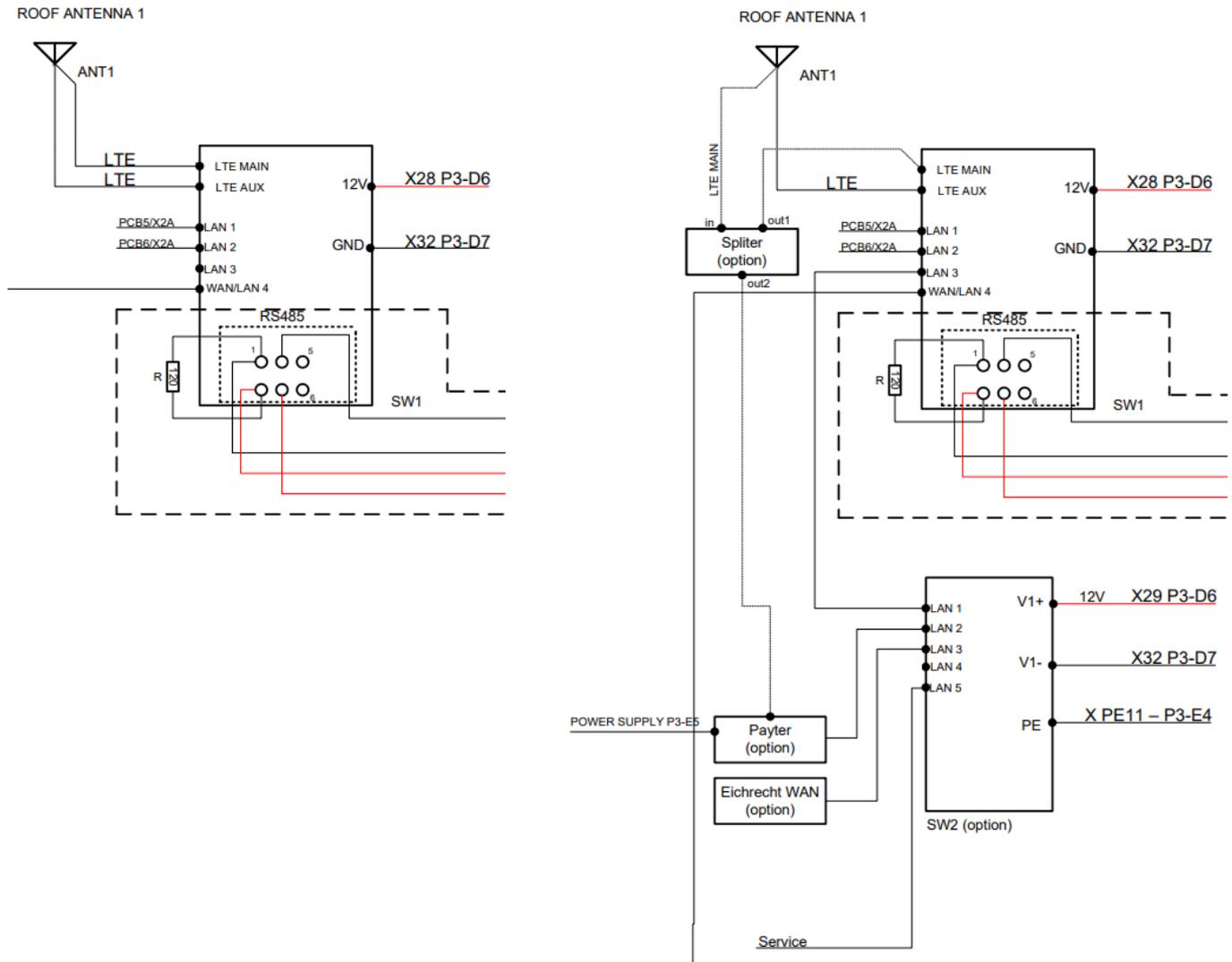


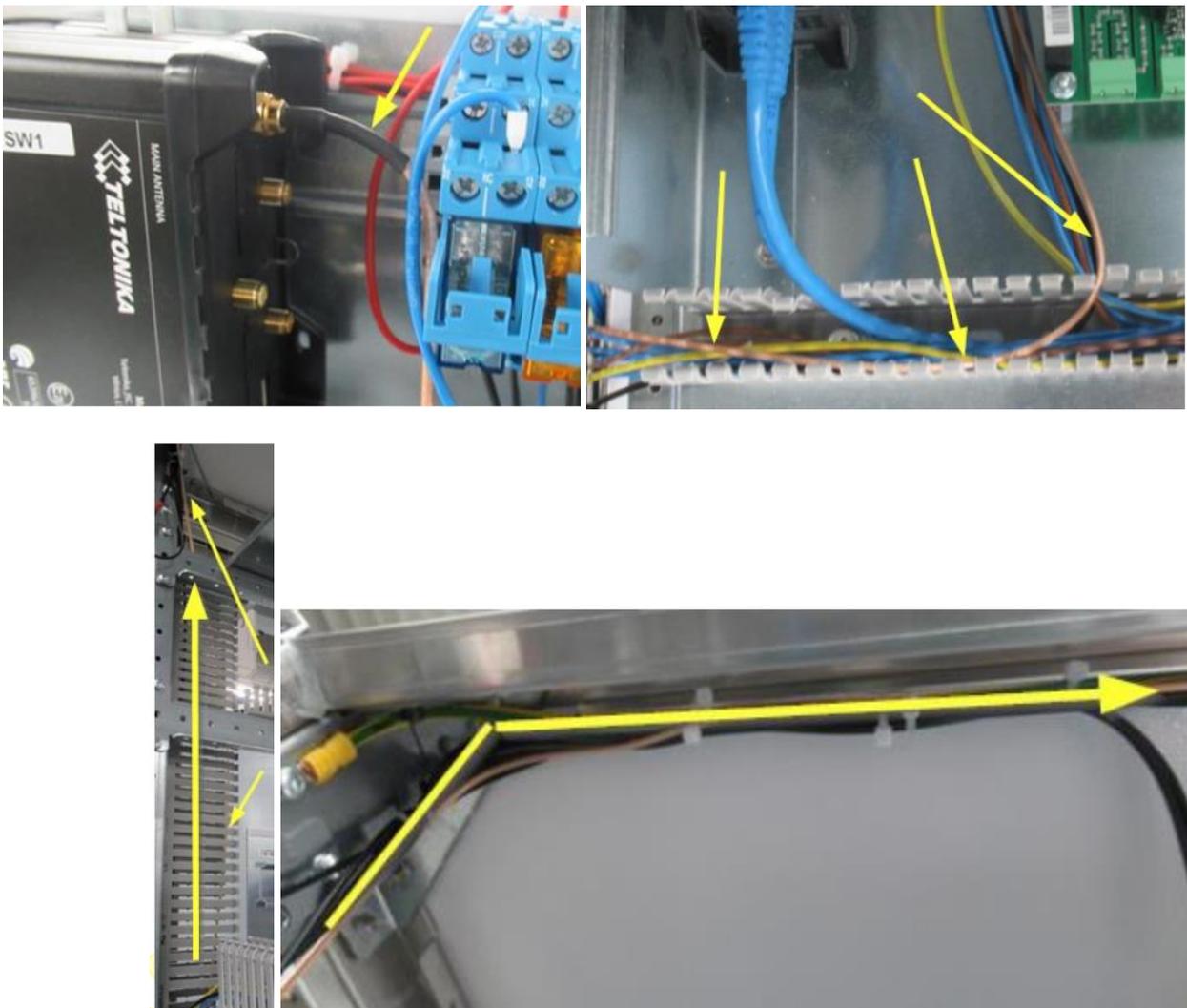
Figure 6: Circuit diagram of the system. Left before rework. Right after rework.

- Step 3 Screw it in using 2x M5 screws in location from Figure 7.



Figure 7 Location of signal splitter

Step 4 Disconnect antenna cable from Teltonika RUT955 LTE MAIN connector and reroute it according to Figure 8.



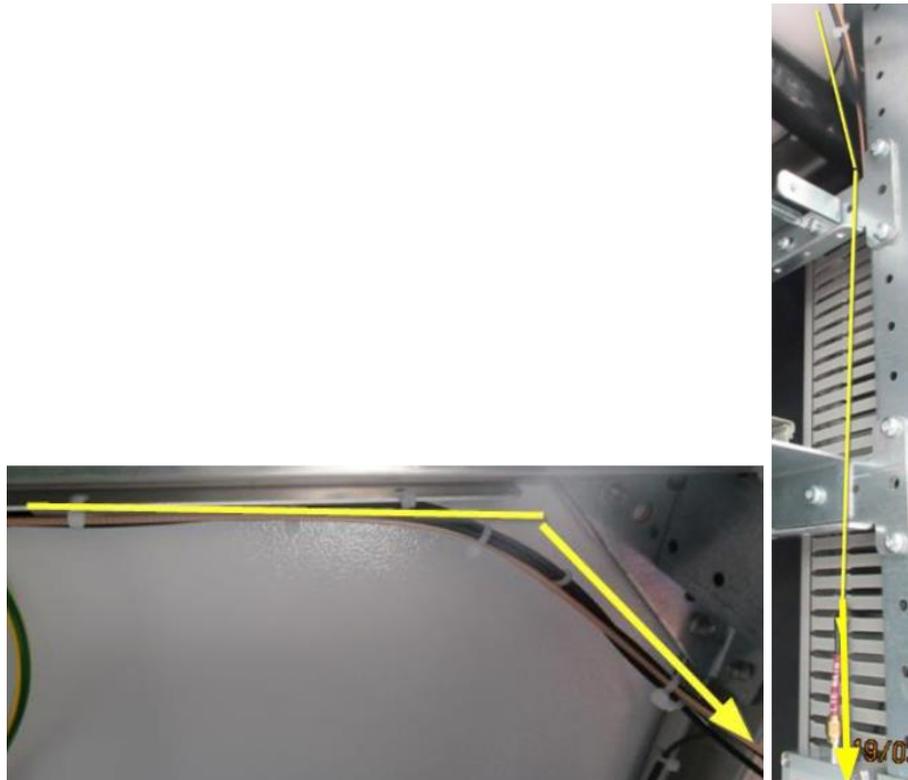
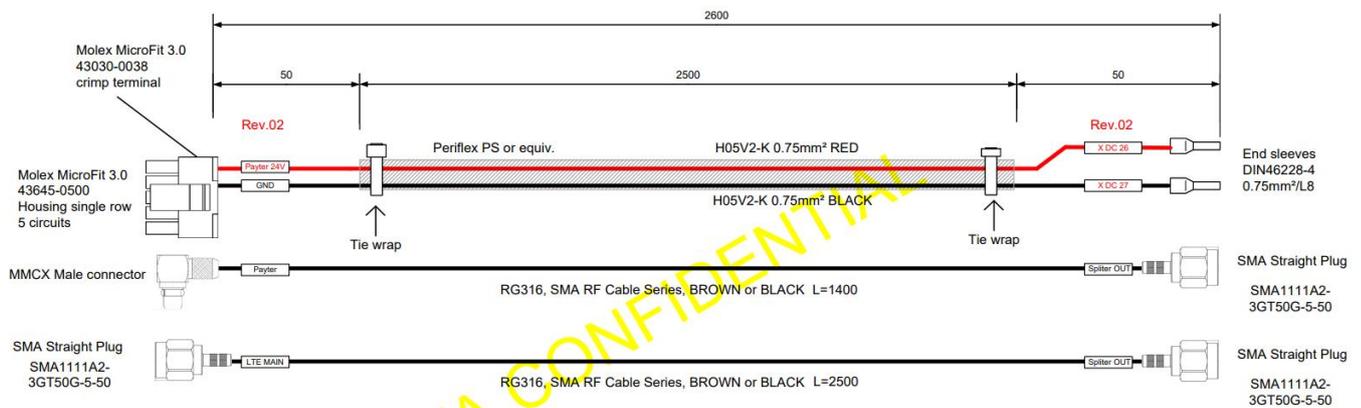


Figure 8 New routing of antenna cable (left to right)

Step 5 Connect to splitter IN (top connector) using 0,6Nm of torque.

Step 6 Prepare antenna cable for Payter terminal 3732396700 CABLE ASSY APOLLO PAYTER [EVC200]



Step 7 Connect end marked "Splitter OUT" to signal splitter OUT2 (bottom right connector) using 0,6Nm of torque.

Step 8 Route it in the system according to Figure 9.

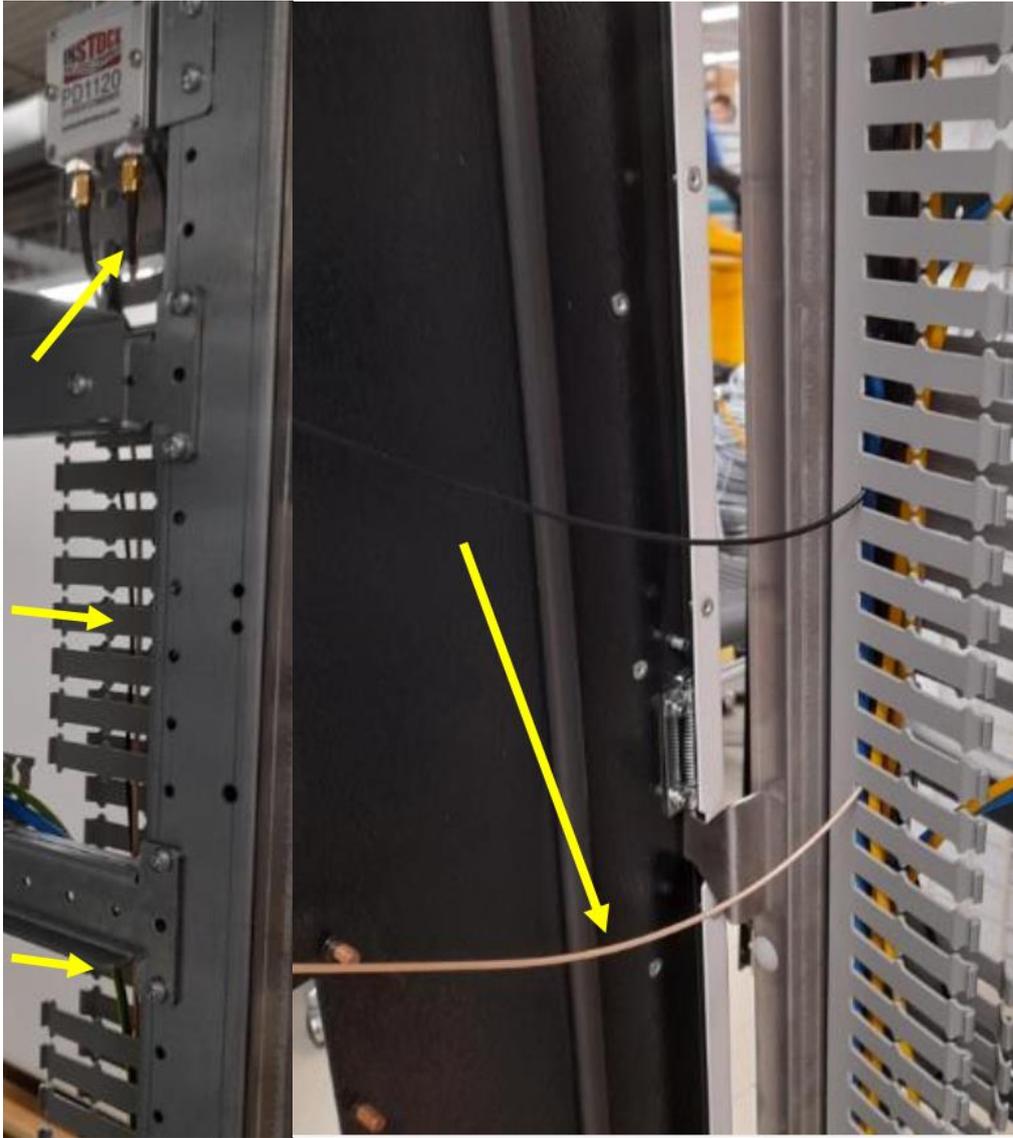


Figure 9 New routing of antenna cable to Payter terminal (left to right)

Step 9 Connect second end of the cable marked “Payter” to Payter terminal MAIN connector.



Step 10 Prepare new antenna cable for Teltonika.

Step 11 Connect end marked “Splitter OUT” signal splitter OUT1 (bottom left connector) using 0,6Nm of torque.

Step 12 Connect another end of the cable marked “LTE MAIN” to Teltonika LTE MAIN connector using 0,6Nm of torque.

Step 13 Prepare 24V power supply cable for Payter Terminal.

Step 14 Connect connector to Payter Terminal according to Figure 10.



Figure 10 New routing of antenna cable to Payter terminal (left to right)

Step 15 Route 24V cable to X DC26 and X DC27 terminals according to Figure 11.

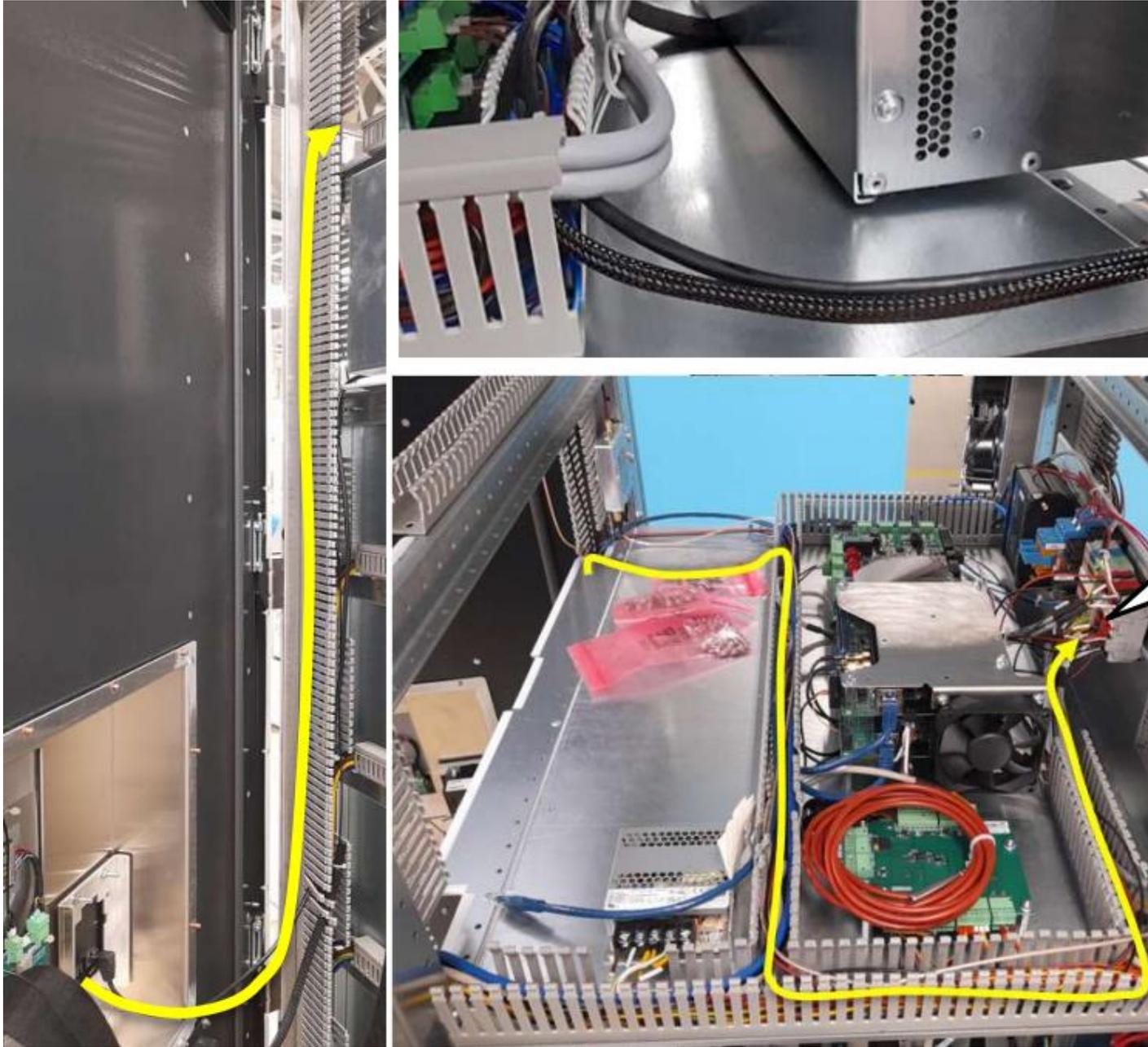


Figure 11 Routing of power supply cable to Payter terminal

## 4.8 Installation of Ethernet switch

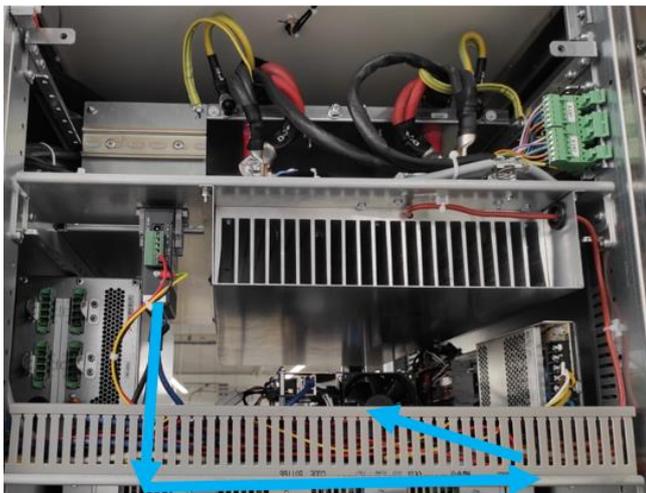
Step 1 Prepare content of kit (3798105809, SWITCH FOR MID OR PAYTER KIT [EVC200])

Step 2 Install switch to already prepared area (marked blue)

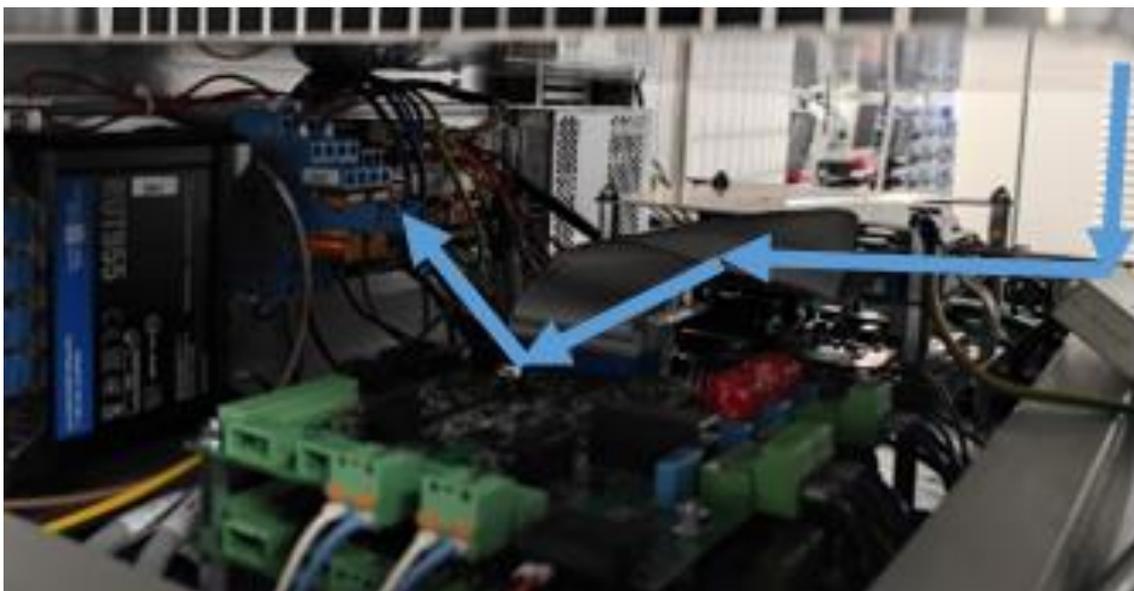




Step 3 Connect to switch „SW2“ power supply cables to X29 (+), X 32 (-), and X PE11 terminals

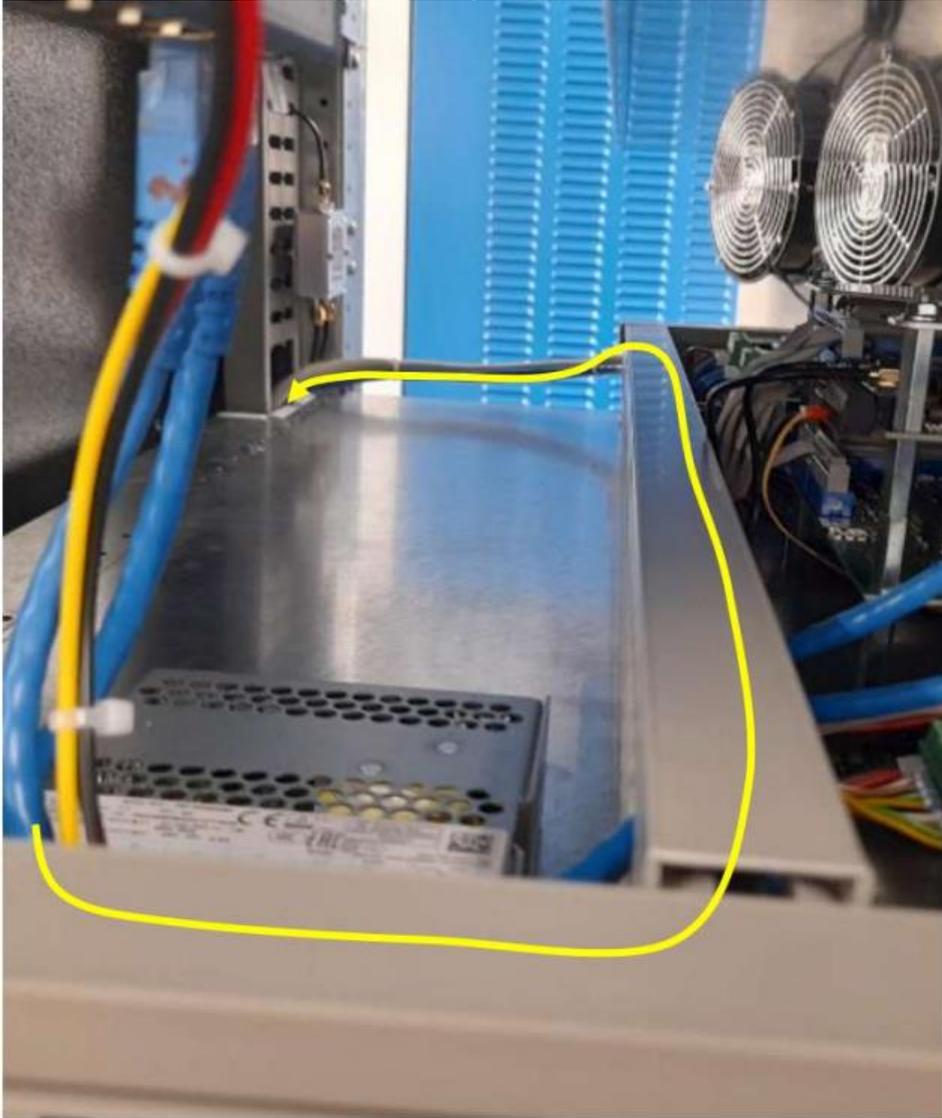


Step 4 Connect switch „SW2“ power supply cables accordingly (another view).



Step 5 Connect switch “SW2” LAN port 1 to switch “SW1” (Teltonika) LAN port 3.

Step 6 Connect switch "SW2" LAN port 2 to Payter terminal.



Step 7 Check if all connections are done according to circuit diagram.

## 4.9 Finishing rework

Step 1 Check charger for any loose or not connected cabling in area of operation.

Step 2 Screw display back cover with M5 nuts using 1.4Nm of torque



- Step 3 In case of metering equipped charger reapply 4 seal stickers PN 3264978700 (not supplied with the kit).
- Step 4 Close front panel and secure with bar clamps.
- Step 5 Screw all 4 screws locking it front panel.
- Step 6 Power up the charger.
- Step 7 Close right and left EVC doors using key.
- Step 8 Clean the site.



**Caution! Dispose of the waste in appropriate containers, according to local regulations.**

## 4.10 Commissioning and testing

For commissioning and testing of payment terminal please contact Delta Service.



## **About Delta**

Delta, founded in 1971, is a global leader in power and thermal management solutions. Our mission is “To provide innovative, clean and energy-efficient solutions for a better tomorrow,” and our businesses encompass Power Electronics, Energy Management, and Smart Green Life. Delta has sales offices, manufacturing facilities and R&D centers worldwide. In 2014, was ranked at the highest A-level of the Climate Performance Leadership Index of the Carbon Disclosure Project (CDP). Since 2011, Delta is part of the Dow Jones Sustainability Indices (DJSI) World Index.