



Express Plus

DC Fast Charging Platform

Operation and Maintenance Guide



IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important instructions for Express Plus that shall be followed during installation, operation and maintenance of the unit.

WARNING:



1. **Read and follow all warnings and instructions before servicing, installing, or operating the ChargePoint® product.** Install and operate only as instructed. Failure to do so may lead to death, injury, or property damage, and will void the Limited Warranty.
2. **Only use licensed professionals to install your ChargePoint product and adhere to all national and local building codes and standards.** Before installing the ChargePoint product, consult with a licensed contractor, such as a licensed electrician, and use a trained installation expert to ensure compliance with local building and electrical codes and standards, climate conditions, safety standards, and all applicable codes and ordinances. Inspect the product for proper installation before use.
3. **Always ground the ChargePoint product.** Failure to ground the product can lead to risk of electrocution or fire. The product must be connected to a grounded, metal, permanent wiring system, or an equipment grounding conductor shall be run with circuit conductors and connected to the equipment grounding terminal or lead on the Electric Vehicle Supply Equipment (EVSE). Connections to the EVSE shall comply with all applicable codes and ordinances.
4. **Install the ChargePoint product using a ChargePoint-approved method.** Failure to install on a surface that can support the full weight of the product can result in death, personal injury, or property damage. Inspect the product for proper installation before use.
5. **The product is not suitable for use in Class 1 hazardous locations, such as near flammable, explosive, or combustible vapors or gases.**
6. **Supervise children near this device.**
7. **Do not put fingers into the electric vehicle connector, or touch fingers to charging rails.**
8. **Do not use this product if any cable is frayed, has broken insulation, or shows any other signs of damage.**
9. **Do not use this product if the enclosure or the electric vehicle connector is broken, cracked, open, or shows any other signs of damage.**



IMPORTANT: Under no circumstances will compliance with the information in a ChargePoint guide such as this one relieve the user of the responsibility to comply with all applicable codes and safety standards. This document describes approved procedures. If it is not possible to perform the procedures as indicated, contact ChargePoint. **ChargePoint is not responsible for any damages that may result from custom installations or procedures not described in this document or that fail to adhere to ChargePoint recommendations.**

Product Disposal

To comply with Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), devices marked with this symbol may not be disposed of as part of unsorted domestic waste inside the European Union. Enquire with local authorities regarding proper disposal. Product materials are recyclable as marked.



Document Accuracy

The specifications and other information in this document were verified to be accurate and complete at the time of its publication. However, due to ongoing product improvement, this information is subject to change at any time without prior notice. For the latest information, see our documentation online at chargepoint.com/guides.

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Symbols

This guide and product use the following symbols:



DANGER: Risk of electric shock



WARNING: Risk of personal harm or death



CAUTION: Risk of equipment or property damage



IMPORTANT: Crucial step for installation success



Read the manual for instructions



Ground/protective earth

Illustrations Used in This Document

The illustrations used in this document are for demonstration purposes only and may not be an exact representation of the product. However, unless otherwise specified, the underlying instructions are accurate for the product.

Contents

Important Safety Instructions	ii
1 Introduction	1
Express Plus Components	1
Express Plus Guides	2
Questions	2
2 Operation	3
Power Operation	3
Status Lights	3
ChargePoint Cloud Dashboard	4
3 Maintenance	6
Site Manager's Responsibilities	6
Preventive Maintenance	7
4 Power Block Troubleshooting	9
Front View for Locating the Boards for Power Block	9
PBC Faults Board Location	10
PBC Faults	14
AUX PS Faults Board Location	33
AUX PS Faults	39
CCB Faults Board Location	51
CCB Faults	53
5 Power Link Troubleshooting	68
Inside View of Power Link	69
Inside View of Power Link 2000	70
SSLAN Faults Board Location	71
SSLAN Faults	75
UCB Faults Board Location	80
UCB Faults	82
MDS Faults Board Location	86

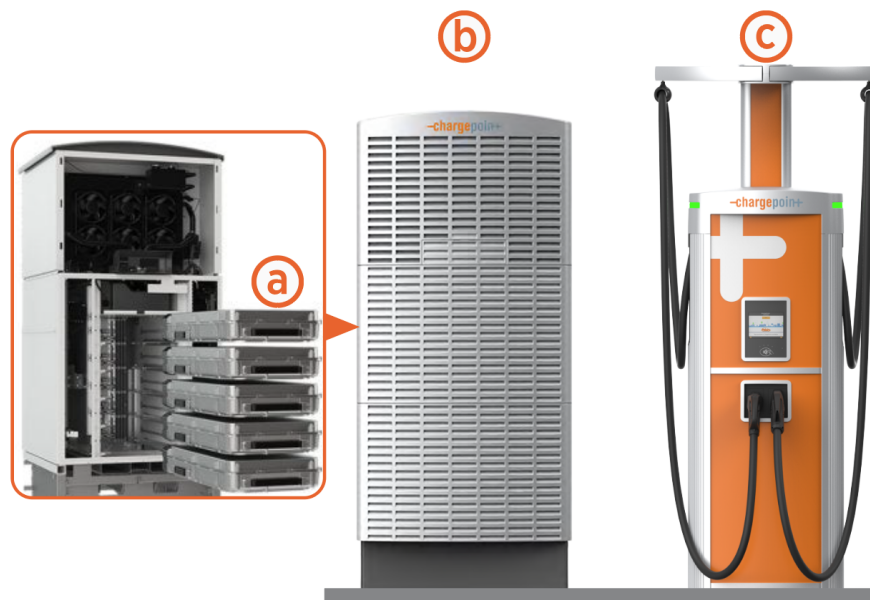
MDS Faults	90
FDC Faults Board Location	96
FDC Faults	100
SEVB Faults Board Location	112
SEVB Faults	114
Proton Location (Power Link 2000)	117
Proton Faults	118
FDC Location (Power Link 2000)	125
FDC Faults	129
CCB Location (Power Link 2000)	142
CCB Faults	144
Cable Faults (Power Link 2000)	155

Introduction 1

This guide describes how to operate and maintain the ChargePoint® Express Plus DC fast charging platform.

Express Plus Components

Express Plus is a scalable DC fast charging platform. It consists of three components: Power Module, Power Block, and Power Link.



- (a) Power Module is the power conversion component. It converts the upstream AC power into DC power to output up to 40 kW of power.
- (b) Power Block contains Power Modules. It can accommodate up to five Power Modules and has two DC outputs, capable of delivering up to 200 kW of power.
- (c) Power Link is the charger. It receives DC power from Power Blocks. A Power Link can accommodate up to two charging cables to charge two electric vehicles simultaneously.

For full specifications and certifications, refer to the *Express Plus Datasheet* at chargepoint.com/guides.

Express Plus Guides

Access ChargePoint documents at chargepoint.com/guides.

Document	Content	Primary Audiences
Datasheet	Full station specifications	Site designer, installer, and station owner
Site Design Guide	Civil, mechanical, and electrical guidelines to scope and construct the site	Site designer or engineer of record
Concrete Mounting Template Guide	Instructions to embed the charging station template in a concrete pad with anchor bolts and conduit placement	Site construction contractor
Construction Signoff Form	Checklists used by contractors to ensure the site is correctly completed and ready for product installation	Site construction contractor
Installation Guide	Anchoring, wiring, and powering on	Installer
Operation and Maintenance Guide	Operation and preventive maintenance information	Station owner, facility manager, and technician
Service Guide	Component replacement procedures, including optional components	Service technician
Declaration of Conformity	Statement of conformity with directives	Purchasers and public

Questions

For assistance, go to chargepoint.com/support and find your region's technical support number.

Operation 2

Power Operation

- Power on: Express Plus is powered on by the installation team at the site's electrical panel, immediately after completing installation.
- Power off: Express Plus does not need to be powered off except during maintenance or service. Refer to the *Power Block* and/or *Power Link Service Guide* to power off and de-energize one or both Express Plus components.

Status Lights

See the [Express Plus illustration](#) for light locations.

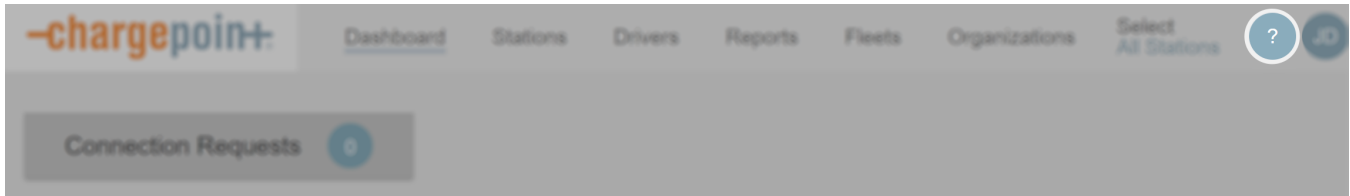
Color	Power Link	Power Block
Green	Unplugged (available and ready to charge)	All connected Power Links are unplugged.
Blue, pulsing	Plugged in, charging	At least one connected Power Link is plugged in and charging.
Blue	Plugged in, not charging, and charging complete	At least one connected Power Link is plugged in and not charging.
Orange	Port is reserved via Waitlist feature	Not applicable
Yellow, blinking	Port reserved via Waitlist feature is blocked	Not applicable
Yellow	Reduced charging rate	
White	Offline	
Red	Fault (see View Station and Diagnostics Information)	

ChargePoint Cloud Dashboard

ChargePoint Cloud Dashboard lets you set up, configure, [view station and diagnostics information](#), [generate reports](#), and manage many features of Express Plus.

You can log in to ChargePoint Cloud Dashboard at na.chargepoint.com or eu.chargepoint.com using the login credentials created when setting up the station network manager account.

After logging in, go to  (Help) > **Videos and Manuals** to see the video tutorials and user guides.



Set Up and Configure Station Features

You can do one or more of the following:

- Set up pricing and billing for charging
- Control who can access the stations
- Display a message on station
- Create waitlist policy for charging when stations are full
- Set up valet
- Set up station groups
- Grant station rights to other organization
- Set up web services API
- Set up and manage your fleet

View Station and Diagnostics Information

1. Log in to the ChargePoint Cloud Dashboard at na.chargepoint.com or eu.chargepoint.com.
2. Select **Stations**.
3. Select the station name to view the station specific information.
Apply filters to filter out the station you are looking for.
4. Select **Status/Actions** tab > **Component Diagnostics** to view the diagnostics information.
5. Alternatively, select the **Diagnostics** tab.



IMPORTANT: If a red status alert appears, contact ChargePoint immediately at chargepoint.com/support. A yellow status alert provides you with information; unless functionality appears affected, typically no action is required.

Generate Reports

The **Reports** tab lets you access a variety of reporting features:

- Reports by data type (such as Analytics, Financial, Logs).
- Duration slider (by day, week, month, year) below the chart.
- Advanced filters (such as station name, organization) at the bottom tab.
- Detailed data view when you hover over a report graph.

Reports on Alerts

You can view the station error codes and alerts from the ChargePoint Cloud Dashboard and export that information to a report.

1. Log in to the ChargePoint Cloud Dashboard.
2. Go to **Reports > Alarms**.
3. Choose **Most Recent Only**, **Current Alarms**, **Historical Alarms**, or **All Alarms** from the dropdown menu.
4. Apply filters from the bottom tab.
5. Use the checkboxes on the left to choose specific data.
6. Export as a CSV file by choosing either **Visible Columns** or **All Columns** from the dropdown menu.

Maintenance 3

Express Plus needs minimal preventive maintenance over its lifetime. ChargePoint's network connection monitors for system health and sends an alert when corrective maintenance might be required (see [View Station and Diagnostics Information](#)).

IMPORTANT:



- Follow local code and refer to the site lockout/tagout procedure and Service Guide to power off and de-energize Express Plus.
- If you find any damages, excessive wear, part impairment, or improper functioning, contact ChargePoint for assistance and replacement parts.
- Use only ChargePoint authorized parts and refer to the Service Guide for part replacement instructions.

CAUTION: Warranty Limitation



- If the charging station is not installed, commissioned, or serviced by a ChargePoint certified installer or technician using a ChargePoint-approved method, it is excluded from all ChargePoint and other warranties and ChargePoint is not responsible.
- You must be a licensed electrician and complete the training at chargepoint.com/installers to become ChargePoint certified and to access the ChargePoint web or app-based installer tools.

Site Manager's Responsibilities

The site or facility manager has a few duties for general site maintenance:

- Establish site lockout/tagout procedure per local code and in compliance with the *Service Guide*.
- Maintain an up-to-date copy of the site's as-built and single line diagram (SLD) that includes the naming of all control elements (circuit breakers, fuses, overcurrent devices, and disconnect switches). Documentation to include but not be limited to the localizations, permanent panel schedules, and means or methods required to de-energize the charging station.
- To ensure proper ventilation, make sure nothing is blocking each station's exterior vents, including any snow buildup (remove if present).
- Regularly clean each station's exterior with a damp and lint-free cloth to prevent the accumulation of debris, dust, or dirt. Perform this maintenance more frequently in high pollution environments.

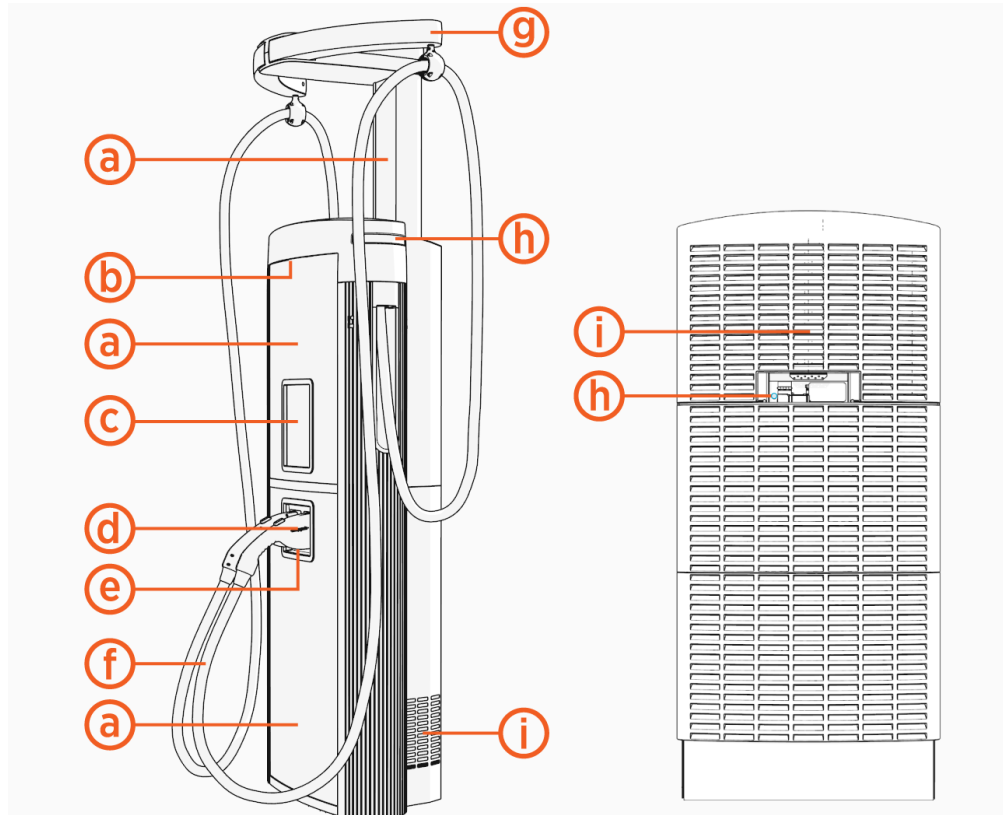


CAUTION: Do not pressure wash the station. Water pressure can damage the station.

- Check each station (including the charging cable and connector) monthly for vandalism and any signs of wear or damage.

Preventive Maintenance

ChargePoint, or a ChargePoint certified technician, should perform maintenance checks at the intervals listed below.



Part	Every		Action C = Check, R = Replace
	1 year	5 year	
(a) Vinyls	C		Check if these are vandalized, faded, or peeling off.
(b) Area light	C		Check if it is functioning.
(c) Display cover	C		Check for the accumulation of dust, scratches, or cracks
(d) Connector	C		Check for the accumulation of debris, dust, or dirt; for excessive wear or signs of damage; and if the connector contact pins and latch are intact.
(e) Holster	C		
(f) Charging cable	C		Check for cracks or signs of damage.
(g) Cable management kit (CMK)	C		Check if the charging cable fully extends and retracts.

(h) Status lights	C		Check for proper functioning (see Status Lights)
(i) Airflow vents	C		Check for the accumulation of debris, dust, or dirt.
Refer to the Service Guide to locate the following parts and their service instructions.			
Fans	C		Check for the accumulation of dust.
Coolant (if present)	C	R	Check the level and top up if it is below the minimum level.
Mounting anchors		C	Check for the correct torque.
Bus bar lug nuts		C	

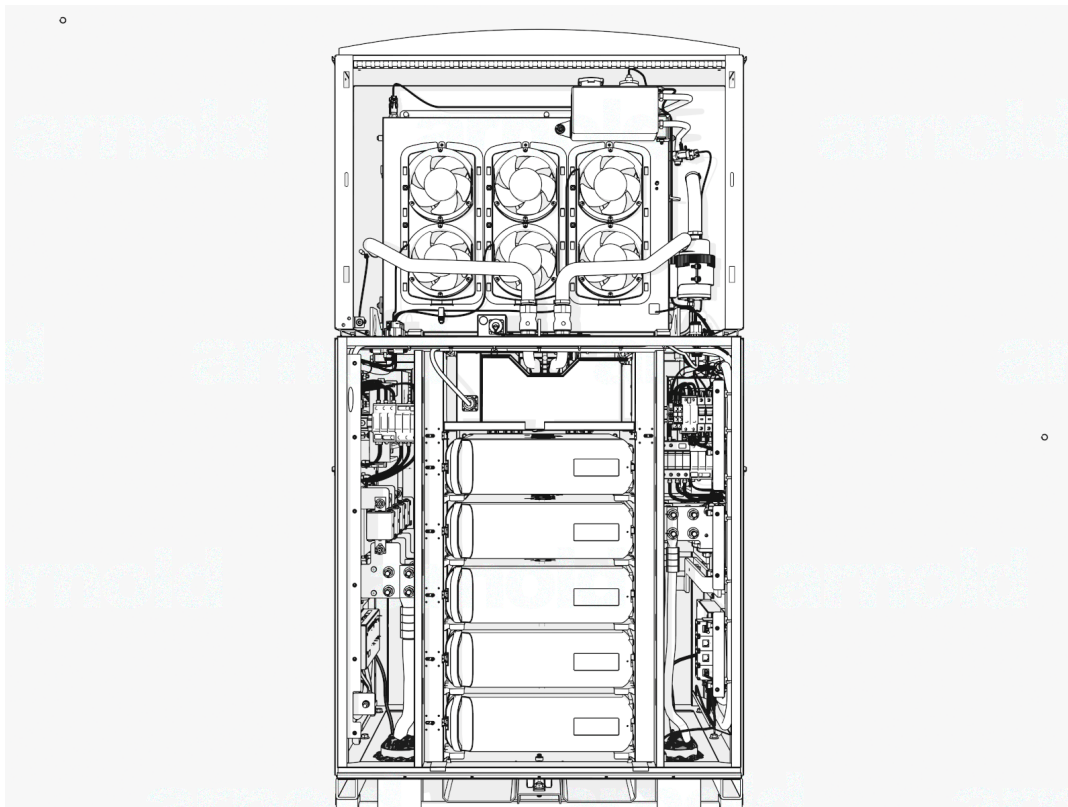
Power Block Troubleshooting 4

This section is aimed to help Industrial Support Engineers, field technicians, and the Commissioning team in identifying problems and performing initial debug of problems related to Power Block.

The troubleshooting steps for the following components' faults are included in this section:

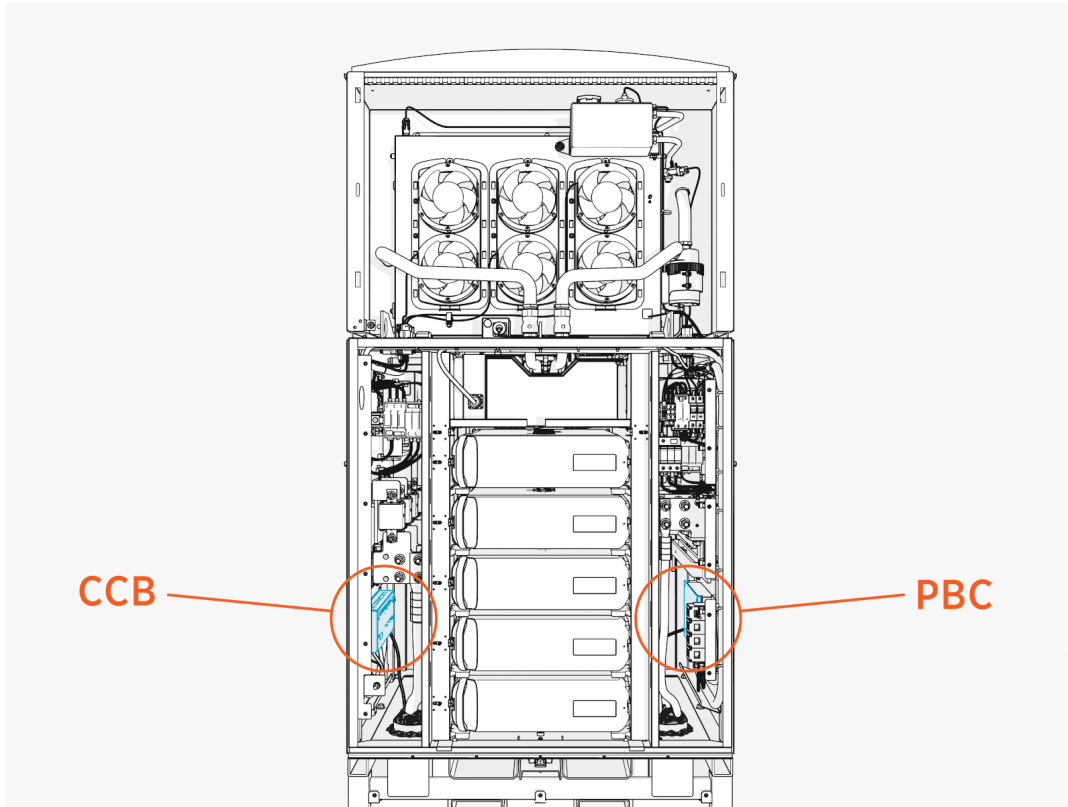
- Power Block controller (PBC)
- Auxiliary power supply (AUX PS)
- Cooling controller board (CCB)

Front View for Locating the Boards for Power Block

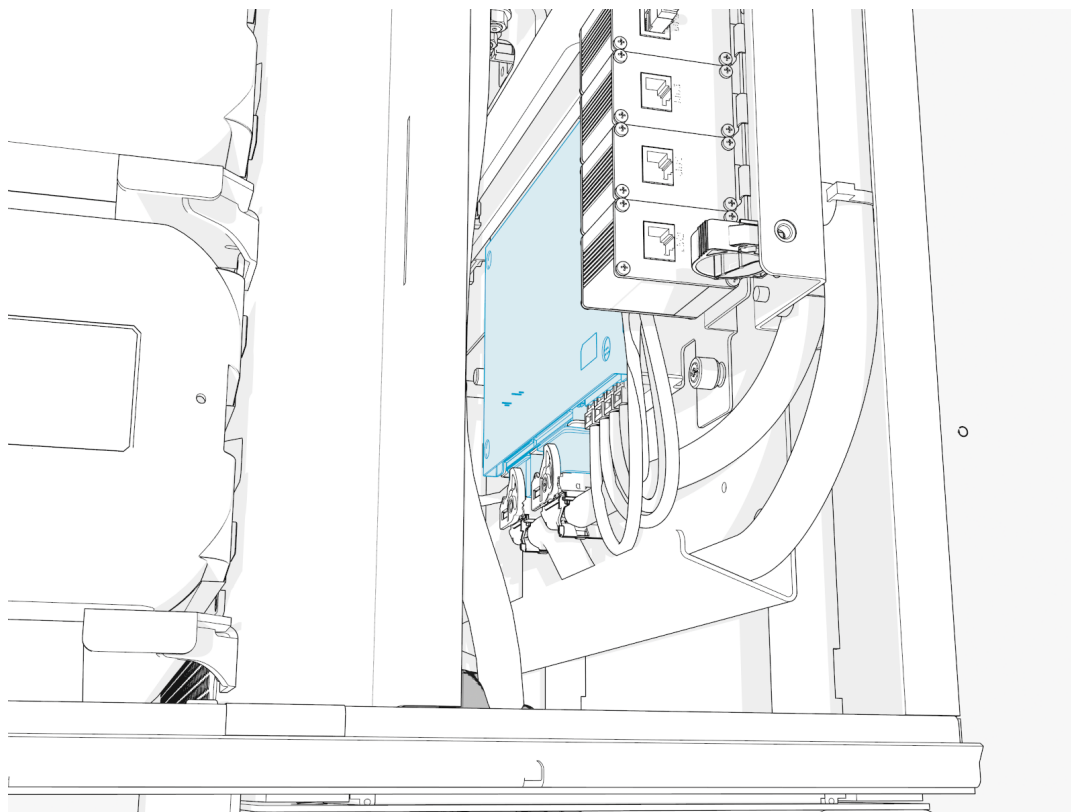


PBC Faults Board Location

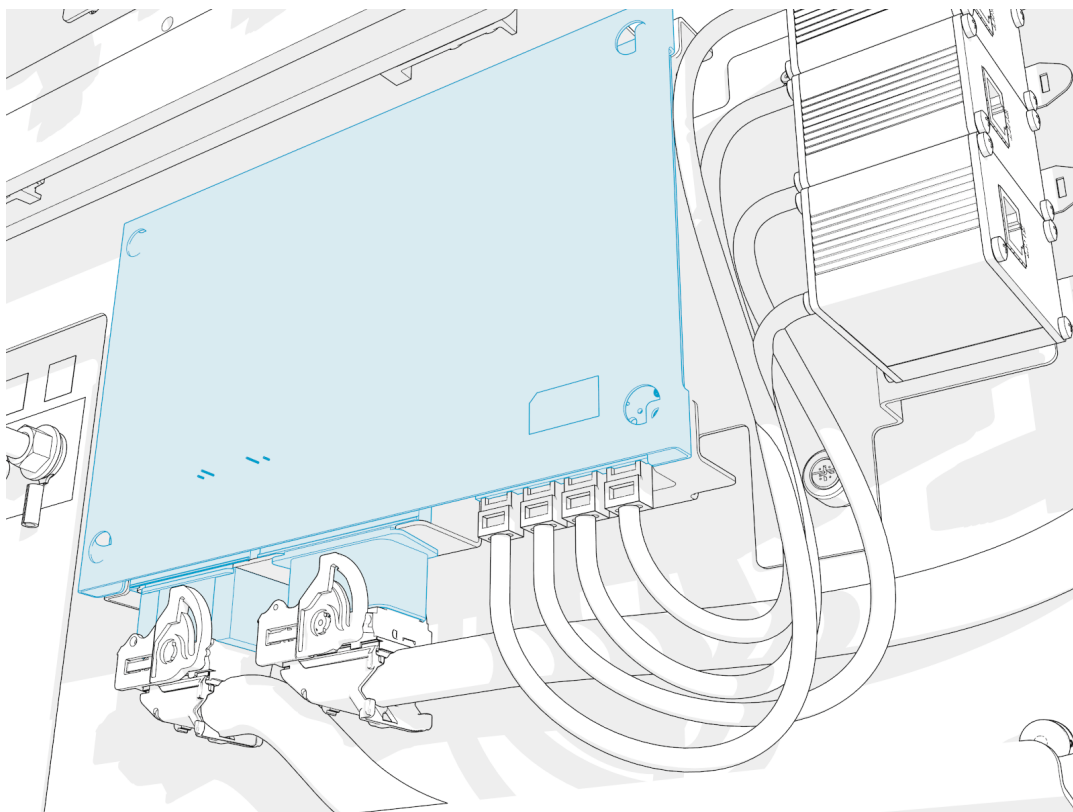
Front View for Locating the Boards for PBC and CCB Faults



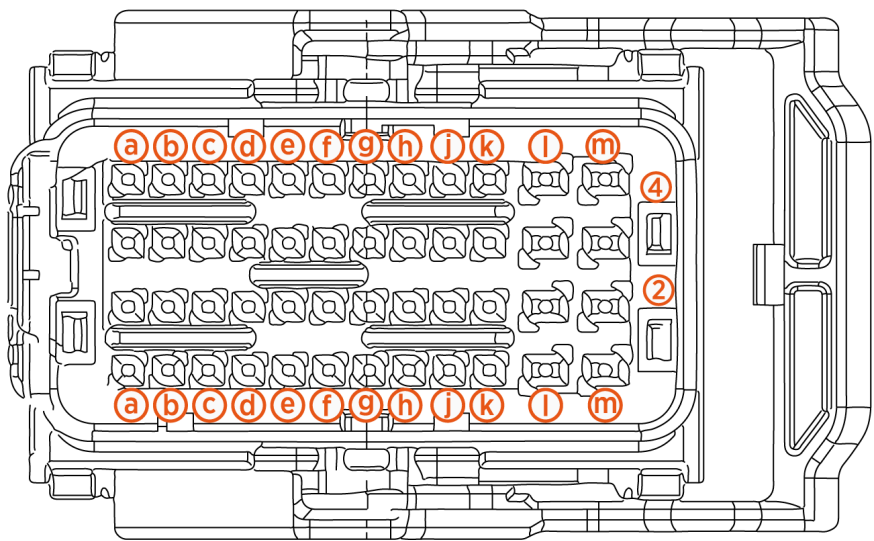
PBC Faults Board Location

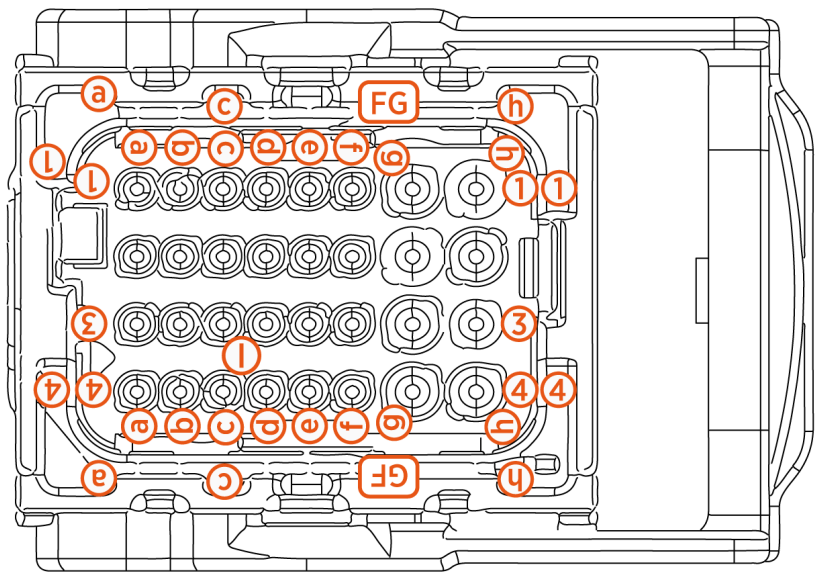


PBC Faults Cable Location



PBC-J108





PBC Faults

PBC_FAN1_OVERCURRENT

Category	Fault Source	Fault Type	Criticality
Cooling	Dry zone fan bank 1	Hardware	Major

Fault Description

Fan 1 current consumption more than 4 A for 100 ms. Fan 1 is disabled and Power Block is set to derate to 50% of maximum available power.

Possible Causes

- Short between wires due to a slice or a cut in insulation
- Obstruction to fan fins

- Internal fan failure
- Connector broken leading to a short

Troubleshooting

1. Confirm if connectors going to PBC and also to the fans are seated fully.
2. Look for wiring continuity between PBC connector and Fan 1 connector.
 - a. Measure continuity between M3 (Fan_PWR) and M4 (Fan_Ret) on P108 connector going to PBC.
3. If there is a short detected between PWR and RET line, then replace the harness.
4. If no short is measured, then replace the Dry zone fans to fix the issue.
5. Contact ChargePoint if the issue still persists.

PBC_FAN2_OVERCURRENT

Category	Fault Source	Fault Type	Criticality
Cooling	Dry zone fan bank 2	Hardware	Major

Fault Description

Fan 1 current consumption more than 4 A for 100 ms. Fan 1 is disabled and Power Block is set to derate to 50% of maximum available power.

Possible Causes

- Short between wires due to a slice or a cut in insulation
- Obstruction to fan fins
- Internal fan failure
- Connector broken leading to a short

Troubleshooting

1. Confirm if connectors going to PBC and also to the fans are seated fully.
2. Look for wiring continuity between PBC connector and Fan 1 connector.
 - a. Measure continuity between M1 (Fan_PWR) and M2 (Fan_Ret) on P108 connector going to PBC.
3. If there is a short detected between PWR and RET line, then replace the harness.
4. If no short is measured, then replace the Dry zone fans to fix the issue.
5. Contact ChargePoint if the issue still persists.

PBC_FAN1_OPENCIRCUIT_DETECTED

Category	Fault Source	Fault Type	Criticality
Cooling	Dry zone fan bank 1	Hardware	Major

Fault Description

Fan 1 current consumption less than 0.3 A per 100 s. Fan 1 is disabled and Power Block is operational and will derate if Power Modules report overheating.

Possible Causes

- Break in PWR or GND wires feeding the PBC
- Connector not seated fully

Troubleshooting

1. Confirm if connectors going to PBC and also to the fans are seated fully.
2. Look for wiring continuity between PBC connector and Fan 1 connector.
3. If no short is measured, then replace the Dry zone fans to fix the issue.
 - a. Measure between M3 (Fan_PWR) on P108 connector (going PBC) to Pin 1 on P148 (going to DRY-HEX).
 - b. Measure between M4 (Fan_Ret) on P108 connector (going to PBC) and Pin 7 on P148 (going to DRY-HEX).

If continuity test in steps (a) and (b) passes, then replace DRY-HEX for resolution. If steps (a) or (b) fail, then replace the harness.

4. If the issue still persists after replacing DRY-HEX, then contact ChargePoint if the issue still persists.

PBC_FAN1_SPEED_MISMATCH

Category	Fault Source	Fault Type	Criticality
Cooling	Dry zone fan bank 1	Hardware/Software	Major

Fault Description

Fan 1 not running at desired speed. 20% difference between commanded speed and speed feedback. Power Block is operational and will derate if Power Modules overheat.

Possible Causes

- Fan is not receiving responding to speed commands

Troubleshooting

1. If Power Block operates without derating, then no change is necessary.
2. If Power Block is derating, then contact ChargePoint for further steps.

PBC_FAN2_OPENCIRCUIT_DETECTED

Category	Fault Source	Fault Type	Criticality
Cooling	Dry zone fan bank 2	Hardware	Major

Fault Description

Fan 2 current consumption less than 0.3 A for 10 s.

Power Block is operational and will derate if Power Modules report overheating.

Possible Causes

- Break in PWR or GND wires feeding the PBC
- Connector not seated fully

Troubleshooting

1. Confirm if connectors going to PBC and also to fans are seated fully.
2. Look for wiring continuity between the PBC connector and the Fan 2 connector.
 - a. Measure between M1 (Fan_PWR) on P1 connector (going to PBC) to Pin 6 on P148 (going to DRY-HEX).
 - b. Measure between M2 (Fan_Ret) on P1 connector (going to PBC) and Pin 2 on P148 (going to DRY-HEX).
 - c. Measure continuity between Fan_PWR and Fan_Ret.
3. If continuity test in steps (a) and (b) passes, then replace DRY-HEX for resolution. If steps (a) or (b) fail, then replace the harness.
4. If issue persists after replacing DRY-HEX, then contact ChargePoint for further steps.

PBC_FAN2_SPEED_MISMATCH

Category	Fault Source	Fault Type	Criticality
Cooling	Dry zone fan bank 2	Hardware/Software	Minor

Fault Description

Fan 2 not running at desired speed. 20% difference between commanded speed and speed feedback.
Power Block is operational and will derate if Power Modules overheat.

Possible Causes

- Fan not receiving or responding to speed commands

Troubleshooting

1. If Power Block operates without derating, then no change is necessary.
2. If Power Block is derating, then contact ChargePoint for further steps.

RTD_DRYZONE_AMB_DISCONNECTED

Category	Fault Source	Fault Type	Criticality
Sensor	Dry zone RTD	Hardware	Major

Fault Description

Dry zone RTD disconnected.

Fault shown when the Dry zone RTD temperature goes above 100 °C for 10 s.

Power Block is allowed to run without any derate, unless power modules report higher temperatures and trigger derate.

Possible Causes

- Break in RTD feedback wire
- Not properly seated PBC connector P108

Troubleshooting

1. Reseat connector P148 and confirm if it fixes the issue.
2. Measure continuity between Pin J3 (T1_OUT) on P108 (going to PBC) and Pin 1 on P149. Also between Pin J4 (T1_RET) on P108 (going to PBC) and Pin 2 on P148.
3. If no continuity, then issue might be a break in the feedback wire.
4. Measure resistance across between Pin J3 and Pin J4 on P108.
5. Contact ChargePoint if the issue persists.

RTD_DRYZONE_AMB_SHORTED

Category	Fault Source	Fault Type	Criticality
Sensor	Dry zone RTD	Hardware	Major

Fault Description

Dry zone RTD Shorted.

If the temperature is reading -40° C for more than 10 s.

Power Block is allowed to run without any derate, unless Power Modules report higher temperatures and trigger the derate.

Possible Causes

- Short in RTD feedback wire
- Slice or cut in wire shorting to GND

Troubleshooting

1. Reseat connector P148 and confirm if it fixes the issue.
2. Measure continuity between Pin J3 (T1_OUT) on P108 (going to PBC) and Pin 1 on P149. Also between Pin J4 (T1_RET) on P108 (going to PBC) and Pin 2 on P148.
3. If there is a short detected, then replace the harness to fix the issue.
4. Measure resistance across between Pin J3 and Pin J4 on P108 to measure zero (if shorted).
5. Contact ChargePoint if the issue persists.

PB_AC-IN_SURGE_OPEN

Category	Fault Source	Fault Type	Criticality
Sensor	Surge Arrestor	Hardware	Critical

Fault Description

AC-IN surge suppressor cartridge is open or failed. Fault reported every 1 s.

Possible surge event if this happens on a unit installed in the field and was operational for some time.

Might be faulty hardware or wiring if it is seen in a brand new install.

Possible Causes

- Feedback wire compromised
- Real surge event in the field

Troubleshooting

1. Do a visual inspection of the surge cartridge - if RED then it's bad - replace the surge arrester to fix the issue. Investigate if there was an actual surge event and inspect rest of the surge arrestors. If GREEN then it's good, continue to Step 2.
2. To confirm the feedback wiring is good, measure continuity from Pin H4 (SURGE_NC_TRIP2) on P108 (going to PBC) to ACSR1 (SURGE_NC_TRIP2) underneath the AC surge arrester cartridge. Also, continuity between J1 (SURGE_NC_TRIP1) on P108 (going to PBC) and ACSR2 (underneath the surge arrester).
3. If wiring is confirmed good, then replace the failed surge cartridges.

PB_DC-IN_SURGE_OPEN

Category	Fault Source	Fault Type	Criticality
Sensor	Surge Arrester	Hardware	Critical

Fault Description

DC-IN surge suppressor cartridge is open/failed. Fault reported every 1 s.

Possible surge event if this happens on a unit installed in the field and was operational for some time.

Might be faulty hardware or wiring if it is seen in a brand new install.

Possible Causes

- Feedback wire compromised
- Real surge event in the field

Troubleshooting

1. Do a visual inspection of surge cartridge - if RED then bad, if GREEN then good.
2. To confirm the feedback wiring is good, measure continuity from Pin K2 (SURGE_COM_TRIP1) on P108 (going to PBC) to DCINSRG2 (underneath the DC-in surge arrestor cartridge). Also, continuity between G3 (SURGE_NC_TRIP1) on P108 (going to PBC) and DCINSRG2 (underneath the surge arrestor).
3. If the wiring is confirmed good, then replace the failed surge cartridges.

PB_DC-OUT-A_SURGE_OPEN

Category	Fault Source	Fault Type	Criticality
Sensor	Surge Arrestor	Hardware	Critical

Fault Description

DC bus bar A surge suppressor cartridge is open or failed. Fault reported every 1 s.

Possible surge event if this happens on a unit installed in the field and was operational for some time.

Might be faulty hardware or wiring if it is seen in a brand new install.

Possible Causes

- Feedback wire compromised
- Real surge event in the field

Troubleshooting

1. Do visual inspection of surge cartridge if RED then it's bad - replace the surge arrestor to fix the issue. Investigate if there was an actual surge event and inspect rest of the surge arrestors. If GREEN then it's good, continue to Step 2.
2. To confirm the feedback wiring is good, measure continuity from Pin K1 (SURGE_COM_TRIP4) on P108 (going to PBC) to DCASRG1 (underneath the DC-out-B surge arrestor cartridge). Also, continuity between L1 (SURGE_NC_TRIP4) on P108 (going to PBC) and DCASRG2 (underneath the surge arrestor).
3. If wiring is confirmed good, then replace the failed surge cartridges.

PB_DC-OUT-B_SURGE_OPEN

Category	Fault Source	Fault Type	Criticality
Sensor	Surge Arrestor	Hardware	Critical

Fault Description

DC bus bar B surge suppressor cartridge is open or failed. Fault reported every 1 s.

Possible surge event if this happens on a unit installed in the field and was operational for some time.

Might be faulty hardware or wiring if it is seen in a brand new install.

Possible Causes

- Feedback wire compromised
- Real surge event in the field

Troubleshooting

1. Do a visual inspection of surge cartridge - if RED then it's bad - replace the surge arrestor to fix the issue. Investigate if there was an actual surge event and inspect rest of the surge arrestors. If GREEN then it's good, continue to Step 2.
2. To confirm the feedback wiring is good, measure continuity from Pin L4 (SURGE_COM_TRIP3) on P108 (going to PBC) to DCBSRG1 (underneath the DC-Out-B surge arrestor cartridge). Also, measure continuity between K4 (SURGE_NC_TRIP3) on P108 (going to PBC) and DCBSRG2 (underneath the surge arrestor).
3. If wiring is confirmed good, then replace the failed surge cartridges.

PB_48V-EXT_SURGE_OPEN

Category	Fault Source	Fault Type	Criticality
Sensor	Surge Arrestor	Hardware	Critical

Fault Description

48V_EXT surge suppressor cartridge is open or failed.

Possible surge event if this happens on a unit installed in the field and was operational for some time.

Might be faulty hardware or wiring if it is seen in a brand new install.

Possible Causes

- Feedback wire compromised
- Real surge event in the field

Troubleshooting

1. Do a visual inspection of the surge cartridge - if RED then it's bad, if GREEN then it's good.
2. To confirm the feedback wiring is good, measure continuity from Pin H3 (SURGE_COM_TRIP5) on P108 (going to PBC) to LVSRG1 (underneath the LV Surge arrester cartridge). Also, measure continuity between E4 (SURGE_NC_TRIP5) on P108 (going to PBC) and LVSRG2 (underneath the LV surge arrester cartridge)
3. If wiring is confirmed good, then replace the failed surge cartridges.

PB_AC-IN_THERMAL_SW

Category	Fault Source	Fault Type	Criticality
Sensor	Thermal Switch	Hardware	Critical

Fault Description

Thermal switches on AC-IN terminals are open. Power Block is derated to 50% operation.

If the thermal switches open in derated condition or 3 times within 24 hours, then PBC shall lockout the Power Block.

Possible Causes

- Feedback wire compromised
- The thermal switch might be not making good contact with the busbar

Troubleshooting

1. To confirm the feedback wiring is good, measure continuity from Pin K3 (THER_SW1_RET) on P108 (going to PBC) to L1IN (ACIN TSWITCH - A15). Also, measure continuity between L3 (THER_SW1) on P108 (going to PBC) and L3OUT(ACIN TSWITCH - A15)
2. If the wiring is confirmed good, then locate the thermal switch and confirm the seating on the bus bar. Also make sure the connectors on the switch are not loose. If everything seems good, then reach out to ChargePoint.
3. If the continuity issue is located, then we might have to replace the harness after locating the exact point of break. Contact ChargePoint.

PB_DC-IN_THERMAL_SW

Category	Fault Source	Fault Type	Criticality
Sensor	Thermal Switch	Hardware	Critical

Fault Description

Thermal switches on DC-IN terminals are open. Power Block is derated to 50% operation.

If the thermal switches open in derated condition or 3 times within 24 hours, then PBC shall lockout the Power Block.

Possible Causes

- Feedback wire compromised
- The thermal switch might not be making good contact with the busbar

Troubleshooting

1. To confirm the feedback wiring is good, measure continuity from Pin L2 (THER_SW2) on P108 (going to PBC) to P47 (DCIN). Also, measure continuity between H2 (THER_SW2_RET) on P108 (going to PBC) and P51 (DCIN TSWITCH).
2. If the wiring is confirmed good, then locate the thermal switch and confirm the seating on the bus bar. Also make sure the connectors on the switch are not loose. If everything seems good, then reach out to reach out to ChargePoint.
3. If the continuity issue is located, then we might have to replace the harness after locating the exact point of break. Contact ChargePoint.

PB_DC-OUT-A_THERMAL_SW

Category	Fault Source	Fault Type	Criticality
Sensor	Thermal Switch	Hardware	Critical

Fault Description

Thermal switches on DC_OUT-A terminals are open. Power Block is derated to 50% operation.

If the thermal switches open in derated condition or 3 times within 24 hours, then PBC shall lockout the Power Block.

Possible Causes

- Feedback wire compromised
- The thermal switch might be not making good contact with the busbar

Troubleshooting

1. To confirm the feedback wiring is good, measure continuity from Pin C3 (THER_SW3_RET) on P108 (going to PBC) to J42 (DC_OUT-A). Also, measure continuity between C4 (THER_SW3) on P108 (going to PBC) and P43 (DC_OUT-A).
2. If wiring is confirmed good, then locate the thermal switch and confirm the seating on the bus bar. Also make sure the connectors on the switch are not lose. If everything seems good, then reach out to ChargePoint for further steps.
3. If the continuity issue is located, then we might have to replace the harness after locating the exact point of break. Contact ChargePoint for further steps.

PB_DC-OUT-B_THERMAL_SW

Category	Fault Source	Fault Type	Criticality
Sensor	Thermal Switch	Hardware	Critical

Fault Description

Thermal switches on DC_OUT-B terminals are open. Power Block is derated to 50% operation.

If the thermal switches open in derated condition or 3 times within 24 hours, then PBC shall lockout the Power Block.

Possible Causes

- Feedback wire compromised
- The thermal switch might be not making good contact with the busbar

Troubleshooting

1. To confirm the feedback wiring is good, measure continuity from Pin D4 (THER_SW4_RET) on P108 (going to PBC) to J45 (DC_OUT-B). Also, measure continuity between E1 (THER_SW4) on P108 (going to PBC) and P44 (DC_OUT-B).
2. If wiring is confirmed good, then locate the thermal switch and confirm the seating on the bus bar. Also make sure the connectors on the switch are not loose. If everything seem good, then reach out to ChargePoint for further steps.
3. If the continuity issue is located, then we might have to replace the harness after locating the exact point of break. Contact ChargePoint for further steps.

PB_DRYZONE_DOOR_OPEN

Category	Fault Source	Fault Type	Criticality
Sensor	Reed Switch	Hardware	Emergency

Fault Description

Dry zone door is open. PBC shuts down the Power Block in controlled manner (if happened during a session). PBC also commands to open the shunt trip breaker through Aux PS.

Possible Causes

- Door is open
- Reed sensor feedback is compromised
- Sensor is misaligned with magnet or missing from its position

Troubleshooting

1. Confirm if the Wetzone Front door is open.
2. Look for the magnet and the sensor on the Wetzone door (Front Top door). Confirm the presence of both and that they are aligned with each other on closing the door. It need not touch each other but, as long as they are in the vicinity - 15 mm.
3. Measuring continuity of the feedback wire from Reed1 Pin SP19 (Sensor wire on Main Door - covering Power Modules) going to Reed1 - Pin C4 on P198-109 on PBC. Also, continuity between SEP20 (on the sensor) and REED1_RET - Pin D4 on P198-109.
4. If there is no continuity, then the feedback wire/harness is broken. Contact ChargePoint if the issue persists.
5. If continuity is good, then use an external magnet and place it around the sensor. Check if the sensor feedback on chassis-shell changes when the magnet is around the sensor. If the feedback changes, then the sensor is bad and needs replacement.

PB_WETZONE_FRONT_DOOR_OPEN

Category	Fault Source	Fault Type	Criticality
Sensor	Reed Switch	Hardware	Emergency

Fault Description

Wet zone door is open. PBC shuts down the Power Block in controlled manner (if happened during a session). PBC also commands to open the shunt trip breaker through Aux PS.

Possible Causes

- Door is open
- Reed sensor feedback is compromised
- Sensor is misaligned with magnet or missing from its position

Troubleshooting

1. Confirm if the Dry zone is open.
2. Look for the magnet and the sensor on the Dry zone door. Confirm the presence of both and that they are aligned with each other on closing the door. It need not touch each other but, as long as they are in the vicinity.
3. Measuring continuity of the feedback wire from Reed2 Pin SP21 (Sensor wire covering Wetzone) going to Reed2 - Pin B2 on P198-109 on PBC. Also, continuity between SEP22 (on the sensor) and REED1_RET - Pin B3 on P198-109.

If there is no continuity, then the feedback wire/harness is broken.

4. If continuity is good, then use an external magnet and place it around the sensor. Check if the sensor feedback on chassis-shell changes when magnet is around the sensor. If the feedback changes, then sensor is bad and needs replacement.

PB_WETZONE_BACK_DOOR_OPEN_Shutdown

Category	Fault Source	Fault Type	Criticality
Sensor	Reed Switch	Hardware	Emergency

Fault Description

Wet zone door is open. PBC shuts down the Power Block in controlled manner (if happened during a session). PBC also commands to open the shunt trip breaker through Aux PS.

Possible Causes

- Door is open
- Reed sensor feedback is compromised
- Sensor is misaligned with the magnet or missing from its position

Troubleshooting

1. Confirm if the Wetzone Back door is open.
2. Look for the magnet and the sensor on the Wetzone door (Back Top door). Confirm the presence of both and that they are aligned with each other on closing the door. It need not touch each other but as long as they are in the vicinity.
3. Measuring continuity of the feedback wire from Reed3 (Sensor wire covering AUXPS) going to Reed3- Pin F3 on P108 on PBC. Also, continuity between Reed3_Ret and REED3_RET - Pin G1 on P108.

If there is no continuity, then the feedback wire/harness is broken.

4. If continuity is good, then use an external magnet and place it around the sensor. Check if the sensor feedback on chassis-shell changes when magnet is around the sensor. If the feedback changes, then sensor is bad and needs replacement.

PB_TILT_EXCEEDED_Shutdown

Category	Fault Source	Fault Type	Criticality
Sensor	Tilt Sensor	Hardware/Software	Emergency

Fault Description

Power Block tilted due to seismic effect or vehicle hitting the Power Block. The tilt angle should exceed 30 degrees for system shutdown.

PBC shuts down the Power Block in controlled manner. PBC also commands to open the shunt trip breaker through AUX PS.

Possible Causes

- Actual emergency event
- Miscalibrated sensor
- PBC tilted (due to improper installation)

Troubleshooting

1. Visual inspection should confirm if this is an actual emergency event.
2. If the visual inspection confirms if this is a wrongly reported tilt fault, it might be a non-calibrated/miscalibrated tilt sensor.
3. Inspect if PBC is seated correctly. If tilted and not touching the chassis, then reseal and confirm if the issue goes away.
4. Contact ChargePoint for further debugging the issue.

PBC_OVERTEMP_Warning

Category	Fault Source	Fault Type	Criticality
Sensor	Temperature Sensor	Hardware/Software	Major

Fault Description

PBC will report OverTEMP if PBC_PROCESSOR or PBC_BOARD_TEMP exceeds 100 °C for 10 s. The fault will clear on its own if both the temps are below 100 °C for 10 s.

Possible Causes

- High dry-zone ambient temperature due to improper cooling
- Miscalibrated sensor

Troubleshooting

1. Possible that dry-zone cooling is not circulating the air, thus resulting in over temp around the PBC board. Confirm from logs if the fans and pumps are running fine and also if other FRUs are reporting temperature related faults.
2. Compare with the ambient temperature and max. delta T of +15 °C. Replace the PBC if the difference between calculated versus observed is higher.
3. Contact ChargePoint if this seems to be a spuriously reported over temperature warning.

PBC_48V_LOGIC_SUPPLY_LOSS_Shutdown

Category	Fault Source	Fault Type	Criticality
	Voltage	Hardware	Critical

Fault Description

PBC reports this fault if the voltage drops below 40 V for more than 100 ms. PBC shuts down the Power Block in controlled manner (if happened during a session). PBC stores the snapshot of the failure.

Power Block is disabled if this event occurs 3 times within 24 hours.

Possible Causes

- Issues with incoming 480 V
- AUXPS failure
- Harness failure

Troubleshooting

1. Check if the AUXPS reports any faults. Confirm if the 48 V is seen on the AUXPS (in logs). If AUXPS is still outputting 48 V on its PBC channel, then jump to step 2. If AUXPS reports 48 V failure on PBC channel, then jump to step 3. Power down the system before proceeding to next steps.
2. If 48 V is still seen on the PBC channel (on AUXPS), then there might be a break in the harness/wire carrying 48 V. Measure the continuity between Pin B6 on P195-01 (on AUXPS) and Pin A4 on P198-109 (on PBC). Also measure the continuity from Pin A6 on P195-01 (on AUXPS) and Pin A2 on P198-109 (on PBC). If there is a break in continuity, then we need to replace the harness.
3. If the continuity in harness seems good and AUXPS does report 48 V dropping in the logs, then this might be related to incoming 480 V. Measure the incoming power quality to confirm if the incoming voltage is in +/- 10% of 480 V. Install Power Quality Monitor to confirm issues with 480 V. If any issues were found, then rectify them on the incoming side and then confirm if 48 V is back on the PBC channel.
4. If 480 V looks good, continuity tests confirm good harness but, 48 V is not coming through to PBC, then replace AUXPS.
5. If 480 V looks good, continuity tests confirm good harness and we can measure 48 V across pins G1 and H1 on P198-109 (on PBC), then replace PBC.

Loss_of_Comms_AuxPS

Category	Fault Source	Fault Type	Criticality
Communication	CAN Comms	Hardware/Software	Critical

Fault Description

This fault is reported if CAN communication is lost between AUX PS and PBC. CAN heartbeat signal is monitored every 1 s and this fault is reported when 5 heartbeat signals are lost. PBC will terminate any ongoing session and then disable the Power Block.

Possible Causes

- AUXPS failure
- CAN Harness failure
- PBC failure

Troubleshooting

1. If AUXPS fails, then we might lose CAN communication. Confirm from the logs if there are any AUXPS failures/faults reported. If yes, then replace AUXPS and confirm if CAN comms are back.
2. If AUXPS is confirmed good, then we might have an issue with the harness carrying CAN data. Measure continuity between:

3. If no short is measured, then replace the Dry zone fans to fix the issue.
 - a. Pin C3 on P198-109 (on PBC) and Pin 5 on P195-10 ---- looks at CANH.
 - b. Pin D3 on P198-109 (on PBC) and Pin 2 on P195-10 ---- looks at CANL.
 - c. Pin E3 on P198-109 (on PBC) and Pin 6 on P195-10 ---- looks at CAN_GND.
 - d. Measure resistance across Pin 1 and Pin 4 on P195-10 - ideally should measure 120 Ω .

If any of the above tests fail, then replace the harness.

4. If continuity is good and AUXPS is confirmed good as well, then replacing PBC might resolve the issue. Contact ChargePoint for further steps.

Loss_of_Comms_CCB

Category	Fault Source	Fault Type	Criticality
Communication	CAN Comms	Hardware/Software	Critical

Fault Description

This fault is reported if CAN communication is lost between AUXPS and PBC. CAN heartbeat signal is monitored every 1 s and this fault is reported when 5 heartbeat signals are lost. PBC will terminate any ongoing session and then disable the Power Block.

Possible Causes

- CCB failure
- CAN Harness failure
- PBC failure

Troubleshooting

1. If CCB fails, then we might lose CAN communication. Confirm from the logs if there are any CCB failures/faults reported. If yes, then replace CCB and confirm if CAN comms are back.
2. If CCB is confirmed good, then we might have an issue with the harness carrying CAN data. Measure continuity between:
 - a. Pin C3 on P198-109 (on PBC) and Pin 6 on P7 (of CCB) ---- looks at CANH.
 - b. Pin D3 on P198-109 (on PBC) and Pin 7 on P7 (of CCB) ---- looks at CANL.
 - c. Pin E3 on P198-109 (on PBC) and Pin 8 on P7 (of CCB) ---- looks at CAN_GND.
 - d. Measure resistance across Pin 10 and Pin 5 on P7 (on CCB) - ideally should measure 120 Ω .

If any of the above tests fail, then replace the harness.

-
3. If continuity is good and CCB is confirmed good as well, then contact ChargePoint for further debugging.

Loss_of_Comms_PM

Category	Fault Source	Fault Type	Criticality
Communication	CAN Comms	Hardware	Critical

Fault Description

This fault is reports if CAN communication is lost between one or more Power Modules and PBC. CAN heartbeat signal is monitored every 1 s and this fault is reported when 1 heartbeat signal is lost. PBC will terminate any ongoing session and then disable the Power Block.

Possible Causes

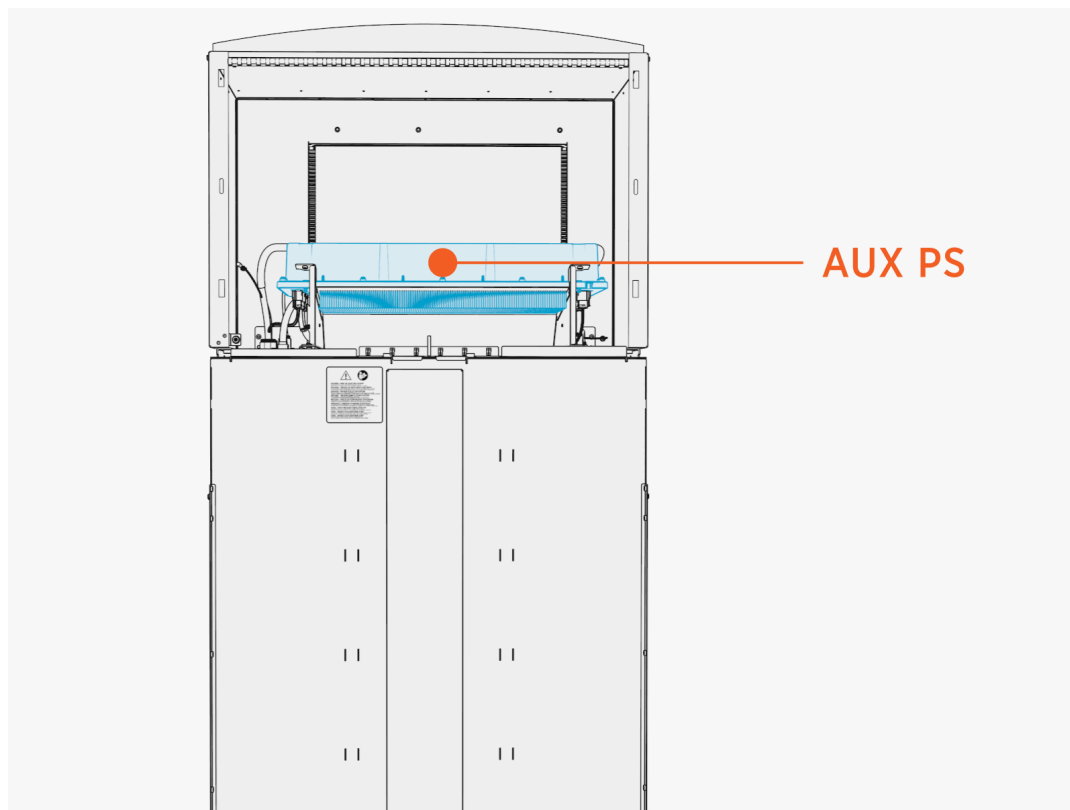
- Power Module failure
- CAN harness failure
- PBC failure

Troubleshooting

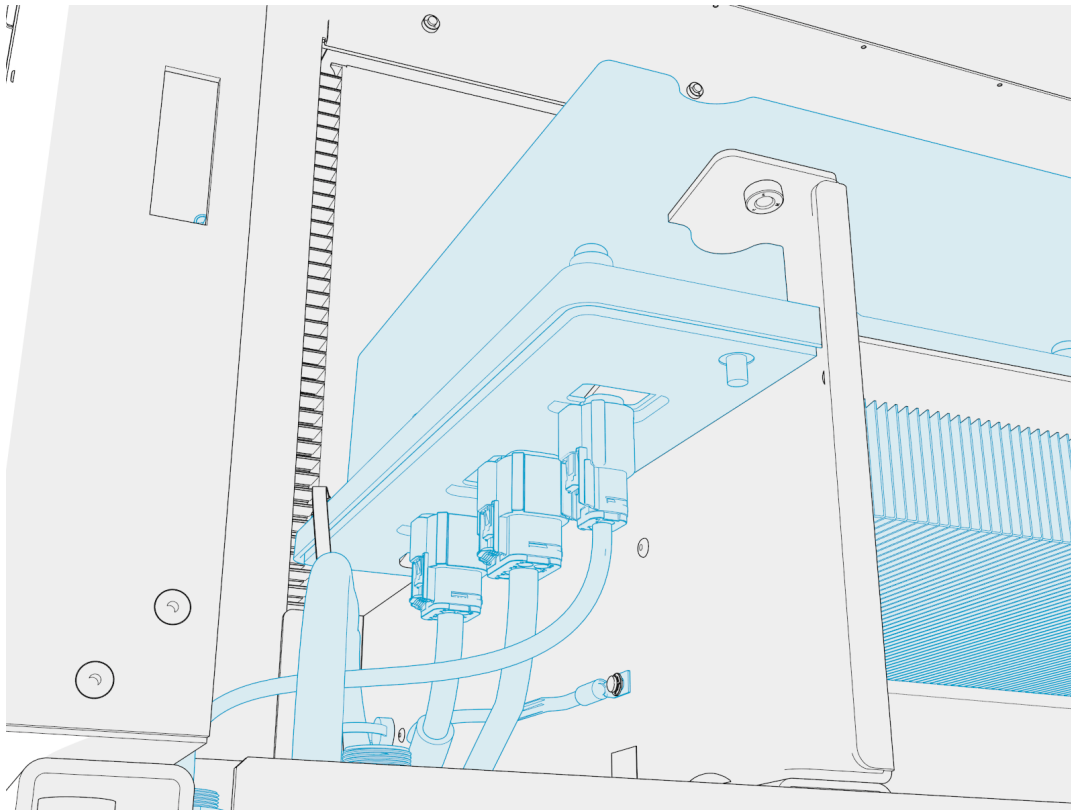
1. Power down the system and check if the module is fully seated and making proper connection to the mod-mate on the Power Block side.
2. Confirm from logs or NOS if there are any active critical faults on the Power Modules. If yes, then it is possible that the Power Modules have failed and need to be replaced. Replace the appropriate module and confirm if CAN communication comes back on that slot.
3. If there are no active faults on the Power Module, visually inspect if any of the pins on the data connector are damaged. If any damage is found, then replace the module to resolve the issue.
4. If all the above inspections do not show any obvious issues, then it could be the data connector on the mod-mate side that might have failed. Contact ChargePoint for further resolution steps.

AUX PS Faults Board Location

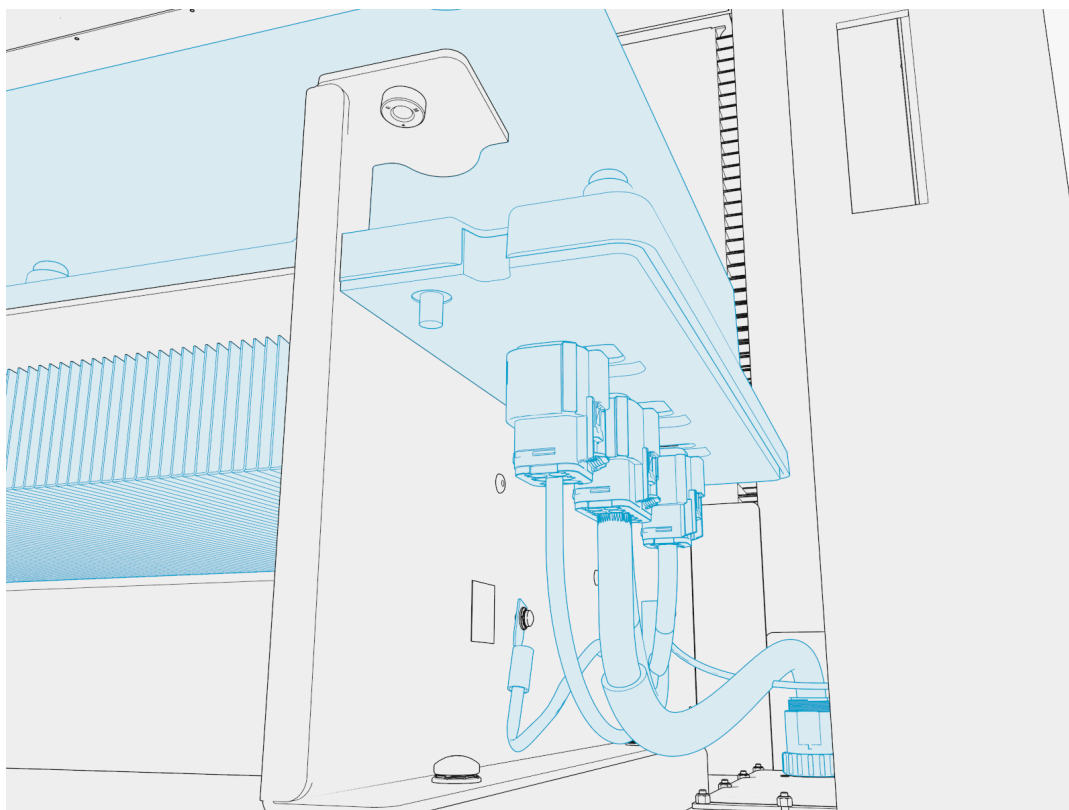
Rear View for Locating the Boards for AUX PS Faults



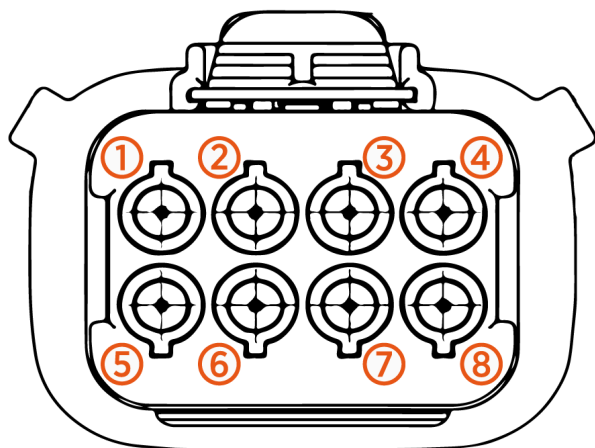
AUX PS Faults Cable Location (Front View)



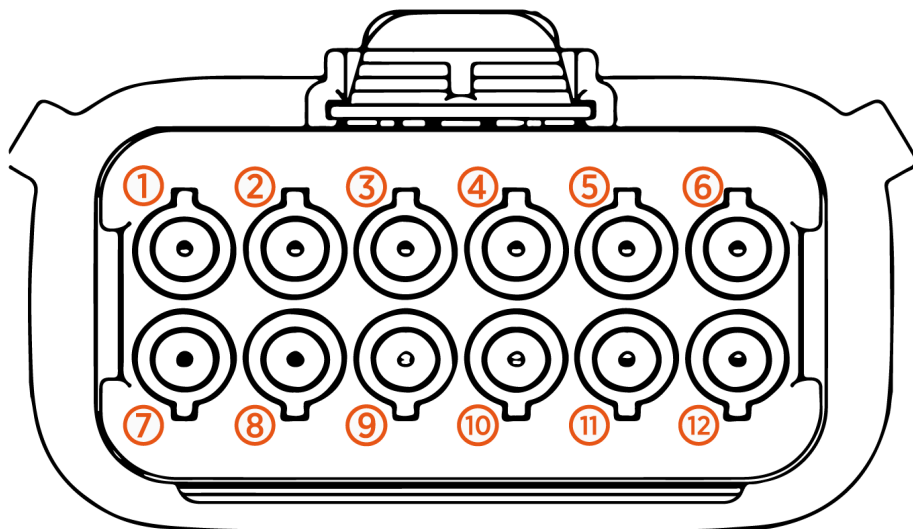
AUX PS Faults Cable Location (Rear View)



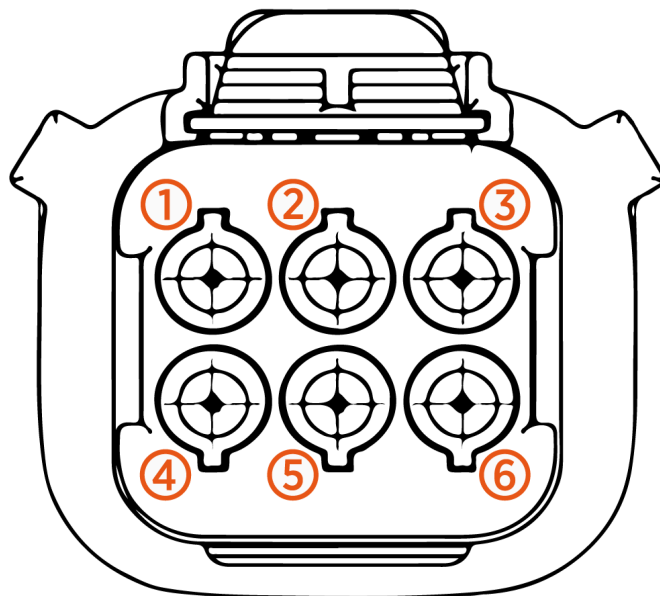
AUXPS-P190-01



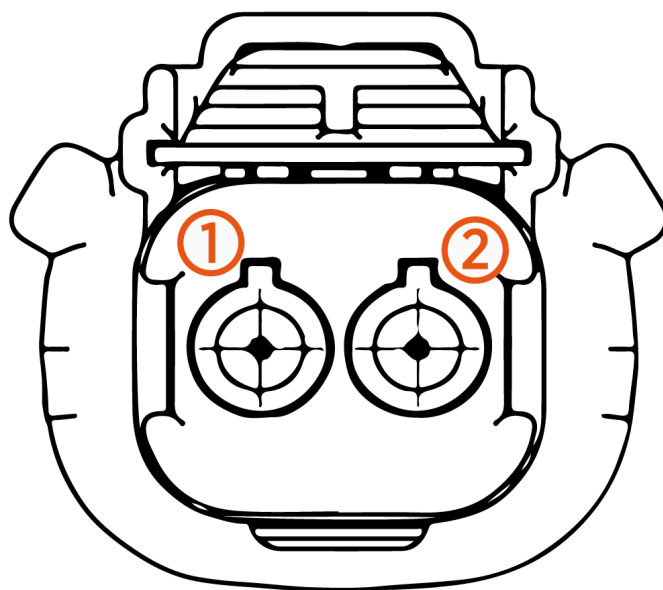
AUXPS-P195-01

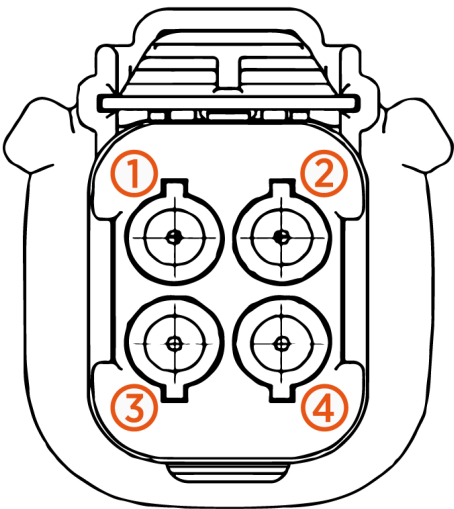


AUXPS-195-10



AUXPS-P190-06





AUX PS Faults

48V_OVERVOLTAGE_Fault_Shutdown

Category	Fault Source	Fault Type	Criticality
-	AUX Power Supply	Hardware	Critical

Fault Description

Fault is declared when Auxiliary Power Supply (AUX PS) output voltage (max. of all 3 channels) is >60 V for 30 ms. The fault is cleared if the value is ≤ 57 V. The fault clears after the reboot, but the fault status is retained within non-volatile memory.

Fault message is sent to PBC as emergency CAN message, including the conditions that triggered the fault. Any ongoing session will be stopped gracefully. Fault information is saved as snapshot on Aux Power Supply. Load switches in Aux supply are disabled and shunt trip is triggered immediately.

Possible Causes

- Possible high 480 V line
- Internal AUX PS circuitry fault

Troubleshooting

1. Inspect the incoming 480 V* and confirm if it is within expected range (+10%).
* For Europe, 400 V+ 10%.
2. If yes, then replace AUX PS to resolve the issue.
3. Contact ChargePoint if the issue persists.

48V_OVERVOLTAGE_Warning

Category	Fault Source	Fault Type	Criticality
-	AUX Power Supply	Hardware	Major

Fault Description

Warning message shown if any of the three AUX PS channels ≥ 55 V for 30 ms.
The lower threshold is 52 V for the warning to clear.

Possible Causes

- Internal AUX PS circuitry fault

Troubleshooting

1. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

48V_UNDERVOLTAGE_Warning

Category	Fault Source	Fault Type	Criticality
-	AUX Power Supply	Hardware	Major

Fault Description

Warning message shown if any of the three AUX PS channels < 38 V for 60 s.

Possible Causes

- Internal AUX PS circuitry fault

Troubleshooting

1. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

48V_PBC_OVERLOAD_Warning

Category	Fault Source	Fault Type	Criticality
-	AUX Power Supply	Hardware	Major

Fault Description

This warning message is seen when the PBC output current is >1 A for 10 s.

The fault clears if the current <1 A for more than 3 seconds.

The fault snapshot is saved on AUX PS and no other action is taken.

Possible Causes

- Internal AUX PS circuitry fault

Troubleshooting

1. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

48V_CC_OVERLOAD_Warning

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Major

Fault Description

This warning message is seen when CCB output current is >30 A for 10 s.

The fault clears if the current <30 A for more than 3 seconds. The system is derated accordingly till the warning stays.

The fault snapshot is saved on AUX PS and no other action is taken.

Possible Causes

- Internal AUX PS circuitry fault
- Some obstruction to the fan or pump maybe

Troubleshooting

1. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

48V_EXT_OVERLOAD_Shutdown

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Critical

Fault Description

This warning message is seen when EXT output current is >27 A for 10 s.

The fault clears if the current <27 A for more than 3 seconds.

Any ongoing session will be stopped and the fault snapshot is saved on AUX PS and no other action is taken.

Possible Causes

- Possible fluctuations on the 480 V line
- Internal AUX PS circuitry fault

Troubleshooting

1. Inspect the incoming 480 V if the warning is seen regularly.
2. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

48V_EXT_PG_STATUS_LOST_Shutdown

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Critical

Fault Description

This fault is noted when EXT_PG (Power Good) signal transitions from 1 to 0, indicating that something went wrong on the 48V_EXT line. Fault can be cleared from PBC or rebooting system (PBC, if possible).

This fault will stop any ongoing session and PBC will try to reset the 48V_EXT. PBC also stores the snapshot of the failure and reports failure to NOS. System will be locked if the fault is seen 3 times within 24 hours.

Possible Causes

- Possible fluctuations on the 480 V line
- Internal AUX PS circuitry fault

Troubleshooting

1. Inspect the incoming 480 V if the warning is seen regularly.
2. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

48V_PBC_PG_STATUS_LOST_Warning

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Major

Fault Description

This fault is noted when PBC_PG (Power Good) signal transitions from 1 to 0, indicating that something went wrong on the PBC 48 V line. Fault can be cleared by rebooting system.

This fault will stop any ongoing session. System will be locked if the fault is seen 3 times within 24 hours.

Possible Causes

- Internal AUX PS circuitry fault

Troubleshooting

1. Inspect the incoming 480 V if the warning is seen regularly.
2. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

48V_CC_PG_STATUS_LOST_Shutdown

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Major

Fault Description

This fault is noted when CC_PG (Power Good) signal transitions from 1 to 0, indicating that something went wrong on the CC 48 V line. Fault can be cleared by rebooting system.

This fault will stop any ongoing session. System will be locked if the fault is seen 3 times within 24 hours.

Possible Causes

- Possible fluctuations on the 480 V line
- Internal AUX PS circuitry fault

Troubleshooting

1. Reach out to ChargePoint for further debugging of AUX PS if the issue persists three times in 24 hours.

Shorted_MOSFET_CC_Shutdown

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Critical

Fault Description

This fault indicates 48 V CC load switch MOSFET failed due to short circuit. This is reported if the fault exists for 10 s (1 s sampling time). Snapshot of the failure along with operating conditions are stored on PBC and reported to NOS. The ongoing charging session is derated to 50%.

The self test to determine if the fault is real is performed and if TRUE, the system is disabled until serviced.

Possible Causes

- Internal AUX PS circuitry

Troubleshooting

1. Replace AUX PS

Shorted MOSFET PBC_Warning

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Critical

Fault Description

This fault indicates 48 V PBC load switch MOSFET failed due to short circuit. This is reported if the fault exist for 10 s (1 s sampling time). Snapshot of the failure along with operating conditions are stored on PBC and reported to NOS.

The self test to determine if the fault is real is performed and if TRUE, the system is disabled till serviced.

Possible Causes

- Internal AUX PS circuitry

Troubleshooting

1. Replace AUX PS

Shorted MOSFET EXT_Shutdown

Category	Fault Source	Fault Type	Criticality
48 V signal	AUX Power Supply	Hardware	Critical

Fault Description

This fault indicates 48 V PBC load switch MOSFET failed due to short circuit. This is reported if the fault exists for 10 s (1 s sampling time). Snapshot of the failure along with operating conditions are stored on PBC and reported to NOS.

The ongoing session will continue as long as 48V_EXT current draw is <15 A. If it is >15 A, then the session is stopped and the system is disabled.

The self test to determine if the fault is real is performed and if TRUE, the system is disabled till serviced.

Possible Causes

- Internal AUX PS circuitry

Troubleshooting

1. Replace AUX PS