

Troubleshooting AC Charging

Vehicles Affected

Models	Model Year	Model Type	VIN Range	Vehicle-Specific Equipment
Taycan (J1-I)	As of 2020	Y1A, Y1B, Y1C	N/A	N/A
Panamera (G2-I)	As of 2021	971	N/A	E-Hybrid Variants
Cayenne (E3-I)	As of 2020	9YA, 9YB	N/A	E-Hybrid Variants

Revision History

Revision	Release Date	Changes
0	October 13, 2020	Original document
1	October 13, 2021	MY extension
2	November 6, 2023	Complete ATI update incl. Title, Vehicles Affected, Condition, Technical background, and Service Information

Condition

Duplication and diagnosis of customer AC charging complaints can be difficult without detailed information from the customer and the charging hardware provider. The following documentation aims to assist Porsche Center service and support personnel with relevant and necessary information to assist customers with AC charging complaints.

Technical Background

The level of data captured differs amongst the various charging components offered by Porsche.

Diagnosis of the Porsche Mobile Charger (PMC) labeled the Porsche Universal Charger (PUC)) and the Porsche Mobile Charger Plus (PMC+) must be performed using the PIWIS Tester and diagnostic adapters provided as Porsche Special Tools.

The Porsche Mobile Charger Connect (PMCC) control unit is equipped with additional sensors and function monitors. Diagnostic information, event logs, and diagnostic trouble codes (DTCs) can then be accessed through the PMCC Web Application (accessible through local IP query or the PMCC Hotspot) in addition to using the PIWIS Tester and diagnostic adapters provided as Porsche Special Tools.

Electric Vehicle Supply Equipment (EVSE) from Porsche				
Device Name	Acronym	Internal Name	Supplier	EVSE Generation
Porsche Universal Charger	PUC	Basic Plus - 001	Heidelberger Druck GmbH	1
Porsche Mobile Charger / Porsche Universal Charger	PMC / PUC	ICCPD-Basic	Aptiv Services Deutschland GmbH	2
Porsche Mobile Charger Plus	PMC+	ICCPD-Basic Plus	eSystems GmbH	2
Porsche Mobile Charger Connect	PMCC	ICCPD-High	eSystems GmbH	2
Porsche Wall Charger Connect	PWCC	UL-Wallbox	eSystems GmbH	2

Service Information

Documentation and reference information in other systems must be reviewed and understood before diagnosing customer concerns.

- [E-Performance Help & Contact](#) webpage contains media and service information useful to Porsche Centers and customers:
 - Video tutorials
 - [Porsche Charging Hardware Instructions and Installation Manuals](#)
 - Porsche Mobile Charger Connect - Operating instructions (PDF; 1.7 MB)
 - Porsche Mobile Charger Plus - Operating instructions (PDF; 1.4 MB)
 - Porsche Mobile Charger - Operating instructions (PDF; 1.3 MB)
 - Porsche Wall Charger Connect - Operating and Installation Manual (PDF; 1.7 MB)
 - Porsche Wall Charger Connect - Cut Sheet (PDF; 4.7 MB)
 - General Precautions on Charging Hardware Installation (PDF; 6.8 MB)
 - FAQs
 - [Charging Hardware Software Updates](#)
 - This website provides the latest published Communication Board ("CommBoard") Software (SW_C) available for the Porsche Mobile Charger Connect (PMCC) and Porsche Wall Charger Connect (PWCC) can be downloaded from this website
 - Updates for other charging hardware, when available, may only be possible at the Porsche Center
 - The website also provides service campaign information for charging hardware, where applicable
 - In all cases, update of the PowerBoard Software (SW_P) can only be performed by authorized service centers using the Porsche Diagnostic Tester (e.g., PT4G)

- **PCSS**
 - Workshop Manual → Group 99 “Entire Vehicle – General” → 9981 AC charging cable
 - Applies to 2nd-generation Porsche charging hardware
 - Workshop Manual → Group 0 “Entire vehicle – General” → 09 Porsche system components → 0940 High-voltage charging cable
 - Applies to 1st-generation Porsche charging hardware
- **PIWIS Tester** contains diagnostic tools and information for Porsche charging hardware
 - PT4G → Fault finding → Guided fault finding → Model line: External components → Control unit: Universal charging cable → Control unit variant [select the appropriate hardware variant]
 - PT4G → Diagnosis → Manual model line selection → External components → External components with direct connection to the charging hardware in conjunction with [Special Tool VAS 611 009](#)
- **SoliD (Solutions for integrated Diagnosis)**
 - Accessed via PPN → Online Systems → SoliDd
 - This is a global system with global documents; not all information applies to the US / Canadian Markets
 - The information in SoliD may be duplicated from other sources (like this ATI), and SoliD often links to external information
 - SoliD provides Porsche Center service and support personnel and call center agents with customer concerns related to digital services (e.g. Porsche Connect; Porsche infotainment; AC Charging; DC Charging; charge point operations within the Porsche Charging Service)
- **PMCC/PWCC Web Application**
 - The PMCC/PWCC Web Application can provide insight into customer complaints concerning HV Charging, the vehicle, and the hardware itself
 - When the device is powered up and connected to a network, the customer can use the Web Application to directly monitor the device, view past and present charging session information, and control device settings
Refer to the section “Logging into the Web Application” for information on how to access this system

Diagnostic Troubleshooting Tips

- AC charging concerns should be checked with customer-supplied charging hardware (supply cable, charge control unit, and vehicle cable, for example)
 - The infrastructure that supplies customer homes and garages often differs from the infrastructure in a Porsche Center or other commercial building. For example, customer homes are typically single-phase and operate at 240 VAC, whereas commercial buildings are often three-phase and provide split-phase to 208 VAC circuits and receptacles in the workshop. This change in operating voltage affects AC charging hardware operation and overall charging power, for one.
 - Ground Faults
 - Underwriter Laboratory (UL) requirements define ground fault and residual current detection capabilities for EVSEs. The charge control unit is extremely sensitive to ground faults in the supply infrastructure.
 - The self-test function of typical residential GFCI receptacles can cause ground faults. GFCI receptacles or circuits are a common code requirement, especially in residential garages and damp or wet locations.
 - A qualified electrician may need to ensure the quality of the complete electrical system grounding and bonding (metal underground water pipes, in-ground support structures, or concrete-encased electrodes, for example)
- Industrial quality electrical receptacles should always be installed by qualified electricians in accordance with national and local codes and regulations.
 - Receptacles from the supplier Hubbell are recommended for their industrial quality and ability to handle high current for long periods of time (see Figure 2)
 - Hubbell HBL9450A = NEMA 14-50 Receptacle (4-prong)
 - Hubbell HLB9367 = NEMA 6-50 Receptacle (3-prong)
- A 50-amp branch circuit should use minimum 6 AWG, 90°C-rated copper wire for conductors supplying level 2 Porsche charging hardware plugged with a NEMA 14-50 or 6-50 supply cable
- Receptacle terminal screws must be tightened to manufacturer specifications
 - This is an often-overlooked step of the installation process
- The use of ferrules on the supply conductor wiring is recommended to further safeguard the connection at the receptacle
- 110V Charging is for emergency use only. The relatively high current (8A to 10A) loads household circuits and receptacles for an extremely long time



Figure 2

- Charging hardware will normally reach high temperatures during prolonged use
 - High ambient temperature may cause stopped, slowed, or derated charging sessions
 - The optional Charging Dock (7PP.915.706.A) traps multiple heat sources (receptacle, plug, supply cable, charge control unit, and part of the vehicle cable) and may exacerbate charger derating or stopped charging sessions
 - The optional 7.5m vehicle cable is often wrapped around the charging dock. This further heats the charging dock during/after prolonged use, especially if the vehicle is parked close to the charging dock where less vehicle cable is needed.
 - The 10 AWG supply cables are tested and certified for use in US and Canada, and may differ from other cord-and-plug EVSEs readily available in the market
 - It is recommended to install or relocate installed charging hardware away from vehicle heat sources or heat exchanger exhaust air (for example, away from the Taycan front wheel opening)

Reading Diagnostic Trouble Codes (DTCs) from the PMCC and/or PWCC

Hardware needed:

- For PMCC Diagnosis
 - PMCC Power Supply Cable (either 110V or 208-240V supply cable will work)
 - PMCC "control unit" (the main charger unit)
 - A PC or Smartphone
- For PWCC Diagnosis
 - A PC or Smartphone

Accessing DTCs in PMCC and PWCC:

1. Power up the device
 - a. NOTE: If 'energy saver' mode is active, it will go to sleep and not be remote accessible after a few minutes. Recommend switching off 'energy saver' mode during diagnosis.
2. Use the charger controls to access Network Settings -> turn **WiFi On** and **Hotspot On**
 - a. Write down the PMCC/PWCC Hotspot Name and IP address
3. Using a PC or Smartphone, search for available WiFi networks and connect to the Hotspot (e.g., Network: ICCPD-000*SERIALNUMBER*)

4. Open your internet browser (i.e. Chrome, Safari, Firefox) and go to 192.168.0.1
 - a. NOTE: When logging in via private or local IP address, a security warning may be shown on the browser. In the warning message in your browser, select Advanced then Add exception (or similar). The SSL certificate is confirmed and the browser opens the web application
 - b. Afterwards, the following site will open (see Figure 3)

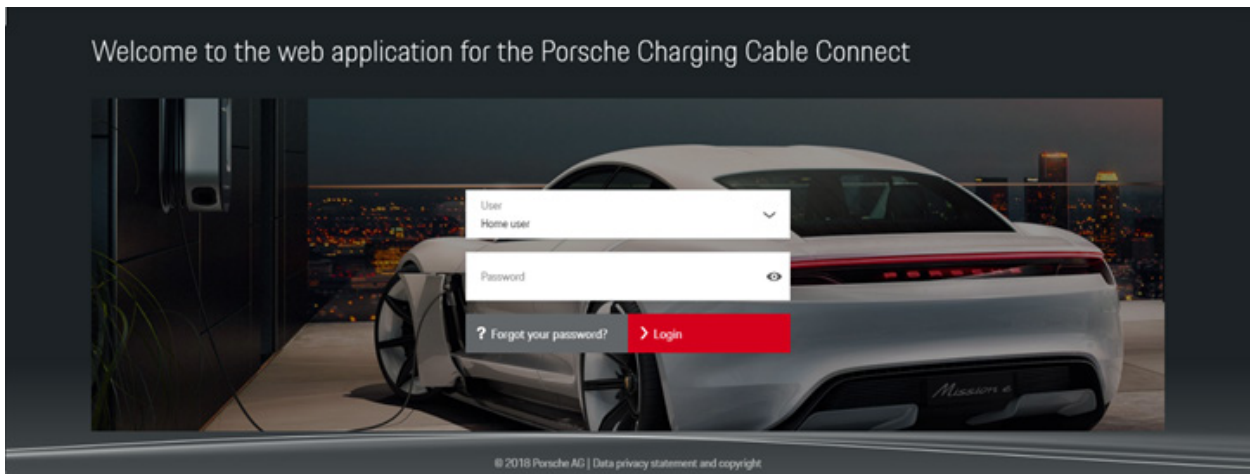


Figure 3

5. Log into the Web App as Customer Service (see "Logging into Web Application" section)
6. DTCs from the Web Application
 - a. Go to **Settings ->Service** and scroll down to **Event log** (see Figure 4)
 - b. Click the hyperlink for each DTC and save DTC data as needed (see Figure 5)
This data can also be copied & pasted into a notepad or document to be saved & shared (just be sure to capture all DTC information)

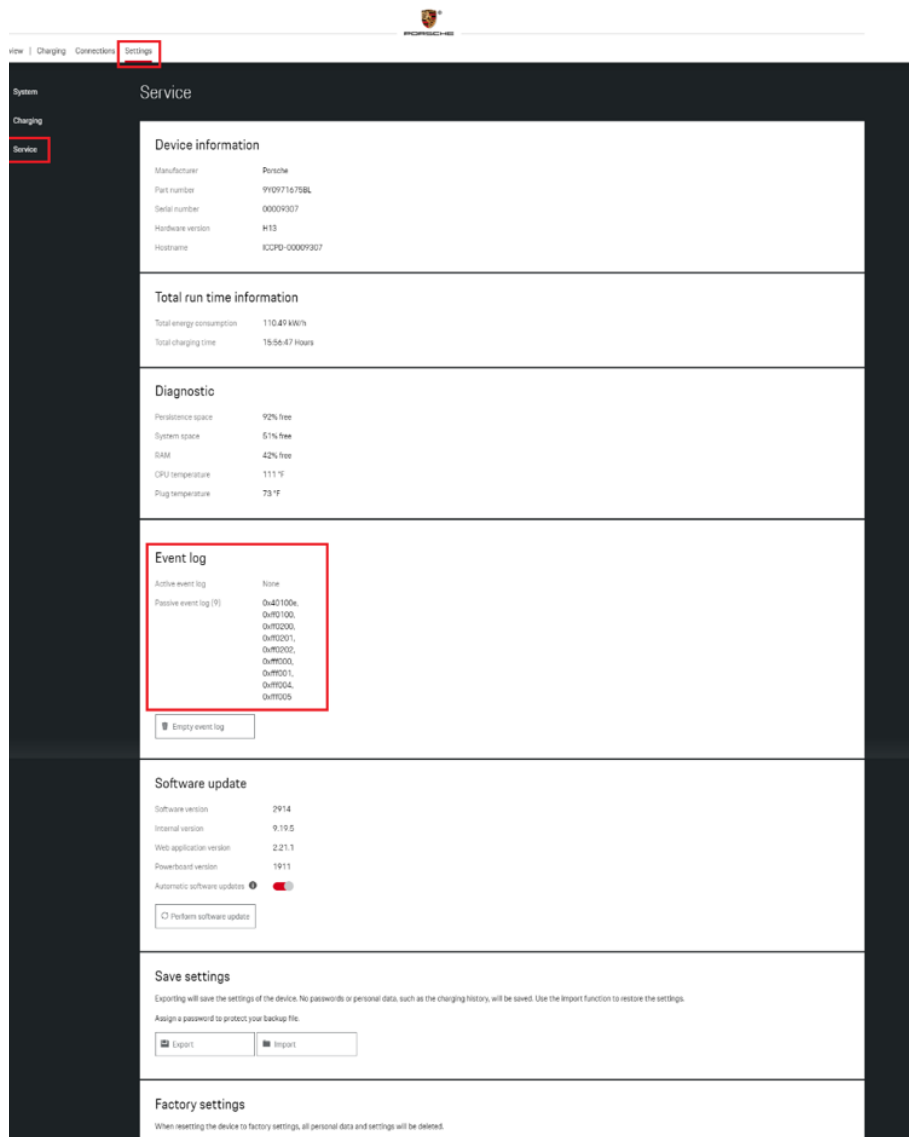


Figure 4

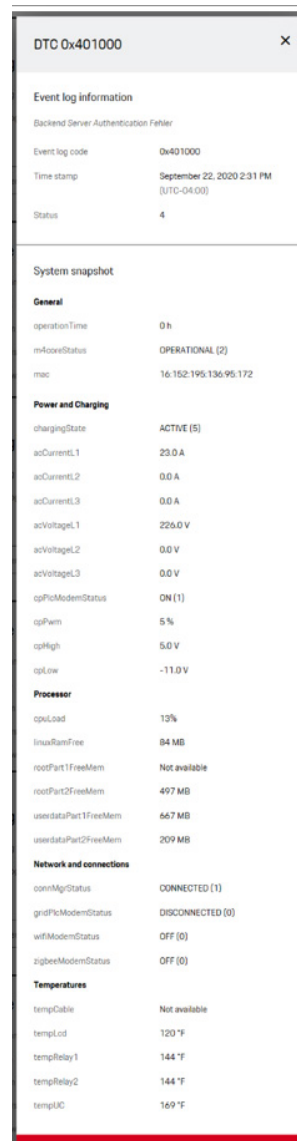


Figure 5

The 110V supply cable (NEMA5-15) provided with Porsche hardware includes a temperature sensor. A temperature sensor is planned for future integration into 208-240V supply cables (NEMA6-/14-30/-50). With this temperature sensor, devices with compatible SW_C and/or SW_P are able to monitor plug temperature and derate/switch off in the event of overheat.

The PMCC Web App - Customer Service Operating Manual (linked above), page 8, provides an indication on "Service derated" messages (diagnostic background requested for messages and how they might relate to Event Log DTCs):

Service derated - This list indicates which sensors have restricted charging capacity due to overheating:

- 0: Overheating microcontroller
- 1: Overheating relay
- 2: Internal overheating
- 3: Overheating infrastructure cable, sensor 1
- 4: Overheating infrastructure cable, sensor 2

PMCC Event Log and DTCs

- Detailed environmental data associated with ICCPD faults is typically found within the Event Log accessible via the Web App [Customer Service --> Settings --> Service --> Event Log]
- DTCs can also be read out as a Fault Code using the PT4G and special tool VAS 611 009, but with the following discrepancies
 - Fault Titles may be incomplete, unclear, and/or not in English
 - Fault Environmental Data stored at the time of the fault occurrence (see Figures 6-8) may not be relatable to a corresponding Working Log
 - Figures 6 and 7 show the PT4G fault memory; Figure 8 shows the Working Log

Fault memory -- 2020-09-24 16:11:27.752 UTC

Control unit	Priority	Fault memory	Status	Description
Universal charging cable	4	B191EF3	PASSIVE	Backend Server Authentication Fehler
Universal charging cable	4	B137C29	PASSIVE	MatchingFailure
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B184B29	PASSIVE	Temperature sensor - implausible signal
Universal charging cable	4	B184B29	PASSIVE	Temperature sensor - implausible signal
Universal charging cable	6	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	6	B105000	PASSIVE	Function restriction due to overtemperature

Figure 6

Fault memory - environmental data -- 2020-09-24 16:11:39.213 UTC

Control unit	Priority	Fault memory	Status	Description
Universal charging cable	4	B191EF3	PASSIVE	Backend Server Authentication Fehler
Universal charging cable	4	B191EF3	PASSIVE	DTC-DFCC: 401000
Universal charging cable	4	B137C29	PASSIVE	MatchingFailure
Universal charging cable	4	B137C29	PASSIVE	DTC-DFCC: 40100E
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B105000	PASSIVE	DTC-DFCC: FF0100
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B105000	PASSIVE	DTC-DFCC: FF0200
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B105000	PASSIVE	DTC-DFCC: FF0201
Universal charging cable	4	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	4	B105000	PASSIVE	DTC-DFCC: FF0202
Universal charging cable	4	B184B29	PASSIVE	Temperature sensor - implausible signal
Universal charging cable	4	B184B29	PASSIVE	DTC-DFCC: FFF000
Universal charging cable	4	B184B29	PASSIVE	Temperature sensor - implausible signal
Universal charging cable	4	B184B29	PASSIVE	DTC-DFCC: FFF001
Universal charging cable	6	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	6	B105000	PASSIVE	DTC-DFCC: FFF004
Universal charging cable	6	B105000	PASSIVE	Function restriction due to overtemperature
Universal charging cable	6	B105000	PASSIVE	DTC-DFCC: FFF005

Figure 7

ICCPD	ICCPD DTC Description	GFF Fault	GFF Fault Description	Comments
0x401000	Backend Server Authentication Fehler	B191EF3	Backend Server Authentication Fehler	
0x40100E	MatchingFailure	B137C29	MatchingFailure	
0xFF0100	0xFF0100 "Temperatur-Management Stufe C aktiv"	B105000	Function restriction due to overtemperature	GFF Fault Description [Title] lacks "Level X"
0xFF0200	0xFF0200 "Temperatur-Management Stufe A aktiv"	B105000	Function restriction due to overtemperature	GFF Fault Description [Title] lacks "Level X"
0xFF0201	0xFF0201 "Temperatur-Management Stufe B aktiv"	B105000	Function restriction due to overtemperature	GFF Fault Description [Title] lacks "Level X"
0xFF0202	0xFF0202 "Temperatur-Management Stufe D aktiv"	B105000	Function restriction due to overtemperature	GFF Fault Description [Title] lacks "Level X"
0xFFFF00	0xFFFF00 "Temperatursensor CPU oberer Grenzwert überschritten (ORH)"	B184B29	Temperature sensor - implausible signal	DTC indicates "Upper Limit Exceeded" while GFF indicates "implausible signal" and GFF lacks CPU/LCD indicator
0xFFFF01	0xFFFF01 "Temperatursensor LCD oberer Grenzwert überschritten (ORH)"	B184B29	Temperature sensor - implausible signal	DTC indicates "Upper Limit Exceeded" while GFF indicates "implausible signal" and GFF lacks CPU/LCD indicator
0xFFFF04	0xFFFF04 "Derating aufgrund von Übertemperatur Temperatursensor CPU"	B105000	Function restriction due to overtemperature	Function restriction = derating; GFF lacks CPU/LCD indicator
0xFFFF05	0xFFFF05 "Derating aufgrund von Übertemperatur Temperatursensor LCD"	B105000	Function restriction due to overtemperature	Function restriction = derating; GFF lacks CPU/LCD indicator

Figure 8

- DTC Status Codes
 - 1 = Unknown
 - 2 = Unset
 - 3 = Active
 - 4 = Passive

	0xFF0200 "Temperatur-Management Stufe A aktiv"		0xFF0201 "Temperatur-Management Stufe B aktiv"		0xFF0100 "Temperatur-Management Stufe C aktiv"		0xFF0202 "Temperatur-Management Stufe D aktiv"	
	°C	°F	°C	°F	°C	°F	°C	°F
tempCable*	Not available		Not available		Not available		Not available	
tempLcd	68.9	156.0	71.1	160.0	73.9	165.0	78.9	174.0
tempRelay1	67.8	154.0	68.9	156.0	68.9	156.0	73.9	165.0
tempRelay2	67.8	154.0	68.9	156.0	68.9	156.0	73.9	165.0
tempUC	86.1	187.0	87.2	189.0	87.2	189.0	87.8	190.0

Figure 9

	0xFFFF00 "Temperatursensor CPU oberer Grenzwert überschritten (ORH)"		0xFFFF04 "Derating aufgrund von Übertemperatur Temperatursensor CPU"		0xFFFF01 "Temperatursensor LCD oberer Grenzwert überschritten (ORH)"		0xFFFF05 "Derating aufgrund von Übertemperatur Temperatursensor LCD"	
	°C	°F	°C	°F	°C	°F	°C	°F
tempCable*	Not available		Not available		Not available		Not available	
tempLcd	77.8	172.0	77.8	172.0	92.8	199.0	92.8	199.0
tempRelay1	75.0	167.0	75.0	167.0	72.8	163.0	72.8	163.0
tempRelay2	75.0	167.0	75.0	167.0	72.8	163.0	72.8	163.0
tempUC	87.2	189.0	87.2	189.0	87.8	190.0	87.8	190.0

Figure 10

Note: The Time/Date Stamps of all DTCs in Passive Event Logs is the Time and Date when the DTC was read out, not the Time and Date the error occurred. Therefore, additional information about which error occurred at which time cannot be determined from this DTC information. This is a verified bug in the diagnostic information; no bugfix is communicated at this time.

DTC	[Component]	Diagnostic condition(s) = Active charging of the high-voltage battery			
		Fault Setting Conditions		Fault Effects	
		ICCPD [Component]	Temperature >	Reduced charging power	Charging not possible
0xffff000	ORH				
0xffff001	ORH				
0xffff002					
0xffff003					
0xffff004	CPU	65 °C	149 °F	1	
0xffff005	LCD	65 °C	149 °F	1	
0xffff006		65 °C	149 °F	1	
0xffff007		65 °C	149 °F	1	
0xffff008					
0xffff009		80 °C	176 °F		1
0xffff010					
0xffff00A		65 °C	149 °F	1	
0xffff000					
0xffff001					
0xffff002					
0xffff003		85 °C	185 °F		1
0xffff004		70 °C	158 °F	1	
0xffff005		85 °C	185 °F		1
0xffff006		70 °C	158 °F	1	
0xffff007					
0xffff008					
0xffff009		85 °C	185 °F		1
0xffff010					
0xffff00A		70 °C	158 °F	1	
	Monitored Components				
	tempCable*				
	tempLcd				
	tempRelay1				
	tempRelay2				
	tempUC				

Figure 11

Example: Charger Derating Due To Internal Overtemperature

The supply equipment control unit is equipped with various temperature sensors and function monitors. If the device detects overheating, for example, then charging current can be automatically reduced for a period of time.

Example Case:

The PMCC was left in direct sunlight while charging at 40A / 9.6 kW. The device automatically derated to 0.0 kW charge rate and displayed the red "Limited service" message shown here. 1 minute later, the device automatically increased charge rate to 6A / ca. 1.42 kW and presented as indicated in the "Derated" screen shown here. The device was then moved from direct sun to shade and proceeded to automatically increase charge rate until it returned to 40A / 9.6 kW. The total time period for the entire derating session was 13 minutes and is indicated by the graph in Figure 10 from the PMCC Web App.

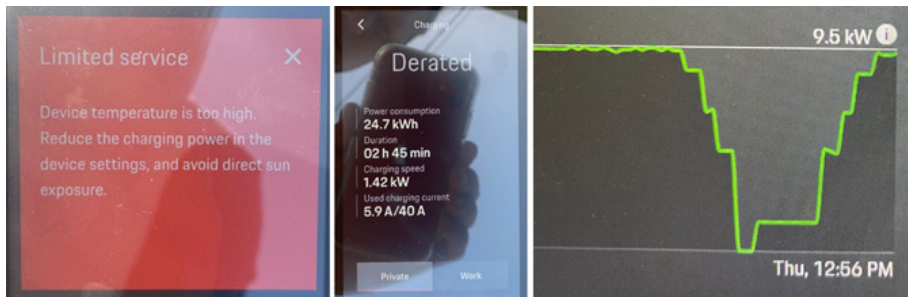


Figure 12

Logging into the Web Application

The passwords required to access the PMCC and PWCC Web App as Home User **or** Customer Service can be found multiple ways:

1. Printed on the "Letter containing access data" (F in Figure 14) included with new vehicle purchase -or- provided with a PMCC purchased via Porsche Parts
2. Via the SoliD portal, accessible by certain Technical Support and Call Center personnel
3. Via PCSS --> Vehicle --> Charging Products

Note: terminology for the User and Passwords will differ depending upon the source. (See Figure 13)

Web App	Access Data	SoliD	PCSS
Home User	Web Home User	webconfig	standard user
Customer Service	Web Tech User	Service User	service user

Figure 13

Items Supplied



Fig. 1. Items supplied
 A Supply cable (pluggable to control unit)
 B Power plug for connecting to the power grid
 C Control unit
 D Vehicle plug (connector plug for the vehicle)
 E Vehicle cable (country-specific: either removable or secured to the control unit)
 F Letter containing access data

Figure 14

Security Warning when logging into Web Application

When logging in via a private IP address (also known as Local or Internal IP addresses), a security warning may be shown on the internet browser. It can be similar to when Windows asks if you "trust" opening a file from a network drive or emailed from a colleague, this security warning can generally be ignored.

1. In the warning message in your browser, select **Advanced**
2. In the next dialog box, select **Add exception**. The Secure Sockets Layer (SSL) certificate is confirmed, and the web application opens.

Warranty

No warrantable work is described herein.

Search Items

Y1A, Taycan, high-voltage battery, 12-volt battery, vehicle electrical system battery, storage, parking, maintainer, Charging, Charging Hardware, Porsche Mobile Charging, PMC, PUC, PMC+, Porsche Mobile Charger Connect, PMCC, Porsche Wall Charger Connect, PWCC

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