

T175-T350 GEN3 NA CSAT Procedure

Charging System Acceptance Procedure

Contents

1. Purpose and Basic Description	2
2. Specific Risks and Points of Attention.....	2
3. Required Tools and Spare Parts	2
4. General Information	4
5. CSAT Procedure.....	5
6. Cable Connections.....	14
6.1. Charge Post and Power Cabinets – Connection Table (175kW).....	14
6.2. Charge Post and Power Cabinets – Connection Diagram (175kW).....	15
6.3. Charge Post and Power Cabinets – Connection Table (350kW).....	16
6.4. Charge Post and Power Cabinets – Connection Diagram (350kW).....	17
7. Appendices	18
7.1. Appendix A: Functional Testing of the RCD's in a HPC 175-350 Static System.....	18
7.2. Appendix B: Position of rotary switch on CCB2 board.....	19
7.3. Appendix C: New CCB2 Version 3.2	20
7.4. Appendix D: Signal & Cable connections (175kW System).....	22
7.5. Appendix E: Signal & Cable connections (350kW System)	23
7.6. Appendix F: Cable Coolant Service Valve Location	24
7.7. Appendix G: Eurochiller & Swedewater Overview.....	25
8. Listing of related documents	26
9. Revisions.....	26

PREPARED					STATUS		SECURITY LEVEL		
09/09/2023 Andres Coronado					Approved		Public		
APPROVED					DOCUMENT KIND				
09/28/2023 Floris De-vos					Charging System Acceptance Test				
OWNING ORGANIZATION					DOCUMENT ID.		REV.	LANG.	PAGE
EVI Service Global Service					6AGS000264		A	EN	1/26
PRODUCT TYPE		C	J	G	T	ASSISTANCE - 2ND LINE SUPPORT REQUIRED?			ESTIMATED TIME
HPC – T175 / T350		☒	☒	☒	☐	Yes			N/A
REQUIRED PARTS		PART NUMBER			PART DESCRIPTION				QTY
		T175/350 Generation 3			CP and Power Cabinet(s)				1

REQUIRED TOOLS

Basic & extended toolsets to include any weather related items as described in full list below.

REQUIRED PREPARATION

Carry out all safety measures according to ABB COP and as required by local rules and regulations.

1. Purpose and Basic Description

The Charging System Acceptance Test (CSAT) is to determine if there are any defects in the system due to transportation or faulty installation. Several parts of the system are connected for the first time and this procedure aims to test the complete system.

Trained personnel can perform commissioning of HPC 175-350kW without second line support. This document can be used for performing commissioning for a maximum of 4 chargers.

2. Specific Risks and Points of Attention

Item	Pass (✓) /Fail (X)
Is there a work permit on site?	
Perform a LMRA. (Last Minute Risk Analysis).	
Check the work environment! Can you work safely (Jump away space, etc.)?	
Check the weather, take proper action by setting up a tent in case of rain or heavy snow.	
Check for road signs/blocks. The area should be properly closed for public access.	
Is everyone involved in the power-up wearing the proper clothing and personal protection?	
Lock the main switch in the cabinet with the Lock-out tag-out set when necessary.	

3. Required Tools and Spare Parts

Basic Tool Set	
-	Screwdrivers, Pliers, Allen keys, Ratchet and Socket set
-	Charger Universal Key
Calibrated Tools:	
-	Voltage Tester (e.g., Fluke 1587 FC) with extra test leads and clamps, 1kV rating
-	Torque Driver Set (e.g., Whia Torque Driver 28726)
-	Torque Wrench (e.g., Whia Torque Wrench 30138)
-	Voltage Detector (e.g., Chauvin-Arnoux CA 773)
-	Live-Dead-Live voltage checks should be performed, (e.g., Fluke PRV240)
-	Lock-out Tag-out set (LOTO)
-	Spare Ethernet Cable, 16ft, 2 pcs
-	Spare cable, 20-18 AWG, 600V rating, Fine strand copper wire
Extended Tool Set	
Torque wrench/screwdriver	To tighten fuse holder/MCB screws.
Spare Ethernet Cable, 32ft	To troubleshoot broken CAN cables.
Earth leakage tester	To test RCD depending on local requirements.
Cable ties/Tie-wraps, Weather Related Tools	
Single phase space heater	To warm up the cabinet before start-up.
Work tent	To protect yourself and the cabinet from sun and rain.

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	2/26

Spare Parts	According to the recommended spare parts list of HPC.
Documents and Drawings	
THP 350 Dynamic Installation Manual [1]	
Terra HP single line diagrams [2]	
Quality pre-commissioning checklist_HP [3]	
Latest cabinet and Charge Post schematics related to their Global ID	



Caution!

This service instruction must be conducted by competent and trained personnel in accordance with all ABB, local and national work rules, directives, and safety standards. The appropriate PPE must be always worn. ABB recommends that a safety risk assessment shall be performed prior to executing this instruction.

The following risks associated with this CSAT must be considered:



DANGER

Hazardous Voltage

This charger contains conductors under hazardous electrical voltages. The grid terminals on the internal DIN rail may carry hazardous voltages, even if all circuit breakers are switched off.



WARNING

Pinch Hazard

Identifies a hazard that could result in injuries in which some body parts are pinched or crushed



DANGER

Residual Charge

Capacitors on the power boards can hold an electric charge for long durations, even if the charger is switched off. **ALWAYS** measure if the DC bus is without residual voltage.



WARNING

Sharp Metal Edges

There could be sharp metal edges inside the Power cabinets or Charge Posts. It is recommended to wear mesh protecting gloves when working inside the charger.

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	3/26

4. General Information

Kindly record site details and the corresponding serial numbers for assets listed below.

Site Information:

Site Contact (name and email):

Site name:

Address:

City:

External Fuse size (per cabinet):

External Fuse type: NH Fuse / Circuit Breaker / Other:

Serial Numbers

Charger Designation/No. :	Charge Post 1:	Charge Post 2:
Geo coordinates:		
Charge Post Serial No. :		
Primary Cabinet Serial No. :		
Secondary Cabinet Serial No. :		
Cooler Firmware before/after:		
Charger Designation/No. :	Charge Post 3:	Charge Post 4:
Geo coordinates:		
Charge Post Serial No. :		
Primary Cabinet Serial No. :		
Secondary Cabinet Serial No. :		
Cooler Firmware before/after:		

Further Site Info:

5. CSAT Procedure

Visual and physical inspection of power cabinet(s):

Item (Please input charger designation/No. according to the site configuration)	Pass (✓) /Fail (X)							
	CP#:		CP#:		CP#:		CP#:	
	P	S	P	S	P	S	P	S
1. General inspection cabinet(s).								
1.1. Check for damages on the cabinet(s) exterior panelling, including top of the cabinets.								
1.2. Check if the door(s) can be opened and closed easily and safely.								
1.3. Check if the airflow of the cabinet(s) is (are) guaranteed in this setup (See installation manual).								
1.4. Verify that the power cabinet(s) is (are) not energized.								
1.5. Verify that no short circuit after AC main switch by measuring resistance on bottom of Q17:								
a) Between phases should be > 0.5MΩ.								
b) Between phases and ground should be infinite.								
1.6. Check that the following items are properly mounted, verify all connections:								
a) Core control board: Ensure there are no hanging cables, and verify that all connectors are properly secured.								
b) Core control board Rotary Switch: Primary 0, Secondary 1. Refer to Appendix B for position.								
c) Power Modules: mechanically fastened, CAN cable, feedback/control signals are inserted.								
d) Fans: rack is fastened, connectors are ok.								
e) CAN Fiber Converter (Phoenix Contact) properly mounted, cables & connectors inserted.								
f) Connections on top of transformer not damaged.								
1.7. Verify torque on screws of fuse holders/MCB's (F58 to F63) is at 3Nm. Make a note if stripped.								
1.8. Verify P2 is set to 10mA and 2000ms								
1.9. Check the connection of the PE cables and verify the order of the washers.								

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	5/26

Remarks:

Visual and physical inspection of the Charge Post

Item (Please input charger designation/No. according to site configuration)	Pass (✓) / Fail (X)			
	CP#:	CP#:	CP#:	CP#:
2. General inspection Charge Post.				
2.1. Check for damage on the Charge Post's exterior panelling.				
2.2. Check if the front door can be opened and closed easily and safely.				
2.3. Check the nut holding the lock mechanism from inside on the door: that it is fastened.				
2.4. Verify that the system is not energized (Live-Dead-Live test)				
2.5. Check that the following items are properly mounted, verifying all connections:				
a) Core control board (CCB2) – no hanging cables, all connectors are proper.				
b) Charge post Heater: mechanically fastened, cables are ok.				
c) CAN Fiber Converter (Phoenix Contact): properly mounted, cables connectors inserted.				
d) 24V Power Supply: mechanically fastened, cables ok.				
e) HMI, IMI CPI: mechanically fastened, cables ok.				
2.6. Verify the following (if not, note and use USB rework package):				
a) Verify that RFID reader is directly connected to HMI (not via USB hub).				
b) If applicable, verify that the screen is directly connected to HMI (not via USB hub).				
2.7. Cooling unit:				
a) Open the cover plate of the chiller, no oil shall be seen (do not place the cover back).				

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	6/26

Visual and physical inspection of the Charge Post

Item	(Please input charger designation/No. according to site configuration)	Pass (✓) / Fail (X)			
		CP#:	CP#:	CP#:	CP#:
b)	Check the metallic cap of the filling pipe has been replaced with the plastic one delivered with charger.				
c)	Check the yellow transportation bracket from the filling pipe has been removed Refer to Appendix G				
d)	Verify that service valves are not closed, Refer to appendix F				
e)	Verify the oil level is correct using the refill procedure.				
f)	Check if the two temperature sensors on the cables are mounted properly				
-	Sensors securely mounted with tape ≈8in from the DC cable lugs.				
-	A sleeve protects the temperature sensors and is fitted over the cables				
2.8.	Verify all connections of CSS cables are properly tightened.				
2.9.	Measure Resistance between the DC+ and DC- on the charging cable >1MΩ				
2.10.	Measure Resistance between DC+ and PE, and DC- and PE on the charging cable >1MΩ				
2.11.	Check cable connections are correct according to section 6				

Remarks:

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	7/26

Caution!



The entirety of section must be performed by a qualified person wearing the appropriate PPE as per ABB code of practice when working on energized equipment and operating switchgear. Please refer safety instruction manuals for details. Keep in mind that different regions have different voltage levels. Always refer regional voltage levels.

Energizing The Grid Connection

Item	Pass (✓) /Fail (X)							
	CP#:		CP#:		CP#:		CP#:	
	P	S	P	S	P	S	P	S
(Please input charger designation/No. according to site configuration)								
3. Grid Connection: Power Cabinet								
3.1. Switch RCD Q13 and Breaker Q17 in the cabinet to OFF position.								
3.2. Switch MCB's F58 to F63 in the cabinet(s) to the OFF position (both in Primary and Secondary).								
3.3. Switch the RCD Q1 in the charge post to the OFF position.								
3.4. (If equipped) Switch Q16 to the OFF position in both Primary and Secondary cabinet(s), close the doors.								
3.5. Switch ON the branch breaker(s), AC power from the switchgear to Primary and Secondary cabinet(s). Check if voltage is present on AC input of power cabinet								
3.6. Switch OFF the branch breaker, AC power from the switchgear, verify no AC voltage present to Primary and Secondary cabinet(s).								
3.7. (If equipped) Switch Q16 to the ON position in both Primary and Secondary cabinet(s), close the doors.								
3.8. Switch ON the branch breaker, AC power from the switchgear to power cabinet								
3.9. Open the cabinet door and measure the voltages on bottom side of Q17: 480VAC between phases and 277VAC to ground OR 600VAC between phases and 347VAC to ground								
3.10. Switch ON RCD Q13 and MCB Q17 in power cabinet(s).								
3.11. Test RCD's. Refer to Appendix A								

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	8/26

a) Q13 , 100mA RCD								
b) P2 , adjustable RCD set to 10mA and 2000ms								
4. Power Up Charge Post								
4.1. Measure the Voltages on the top side of RCD Q1 .								
4.2. Verify that the voltages between the phases and PE are 277VAC OR 347VAC (3 measurements)								
4.3. Verify that the voltages between the 3 phases is 480V AC OR 600VAC (3 measurements)								
4.4. Switch the RCD Q1 to the ON position.								
4.5. CAN to fiber converter: check if communication is ok (no red LED's).								
4.6. Test RCD Q1 , 30mA RCD – Refer to Appendix A.								

Remarks:

Charger Software and Customizations

Item	Pass (✓) /Fail (X)			
(Please input charger designation/No. according to site configuration)	CP#:	CP#:	CP#:	CP#:
5. Charger Software and Status (Using ServiceLink)				
5.1. Check the charger is accessible in the Service Tool (Online Check and Diagnose).				
5.2. Carry out a full discovery and check all expected boards are present in the system.				
5.3. Check the “BoxChecks” and resolve any issues found.				
5.4. Update the charger software to the latest “Marathon/HPC” release.				
5.5. Carry out “Power Module Self-Test” using EVE Portal or Servicelink. Make sure there is no errors				
5.6. If applicable, apply any specific customizations using the relevant option in ServiceLink.				

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	9/26

Charger Software and Customizations

Item	Pass (✓) /Fail (X)			
(Please input charger designation/No. according to site configuration)	CP#:	CP#:	CP#:	CP#:

Remarks:

Functional Testing

Item	Pass (✓) /Fail (X)			
(Please input charger designation/No. according to site configuration)	CP#:	CP#:	CP#:	CP#:
6. Human Machine Interface (HMI)				
6.1. Check that the HMI is ON and there is no error message on the screen.				
6.2. Check if screen is working properly by pushing information and language buttons.				
6.3. Verify that languages are set correctly.				
6.4. Verify LED strips are set to the desired colour as per customer request, default is white.				
7. Chiller Type and Testing				
7.1. Verify in EVE, Charging Settings>Charger tab, that correct hardware type has been selected				
7.2. Verify CAN connection from CCB to Chiller board is correct & DC connection to Chiller board is inserted				
7.3. Cooling Fluid refill: Leave pump running for 10 min and check fluid & proper pressure values. Boxcheck errors, MIN-MAX status on boards are cleared. Do not overfill! - Refer to Appendix G				
8. Interlock Test.				
8.1. Open the door of the charge post; the HMI should show that the charger is unavailable.				
8.2. Close the door of the charge post; the charger should become available now.				
8.3. Open the door of one cabinet; the HMI should show that the charger is unavailable.				
8.4. Close the door of the cabinet; the charger should become available again.				

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	10/26

Functional Testing

Item	Pass (✓) /Fail (X)	CP#:	CP#:	CP#:	CP#:
(Please input charger designation/No. according to site configuration)					
8.5. Repeat the two steps above for all Secondary cabinets if installed.					
9. 1st Charge Session.					
9.1. Drive an EV next to the charge post.					
9.2. Connect the charging cable to the EV's charging inlet.					
9.3. The screen should reflect that an EV has been connected.					
9.4. Press the start button on the HMI.					
9.5. Let the EV charge for a minute and press the stop button on the HMI to stop charging.					
9.6. Disconnect the charging cable from the EV and place onto holster at the charge post					
10. Power module test					
10.1. Disconnect all red CAN cable to power modules, switch off corresponding MCB.					
10.2. Connect only 1 power module back, switch on MCB, close the doors, charge the EV.					
10.3. Repeat the same test for all individual power modules.					
10.4. Connect the red CAN cable back to all power modules.					
11. Emergency stop check.					
11.1. Start charging the vehicle, during charging, open one of the enclosure doors. or Press Emergency button (if equipped)					
11.2. Did the charge session stop immediately?					
11.3. Did the HMI display an error screen?					
11.4. Disconnect the cable from the EV and close the opened door or release the emergency button (if equipped)					
11.5. Is the charger screen showing that the charger is ready and available again?					
11.6. Reconnect the charge cable to the car once more and verify that the car can charge normally.					
11.7. Charge an EV 5 times for 1 minute					
12. Cooler Final Check:					
12.1. Open the charger, verify that no oil has been spilled, close the cover of the cooler.					

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	11/26

Functional Testing

Item	Pass (✓) /Fail (X)			
(Please input charger designation/No. according to site configuration)	CP#:	CP#:	CP#:	CP#:

Remarks:

Final RISE & EVE Administrative Data

Item	Pass (✓) /Fail (X)			
(Please input charger designation/No. according to site configuration)	CP#:	CP#:	CP#:	CP#:
13. EVE Charger Data:				
13.1. Claim the charger and assign to the relevant organization (Customer).				
13.2. Access the charger “Overview” tab and change any relevant data.				
13.3. Access the charger “Charger Settings” tab and change the “ Maximum AC input current ” to match the external fuse size.				
13.4. Access the charger “Map” tab and enter all relevant information (Location, City, Country Code, Address and Latitude/Longitude) and adjust any other relevant settings as required.				
13.5. Check the charger “Internet Status” is showing as “ Connected ” and resolve if not.				
14. RISE Charger Data:				
14.1. Navigate to the “Asset” page with serial number of the cabinet (T175). This page contains RISE administrative data, which must be entered manually				
14.2. Under the “Asset Information” tab fill related details: Account name, contact name, region, local service unit, country, address, city, latitude, longitude, related SIM(ICCID)				
14.3. Under the “Payment Terminal” enter all relevant information. This page contains RISE administrative data, which must be entered manually				

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	12/26

Final RISE & EVE Administrative Data

Item	Pass (✓) /Fail (X)			
	(Please input charger designation/No. according to site configuration)	CP#:	CP#:	CP#:
14.4. Under the “System Setup” enter serial numbers for Power Cabinets 1 (Primary) and 2 (Secondary).				
14.5. Under the “Charger Build” tab fill related details: Connector Manufacturer, Type, Length, Serial Numbers, CMS installed (Fill all related details)				
14.6. Under the “Lifecycle Information” tab change “Delivery Status” from “Shipped” to “SAT” (Fill all related details)				
14.7. Change “Delivery Status” from “ Shipped ” to “ SAT ” and enter the “ Date SAT ” was completed.				
14.8. Under the “Payment Terminal” enter all relevant information. This page contains RISE administrative data, which must be entered manually				
14.9. Under the “Details” of the power cabinet’s page (THP175), verify that all data has been entered for Asset Information, System Setup, Charger Build, Lifecycle Information, Upgrades, Commissioning				
Under “Commissioning” tab mark the status of commissioning				

Remarks:

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	13/26

6. Cable Connections

6.1. Charge Post and Power Cabinets – Connection Table (175kW)

	Terminal Type	Interlock 1			Interlock 2			Jumper	Fib		CAN			AC Supply				
		Interlock Cab 1-CP	Interlock CP-Cab1	Shield	Interlock Cab1-Cab2	Interlock Cab2-Cab1	Shield	Insert Jumper Wire	Fiber 1	Fiber 2	CAN-H	CAN-L	CAN_GND	PE	L1	L2	L3	
Cable Colour (Suggested)		WHT	BLK	Shield	WHT	BLK	Shield		1	2	BLK	WHT	Shield	GRN /YEL	BRN	BLK	GRY	
Cabinet Terminals		X8							D1		X8			X10				
Primary Cabinet Cabinet 1		A	6	4	9				7-8	Td	Rd				1	4	3	2
		B	15	14	PE				10-11 6-7									
Secondary Cabinet Cabinet 2		A																
		B																
CP GEN 2 Terminals			X20							A100					X10			
Charge Post GEN 3			3	2	1					Rd	Td				4	3	2	1
Checked For CP#																		
Checked For CP#																		
Checked For CP#																		
Checked For CP#																		

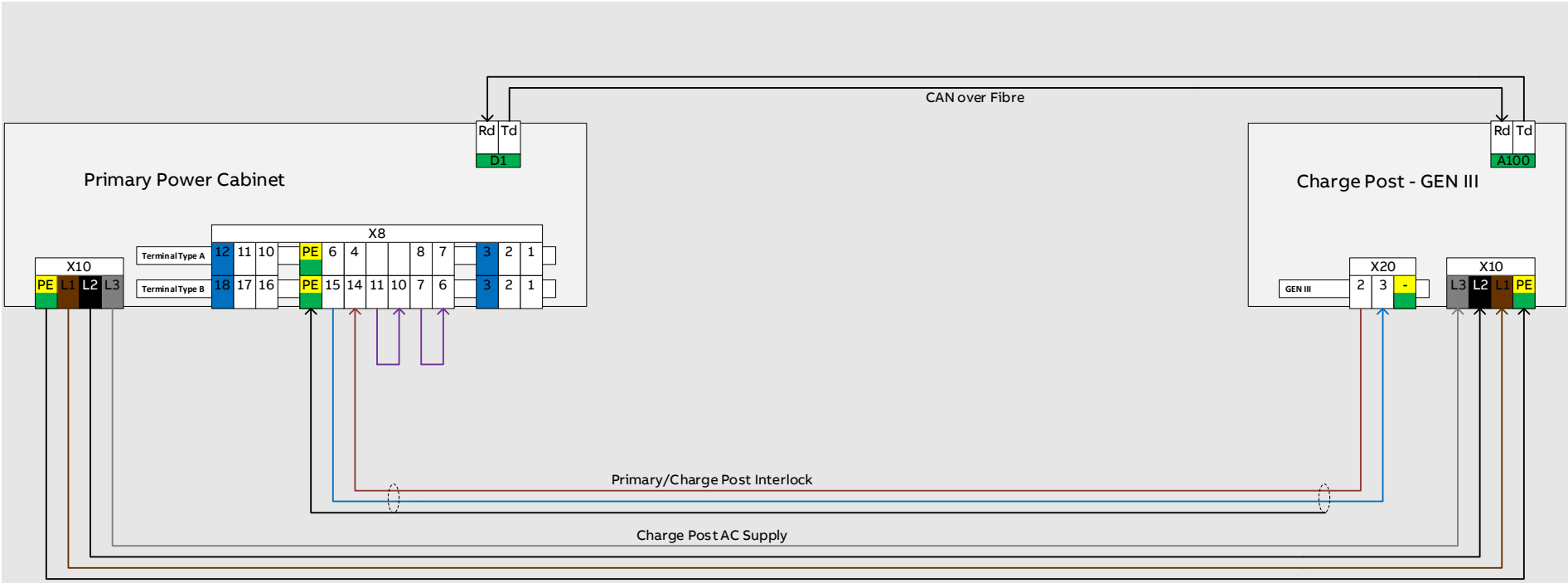
NC – No Connection

PE – Protective Earth

Remarks:

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	14/26

6.2. Charge Post and Power Cabinets – Connection Diagram (175kW)



6.3. Charge Post and Power Cabinets – Connection Table (350kW)

	Terminal Type	Interlock 1			Interlock 2			Jumper	Fiber		CAN			AC Supply				
		Interlock Cab 1-CP	Interlock CP-Cab1	Shield	Interlock Cab1-Cab2	Interlock Cab2-Cab1	Shield	Insert Jumper Wire	Fiber 1	Fiber 2	CAN-H	CAN-L	CAN_GND	PE	L1	L2	L3	
Cable Colour (Suggested)		WHT	BLK	Shield	WHT	BLK	Shield		1	2	BLK	WHT	Shield	GRN /YEL	BRN	BLK	GRY	
Cabinet Terminals		X8							D1		X8			X10				
Primary Cabinet Cabinet 1		A	6	4	9	8	7	5		Td	Rd	1	2	3	1	4	3	2
		B	15	14	PE	7	6	PE	10-11			1	2	3				
Secondary Cabinet Cabinet 2		A				4	6	9	7-8			10	11	12				
		B				14	15	PE	10-11 6-7			16	17	18				
CP GEN 3 Terminals			X20							A100					X10			
Charge Post GEN 3			3	2	1					Rd	Td				4	3	2	1
Checked For CP#																		
Checked For CP#																		
Checked For CP#																		
Checked For CP#																		

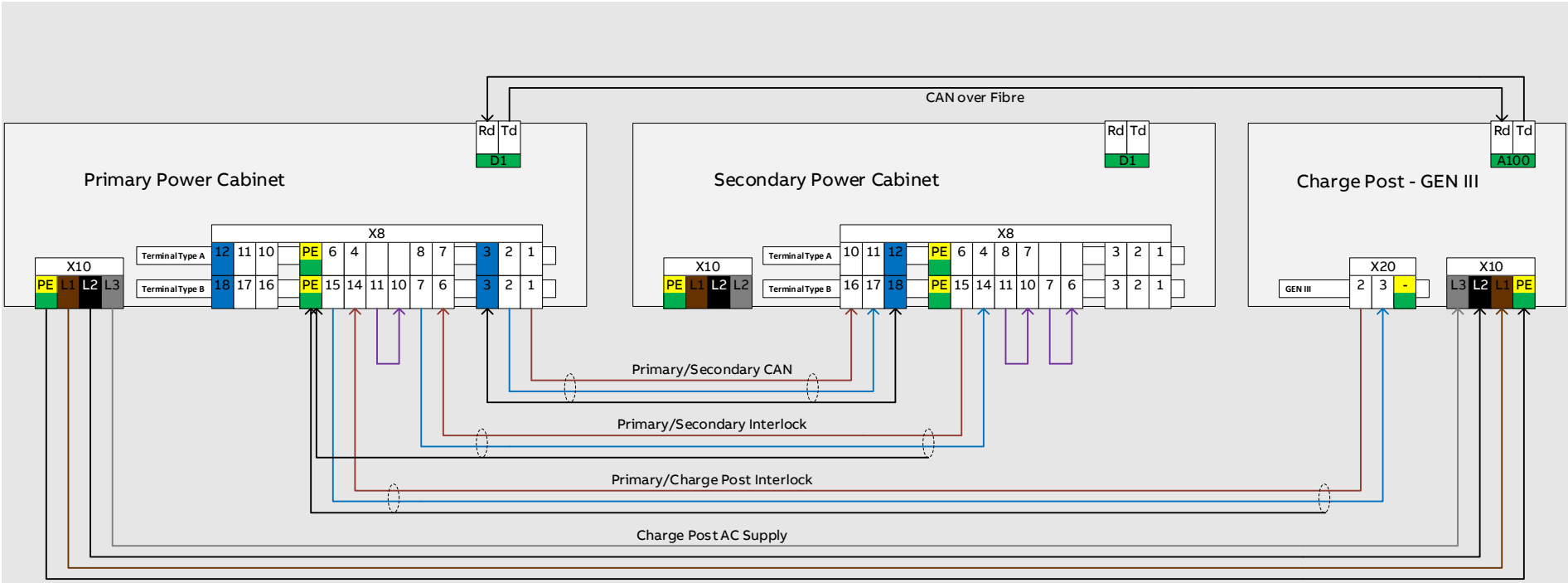
NC – No Connection

PE – Protective Earth

Remarks:

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	16/26

6.4. Charge Post and Power Cabinets – Connection Diagram (350kW)

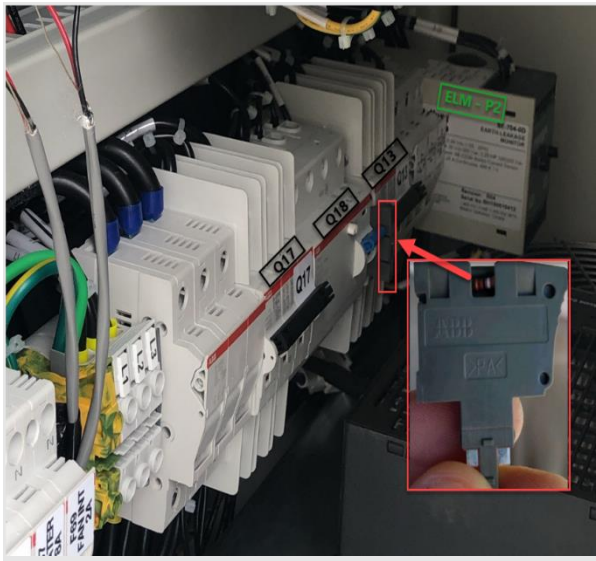


7. Appendices

7.1. Appendix A: Functional Testing of the RCD's in a HPC 175-350 Static System

RCD locations:

Primary / Secondary Power Cabinet's RCDs



Primary / Secondary Charge Post's RCD





TRIP LEVEL SETTING TO 10mA-2000ms

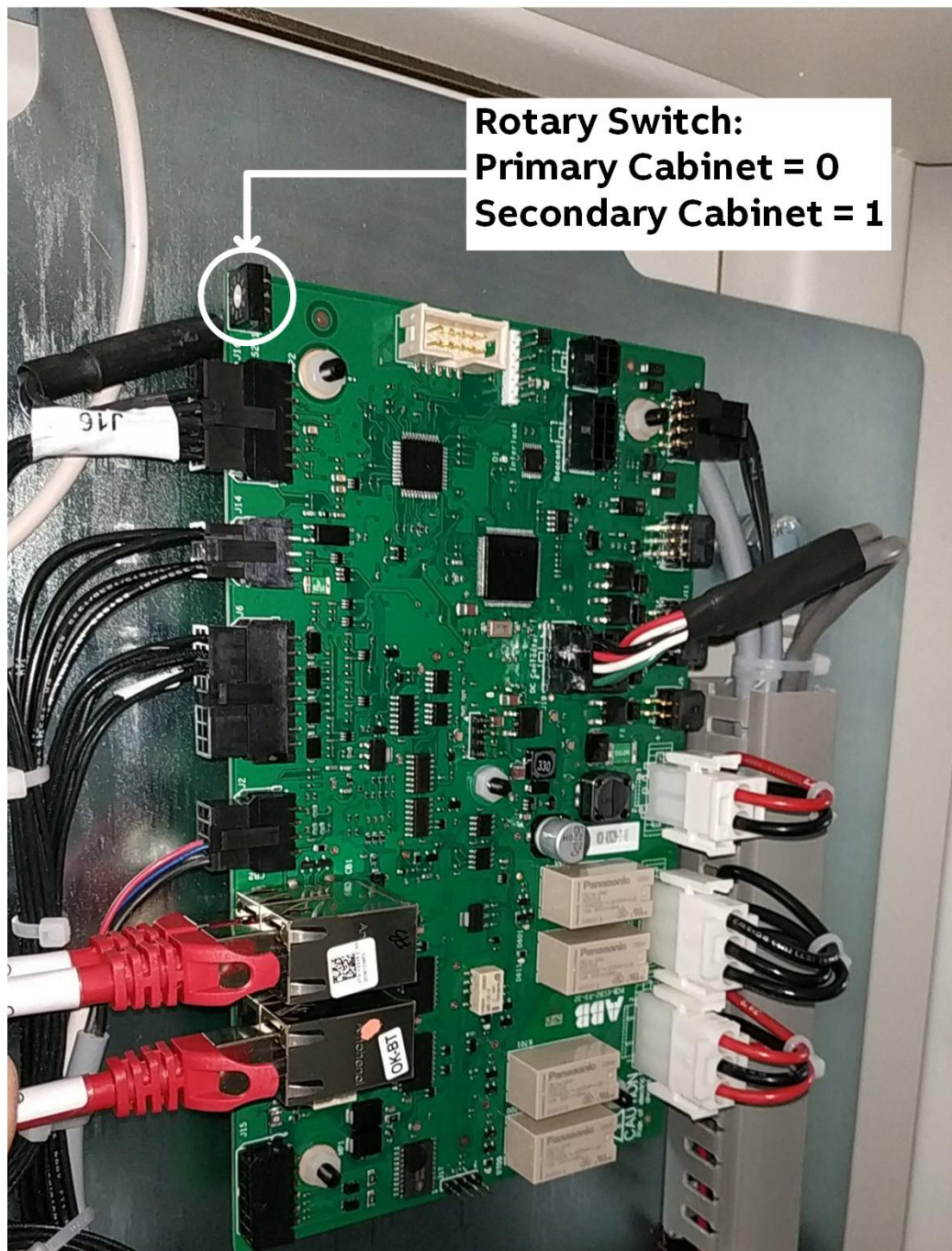
CONFIGURATION SWITCHES

ANALOG OUTPUT	% OF 5 A	5	% OF SETTING
RESET MODE	LATCHING	4	AUTORESET
CT VERIFICATION	OFF	3	ON
FILTER SELECTION	FIXED FREQUENCY	2	VARIABLE FREQUENCY
RELAY OPERATING MODE	FAIL-SAFE	1	NON-FAIL-SAFE

The RCD functionality of Q18 / Q1 can be tested using the test buttons on the RCD's themselves. The test buttons will create a leakage current that will trip the RCD. (3.9k Resistor with terminal holder needs to be inserted correctly in terminal blocks in both CP & PC). To reset the RCD, first lift the BLUE lever. When this is set, then lift the BLACK lever on Q13.

The RCD functionality of P2 (ELM – Earth Leakage Monitor) can also be tested using the test button on the device. When a trip occurred, there should be an RED LED lit up stating that a fault has occurred on the device. The reset is done by pressing the reset button on the device. Verify that switches & settings are correct.

7.2. Appendix B: Position of rotary switch on CCB2 board



7.3. Appendix C: New CCB2 Version 3.2

Terminal types and CCB2 versions

A new type of CCB2 board is introduced in both charge post and power cabinet. The new board comes with a corresponding update of the X286/X8 and X20 terminal blocks. The new version provides additional DC-guard signals and provides three interlock groups instead of two.

- Old: CCB2 V2 and terminal blocks “Version A”
- New: CCB2 V3.2 and terminal blocks “Version B”

Power Cabinet	Charge Post
VERSION A VERSION B G-A: DC-Guard A G-B:DC-Guard B	

Note: on double decks: even numbers are top, odd numbers are bottom

By default a system with type A terminal blocks will have CCB2 V2.

By default a system with type B terminal blocks will have a CCB2 V3 (to interface DC guard-ing).



Note 1: if a CCB2 V3 is placed in a type A cabinet, terminal connection 5 and 9 (blue) will not be grounded anymore (they become DC-guard A and B). In that case, use PE terminals for connection shields. For charge-post no differences.

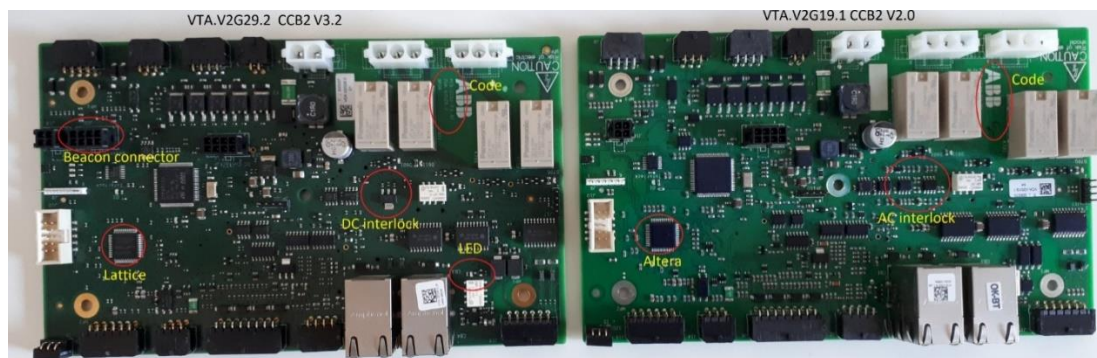


Note 2: For single outlet systems, in case of mixed CCB2 versions: the primary cabinet must have CCB2 V3 (for DC current source for interlock).

Recognizing CCB2 board versions

Visual cues to tell the difference between V2 and V3.2:

- **PCBA code** (Top right circle in below images)
 - CCB2 V2 has PCBA code VTA.V2G19.1
 - CCB2 V3.2 has PCBA code VTA.V2G29.2
- **Beacon connector:** CCB2 v3 has a large “Beacon connector” which is used in HVC systems.



Left: CCB2 V3.2 (new)

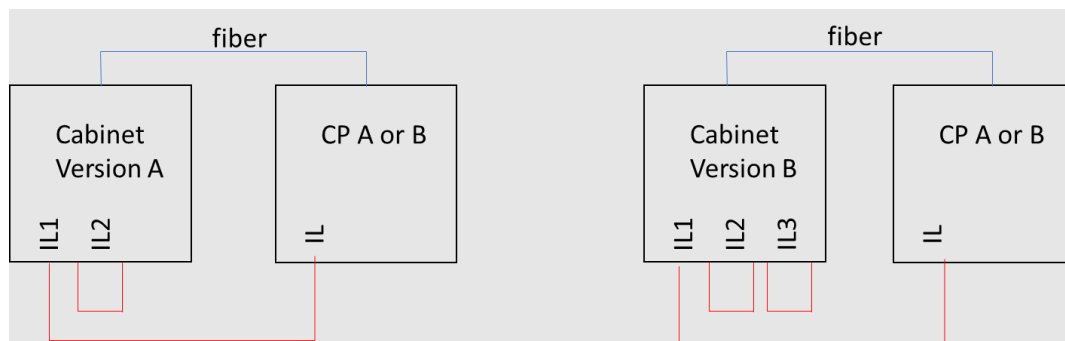
Right: CCB2 V2.0 (old)

7.4. Appendix D: Signal & Cable connections (175kW System)

Signal Name	Cabinet 1 (Primary) X286/X8		Cabinet 2 (Secondary) X286/X8		Charge-post GEN3 X20	
Terminal Type	A	B	A	B	N/A	
Interlock						
Interlock Cab1-CP	6	15			3	
Interlock CP-Cab1	4	14			2	
Shield	PE	PE			1	
Local Wire bridge (IL2/IL3) (lower side of terminals)	7-8	6-7 10-11				
CAN						
Fiber 1	Td	Td			Rd	
Fiber 2	Rd	Rd			Td	

Apply Column A for terminal type "A" and Column B for terminal type "B".

Single Line Diagram:

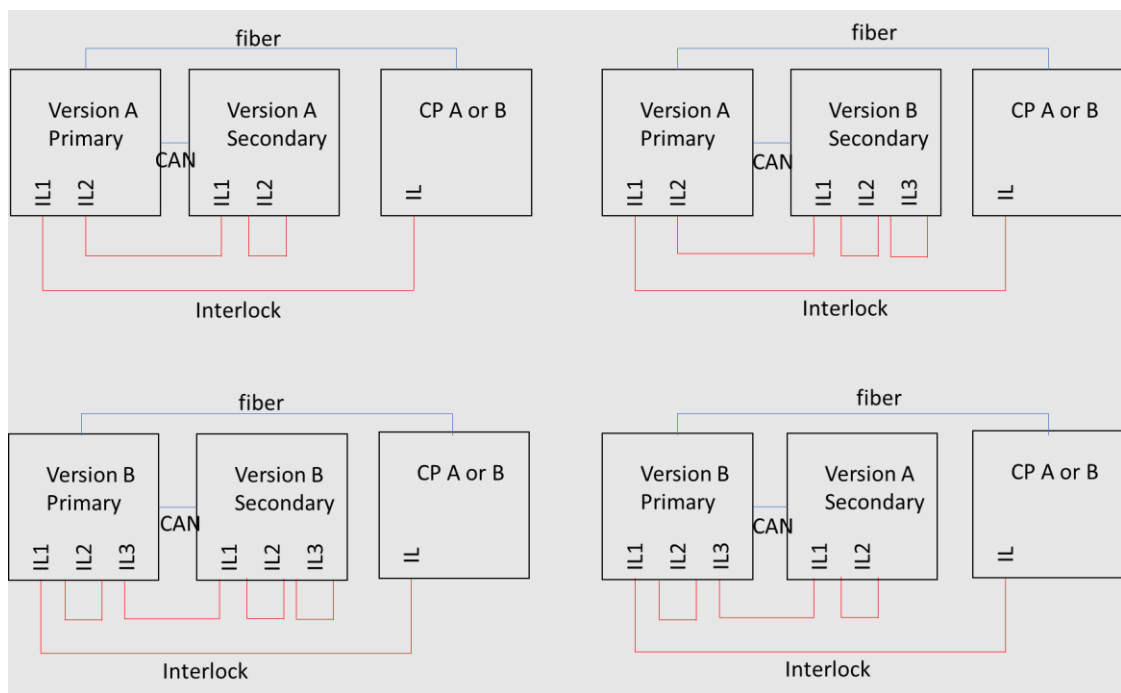


7.5. Appendix E: Signal & Cable connections (350kW System)

Signal Name	Cabinet 1 (Primary) X286/X8		Cabinet 2 (Secondary) X296/X8		Charge-post GEN3 X20	
Terminal Type	A	B	A	B	N/A	
Interlock						
Interlock Cab1-CP	6	15			3	
Interlock CP-Cab1	4	14			2	
Shield	PE	PE			1	
Interlock Cab1-Cab2	8	7	4	14		
Interlock Cab2-Cab1	7	6	6	15		
Shield	PE	PE	PE	PE		
Local Wire bridge (IL2/IL3) (lower side of terminals)		10-11	7-8	10-11 6-7		
CAN						
Fiber 1	Td	Td			Rd	
Fiber 2	Rd	Rd			Td	
CAN-H	1	1	10	16		
CAN-L	2	2	11	17		
CAN_GND	3	3	12	18		

Apply Column A for terminal type "A" and Column B for terminal type "B".

Single Line Diagram:



7.6. Appendix F: Cable Coolant Service Valve Location

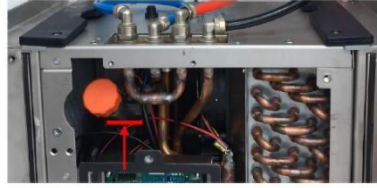
Location of the 2 service valves for the flow and return of the cable coolant. There may only be one valve if there is one cooled outlet.

Please note: the picture below shows these valves in the “**closed**” position, to open (should be by default), **the valves must be in line with the pipes.**



7.7. Appendix G: Eurochiller & Swedewater Overview

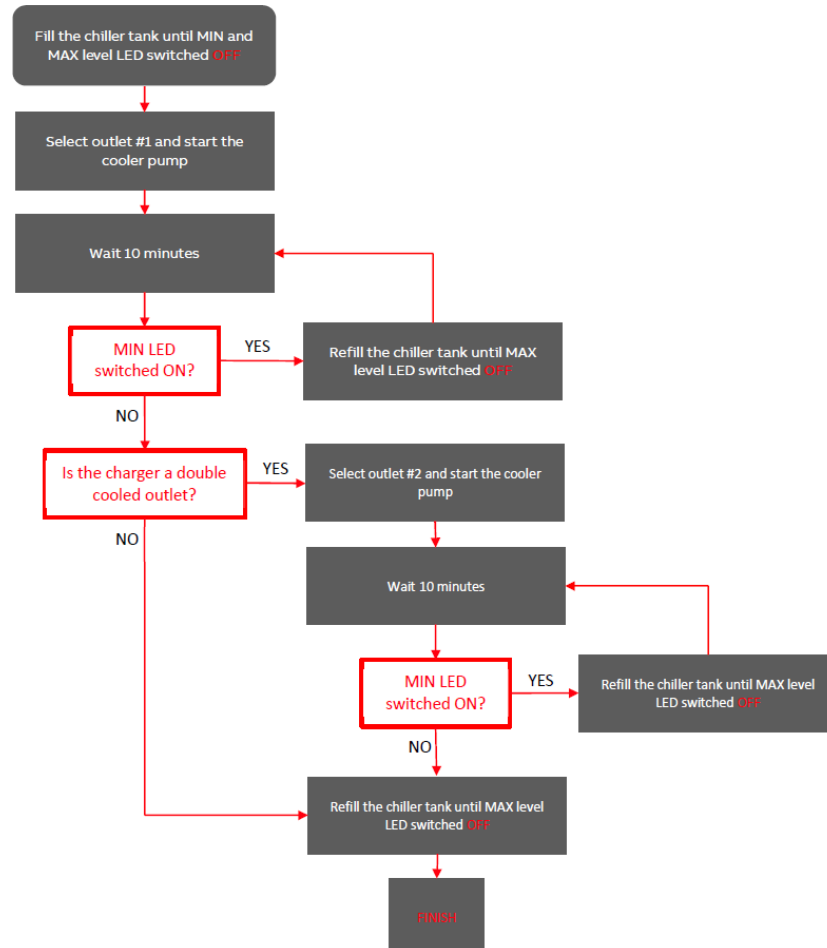
13.4.13 **Visual check:** With the front cover opened perform an accurately check to Identified any leakage



13.4.14 Make sure, before re-install the front cover that the yellow bracket was removed and that the red plastic cap was inserted.



7.3 Diagram



8. Listing of related documents

Ref #	Document Kind, Title	Document No.
1	Terra HP Installation Guide	9AKK107992A2254-EN

9. Revisions

Rev.	Section	Description	Date Dept./Init.
A	All	Initial revision based on GEN 2 CSAT SI-T175-0010.	GPG Service 29/03/20 T.L-W.
A	All	Conversion to NA based on Gen 3 CSAT 6AGS000262 CSAT Procedure	USABB Service 09/28/23 A.Coro

STATUS	SECURITY LEVEL	DOCUMENT ID.	REV.	LANG.	PAGE
Approved	Public	6AGS000264	A	EN	26/26