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PCFR

CLEVER WATER SOLUTIONS

PoolCop Genesis

Maintenance Manual

Date: January 10th, 2022

Manual Version: GN44MMANEN

Firmware Version: V44

Product Versions: PoolCop Genesis

CE

Change Summary

Januray 10th, 2022 : First edition

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Section 1 TECHNICAL SUPPORT AND SUPPORT LEVELS

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1.1 L1 Level Support

L1 is the support level for initial client contact and basic client issues.
The first objective of L1 support personnel is to gather the client's information and to determine the client's issue by analyzing the symptoms and to determine the underlying problem. Once identification of the underlying problem is established, the specialist can begin sorting through the possible solutions available. L1 support typically handles straightforward and simple problems using basic troubleshooting, the product User and Installation Manuals, and this Service Manual.
L1 support can be carried out by all personnel acting as initial contact for user requests and, if required, creating an incident to notify other business teams/units to satisfy user request. The goal is to handle 70%-80% of the user problems before finding it necessary to escalate the issue to a higher level. L1 support requires good basic knowledge of the products, as well as terms and conditions offered by the business rather than detailed technical information on the product or pool maintenance.

1.2 L2 Level Support

L2 is more in-depth technical support than L1 and carried out by personnel with and more experience and technical knowledge. Technicians are responsible for assisting L1 support personnel solve basic technical problems and for investigating elevated issues by confirming the validity of the problem and seeking for known solutions related to these more complex issues.
Prior to further troubleshooting, it is important that the L2 support personnel review what has already been accomplished by during L1 support and how long the issues has been apparent for the particular client. This is a key element in meeting both the client and business needs as it ensures prioritization of the troubleshooting and proper management of time and allocation of resources.
If L2 support personnel cannot determine a solution, they will elevate this issue to L3 support. Solutions are performed by this group to help ensure the intricacies of a challenging issue are solved by providing experienced and knowledgeable technicians. This may include, but is not limited to onsite installations or replacements of various hardware components, software repair, diagnostic testing, and the utilization of remote control tools used to take over the user's machine for the sole purpose of troubleshooting and finding a solution to the problem.

1.3 L3 Level Support

This is the highest level of support in a three-tiered technical support model responsible for handling the most difficult or advanced problems. It denotes expert level troubleshooting and analysis methods. These individuals are experts in their fields and are responsible for not only assisting both Level 1 and Level 2 personnel, but with the research and development of solutions to new or unknown issues. Note that Level 3 technicians have the same responsibility as Level 2 technicians in reviewing the work order and assessing the time already spent with the customer so that the work is prioritized and time management is sufficiently utilized. If it is at all possible, the technician will work to solve the problem with the customer as it may become apparent that the Tier I and/or Tier II technicians simply failed to discover the proper solution. Upon encountering new problems; however, Tier III personnel must first determine whether or not to solve the problem and may require the customer's contact information so that the technician can have adequate time to troubleshoot the issue and find a solution. In some instances, an issue may be so problematic to the point where the product cannot be salvaged and must be replaced. Such extreme problems are also sent to the original developers for in-depth analysis.

1.4 L4 Level Support

L4 represents an escalation point beyond the organization. This is generally a hardware or software vendor.

Section 2 TOOLS, EQUIPMENT AND CONSUMABLES

2.1 General Guidelines on Tools and consumables

Installers and Technicians will to carry their own full tool kit of the tools, parts and consumables needed for pool and equipment maintenance.
Over and above this there are specific items which may be specific to PoolCop installations and maintenance, or items which help and speed up installation and maintenance tasks. Some of these items are available from PCFR and listed in the current catalogue of pool equipment; these items have Part Codes indicated.

2.2 Tool Kit

Installer Tool Kit	Part Code	Comment
1. Spanners 5mm, 20mm:		
2. Phillips screwdriver		PH1 size
3. screwdriver		4mm
4. Wrench		25mm
5. Water analysis kit		pH, FC, TC, Total Alkalinity, Hardness, CYA,

2.3 Recommended Consumables

Agreed Installers can also source installation and maintenance consumables directly from PCFR at preferential rates. We source our consumables directly from suppliers and manufacturers when possible, to ensure the best rates on these consumables for the installer and maintainer.

Recommended Consumables	Part Code	Comment
1. Mini fuse Ø5x20mm		10x160mA temporized + 10x2A rapid
2. ORP 470mV buffer liquid		Recommended to control sensor
3. pH 7 buffer liquid		Recommended, not required.

2.4 Recommended Spare parts Kit

The following is a recommended spares kit to be carried. Carrying adequate spares ensures that any malfunctions or failures can be rectified timeously.

Recommended Spares Kit	Part Code	Comment
1. Data Control Connection Unit (DCCU)		
a. PCB Micro with LCD Screen PCB004-C	CF1220.01	PCB004
b. Kit PCB Connection SE Data	CF1218	PCB005
c. Kit Sensor SE pH+ORP Pt Cable 4m	SO4912	4 wires sensor
d. Kit Sensor SE pH+ORP Au Cable 4m	SO4913	4 wires sensor
e. Kit Water Temperature Sensor 4m Cable	GN4211	
f. Kit Sensor Pressure 4m Cable	GN4224	
g. Connection Cable	GN3103.01	
h. Datalink Cable Genesis	GN3102.01	
i. Kit Power Supply PCB103 EU	CF1151	230VAC, With fuses 160mA

Section 3 SERVICING THE DATA CONTROL CONNECTION UNIT DCCU

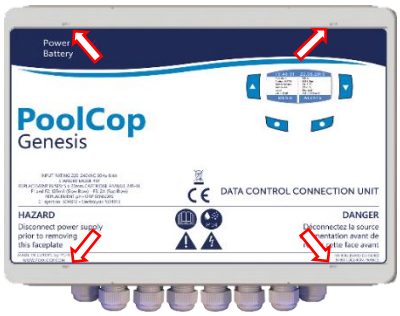
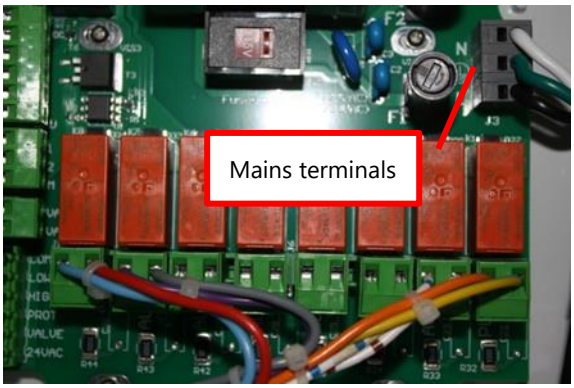
3.1 SDCCU_01_EN: Shut down the DCCU

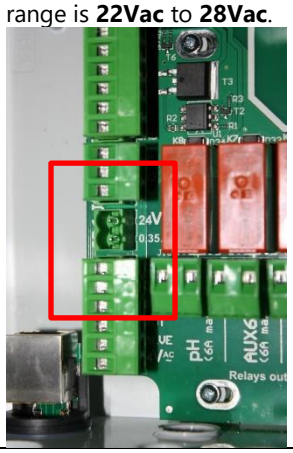
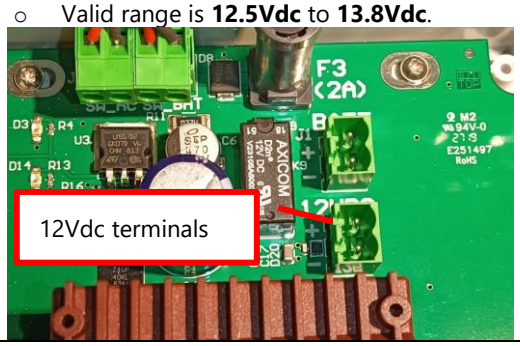
Servicing the Data Control Connection Unit DCCU			Support : L1
This Service Procedure details steps to shut down the DCCU and secure the pool if unit is on the field.			procedure **SDCCU_01_EN**
			Revision **01**
Tools & consumables required:			Time:
			0:02
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	○ Switch OFF the DCCU with standby switch. 		
2	○ Remove power from the DCCU using the breaker.		
3	○ If work involve risk of water leaks: ○ Close all valves to or from the pool. ○ Disconnect power to the pump and auxiliaries (booster pump...) ○ Depressurize and drain the multiport valve using the sight glass or purge plug. ○ Make sure there is no pressure on the valve housing.		
End of Service Procedure			

3.2 SDCCU_02_EN: Powering Up the Control Connection Unit

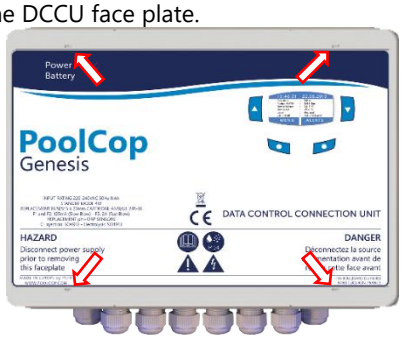
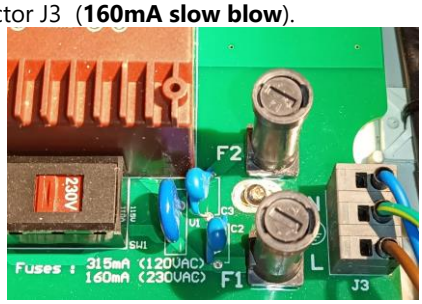
Servicing the Data Control Connection Unit DCCU			Support : L1
This Service Procedure details steps to power up the DCCU and prepare the pool if unit is on the field.			procedure **SDCCU_02_EN**
			Revision **01**
Tools & consumables required:			Time:
			0:05
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	○ Open the valves to or from the pool for normal operation (as they were before closing them all). ○ Reconnect power to the pump and auxiliaries (booster pump…). ○ Check if there is no leak at this stage.		
2	○ Close the transparent DCCU face plate.		
3	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
4	○ Reconnect power to the DCCU. ○		
5	○ Switch ON the DCCU. ○ Check that the 2 LED **Power** and **Battery** are ON. ○ Check firmware version displayed at the LCD screen. ○ If displayed screen stay blank, or blink switch OFF the DCCU and review your latest operation for any error /default. ○ If pump is running continuously (except 24/24 filtration mode) or valve is rotating continuously, switch OFF the DCCU and review your latest operation.		
6	○ Filtration may start if a filtration cycle is programmed		
End of Service Procedure			

3.3 SDCCU_03_EN: Checking Voltages in Data Control Connection Unit

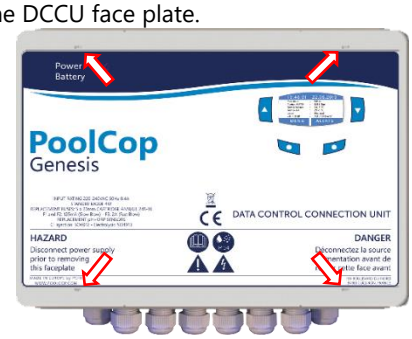
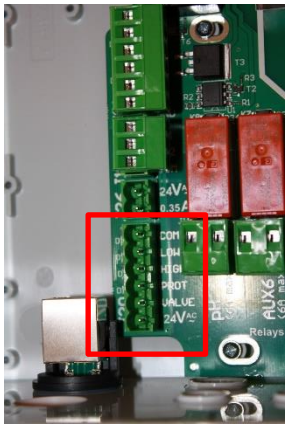
Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to check if mains is apply to DCCU.		procedure	**SDCCU_03_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - voltmeter compliant with 240Vac voltage			0:10
Parts required	QTY		Codes
-	-		-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	**WARNING! ELECTRIC SHOCK HAZARD!** This Service Procedure is strictly reserved to trained and authorized personnel.		
3	○ Open the DCCU face plate. 		Screwdriver
4	CHECK 220Vac (110Vac)		
5	○ Using a voltmeter on VAC range, check voltage between "**NEUTRAL**" and "**LIVE**" terminals close to the transformer. ○ Valid ranges are: ○ **200Vac** to **240Vac** for 220Vac networks. ○ **100Vac** to **120Vac** for 110Vac networks. 		Voltmeter
6	○ If voltage is not in the valid range, please contact electrical distribution network. PoolCop may encounters malfunctions.		

7	CHECK 24Vac		
8	○ Unplug terminal J26. ○ Using a voltmeter on VAC range, check voltage on the **24V(AC)** terminal. ○ Valid range is **22Vac** to **28Vac**. 		Voltmeter
9	○ If voltage is not in the valid range, please note that PoolCop may encounters malfunctions in time. ○ This PCB should be replaced as soon as possible following "Replacing the PCB103 Board" Service Procedure.	SDCCU_10_EN	
10	○ If 24Vac voltage is null with switch ON and fuses controlled as correct (following SDCCU_04_EN Service Procedure), then the transformer is out of order. ○ The Power Supply PCB103 cannot be repaired. ○ Replace this PCB following "Replacing the PCB103 Board" Service Procedure.	SDCCU_04_EN SDCCU_10_EN	
11	○ Plug back J26.		
12	CHECK 12VDC		
13	○ Using a voltmeter on VDC range, check voltage on the **+12V** terminal J25 located below the transformer. ○ Valid range is **12.5Vdc** to **13.8Vdc**. 		Voltmeter
14	○ If 12Vdc voltage is null with switch ON and fuses controlled as correct following "Checking/replacing DCCU fuses" Service Procedure, then the PCB103 Board is damaged. ○ Replace this PCB following "Replacing the PCB103 Board" Service Procedure.	SDCCU_04_EN SDCCU_10_EN	
15	REASSEMBLE		
16	○ Close the transparent DCCU face plate.		
17	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
End of Service Procedure			

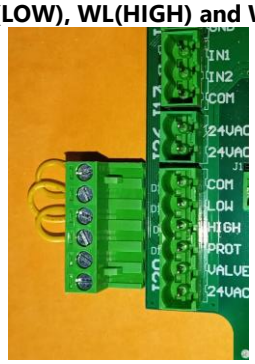
3.4 SDCCU_04_EN: Checking/Replacing the DCCU Fuses

Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to check and replace DCCU fuses.			procedure **SDCCU_04_EN**
			Revision **01**
Tools & consumables required:			Time:
- Ohmmeter			0:15
Parts required		QTY	Codes
- Glass fuse 5x20mm 160mA Slow Blow		1	-FS5x20-160mA Slow
Steps		Cross Ref.	Tool, Part
1	○ Follow "Shut down the Unit" Service Procedure.	SDCCU_01_EN	
2	**WARNING! ELECTRIC SHOCK HAZARD!** Make sure every electrical energy sources have been cut off before continuing		
3	○ Open the DCCU face plate. 		Screwdriver
4	○ Remove the power fuses F1 and F2 close to the mains connector J3 (**160mA slow blow**). 		
5	○ Using the Ohm meter, check fuse continuity and sizing. ○ Replace fuse by same size and up to **160mA Slow Blow** if fuse is blown.		Ohm meter F5x20-160mA
6	○ Follow "Powering up the Unit" Service Procedure.	SDCCU_02_EN	
End of Service Procedure			

3.5 SDCCU_06_EN: Checking Level Sensor Inputs

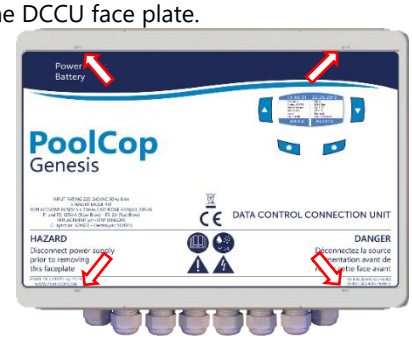
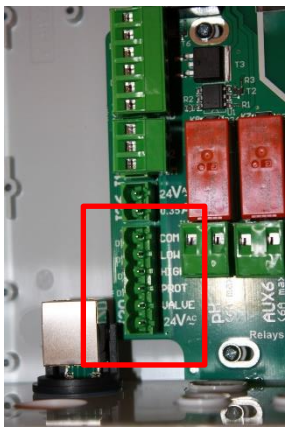
Servicing the Data Control Connection Unit DCCU			Support : L3
This Service Procedure details steps to check the level sensor inputs			procedure **SDCCU_06_EN**
			Revision **01**
Tools & consumables required:			Time:
- Screwdrivers			0:30
Parts required		QTY	Codes
- 0.5mm^2, 10cm length wire		3	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop menu MENU>WATER_AND_TREATMENT> WATER_LEVEL, check that water control is installed. ○ If mode is set to AUTO or REDUCE, set it to REFILL.		
3	○ Using PoolCop MENU>MANUAL_CONTROL>PUMP, stop the pump. ○ Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed.		
4	○ In the technical room, close the manual valve on refilling water network.		
5	○ Open the DCCU face plate. 		Screwdriver
6	○ Unplug the terminal from J20. ○ Disconnect the cables on **WL(PROT), WL(LOW), WL(HIGH)** and **WL(COM)** terminal. Make sure you will be able to reconnect these cables in the same order. 		

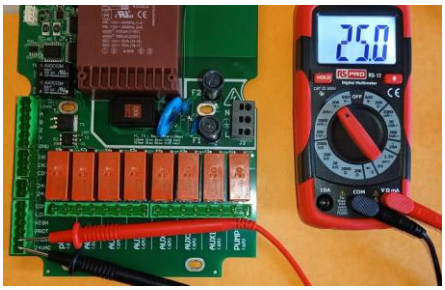
7	CHECK		
8	○ Using the PoolCop menu MENU>MANUAL_CONTROL >ADJUST LEVEL, screen should then display 'Checking level in progress Action running'. ○ Return to the main screen pressing QUIT 2 times. ○ Once the level is updated (approx. 40 seconds), level is indicated.		
9	○ If level is "**Faulty**", then the Power Supply PCB103 need to be replaced. ○ Follow "Replacing the PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	
10	○ Otherwise, level should be "**Low**" with 3 vertical blinking arrows confirming that the refill is on-going.		
11	○ Using a 0.5mm^2 wire, establish a connection between **WL(COM)** and **WL(LOW)**.  ○ Plug the connector into J20 terminal.		
12	○ On PoolCop main menu, level should appear "**Normal**" within 1 minute and 3 vertical blinking arrows should confirm the refill is still on-going.		
13	○ If level remains "**Low**" or becomes "**Faulty**" after 1 minute, then the Power Supply PCB103 need to be replaced. ○ Follow "Replacing the PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	
14	○ Unplug the terminal from J20. ○ Using 2x0.5mm^2 wire, establish a connection between **WL(COM), WL(LOW)** and **WL(HIGH).**  ○ Plug the connector into J20 terminal.		

15	○ On PoolCop main menu, level should appears "**High**" within 1 minute. The 3 vertical arrows should disappear, refill should stop.		
16	○ If level remains "**Low**", "**Normal**" or become "**Faulty**" after 1 minute, then the Power Supply PCB103 need to be replaced. ○ Follow "Replacing the PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	
17	○ Unplug the terminal from J20. ○ Using 3x0.5mm2 wire, establish a connection between **WL(COM), WL(LOW), WL(HIGH) and WL(PROT).**  ○ Plug the connector into J20 terminal.		
18	○ On PoolCop main menu, if the 3 vertical arrows have disappeared, go to PoolCop menu MENU>MANUAL_CONTROL> ADJUST LEVEL, ask for a pool refill, screen should then display 'Checking level in progress Action running'. ○ On PoolCop main menu level should appears "**V_High**" within 1 minute.		
19	○ If level remains "**Low**", "**Normal**", "**High**"" or become "**Faulty**" after 1 minute, then the Power Supply PCB103 need to be replaced. ○ Follow "Replacing the PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	
20	REASSEMBLE		
21	○ On PoolCop main menu, if the 3 blinking arrow are still present, then go to MENU>MANUAL_CONTROL>STOP_REFILL, validate, screen should then display 'Refill stopped'.		
22	○ Unplug connector from J20. ○ Disconnect the temporary wires from the water level connector.		
23	○ Reconnect the wires from the water level sensor wires to their respective pins. ○ Plug back connector into J20 terminal.		
24	○ Close the transparent DCCU face plate.		
25	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
26	○ Restore water level settings if they were changed when starting this procedure.		
27	○ Re Open the manual valve on the fresh water network.		
28	○ If needed, Open the valve to the pool closed in step 2.		

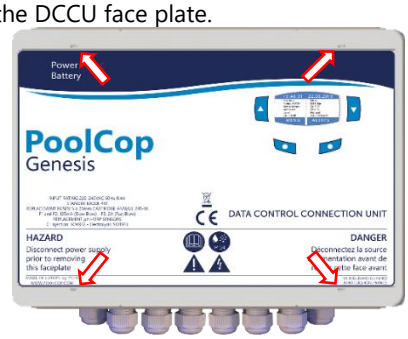
29	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

3.6 SDCCU_07_EN: Checking Solenoid Valve Output

Servicing the Data Control Connection Unit DCCU			Support : L3
This Service Procedure details steps to check the output to water refill solenoid valve.			procedure **SDCCU_07_EN**
			Revision **01**
Tools & consumables required:			Time:
- Voltmeter - Screwdriver			0:15
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop menu MENU>WATER_AND_TREATMENT> WATER_LEVEL, check that water control is installed. ○ If mode is set to READ or REDUCE, set it to REFILL.		
3	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed.		
4	○ In the technical room, close the manual valve on refilling water network.		
5	○ Open the DCCU face plate. 		Screwdriver
6	○ Unplug the Water level connector from J20. 		
7	CHECK		
8	○ Using the PoolCop menu MENU>MANUAL_CONTROL>ADJUST LEVEL, screen should then display 'Checking level in progress Action running'. ○ Return to the main screen pressing QUIT 2 times. ○ Once the level is updated (approx. 40 seconds), level is indicated.		

9	○ If level is "**Faulty**", then the Power Supply PCB103 need to be replaced. ○ Follow "Replacing the PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	
10	○ Otherwise, level should be "**Low**" with 3 vertical blinking arrows confirming that the refill is on-going.		
11	○ Using the voltmeter on VAC range, check for 24VAC voltage on the **VALVE 24VAC**.  ○ If no voltage or voltage is lower than **16VAC**, then the Power Supply PCB103 need to be replaced. Follow "Replacing the PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	Voltmeter
12	○ Plug back the connector into J20. ○ Using the voltmeter on VAC range, check for 24VAC voltage on the **VALVE 24VAC**. ○ If no voltage or voltage is lower than **16VAC**, the solenoid, or the wiring to the solenoid need to be checked/replaced.		
13	○ On PoolCop main menu, if the 3 blinking arrow are still present, then go to MENU>MANUAL_CONTROL>STOP_REFILL, validate, screen should then display 'Refill stopped'.		
14	○ On PoolCop main menu check for no vertical blinking arrows.		
15	○ Using the voltmeter on VAC range, check for no voltage on the **VALVE 24VAC**.terminals. ○ If voltage is **above 1VAC**, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	Voltmeter
16	REASSEMBLE		
17	○ Plug back the water level connector to the terminal J20.		
18	○ Close the transparent DCCU face plate.		
19	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
20	○ Reopen the manual valve on the fresh water network.		
21	○ If needed, Open the valve to the pool closed in step 2.		
22	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

3.7 SDCCU_08_FR: Checking Pump and Aux Relays

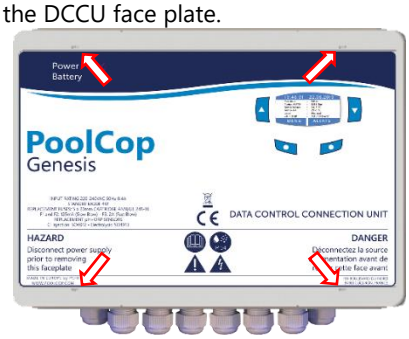
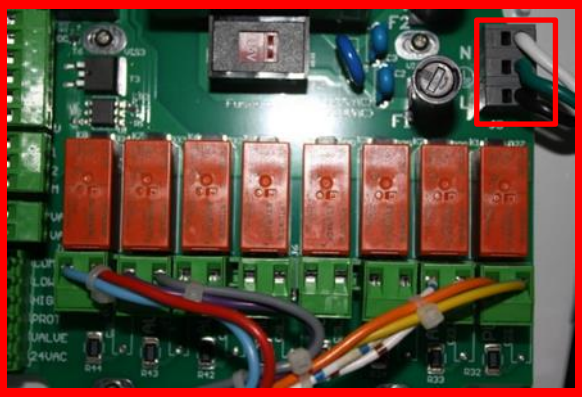
Servicing the Data Control Connection Unit DCCU			Support : L3
This Service Procedure details steps to check pump and aux relays. Note: Relays are rated for 6A. External circuitry must provide a protection according to this rating.		procedure	**SDCCU_08_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Ohm meter - Screwdriver			0:15
Parts required	QTY		Codes
-	-		-
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. ○ Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed. ○ Using PoolCop MENU>CONFIGURATION>FILTER_DATA, set the "Waste Valve" to **NO.** ○ Using PoolCop MENU>MANUAL CONTROL>AUXILIARIES, stop all running auxiliaries, if any.			
3 ○ Disconnect power to pump and auxiliaries and make sure no external electrical sources may energize them.			
4 **WARNING! ELECTRIC SHOCK HAZARD!** Make sure every energy source has been cut off before continuing			
5 ○ Open the DCCU face plate. 			Screwdriver
6 CHECK PUMP			
7 ○ Using the PoolCop menu MENU>CONFIGURATION> PUMP_DATA, configure pump as "mono speed" pump. If pump is multi speed, note the selected speed for 24/24, cycle1, cycle2 and Backwash.			
8 ○ Unplug the connector on **PUMP**. 			

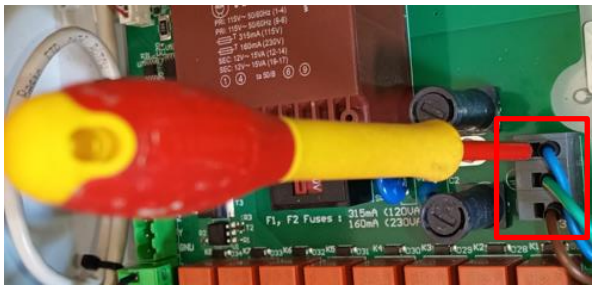
9	○ Using the Ohmmeter check if there is no continuity between the two **PUMP pins**. ○ If the continuity is proven, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power supply PCB103 Board" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter
10	○ Using the PoolCop menu MENU>MANUAL_CONTROL> PUMP, **start the pump**.		
11	○ Using the Ohmmeter check if there is continuity between the two **PUMP pins**. ○ If no continuity is detected, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter
12	○ Using the PoolCop menu MENU>MANUAL_CONTROL> PUMP, **stop the pump**.		
13	○ Plug back the connector on **PUMP**.		
14	CHECK AUX1 to AUX5		
15	○ Disconnect the connector on **AUXn**. ○ 		
16	○ Using the Ohmmeter check if there is no continuity between **AUXn pins**. ○ If the continuity is proven, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter
17	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUXn to ON**. ○ Note1: if **AUxn** is "Available", configure it to "Garden 1" for the test. ○ Note2: if **AUX5** is reserved for "Waste", go in MENU> CONFIGURATION>FILTER DATA and set "Waste Valve" to NO. ○ Note3: if **AUX5** is reserved for "Clean valve", go in MENU> CONFIGURATION>FILTER DATA and set "Clean Valve" to NONE.		
18	○ Using the Ohmmeter check if there is continuity between **AUXn pins**. ○ If no continuity is detected,, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter
19	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUXn to OFF**.		
20	○ Plug back the connector on **AUXn**.		
21	○ Repeat from step 15 for all Auxiliary channels up to Aux5.		

22	○ Using the PoolCop menu MENU>CONFIGURATION> PUMP_DATA, restore the pump configuration. ○ Using the PoolCop menu MENU>CONFIGURATION> FILTER_DATA, restore Aux5 setting if changed.		
23	CHECK AUX6		
24	○ Unplug the connector on **AUX6**. 		
25	○ Using the Ohmmeter check if there is no continuity between **AUX6 pins**. ○ If the continuity is proven, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter
26	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUX6 to ON**. ○ Note: If **AUX6** is used has a mean to control disinfection, then go to MENU> WATER_AND_TREATMENT> ORP_CONTROL and **ask for priming and stay in this menu**.		
27	○ Using the Ohmmeter check if there is continuity between **AUX6 pins**. ○ If no continuity is detected,, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter
28	○ Using the PoolCop menu MENU>MANUAL_CONTROL> AUXILIARIES, set **AUX6 to OFF**. If AUX6 is used has a mean to control disinfection, then leave the MENU> WATER_AND_TREATMENT> ORP_CONTROL.		
29	○ Plug back the connector on **AUX6**.		
30	CHECK AUX7-pH		
31	○ Unplug the connector on **pH.** 		
32	○ Using the Ohmmeter check if there is no continuity between **pH pins**. ○ If the continuity is proven, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter

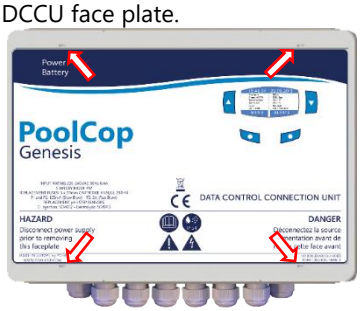
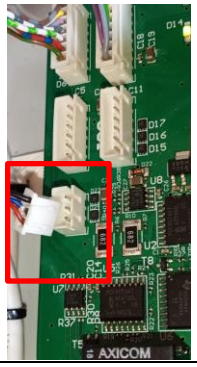
33	○ Using the PoolCop menu MENU>WATER_AND_TREATMENT> PH_CONTROL configure pH control installed (if not), **ask for priming and stay in this menu**.		
34	○ Using the Ohmmeter check if there is continuity between **pH pins.** ○ If no continuity is detected,, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	Ohm meter
35	○ Using the PoolCop menu MENU> WATER_AND_TREATMENT> PH_CONTROL restore pH configuration if not installed, or **leave the menu**.		
36	○ Plug back the connector on **pH.**		
37	RESASSEMBLE		
38	○ Close the transparent DCCU face plate.		
39	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
40	○ If needed, Open the valve to the pool closed in step 2.		
41	○ Enter and leave PoolCop MENU>TIMER_FILTRATION. Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

3.8 SDCCU_10_EN: Replacing the Power Supply PCB103 Board

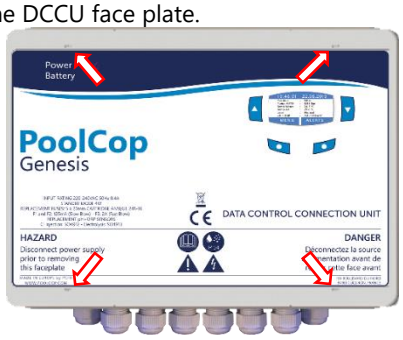
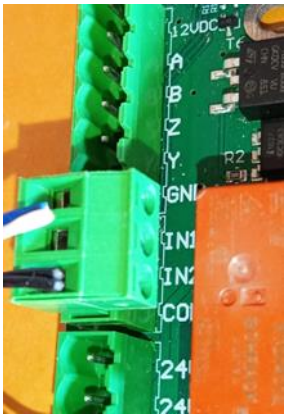
Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to changes the PCB103 Board.			Procedure: **SDCCU_10_EN**
			Revision: **01**
Tools & consumables required:			Time:
- Screwdriver - Voltmeter			0:30
Parts required		QTY	Codes
- Kit Power Supply PCB103 EU -		- 1	CF1151
Steps		Cross Ref.	Tool, Part
1	DISSASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SDCCU_01_EN	
3	○ Open the DCCU face plate. 		Screwdriver
4	**WARNING! ELECTRIC SHOCK HAZARD!** Make sure power as been removed by checking that there is no voltage at mains terminal J3 		
5	○ Make sure you will be able to restore correct wiring, write some note or take a picture of the DCCU before unwiring.		
6	○ Unplug all connectors.		

7	○ Use a flat screwdriver to loose wires from mains terminal. 		Screwdriver
8	○ Loose the 6 screws which maintain the PCB into the enclosure ○ Remove PCB103 Board.		
9	RESSASSEMBLE		
10	○ Put the new PCB in place.		CF1151
11	○ Secure the PCB with the 6 screws. ○		Screwdriver
12	○ Reconnect the mains wires, using a screwdriver may help. ○ Pull on the wires to verify that they are properly maintained.		Screwdriver
13	○ Plug back all the connectors.		
14	**CAUTION:** Make sure to mix Pump and Aux connectors.		
15	○ Follow "Powering Up the Unit" Service Procedure.	SDCCU_02_EN	
16	○ If needed, check that the PCB103 is now working using MENU>MANUAL_CONTROL>PUMP or MENU> MANUAL_CONTROL>AUXILIARIES.		
End of Service Procedure			

3.9 SDCCU_11_EN: Replacing Air Temperature Sensor

Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to changes the air temperature sensor.		Procedure	**SDCCU_11_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver -			0:10
Parts required		QTY	Codes
- Air Temperature Sensor UL		- 1	- CF1100.23
Steps		Cross Ref.	Tool, Part
1	DISSASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SDCCU_01_EN	
3	○ Open the DCCU face plate. 		Screwdriver
4	○ Unplug the temperature sensor from J27. Be careful to not pull on the cable but on the connector itself. 		
5	○ Extract the cable from the enclosure and dispose the damaged sensor.		
6	REASSASSEMBLE		
7	○ Route the sensor cable inside the enclosure using a gland (add a new compression gland if required).		CF1100.23
8	**CAUTION:** Do not cramp the sensor cable with power cables. Leave 15cm distance.		
9	○ Connect the new sensor ○ Make sure you respect the polarizing plug to not damage it.		
10	○ Follow “Powering up the Unit” Service Procedure.	SDCCU_02_EN	
11	○ Check Air temperature indication on main screen		
End of Service Procedure			

3.10 SDCCU_13_EN: Checking Inputs

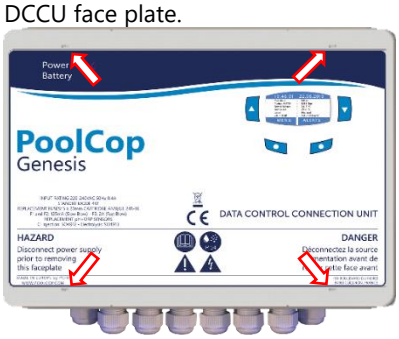
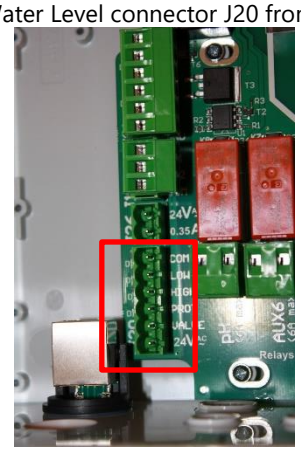
Servicing the Data Control Connection Unit DCCU			Support : L3
This Service Procedure details steps to check the multipurpose inputs		Procedure	**SDCCU_13_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver			0:30
Parts required	QTY		Codes
- 0.25mm2, 10cm length wire	- 3		-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, Set Input1 and Input 2 as **not used**. ○ Note current configuration as you will have to restore it at the end of this Service Procedure.		
3	○ Open the DCCU face plate. 		Screwdriver
4	○ Disconnect the cables on **IN1, IN2 and GND** from terminal J17. Make sure you will be able to reconnect these cables in the same order. 		Screwdriver
5	CHECK		
6	○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, Set Input1 as "**Disinf consumables**", "**Action when closed**", **"Alert=YES".** ○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, Set Input2 as "**pH consumables**", "**Action when closed**", **"Alert=YES".**. ○ Back to main menu, ensure they are no alerts, and clear all present alerts if any.		

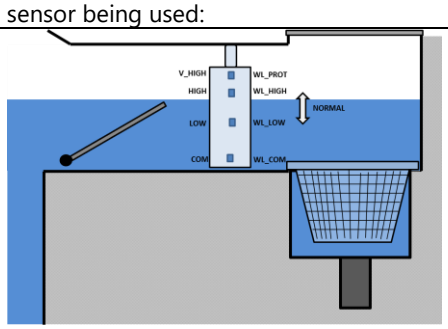
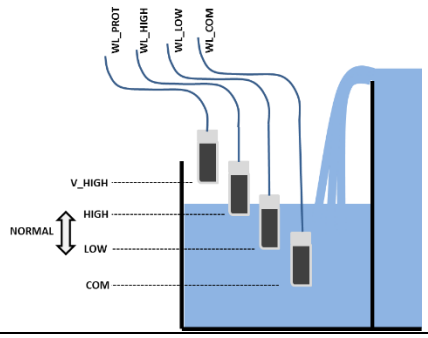
7	○ There should not remain or appear alert linked to pH or Disinfection consumables. ○ If there is an alert, then the Power Supply PCB103 needs to be replaced. Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	
8	○ Using a 0.5mm2 wire, establish a connection between **IN1 and GND**. 		Screwdriver
9	○ On PoolCop main menu, the alert '**WARN: CONSUMABLE. Check pH consumable**' should appear. ○ If alert doesn't appear, then the Power Supply PCB103 needs to be replaced. ○ Follow "Replacing the Power Supply PCB103" Service Procedure and stop this procedure.	SDCCU_10_EN	
10	○ The alert '**WARN: CONSUMABLE. Check disinfection consumable**' should **not** appear. ○ If alert does appear, then the Power Supply PCB103 needs to be replaced. ○ Follow "Replacing the Power Supply PCB103 " Service Procedure and stop this procedure.	SDCCU_10_EN	
11	○ Disconnect the connection between **IN1 and GND**. ○ Using 2x0.5mm2 wire, establish a connection between **IN2 and GND**. 		Screwdriver
12	○ On PoolCop main menu, the alert '**WARN: CONSUMABLE. Check Disinfection consumable**' should appear. ○ If alert doesn't appear, then the Power Supply PCB103 needs to be replaced. ○ Follow "Replacing the Power Supply PCB103 " Service Procedure and stop this procedure.	SDCCU_10_EN	

13	○ The alert '**WARN: CONSUMABLE. Check pH consumable**' should **not** appear. ○ If alert does appear, then the Power Supply PCB103 needs to be replaced ○ Follow "Replacing the Power Supply PCB103 " Service Procedure and stop this procedure.	SDCCU_10_EN	
14	REASSEMBLE		
15	○ Reconnect the inputs wires to their respective terminal.		Screwdriver
16	○ Close the transparent DCCU face plate.		
17	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
18	○ Using PoolCop menu MENU>CONFIGURATION>INPUTS, restore inputs configuration.		
19	○ Enter and leave PoolCop MENU>TIMER FILTRATION. Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

3.11 SDCCU_14_EN: Replacing Water Level Sensor

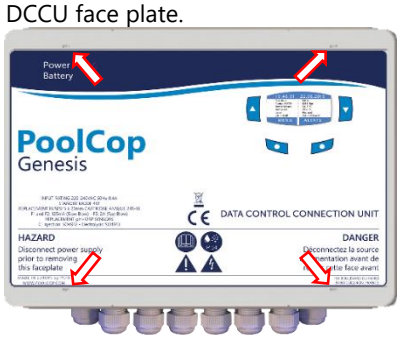
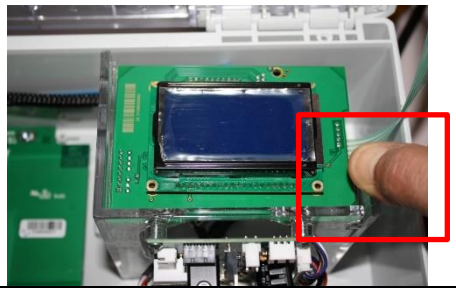
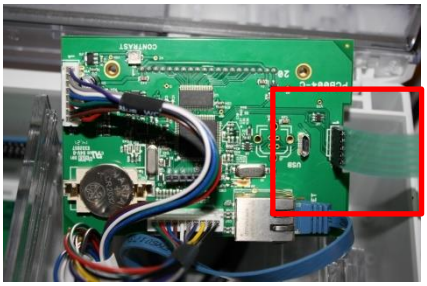
Servicing the Data Control Connection Unit DCCU			Support : L2
This procedure describes how to replace/connect the water level sensor		Procedure	**SDCCU_14_EN**
		Revision	**01**
Required Tools:		Time:	
- Screw driver		0:10	
Required Parts	QTE	Codes	
- Water Level Sensor (Cable 20m) Or - Buffer Tank Level Sensor	- 1 - 4	- NI2010.01 - NI4010	

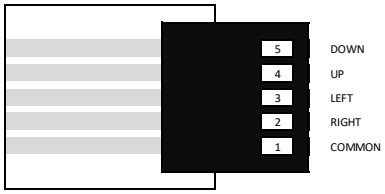
Steps		Reference.	Tool, part
1	○ Stop the pump (MENU>MANUAL_CONTROL>PUMP).		
2	○ Follow "Shut down the Unit" Service Procedure.	SDCCU_01_EN	
3	○ Open the DCCU face plate. 		Screwdriver
4	○ Unplug the Water Level connector J20 from the DCCU. 		
5	○ Loose wires from COM, LOW, HIGH, PROT ○ Extract the cable from the compression gland.		Screwdriver
6	○ Place the new sensor starting from the water end (water side)		
7	○ Route the new sensor cable end through a compression gland into the DCCU. ○ Limit the cable length inside the DCCU to less than 20cm. Cut the cable if required.		

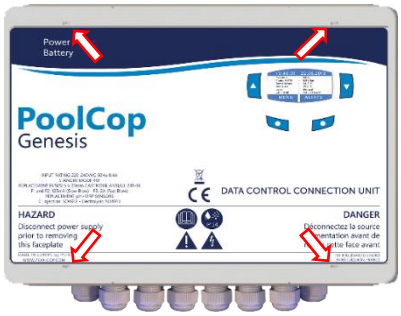
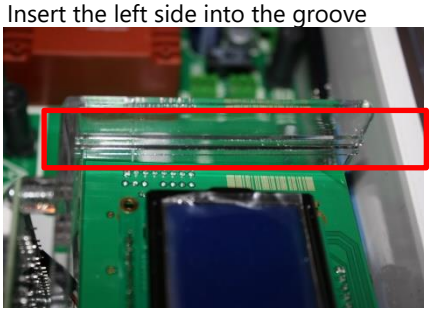
8	○ Connect wires to the connector.			Screwdriver
	8.1	Make sure to connect wires in the right order depending on the sensor being used:		
	8.2		○ WL(COM) is Yellow ○ WL(LOW) is Blue ○ WL(HIGH) is Red ○ WL(PROT) is Green		NI2010
	8.3		○ WL(COM) is Blue ○ WL(LOW) is Blue ○ WL(HIGH) is Blue ○ WL(PROT) is Blue		NI4010
9	○ Plug the connector into the terminal J20.			
10	○ Follow “Powering up the Unit” Service Procedure.		SDCCU_02_EN	
11	○ When restarting, a level check will be automatically performed. ○ Check reading is conform to real water level.			
12	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.			
End of Procedure				

3.12 SDCCU_15_EN: Checking/Replacing The Keyboard

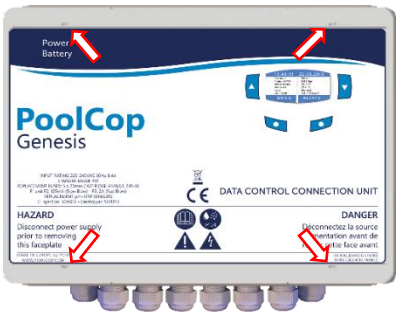
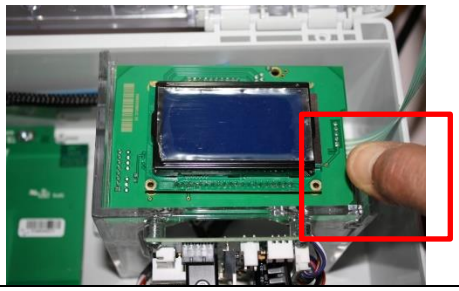
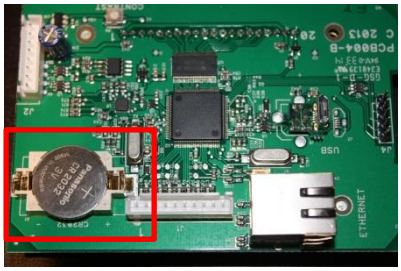
Servicing the Data Control Connection Unit DCCU			Support : L3
This Service Procedure details steps to check and replace the keyboard. This keyboard is glued on the PoolCop face plate and cannot be separate from the it. In case of damage, keyboard and fae plate must be replaced together.		Procedure	**SDCCU_15_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - Ohm meter - 2.54mm Male/Male expander			0:30
Parts required	QTY		Codes
- DCCU Face Plate Genesis			- GN3201

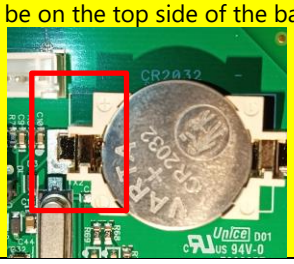
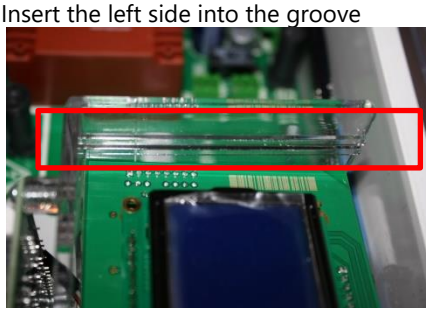
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Follow “Shut down the Unit” Service Procedure.	SDCCU_01_EN	
3	○ Open the DCCU face plate. 		
4	○ Extract the PCB by exerting outward side pressure on the support. 		
5	○ The keyboard is connected to the PCB004 Board with a flat cable on the right side. ○ Unplug this flat cable. 		

6	○ DIAGNOSE		
7	○ Connect the 2.54mm M/M expander to the keyboard connector. 		2.54mm M/M expander
8	 ○ With the Ohm meter and without acting on any keypad button check that there is no continuity between any of the 5 terminations. Check every possible combination. ○ If the continuity is proven in one combination, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
9	○ Place the Ohm meter between **COMMON** and **RIGHT**. ○ Return the cover and press the RIGHT down button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
10	○ Place the Ohm meter between **COMMON** and **LEFT.** ○ Return the cover and press the LEFT down button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
11	○ Place the Ohm meter between **COMMON** and **UP**. ○ Return the cover and press the UP arrow button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
12	○ Place the Ohm meter between **COMMON** and **DOWN**. ○ Return the cover and press the DOWN arrow button. ○ Check if continuity appears when press and disappears when release. ○ If not correct, then the Cover needs to be replaced; jump to step 14 REPLACE.		Ohm meter
13	○ Jump to step 17 REASSEMBLE		

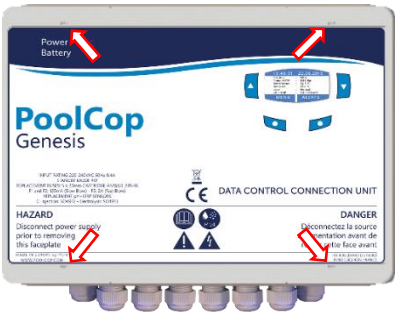
14	REPLACE		
15	○ Using a flat screwdriver, release the spindles (if not already done) 		Screwdriver
16	○ Replace the DCCU Face Plate.		GN3201
17	REASSEMBLE		
18	○ Plug back the flat cable to the PCB micro Board. ○ Be sure to not twist the cable, it must be flat from the cover to the processor Board.		
19	○ Put the PCB micro board back in place: ○ Insert the left side into the groove  ○ Push back the right side into the groove. Use your finger to help. You will hear a "clap" noise when the board in place.		
20	**CAUTION:** Make sure the board is correctly place in its holder before continuing.		
21	○ Follow "Powering up the Unit" Service Procedure.	SDCCU_02_EN	

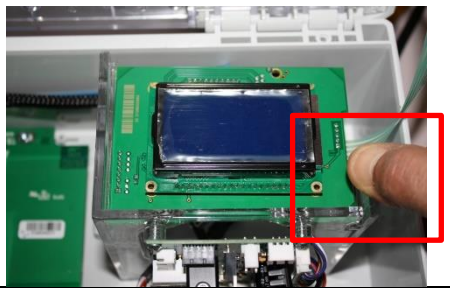
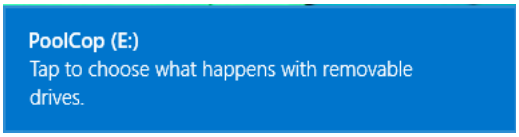
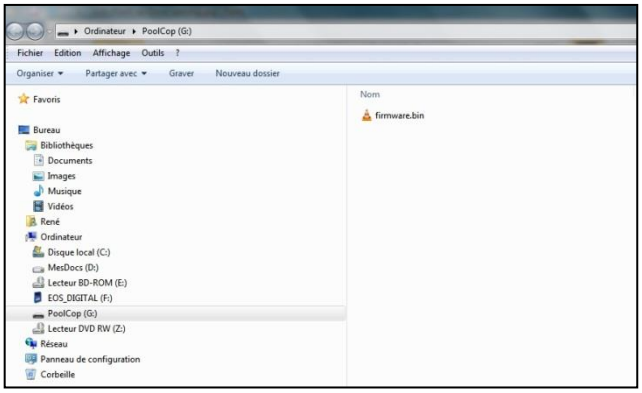
3.13 SDCDU_16_EN: Checking/Replacing the 3.0V Coin Cell

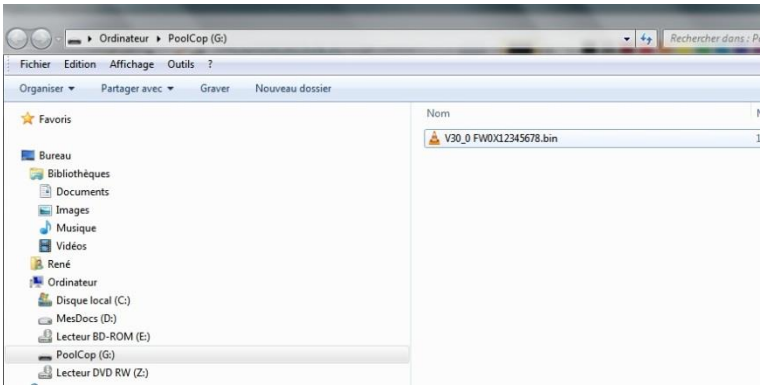
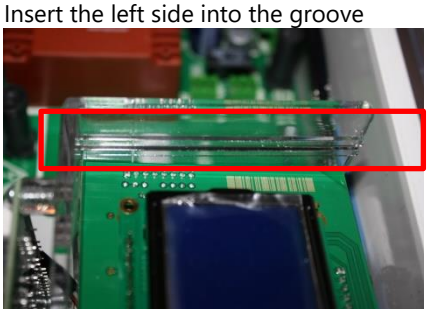
Servicing the Data Control Connection Unit DCCU		Support : L3	
This Service Procedure details steps to Check and replace the 3.0V coin cell. This battery is used for PoolCop real time clock.		Procedure	**SDCCU_16_EN**
		Revision	**01**
Tools & consumables required:		Time:	
- screwdriver - 5mm spanner - Voltmeter		0:20	
Parts required	QTY	Codes	
- 3V Coin cell CR2032 type	1	-	
Steps	Cross Ref.	Tool, Part	
1 DISASSEMBLE			
2 ○ Follow "Shut down the Unit" Service Procedure.	SDCCU_01_EN		
3 ○ Open the DCCU face plate. 			
4 ○ Extract the PCB micro by pulling the support on the right to release the board 			
5 ○ The cell battery is located to the PCB004 Board. 			

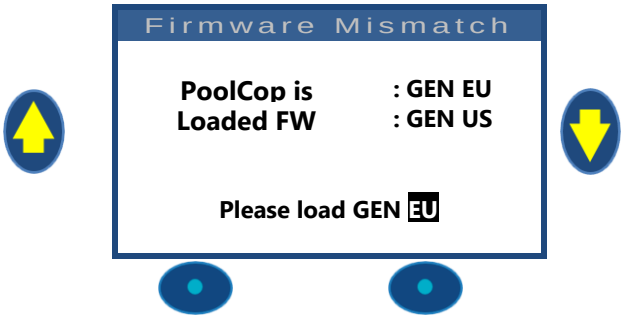
6	DIAGNOSE		
7	○ Extract the battery from its holder. ○ Using the Voltmeter, check the battery voltage. ○ If voltage is above 2.9V, no need to replace the cell.		Voltmeter Cell CR2032
8	REASSEMBLE		
9	○ Put the battery back.		
10	**CAUTION:** Make sure to place the battery correctly, the retaining claw on the left side must be on the top side of the battery 		
11	○ Put the PCB micro board back in place: ○ Insert the left side into the groove  ○ Push back the right side into the groove. Use your finger to help. You will hear a "clap" noise when the board in place.		
12	**CAUTION:** Make sure the board is correctly place in its holder before continuing.		
13	○ Follow "Powering up the Unit" Service Procedure.	SDCCU_02_EN	
End of Service Procedure			

3.14 SDCCU_17_EN: Replacing the Firmware via USB

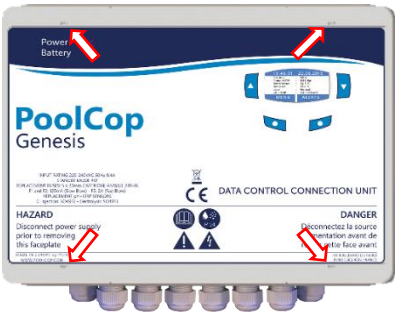
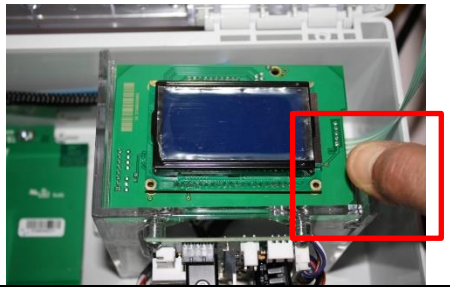
Servicing the Data Control Connection Unit DCCU			Support : L3
This Service Procedure details steps to replace the firmware stored into flash memory using an USB cable		Procedure	**SDCCU_17_EN**
		Revision	**01**
Tools & consumables required:			Time:
- USB-micro USB cable - Laptop with operating system Windows7 or later - Firmware **bin** file			0:10
Parts required		QTY	Codes
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Take note of all settings. You will need to check them after firmware upgrade. ○ Check the firmware version in MENU>CONFIGURATION> FACTORY_SETTINGS>FW VERSION. ○ Pay attention of the model/region: ▪ Model is **GEN** ▪ Region is either **EU** either **US**		
3	**CAUTION:** Make sure to use the corrects model/region firmware for your PoolCop. Loading a firmware with different Model or Region **will lock the PoolCop.**		
4	○ Shut down PoolCop using the switch on the left side of the Control Connection Unit.		
5	○ Open the DCCU face plate. 		

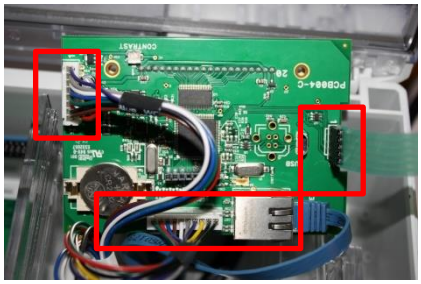
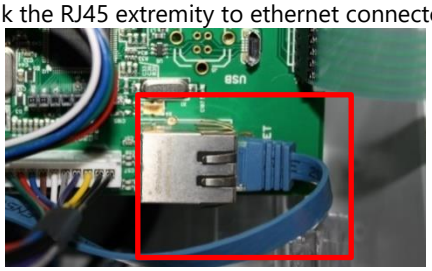
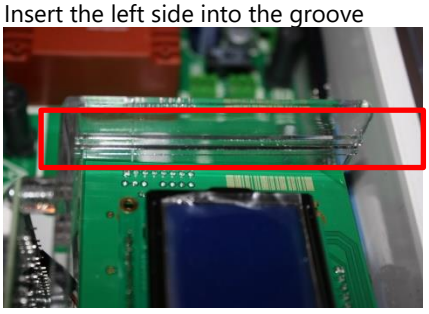
6	REPLACING the Firmware		
7	○ Extract the PCB micro by pulling the support on the right to release the board 		
8	○ Connect the micro USB cable on the CPU board, and the other end to your computer. 		USB cable
9	○ On the computer screen, a new drive "PoolCop" will show up:  ○ Choose to view the content with the file explorer ○ **Note:** the drive logical name (**E:** here) may change according to the computer configuration.		Computer
10	○ The "PoolCop" drive contains a single file named "firmware.bin". Delete this file: 		

11	○ Using the file explorer, copy the provided *.bin firmware file into the PoolCop drive: 		*.bin file
12	○ Once the copy is done, eject the drive (as you would for an USB key): 		
13	○ Remove the USB cable from the CPU board and replace the cap.		
14	REASSEMBLE		
15	○ Put the PCB micro board back in place: ○ Insert the left side into the groove  ○ Push back the right side into the groove. Use your finger to help. You will hear a “clap” noise when the board in place.		
16	**CAUTION:** Make sure the board is correctly place in its holder before continuing.		
17	○ Close transparent DCCU face plate.		
18	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
19	○ Power up PoolCop using the switch on the left side of the Control Connection Unit.		

20	○ Check the firmware version at start up, a welcome message will be displayed as well as the firmware version. ○ However if the following error message is displayed, the loaded firmware is not correct.  ○ **Please follow instructions and load back right firmware (in this case load GEN.EU)** ○ PoolCop will remain inactive until a compatible firmware version is loaded.		
21	○ Review the settings.		
End of Service Procedure			

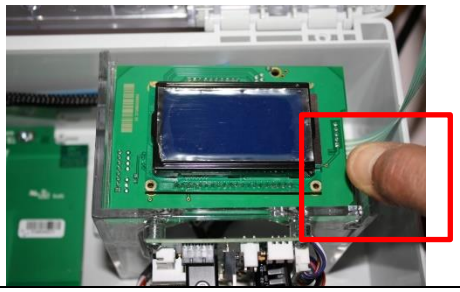
3.15 SDCCU_18_EN: Replacing the PCB004 Board or LCD Screen

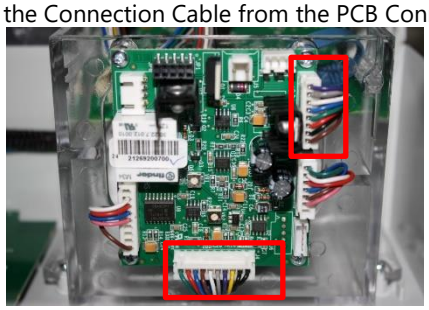
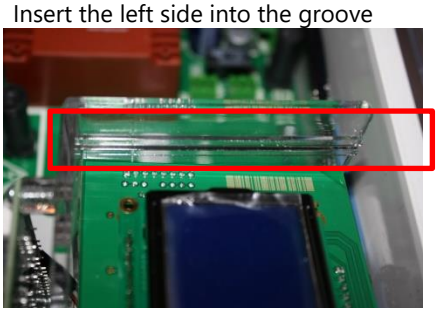
Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to check and replace the PCB004 Board or the LCD screen. LCD screen is soldered on the micro board and cannot be separate.		Procedure	**SDCCU_18_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver			0:20
Parts required	QTY		Codes
- PCB micro with LCD Screen PCB004	1		- CF1220.01
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 **NOTE :** Each PoolCop is identified on the Web server with its own MAC address ; This Address is specific with each PCB004 board. In order to not loose historical data, **DO not create a new PoolCop on the server!** Get teh MAC address provided with the PCB004 board and contact PCFR After sales support which will reaffet the MAC address for you.			
3 ○ Take note of every setting entering the different menus. You will need to restore settings after changing the PCB004. ○ Note: If PoolCop is connect to the network, it will possible to restore settings from Web site.			
4 ○ Follow “Shut down the Unit” Service Procedure.	SDCCU_01_EN		
5 ○ Open the DCCU face plate. 			
6 ○ Extract the PCB micro board by pulling the support on the right to release the board 			

7	○ Unplug the keyboard flat cable. ○ Unplug the 2 end of connection cable. ○ Unplug the Ethernet connection 		
8	○ Remove the PCB micro board.		
9	REASSEMBLE		
10	○ Prepare the PCB micro board in its support so that the connector for the flat ribbon is on the right side.		- CF1220.01
11	○ Plug back the flat keyboard cable. Be sure to not twist the cable, it must be flat from the cover to the processor Board.  ○ Plug back the 2 connections cables to the Micro Board.		
12	○ Plug back the RJ45 extremity to ethernet connector 		
13	○ Put the PCB micro board back in place: ○ Insert the left side into the groove  ○ Push back the right side into the groove. Use your finger to help. You will hear a “clap” noise when the board in place.		
14	**CAUTION:** Make sure the board is correctly place in its holder before continuing.		

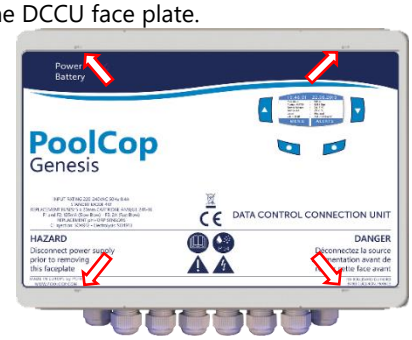
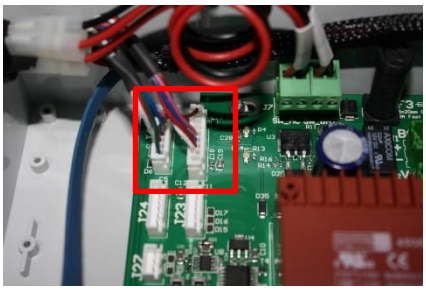
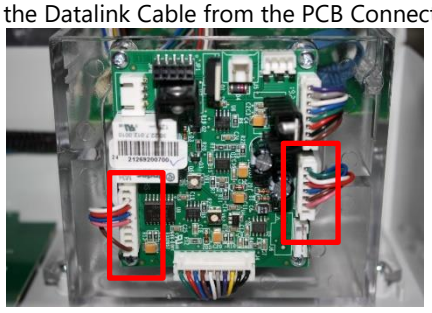
15	○ Follow "Powering up the Unit" Service Procedure.	SDCCU_02_EN	
16	○ Restore parameters as they were before changing the firmware. ○ This can be done via Web Site		
17	○ Proceed to pH calibration if pH control is installed. Follow "Calibrating/replacing pH/ORP sensor".	SDCCU__21_EN	
End of Service Procedure			

3.16 SDCCU__19_EN: Replacing the Connection Cable

Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to check and replace the connection cable. This cable connects the PCB micro board to the PCB Connection SE Data.		Procedure	**SDCCU__19_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver			0:10
Parts required	QTY		Codes
- Connection Cable -	1		- GN3103.01
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Follow “Shut down the Unit” Service Procedure.	SDCCU_01_EN		
3 ○ Open the DCCU face plate. 			
4 ○ Extract the PCB micro board by pulling the support on the right to release the board 			
5 ○ Unplug the 2 end of connection cable from the PCB micro. 			

6	○ Unplug the Connection Cable from the PCB Connection SE Data. 		
7	REASSEMBLE		
8	○ Place the new Cable inside the PCB's transparent support. ○ Plug back the short end of the cable end to PCB Connection SE Data. ○ Be sure to respect the polarizing plug.		GN3103.01
9	○ Plug back the long cable end to PCB micro. ○ Be sure to respect the polarizing plug.		
10	○ Put the PCB micro board back in place: ○ Insert the left side into the groove  ○ Push back the right side into the groove. Use your finger to help. You will hear a "clap" noise when the board in place.		
11	**CAUTION:** Make sure the board is correctly place in its holder before tightening the screws		
12	○ Follow "Powering up the Unit" Service Procedure.	SDCCU_02_EN	
End of Service Procedure			

3.17 SDCCU__20_EN: Replacing Datalink Cable

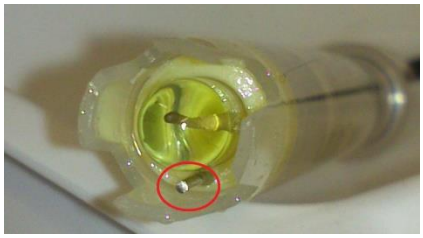
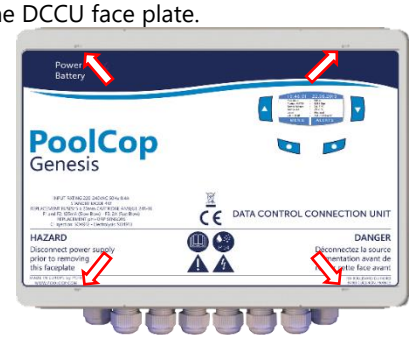
Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to replace the Datalink Cable Genesis. This cable connects the PCB micro to the Power Supply PCB103.		Procedure	**SDCCU__20_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - Collars			0:10
Parts required	QTY		Codes
-Datalink Cable Genesis	1		- GN3102.01
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Follow “Shut down the Unit” Service Procedure.	SDCCU_01_EN		
3 ○ Open the DCCU face plate. 			
4 ○ Unplug the Datalink Cable from the Power Supply PCB103 board. 			
5 ○ Cut the collars cramping Datalink Cable and Ethernet Cable together. 			
6 ○ Unplug the Datalink Cable from the PCB Connection SE Data. 			

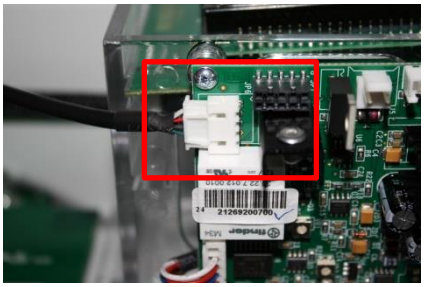
7	REASSEMBLE		
8	○ Plug the new Datalink Cable on the Power Supply PCB103 board.		GN3102.01
9	○ Route the Datalink Cable with Ethernet Cable. ○ Use collars to cramp Cables together.		Collars
10	○ Plug the Datalink Cable to the PCB Connection SE Data.		
11	○ Follow “Powering up the Unit“ Service Procedure.	SDCCU_02_EN	
End of Service Procedure			

3.18 SDCCU__21_EN: Cleaning/Calibrating/Replacing the pH/ORP Sensor

Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to calibrate the pH using a buffer solution, clean or replace the sensor. **Note:** When the sensor is assembled to the PoolCop, it's possible to calibrate the sensor 'on line' using the pool water pH as a reference without extracting the sensor from its holder. **Note**: Probes are sensitive to leakage currents. Always make sure that the pool water is **properly bounded to earth (<20 Ohms)**. The sensitive part of the ORP probe can be contaminated in the presence of metals in water. Always treat the water with **metal fixer before installing** the probe.		Procedure	**SDCCU__21_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver - pH 7.0 buffer solution - pH 4.0 buffer solution - ORP 470mV buffer solution - Cotton bud - Household cleaner			0:15
Parts required	QTY		Codes
- Kit Sensor SE pH+ORP Pt Cable 4m or - Kit Sensor SE pH+ORP Au Cable 4m	- 1 - 1		- SO4912 or - SO4913
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow in the pool or buffer tank when pump is stopped, close the manual valves. ○ Disconnect power to the pump and auxiliaries (booster pump...).			
3 ○ Loosen the pH sensor and remove from its holder. 			

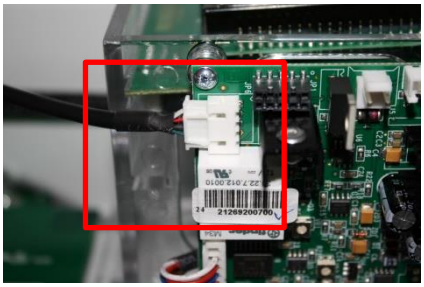
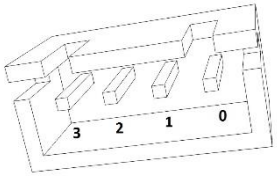
4	**CAUTION:** Proceed progressively and continuously check there is no risk of water projection when loosen. If so, tighten the pH sensor immediately and check step 2.		
5	○ For sensor replacement jump to step 22 REPLACE		
6	CALIBRATE pH		
7	○ If the sensor is new, first rinse it in fresh water for 5 minutes. ○ Put the sensor in pH7 buffer solution and stir for few seconds.		pH7 buffer solution
8	○ Using MENU>MAINTENANCE>pH_CALIBRATION, ask for calibration with pH 7.0. ○ After calibration, PoolCop reads pH automatically. ○ Should the pH be unstable or calibration impossible, proceed to sensor replacement. See step 22 REPLACE.		
9	○ Remove sensor from buffer solution. ○ Rinse with clear water ○ Put the sensor in pH4 buffer solution and stir for few seconds.		pH4 buffer solution
10	○ Using PoolCop MENU>MAINTENANCE>MEASURE PH, ask for pH reading. ○ If the pH is stable and below pH4.5, go to step 36 REASSEMBLE, otherwise follow the cleaning procedure as describe in step 11 CLEANING the pH cell.		
11	CLEANING the pH cell		
12	○ If the pH is unstable or measurement reacts slowly, the cell may be partially clogged. ○ Use the special tool to clean the cell  ○ Carefully apply the tool on the glass cell and perform a few rotations by maintaining the tool between your thumb and forefinger. ○ Repeat calibration procedure from step 6. If cleaning didn't improve measurement, proceed to probe replacement as described in step 22 REPLACE.		Cleaning tool
13	**CAUTION:** Make sure to not damage the metallic rod (pH+ORP sensor) during the cleaning.		

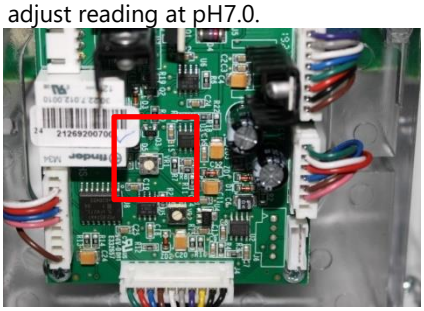
14	CHECKING ORP SENSOR		
15	○ Put the sensor in ORP 470mV buffer solution and stir for few seconds.		ORP 470mV buffer solution
16	**CAUTION** Make sure the power has been removed from the pump so that it cannot start.		
17	○ On the DCCU, when the main screen is displayed, press simultaneously UP and DOWN arrows. This will enters SERVICE MODE. ○ Press UP arrow until the screen display ORP value.		
18	○ Wait for reading stabilization, it could take up to 15minutes.		
19	○ If reading is correct, go to step 36 REASSEMBLE. ○ If cleaning has not already been performed go to step 20 CLEANING sensitive part of ORP. ○ Otherwise replace the sensor as described in step 22 REPLACE.		
20	CLEANING sensitive part of ORP		
21	○ The sensitive part of the ORP sensor (red circle below) is likely to be contaminated by presence of metals in the water. In such cases, the ORP sensor does not react. After completing a water treatment based on metal fixer for the pool, it may be useful to decontaminate the ORP probe if it still does not react within days after the treatment.  ○ Using a cotton bud with a mildly abrasive household cleaner (like Jif cream cleaner), gently rub the metal rod to rid the metal oxides. Rub the best all sides. ○ Then rinse the probe thoroughly with fresh water. ○ Repeat step 14 CHECKING ORP SENSOR		Cotton bud Household cleaner
22	REPLACE		
23	○ Switch OFF the CCU with standby switch.		
24	○ Open the DCCU face plate. 		

<table>
<tr><td>25</td><td>o Unplug the pH/ORP sensor from the PCB Connection SE Data Board
  </td><td></td><td></td></tr>
<tr><td>26</td><td>o Loosen the compression gland to extract the Cable end from the DCCCU.</td><td></td><td></td></tr>
<tr><td>27</td><td>o Insert the new sensor and tighten the compression gland.
o Plug the new pH/ORP sensor to the PCB Connection SE Data Board.
o Be sure to respect the polarizing plug.
o Note: there are 2 reference for sensors:
<table><tr><th>Type of data</th><th>Reference</th></tr><tr><td>pH and ORP for liquid chlorine</td><td>SO4912</td></tr><tr><td>pH and ORP for salt water chlorinators</td><td>SO4913</td></tr></table></td><td></td><td>SO4912
Or
SO4913</td></tr>
<tr><td>28</td><td>o When delivered, the sensor is provided with accessories. Please check the order:
o First should be the nut to secure the sensor.
o Next, the star lock grab ring, the grab ring must be between 9-9.5cm from the sensor tip.
o Next, the compression ring
o Last, the O-ring.
  </td><td></td><td></td></tr>
<tr><td>29</td><td>o Remove the sensor transport cap</td><td></td><td></td></tr>
<tr><td>30</td><td>o Put the sensor into the analysis chamber and secure it with the screw. Make sure to tighten enough in order to avoid leakage.</td><td></td><td></td></tr>
<tr><td>31</td><td>CAUTION:
Do not over-tighten as the electrode is a sensitive device.
Ensure that the cap is sufficiently secure to retain the sensor in place under water pressure.</td><td></td><td></td></tr>
<tr><td>32</td><td>o Close the transparent DCCU face plate.</td><td></td><td></td></tr>
<tr><td>33</td><td>CAUTION:
Be careful to not pinch the ribbon cable when closing the face plate.</td><td></td><td></td></tr>
<tr><td>34</td><td>o Switch ON the CCU with standby switch.</td><td></td><td></td></tr>
<tr><td>35</td><td>o Proceed to sensor calibration, go to step 6 CALIBRATE.</td><td></td><td></td></tr>
</table>

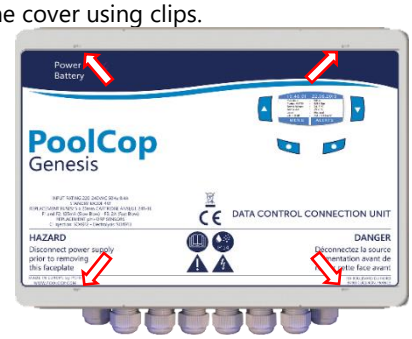
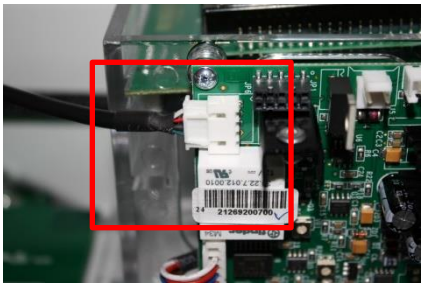
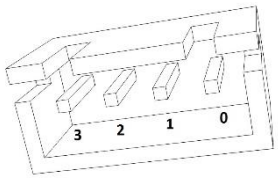
36	REASSEMBLE		
37	○ Put the sensor into the analysis chamber and secure it with the screw. Make sure to tighten enough in order to avoid leakage.		
38	**CAUTION:** Do not over-tighten as the electrode is a sensitive device. Ensure that the cap is sufficiently secure to retain the sensor in place under water pressure.		
39	○ Reconnect power to the pump and auxiliaries. ○ Leave SERVICE MODE by pressing UP and DOWN arrows simultaneously. ○ Start the filtration Pump in PoolCop MENU>MANUAL CONTROL> PUMP. ○ When the pump is primed, check leakage around the sensor. ○ Leave the filtration running for a couple of minutes.		
40	○ Stop the pump. ○ In MENU>MAINTENANCE>MEASURE pH, ask for pH reading ○ Check that pH reading is stable and representative. ○ If not, go back to Trouble Shooting Procedures "Ph measurement is inconsistent " and " pH measurement is stuck"		TWT_01_EN TWT_02_EN
41	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

3.19 SDCCU__22_EN: Checking pH Reading Circuitry

Servicing the Data Control Connection Unit DCCU			Support : L4
This Service Procedure details steps to check pH reading circuitry.		Procedure	**SDCCU__22_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver - Voltmeter - Voltage generator - JST HX3 Connector			0:15
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump.		
3	○ Open the DCCU face plate. 		Screwdriver
4	○ Unplug the pH/ORP sensor from the connection PCB. 		
5	CHECK		
6	○ Short cut pin 1 and pin3 of the pH Board connector. 		

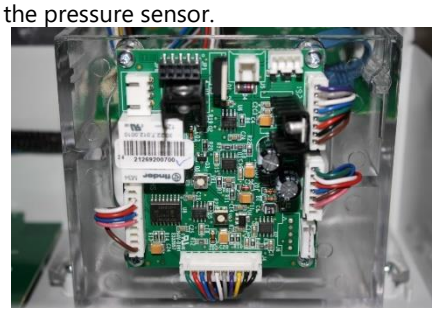
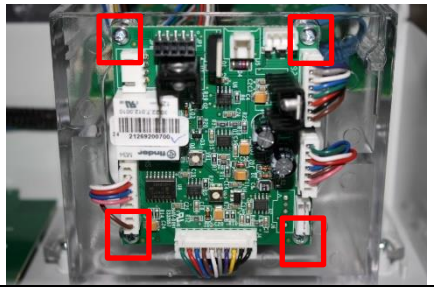
7	○ Using PoolCop MENU>MAINTENANCE, ask for pH reading. ○ If the pH is unstable, follow "Replacing PCB Connection SE Data PCB005 Board" Service Procedure and stop this procedure. ○ If the **reading is not pH=7**, use the mini VR1 potmeter on the board to adjust reading at pH7.0. 	SDCCU__24_EN	
8	**CAUTION:** Do not exceed +/-500mV when generating signal to the pH input. The electronic Board could be damaged.		
9	○ Connect the voltage generator between pin 1 and pin 3 of the connector. ○ Pin 1 is the negative input (reference) ○ Pin 3 is the positive input ○ In order to facilitate the test, you can use a JST HX3 connector to wire the voltage generator in.		Voltage generator
10	○ Generate **-177mV** (negative value) on the input. ○ Using PoolCop MENU>MAINTENANCE, ask for pH reading. ○ If the pH is unstable or **above pH4.5**, follow "Replacing connection PCB Connection SE Data PCB005 Board" Service Procedure and stop this procedure.	SDCCU__24_EN	Voltage generator
11	○ Generate **+177mV** (positive value) to the sensor. ○ Using PoolCop MENU>MAINTENANCE, ask for pH reading. ○ If the pH is unstable or **below pH9.0**, follow "Replacing connection PCB Connection SE Data PCB005 Board" Service Procedure and stop this procedure.	SDCCU__24_EN	
12	REASSEMBLE		
13	○ pH input circuitry is calibrated and correct. ○ Plug back pH/ORP Sensor.		
14	○ Close transparent DCCU face plate.		
15	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
16	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

3.20 SDCCU__23_EN: Checking ORP Reading Circuitry

Servicing the Data Control Connection Unit DCCU			Support : L4
This Service Procedure details steps to check ORP reading circuitry.		Procedure	**SDCCU__23_EN**
		Revision	**01**
Tools & consumables required:			Time:
- Screwdriver - Voltmeter - Voltage generator - JST HX3 Connector			0:15
Parts required		QTY	Codes
-		-	-
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump.		
3	○ Open the cover using clips. 		
4	○ Unplug the pH/ORP sensor from the connection PCB. 		
5	CHECK		
6	○ Short cut pin 1 and pin 2 of the pH Board connector. 		
7	○ Switch PoolCop in SERVICE MODE by pressing UP and DOWN arrows simultaneously. ○ Use UP arrow to move to the screen where ORP value is displayed. ○ Should the ORP be unstable, or far from zero, follow “Replacing connection PCB Connection SE Data PCB005 Board” Service Procedure and stop this procedure.	SDCCU__24_EN	

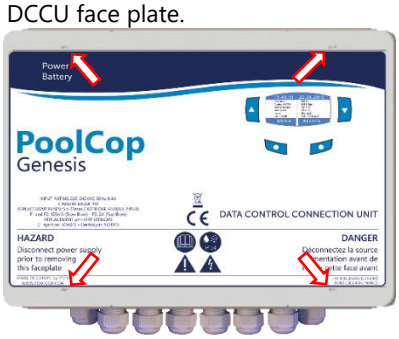
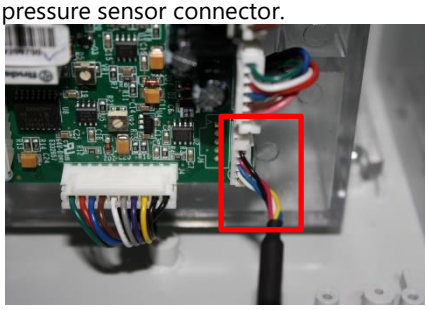
8	**CAUTION:** Do not exceed +1500mV when generating signal to the pH input. The electronic Board could be damaged.		
9	○ Connect the voltage generator between pin 1 and pin 2 of the connector1 ○ Pin 1 is the negative input (reference) ○ Pin 2 is the positive input ○ In order to facilitate the test, you can use a JST HX3 connector to wire the voltage generator in.		Voltage generator
10	○ Generate 800mV (positive value) on the input. ○ ORP should rise to 800mV. ○ If ORP is unstable, follow "Replacing connection PCB Connection SE Data PCB005 Board" Service Procedure and stop this procedure. ○ If the ORP is less than 790mV or over 810mV, use the mini VR2 potmeter to calibrate at 800mV +/-5mV. 	SDCCU__24_EN	Voltage generator
11	REASSEMBLE		
12	○ ORP input circuitry is calibrated and correct. ○ Plug back pH/ORP sensor.		Screwdriver
13	○ Close transparent DCCU face plate.		
14	**CAUTION:** Be careful to not pinch the ribbon cable when closing the face plate.		
15	○ Press simultaneously UP and DOWN arrows to leave SERVICE MODE.		
16	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status.		
End of Service Procedure			

3.21 SDCCU_24_EN: Replacing PCB Connection SE Data PCB005 Board

Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to replace the PCB Connection SE Data. This Board is the upper Board in the mezzanine arrangement of boards under the black cover.		Procedure	**SDCCU_24_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver			0:10
Parts required	QTY		Codes
- Kit PCB Connection SE Data	- 1		- CF1218
Steps	Cross Ref.		Tool, Part
1 DISASSEMBLE			
2 ○ Follow “Shut down the Unit” Service Procedure.	SDCCU_01_EN		
3 ○ Open the cover using clips. 			
4 ○ Unplug the VDU Datalink Cable. ○ Unplug the Connection Cable. ○ Unplug the pH/ORP sensor. ○ Unplug the temperature sensor ○ Unplug the pressure sensor. 			
5 ○ Using the screwdriver, remove the 4 screws on each angle of the board. 			Screwdriver

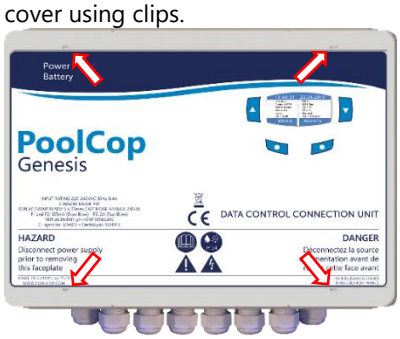
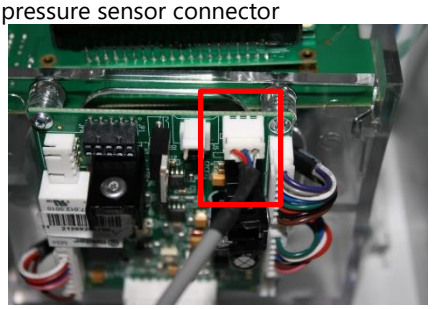
6	○ REASASSEMBLE		
7	○ Put the new PCB Connection SE Data PCB005 board in place.		CF1218
8	○ Using the screwdriver, gently tighten the 4 screws on each angle.		Screwdriver
9	○ Plug back the cables. ○ All connectors are different, there is risk of mixing.		
10	○ Follow “Powering up the Unit” Service Procedure.	SDCCU_02_EN	
End of Service Procedure			

3.22 SDCCU_25_EN: Replacing Pressure Sensor

Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to replace the pressure sensor.		Procedure	**SDCCU_25_EN**
		Revision	**01**
Tools & consumables required:			Time:
- screwdriver - 20mm spanner			0:10
Parts required		QTY	Codes
- Kit Sensor Pressure 4m Cable		- 1	- GN4224
Steps		Cross Ref.	Tool, Part
1	DISASSEMBLE		
2	○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed. ○ Using PoolCop MENU>MANUAL CONTROL>AUXILIARIES, stop all running auxiliaries, if any.		
3	○ Disconnect power to pump and auxiliaries and make sure no external electrical sources may energize them.		
4	○ Follow “Shut Down the DCCU” Service Procedure.	SDCCU_01_EN	
5	○ Open the DCCU face plate. 		
6	○ Unplug pressure sensor connector. 		
7	○ Loosen the compression gland and extract the cable from DCCU.		

8	○ Loosen the sensor with 20mm spanner. 		
9	○ REASASSEMBLE		
10	○ Check presence of O-Ring. ○ Place the new sensor. ○ Secure it gently with 20mm spanner.		GN4224
11	○ Route the cable into the DCCU. ○ Tighten the compression gland.		
12	○ Plug back the sensor onto the board.		
13	○ Follow “Powering up the Unit” Service Procedure.	SDCCU_02_EN	
14	○ Enter and leave PoolCop MENU>TIMER FILTRATION. ○ Pump and auxiliaries will return to their desired status		
15	○ Check for the pressure reading. ○ Adjust pressure settings in pump parameters and cleaning filter parameters if needed.		
End of Service Procedure			

3.23 SDCCU_26_EN: Replacing Water Temperature Sensor

Servicing the Data Control Connection Unit DCCU			Support : L2
This Service Procedure details steps to replace the water temperature sensor.		Procedure	**SDCCU_26_EN**
		Revision	**02**
Tools & consumables required:		Time:	
- screwdriver - wrench		0:10	
Parts required	QTY	Codes	
- Kit Water Temperature Sensor 4m Cable	- 1	- GN4211	
Steps	Cross Ref.	Tool, Part	
1 DISASSEMBLE			
2 ○ Using PoolCop MENU>MANUAL CONTROL>PUMP, stop the pump. Make sure there is no risk of water overflow when pump is stopped, close the adequate valves if needed. ○ Using PoolCop MENU>MANUAL CONTROL>AUXILIARIES, stop all running auxiliaries, if any.			
3 ○ Disconnect power to pump and auxiliaries and make sure no external electrical sources may energize them.			
4 ○ Follow “Shut Down the DCCU” Service Procedure	SDCCU_01_EN		
5 ○ Open the cover using clips. 			
6 ○ Unplug pressure sensor connector 			
7 ○ Loosen the compression gland and extract the cable from DCCU.			
8 ○ Loosen the sensor with wrench. 		Wrench	
9 ○ REASASSEMBLE			

10	○ Check presence of O-Ring ○ Place the new sensor ○ Secure it gently with wrench		GN4224
11	○ Route the cable into the DCCU. ○ Tighten the compression gland. ○		
12	○ Plug back the sensor onto the electronic board.		
13	○ Follow “Powering up the Unit” Service Procedure.	SDCCU_02_EN	
14	○ Check for the temperature reading once the pump is primed. ○ Adjust pressure settings in pump parameters and cleaning filter parameters if needed.		
End of Service Procedure			