



Control PCB connection and replacement process

SandenVendo January 2023

This document explain the positioning of the connections into the control PCB and the replacement process for condensing unit SANDEN VENDO CDU-L / CDU-M et CDU-S

References:

Type	Model
CDU-L	R06A2A R06A2B R06A2C
CDU-M	R04A1A R04A1B R04A1C R04A1D
CDU-S	R02A1A R02A1B R02A1D

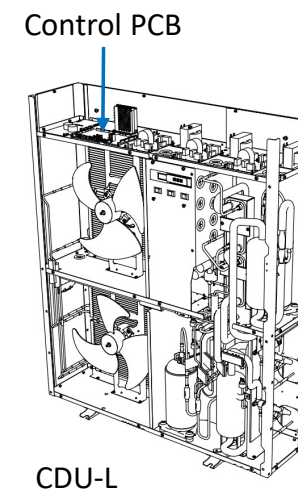
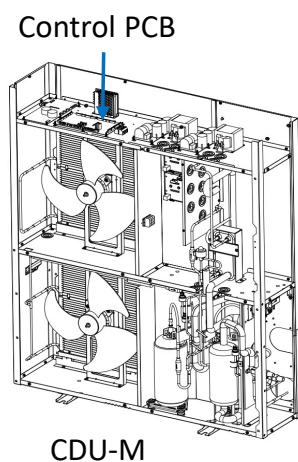
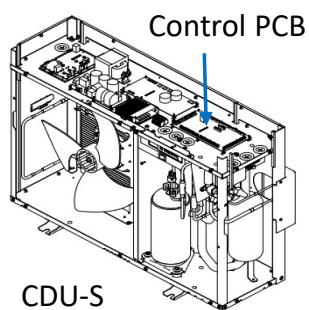
100% CO2 Condensing units

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1. CDU-S control PCB
2. CDU-M control PCB
3. CDU-L control PCB
4. Control PCB replacement process



1. CDU-S control PCB

CN1:
 - Ambient temperature thermistor
 - Inlet heat plate exchanger temperature thermistor
 - Outlet heat plate exchanger temperature thermistor
 - Error CLA E23 when disconnected connector

CN2
 - Suction temperature thermistor CLA
 - Error CLA E38 when disconnected connector

CN9
 - Nothing

CN10
 - PCB Inverter CLA
 - Error CLA E42 when disconnected connector

CN11
 - Nothing

CN12
 - Nothing

CN13
 - Expansion valve Coil CLA

CN14
 - Nothing

CN15
 - ISP connection for software update only

CN3
 - Nothing

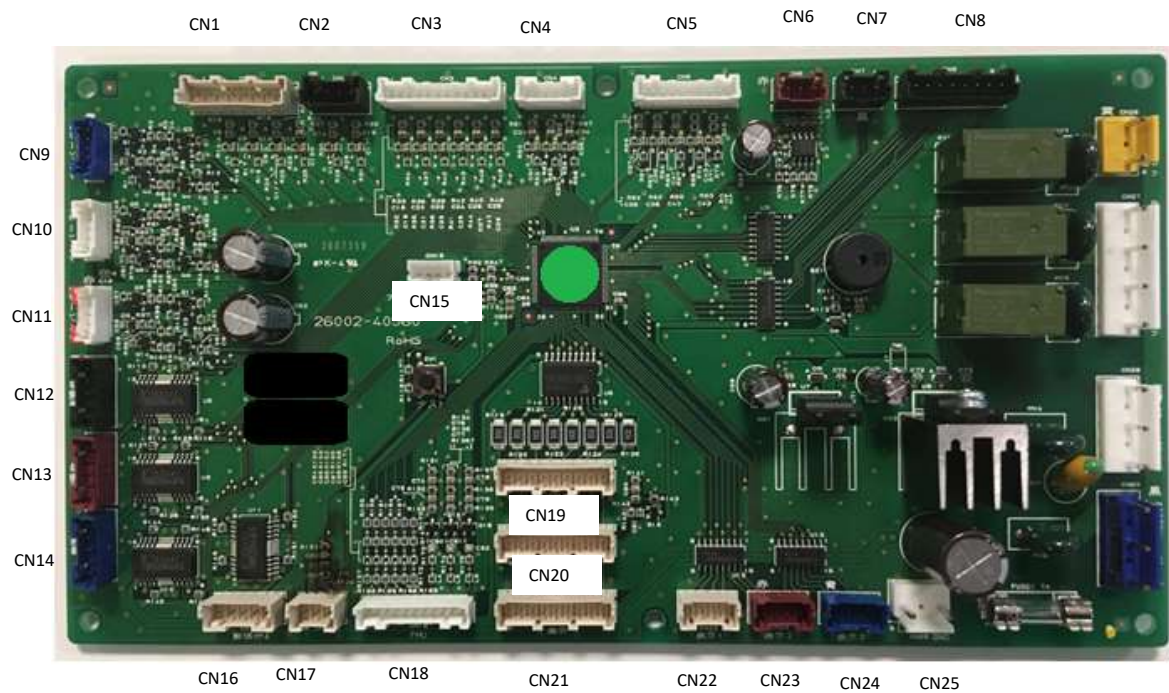
CN4
 - Discharge temperature thermistor CLA
 - Pressure transducer HP CLA
 - Pressure transducer LP CLA
 - Error CLA E24/E21/E20/E41 when disconnected connector

CN5
 - Nothing

CN6
 - Communication port MODBUS/SANDEN
 - Error E40 when disconnected connector

CN7
 - Nothing

CN8
 - PCB filter CLA
 - Error CLA E10-H14 when disconnected connector



CN26
 - Nothing

CN27
 - Alarm relay wire 230V

CN28
 - Power supply 230V AC to the AC/DC converter
 - No display and CDU function when disconnected connector

CN29
 - Power supply 230V AC
 - No display and CDU function when disconnected connector

CN16
 - Nothing

CN17
 - CLA cooling demand
 - No function of compressor A when disconnected connector

CN18
 - Link with PCB fan motor
 - Error CLA E17 when disconnected connector

CN19
 - Nothing

CN20
 - Nothing

CN21 et CN22
 - Display
 - No display and CDU function when disconnected connector

CN23
 - Nothing

CN24
 - Nothing

CN25
 - Power supply 24V DC from the AC/DC
 - No display and CDU function when disconnected connector

2. CDU-M control PCB

- CN1:**
- Ambient temperature thermistor
 - Inlet heat plate exchanger temperature thermistor
 - Outlet heat plate exchanger temperature thermistor
 - Error CLA E23 & CHC E26/E27 when disconnected connector

- CN2**
- Suction temperature thermistor CLA
 - Error CLA E38 when disconnected connector

- CN9**
- PCB inverter CHC
 - Error CHC E42 when disconnected connector

- CN10**
- PCB Inverter CLA
 - Error CLA E42 when disconnected connector

- CN11**
- Nothing

- CN12**
- Expansion valve Coil CHC

- CN13**
- Expansion valve Coil CLA

- CN14**
- Nothing

- CN15**
- ISP connection for software update only

- CN3**
- Discharge temperature thermistor CHC
 - High pressure transducer CHC
 - Low pressure transducer CHC
 - Error CHC E24/E21/E20/E41 when disconnected connector

- CN4**
- Discharge temperature thermistor CLA
 - High pressure transducer CLA
 - Low pressure transducer CLA
 - Error CLA E24/E21/E20/E41 when disconnected connector

- CN5**
- CHC cooling demand
 - No function of compressor C when disconnected connector

- CN6**
- Communication port MODBUS/SANDEN
 - Error E40 when disconnected connector

- CN7**
- Nothing

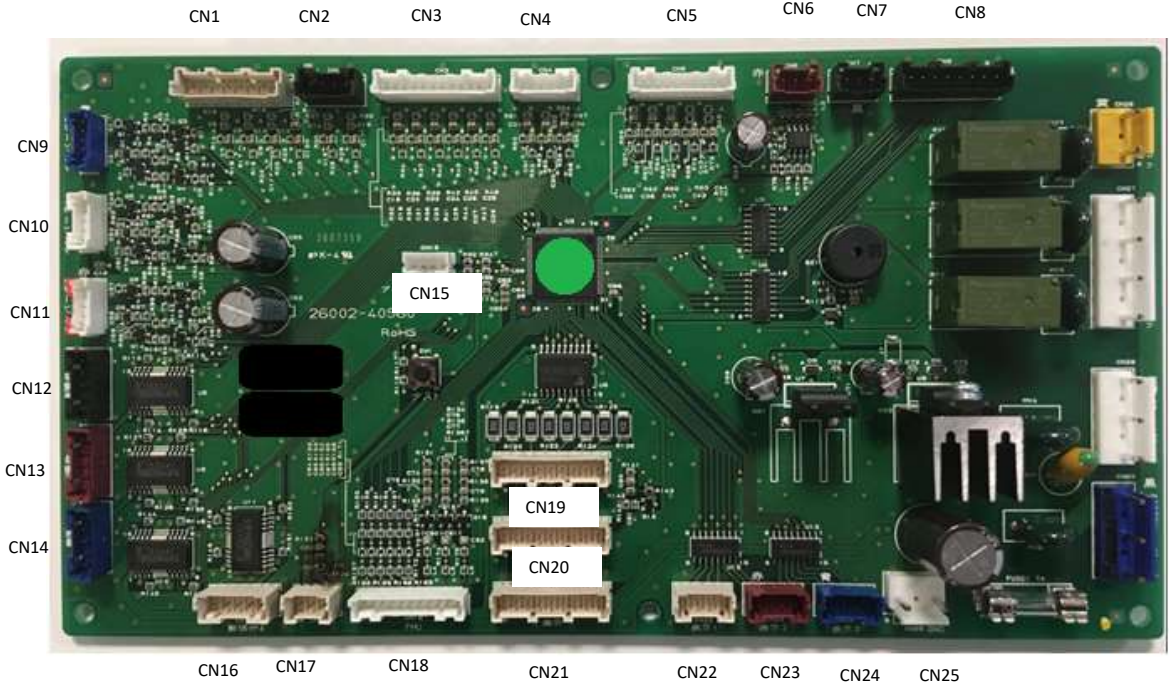
- CN8**
- PCB filter CLA
 - PCB filter CHC
 - Error CLA/CHC E10-H14 when disconnected connector

- CN26**
- Nothing

- CN27**
- Alarm relay wire 230V

- CN28**
- Power supply 230V AC to the AC/DC converter
 - No display and CDU function when disconnected connector

- CN29**
- Power supply 230V AC
 - No display and CDU function when disconnected connector



- CN16**
- Nothing
- CN17**
- CLA cooling demand
 - No function of compressor A when disconnected connector
- CN18**
- Link with PCB fan motor
 - Error CLA E17 when disconnected connector

- CN19**
- Nothing
- CN20**
- Nothing
- CN21 et CN22**
- Display
 - No display and CDU function when disconnected connector

- CN23**
- Nothing

- CN24**
- Nothing

- CN25**
- Power supply 24V DC from the AC/DC
 - No display and CDU function when disconnected connector

3. CDU-L control PCB

- CN1:**
- Ambient temperature thermistor
 - Inlet heat plate exchanger temperature thermistor
 - Outlet heat plate exchanger temperature thermistor
 - Error CLA E23 & CHC E26/E27 when disconnected connector

- CN2**
- Suction temperature thermistor CLA
 - Suction temperature thermistor CLB
 - Error CLA/CLB E38 when disconnected connector

- CN9**
- Link with IFU PCB / PCB inverter CHC
 - Error CHC E42 when disconnected connector

- CN10**
- Link with IFU PCB / PCB inverter CLA
 - Error CLA E42 when disconnected connector

- CN11**
- Link with IFU PCB / PCB inverter CLB
 - Error CLB E42 when disconnected connector

- CN12**
- Expansion valve coil CHC

- CN13**
- Expansion valve coil CLA

- CN14**
- Expansion valve coil CLB

- CN15**
- ISP connection for software update only

- CN3**
- Discharge temperature thermistor CLB
 - High pressure transducer CLB
 - Low pressure transducer CLB
 - Discharge temperature thermistor CHC
 - High pressure transducer CHC
 - Low pressure transducer CHC
 - Error CLB/CHC E24/E21/E20/E41 when disconnected connector

- CN4**
- Discharge temperature thermistor CLA
 - High pressure transducer CLA
 - Low pressure transducer CLA
 - Error CLA E24/E21/E20/E41 when disconnected connector

- CN5**
- Link with IFU PCB
 - CLB cooling demand
 - CHC cooling demand
 - No function of compressor B/C when disconnected connector

- CN6**
- Communication port MODBUS/SANDEN
 - Error E40 when disconnected connector

- CN7**
- Nothing

- CN8**
- Link with IFU PCB / PCB filter CLA
 - Link with IFU PCB / PCB filter CLB
 - Link with IFU PCB / PCB filter CHC
 - Error CLA/CLB/CHC E10-H14 when disconnected connector

- CN26**
- Nothing

- CN27**
- Alarm relay wire 230V

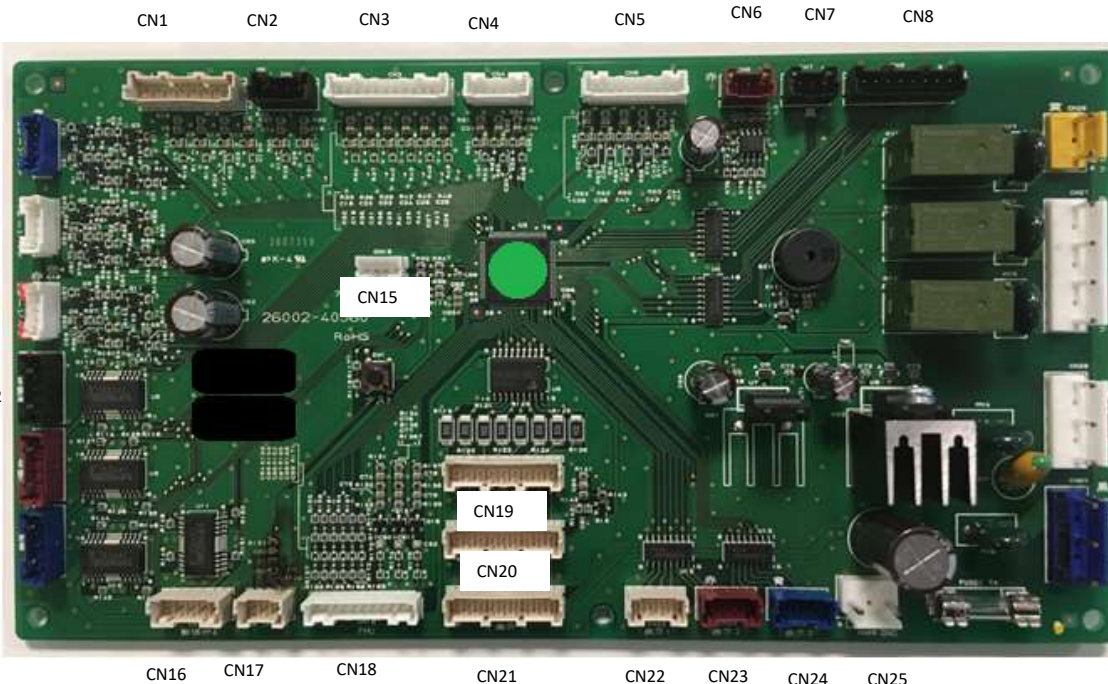
- CN28**
- Power supply 230V AC to the AC/DC converter
 - No display and CDU function when disconnected connector

- CN29**
- Power supply 230V AC
 - No display and CDU function when disconnected connector

- CN23**
- Nothing

- CN24**
- Nothing

- CN25**
- Power supply 24V DC from the AC/DC
 - No display and CDU function when disconnected connector



- CN16**
- Nothing
- CN17**
- CLA cooling demand
 - No function of compressor A when disconnected connector
- CN18**
- Link with PCB fan motor
 - Error CLA E17 when disconnected connector

- CN19**
- Nothing
- CN20**
- Nothing
- CN21 et CN22**
- Display
 - No display and CDU function when disconnected connector



4. Control PCB replacement process

1. Switch OFF all compressors with front switches.
2. Shut OFF power supply main circuit breaker.
3. Eventually take a photo of the PCB controller connected.
Then, unplug the connectors from the PCB to be replaced.
4. Pinch the plastic plots with fingers or helped with dedicated tool or pliers.
5. Remove the failed Control PCB.
6. Install the new Control PCB and check absence of screws or foreign matter when installing the new part.
7. Plug all the connectors.
8. Switch ON Power supply main circuit breaker.
9. Refer to the *CDU software guide & display* for programming procedure.
10. Switch ON all compressors with front switches.
11. Confirm that no error code remain and check the correct operation of the CDU.