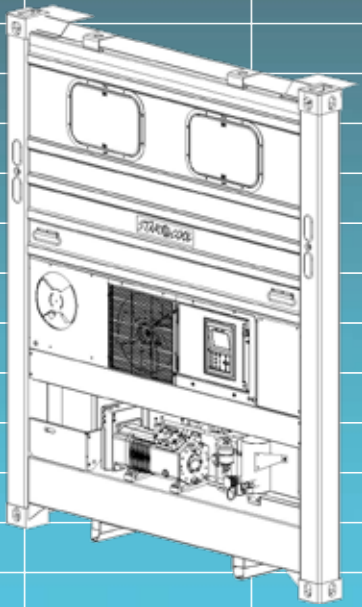
SHORT FORM SERVICE MANUAL - CIM 6 CONTROLLER



CIM 6 controller information

Major differences between the CIM 5 and the CIM 6 controller:

- Communication with the humidity sensor via communication bus - no analog signal output
- 12V rechargeable battery pack
- Main switch: lower max. current (new part number)
- Activation of contactors and valve coils - see detailed description later in this manual
- Automatic ventilation - optional feature

Operating temperature

① -30˚C to +30˚C
-22 F to +86 F

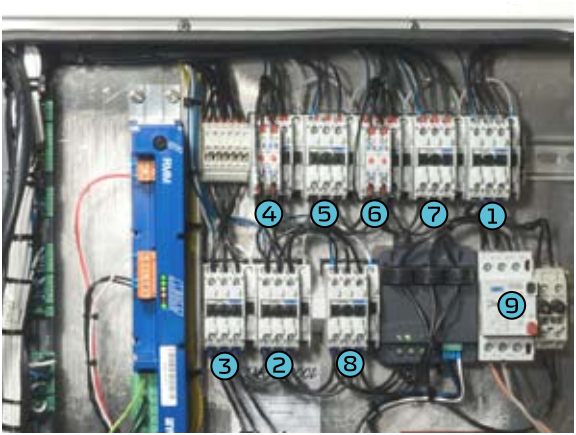
Ambient temperature

② -30˚C to +50˚C
-22˚F to +122˚F

Model:
SCU-40/SCI-40 with CIM 6 controller
Refrigerant: R-134a
Charged with 4.5 kg/9.9 lb

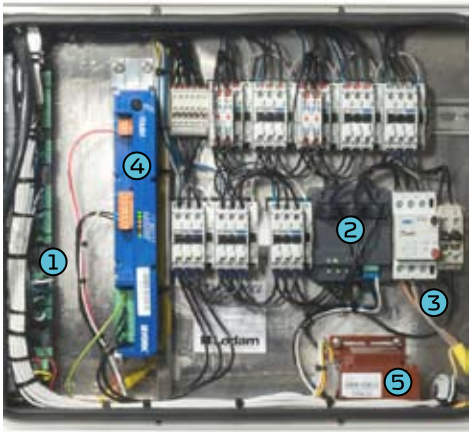
Controller box view

1. FC/Compressor
2. Phase direction
3. Heat element
4. Cond. fan low
5. Cond. fan high
6. Evap. fan low
7. Evap. fan high
8. Phase direction
9. Main circuit breaker



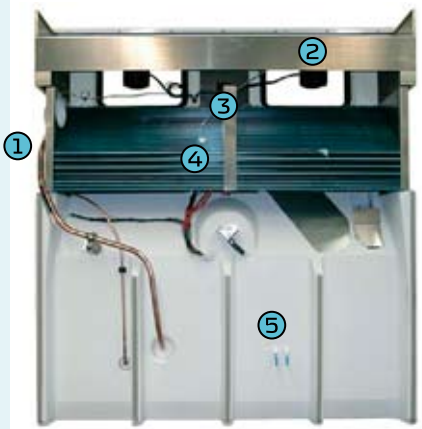
Controller box view

1. Controller module
2. Power meas module
3. Power supply
4. Modem (if installed)
5. Transformer



Unit rear side view

1. Tsuc sensor
2. Return air sensor
3. Humidity sensor
4. Evaporator sensor
5. Supply air sensors

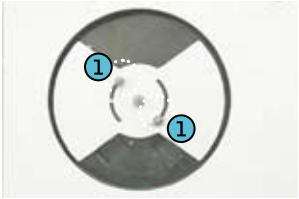


Replacement of Tsuc sensor

1. Remove PVC Cover to access Tsuc sensor
2. Cut cable tie (one pcs). Sensor can then be removed
3. When installing the new sensor, make sure to insert properly in tube and add new cable tie to make sure sensor/tube is properly insulated

Replacement of air exchange sensor

1. Remove the two finger screws on the butter fly and remove cover plate
2. Remove the fourteen screws to loosen the black cover where the air ex-sensor is mounted
3. Replace the sensor and install all the dismantled parts again



Air exchange sensor calibration

1. Close fresh air butterfly

2. In the service menu SO5; Configuration menu FO6; Press "Enter" twice

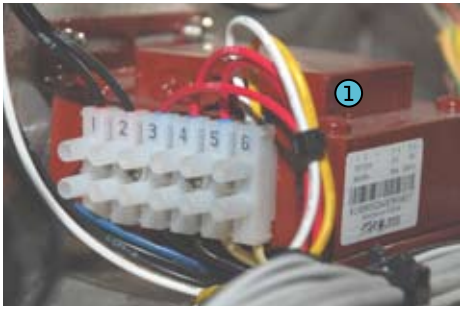
   Calibration is completed

Transformer T1

1. Transformer T1

2. Measure supply voltage on terminal 1 and 2:

   Range -50 Hz: 335 – 460 VAC.
   Range -60 Hz: 390 – 525 VAC.



Transformer output

① Measure output voltage on terminal 3 and 4 (27 VAC):

Range: 20 - 30 VAC.

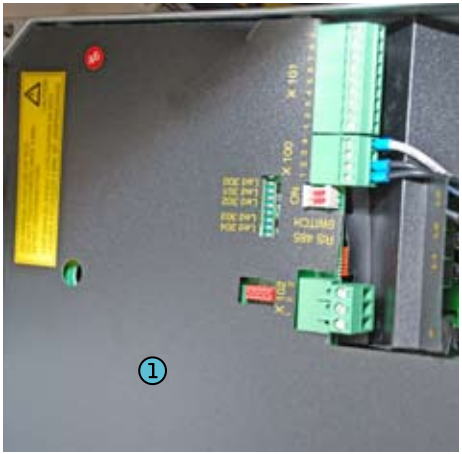
② Measure output voltage on terminal 5 and 6 (24 VAC):

Range: 19 – 28 VAC.

Check Frequency Converter

1. Frequency converter MUST always have the black foil mounted for protection of print, components and your safety

   WARNING - HIGH VOLTAGE



Check Frequency Converter

① If deviation between phases is more than 15 VAC:

Alarm ”523 FC phase loss” or
Alarm ”516 FC Trip phase loss”
will be given

Range -50 Hz: 335 – 460 VAC.
Range -60 Hz: 390 – 525 VAC.

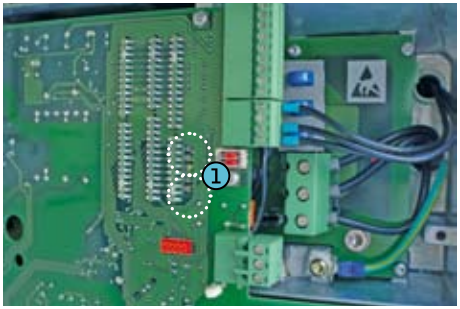
E.g. due to unstable power supply from the genset

Check Frequency Converter

① A green light indicates FC is ok

A flashing green light indicates FC communicates with the controller

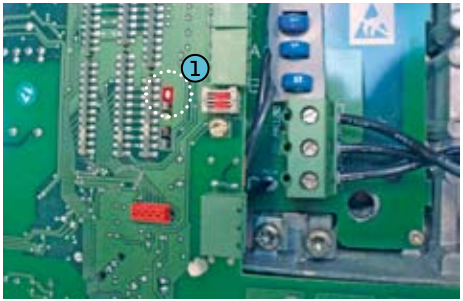
② A red light indicates a problem



Check Frequency Converter

1. If a red light is ON and alarm 700 ”FC missing” is displayed, the FC has an internal problem and must be replaced

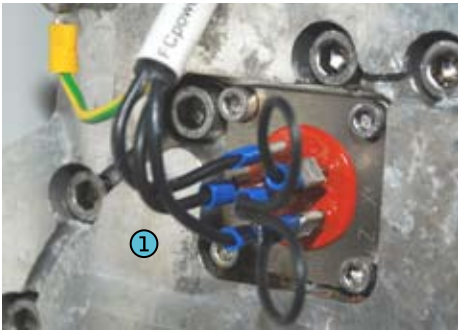
   The ”Warranty repair report” must be filled out and submitted to Star Cool. The defective part must be properly tagged



Emergency operation

1. Dismount the frequency converter and connect the FC power 1 cable directly to the compressor supply terminals (W, V, U)

   The 3 remaining terminals (Y, X, Z) have to be fitted with a wire-jumper.



Emergency operation

1. Go to Service menu and select "Configuration" (S05)
2. In "Configuration" menu scroll down to "FC type" (F03)
3. Then press return and select "NONE"

Note: remember to switch back to "Danfoss" in the "FC type" setting when a new FC is mounted

Temperature sensor check

Disconnect the X24 and X25 plugs on the controller module

All temperature readings must drop to -70 degrees Celsius within a short time

If value is not reached then the controller has a problem and must be replaced

The "Warranty repair report" must be filled out and submitted to Star Cool.

Temperature sensor check

① Dismount the current defective sensor(s) according to the wiring diagram inside the controller door

Measure the voltage between the two terminals on the controller

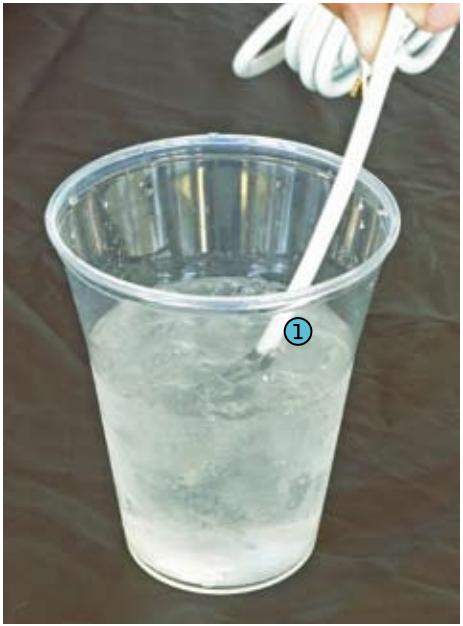
Range: 3.2 VDC - 3.4 VDC

② Temperature resistance check: Value must be according to the resistance table in the ”Operation and Service manual”

Temperature sensor check

1. Place the bulb in ice-water and stir the sensor in the ice-water

   The displayed temperature in the controller should be: 0˚C +/- 0.5˚C (32 F +/- 1.25 F) otherwise replace the sensor



Pressure transmitter check

1. Disconnect the X22 plug on the controller module

   Pressure reading for Psuc must show -1.0 Bar

   Pressure reading for Pdis must show 0.0 Bar

   If value is not reached then the controller has a problem and must be replaced

   The “Warranty repair report” must be filled out and submitted to Star Cool.

Pressure transmitter check

1. Dismount the current defect transmitter according to the wiring diagram inside the controller door

   Measure voltage between ground and 5 VDC for the transmitter. (According to the electrical wiring diagram)

   Correct range: 4.80 > 5.05 VDC.

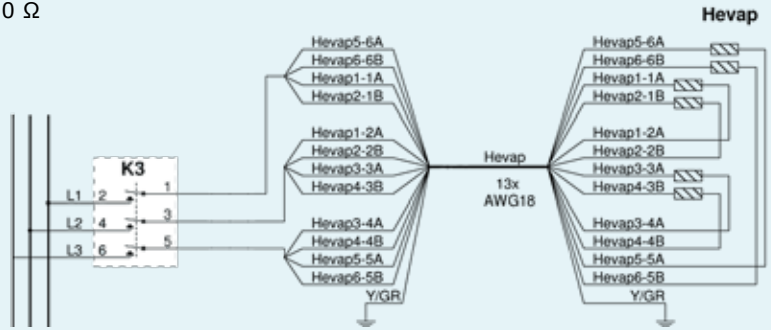
   Reconnect GND and 5 VDC. Check signal output from transmitter. Compare it to gauge reading/value found in relevant table in the "Operational and Service manual".

Check of heat elements

Measure the voltage applied to each heater

Measure the resistance value of each disconnected heater: 210 Ω

Range: +/- 10 Ω



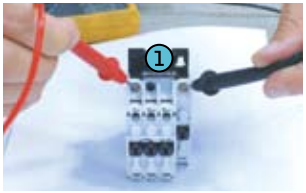
Contactor check

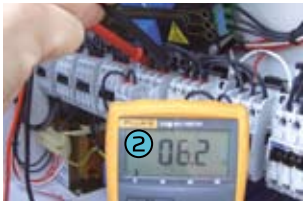
① Measure Ω between terminal A1 and A2

② Contactor is ok

③ Contactor is not ok

Deviation in resistance due to change in temperature





Function of contactors

When a contactor is pulled and activated a DC-pulse is added

To keep the contactor pulled and activated it is supplied with short waves of DC-pulses

The lenght of these waves depends on:
- Supplied voltage
- The ambient temperature
- Supplied frequency

Function of contactors

To ensure constant functionality of a contactor it is every 6-10 seconds supplied with a revival DC-pulse

When measuring output with a volt meter expect to measure 3.5 - 6.5 VDC if output is ok (A1 - A2)

Notice: When sending out the revival pulse the reading briefly raises

Change of parts

Always regard your personal safety as high priority

Always switch off the main circuit breaker and disconnect power cable when working on the unit

Notes

Notes

Contacts

Internet
www.starcool.dk

Spare parts / orders
sales@starcool.dk

Service
service@starcool.dk

Logistic
logistics@starcool.dk

Technical Hot line 24/7
+45 73 64 35 00