



OPERATION- & INSTALLATION MANUAL

SNIJDERS LABS

ULTRA LOW TEMPERATURE FREEZERS -86°C





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1. GENERAL

Please read this user manual first, it prevents possible damage to the device!

The ULT series Ultra Low Temperature freezers have a storage freezing system with a temperature range from -50°C up to -86 °C. The design of the freezers has an excellent influence on the capacity, the efficiency and the noise level.

Cooling is realized by means of a cascade system, where in the highest stage (first) R455A is used as refrigerant and in the lowest stage (second) R170. Both the high as the low stage are fitted with a capillary injection. Both high and low stages have a capillary injection.

The cooling system is protected by a pressostat, a thermostat, a time delay for the second stage and a clixon thermal protection.

The ULT freezer is controlled by a microprocessor controller. When cooling is necessary, the cooling-relays and fan are activated. After a cooling action, the fan still runs by means of a time-delay. Temperature measurement will be done by a 2 wire PT1000 sensor.

The controller has a connection for an external backup battery. The battery will be loaded continuously by the controller, so it will always be stand-by. During power-failure of the main voltage, the controller still remains in function. With the standard battery the controller will still function for a few hours. The current-loader of the controller can also be used for loading a battery of the optional CO₂ backup cooling-system. When the main voltage is back again, the controller will automatically start up again.

The controller has an alarm-system, which will be activated when the set minimum or maximum alarm temperature will be exceeded or when a sensor is defective. Through the built-in buzzer, the alarm leds and errors on the front and the potential free alarm contact an alarm will be reported. In case of exceeding the maximum CO₂-alarm temperature, the CO₂ backup cooling will switch on. This is a pulsating contact. The contact remains active until the set temperature has been achieved. When the temperature has been restored, the relevant error remains in the display, to remember the error. In case there hasn't been a voltage and no emergency power, the CO₂-relay keeps on switching continuously.

There is a digital door contact which generates an alarm (E6) after the (to be) set delay.

The controller has an intern memory of 768 MB to store the measured temperatures, set points etc. The sample frequency of the measured values is 5 minutes and the memory is stored for 6 months. During power failure (also of the external battery), the values will still be stored. Reading out the controller is done through an Ethernet and USB connection.



To prevent impermissible use, such as ON/OFF switching or changing parameters/ set points, the controller can only be adjusted by using a secret access code which has been entered through the **Code** button.

The control settings of the panel can be adjusted via the internal parameters. In case of power failure (no AC available) the controller switches to the battery power. During this mode, all relays will be off except for the CO₂ relay, which will be activated when the temperature will be higher than the set temperature.

During battery backup mode, the 2 decimal points of the displays will flicker one time in four seconds (because of power saving). The buzzer will sound one short time per minute. If a button is pressed, the controller can be used normally. After approx. 30 seconds, the decimal points in the displays will start flickering again.

2. TRANSPORT

The Snijders Labs Ultra Low Temperature freezers must be transported vertically (especially for the compressors which need to be upright under all circumstances!).

This prevents that oil comes out of the carter (from the compressors and the oil separator), which would affect the cooling system seriously. The compressors could be damaged too.

The wheels must be free from the ground (for example freezer mounted on a pallet), so that the wheels do not break off during transport.

After transport, wait a while! The freezer may be switched on after 8 hours.



3. SPECIFICATIONS

3.1. Freezer

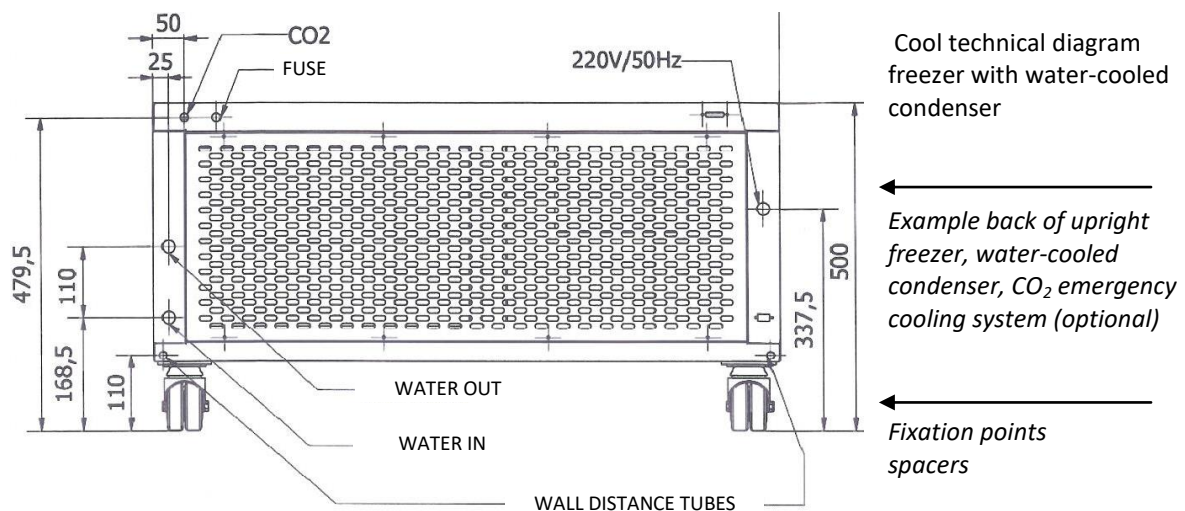
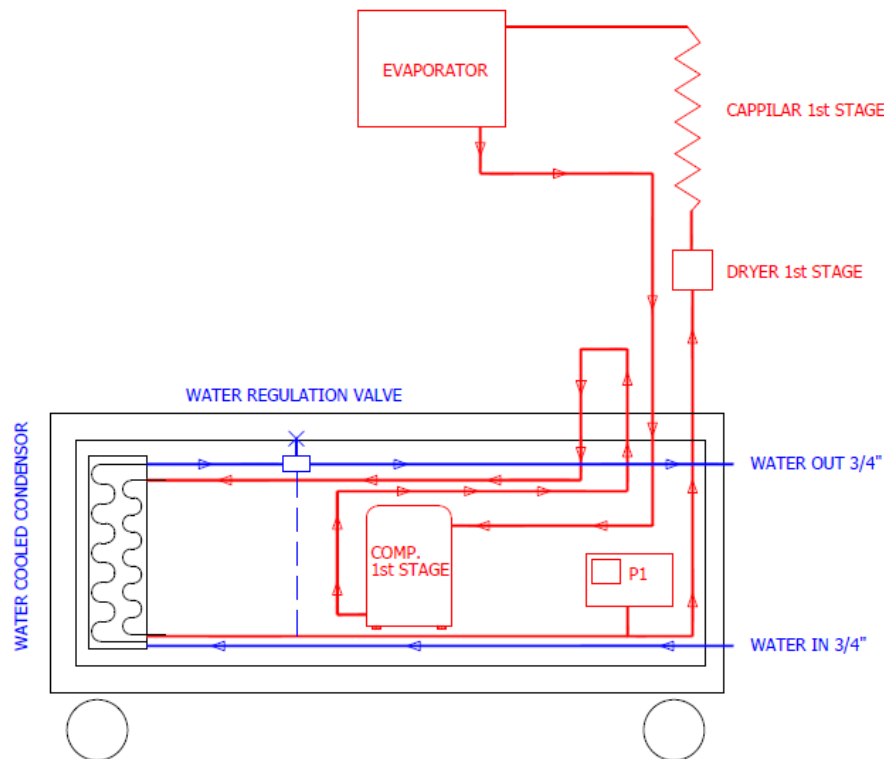
Volume	Chest: 405-570 liter; Upright: 120-244-360-480-500-600-711-750-830-965 liter.
Material internal Material external	Stainless Steel Coated steel
Isolation	Polyurethane
Cooling	2 cascade connected compressors
Protection compressors	Thermal
Protection cooling system first stage	Pressostat (350 psi / diff 100 psi)
Protection cooling system second stage	Thermostat
Refrigerant first stage	R455A
Refrigerant second stage	R170
Controller	Touchscreen
Temperature sensor	PT1000
Temperature adjustments	-50°C till -86°C
Minimum temperature	-86°C
Time delay second stage	10 seconds
Locker	All models by using a key
Transit/vacuum release	Ø 26 mm / vacuum release situated in transit
Condenser	Air-cooled Water-cooled (optional), see chapter 4
Requirements	220/240 VAC, 50 Hz, fuse 16 Amp. slow
Power and current rating	HF400-86G: 775 VA / 760 W / 2,9 Amp. HF570-86G: 800 VA / 790 W / 3,0 Amp. VF120-86G: 525 VA / 450 W / 3,2 Amp. VF240-86G: 675 VA / 589 W / 3,5 Amp. VF360-86G: 695 VA / 684 W / 3,6 Amp. VF475-86G: 1015 VA / 950 W / 4,7 Amp. VF500-86G: 1020 VA / 960 W / 4,8 Amp. VF620-86G: 1054 VA / 950 W / 5,0 Amp. VF720-86G: 1230 VA / 1125 W / 5,3 Amp. VF750-86G: 1235 VA / 1130 W / 5,4 Amp. VF830-86G: 1530 VA / 1290 W / 6,9 Amp. VF1000-86G: 1590 VA / 1375 W / 7,0 Amp.



3.2. Basic print

Voltage	100-260 Vac; 50/60 Hz.
Power	10 VA
External emergency power	24 Vdc, 5 VA
External battery	12 Vdc, max. 15 Ah
Print size	280 * 140 mm
Range	- 100/+25°C
Sensors	TEMP-1 = Control sensor, PT1000-2 sensor, DIN/IEC751 TEMP-2 = condenser sensor, PT1000-2 sensor, DIN/IEC751
Digital inputs	DOOR = door contact entry, potential free entry contact
Communication	USB connection Ethernet RJ45 connection
Relays	RY1 = Alarm, potential free contact RY2 = Backup cooling, CO ₂ RY3 = Cooling RY4 = Fan RY5 = Free contact RY6 = Temperature alarm relay, telephone

4. WATER-COOLED CONDENSER (OPTIONAL)



Explanation

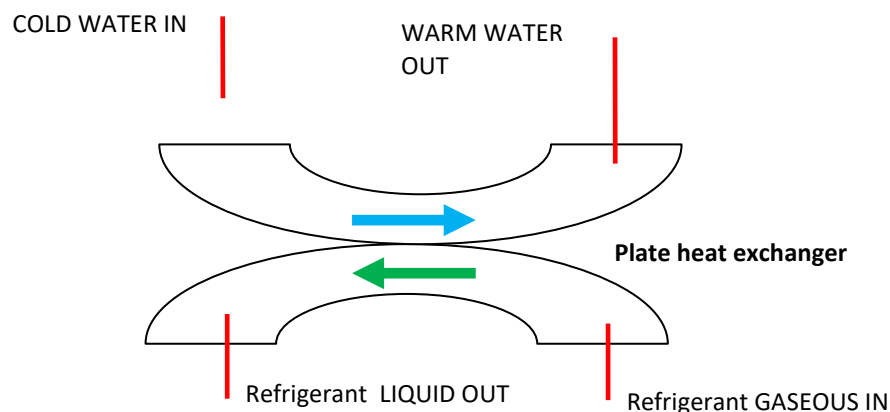
At the back of the freezer you'll find the connections for the water inlet and the water outlet. The water flows in through the water inlet and flows out through the water outlet.

The measuring PT1000 sensor (temperature sensor which passes the value through to the display) signals an electronic control, which makes the cooling system operating, when cooling is required. This system also directly switches a water valve on, which is connected with the water inlet.

the water (circa +15°C) flows through the water control valve to the water cooled condenser.

The water in the condenser flows in an opposite direction of the refrigerant through the condenser (see the below sketch) to leave it again via the bottom of the condenser. This out flowing water is more warm than the inflowing water. This water is heated by the refrigerant which flows into the condenser in a gaseous state and changes from the gaseous state into the liquid state (state alteration). This means that the refrigerant is cooled by the water, which makes cooling in the freezer possible.

Schematic drawing



5. INSTALLATION INSTRUCTION

See page 31-32.



6. INSTALLATION

General items of attention:

- The optimal ambient temperature shall be within +20°C and +25°C (maximum tolerable +35°C).
- With every freezer a pair of spacers is delivered, which can be mounted at the backside of the freezer. This to allow a proper air flow behind the freezer.
- During the cooling the high temperature (1^e) stage compressor will operate at first, as well as the ventilator which cools the condenser. After \pm 3 minutes the low temperature (2^e) stage will switch on.
- It's possible that the low temperature stage switches on/off several times before the final temperature has been reached. After some time (depending of the capacity of the freezer and the ambient temperature) the set temperature will be reached.
- The potential free contact, which is situated at the back of the freezer, can be used to signal an eventual alarm from a distance (for example with the porter or the technical service).
- We advise to keep the door open as short as possible to avoid freezing and high temperature switches.
- Always use gloves when a product is placed in or removed from the freezer, because of the extreme cold.
- It's possible that the controller of the ULT freezer has been stored for a long while which results in a (nearly) empty battery. Loading the battery can take some time.
- The RJ45 connection, which is situated at the back of the freezer, can be used to connect the freezer to a local network (Ethernet).

Water-cooled condenser, see chapter 4:

- Connect the water supply tube to the water connection (4).
- Take care that there is sufficient water pressure available (+/- 4 bar) and that the quality of the water is as clean as possible (watch calcification).
- For safety reasons you can chose to arrange a water lock in the water supply (for example: in case there will be more than 5 liter per minute flowing through, it will switch off the water supply automatically, think for example about a sort of laundry machine connection, water seal).
- The advisable water temperature is +15°C.
- Connect the water drainage to the return water system.
- Open the water drainage and check it for leakages. Remember the drainage also when the freezer operates.
- Take care that there are no nuds in the water tubes and check that they are mounted properly.











Water- and air-cooled condenser

- Mount the enclosed spacers to the back of the engine room, see page 7.
- Connect the power cable to a 230V outlet, fitted with a 16A slow fuse. Incorrect voltage can result in severe damage to the equipment.











7. OPERATION ULT FREEZER



Control symbols

		Login status (logged in / logged out)
ON (open)	OFF (closed)	
		CO2 usage indication
		Freezing active
		Condenser fan active
		Door indication
		Door alarm active

Control buttons

Set point value	Press to set value (only when logged in) (14)
	Press to have the temperature graphic in the screen
	Press to go to the menu
	Choose language
	Go to settings; parameters (user/Snijders) / service (Snijders) / status (Snijders)
	ON/OFF button
	Export log to USB
	Battery status
	Log out button
	Back to main screen
	Acknowledge button

7.1. Entry of the access code

To prevent unauthorized users from changing the settings, or the control or turn off, a four-digit code must be entered.

Press the **menu** button. If not is logged in, the code menu will be shown. Enter the code. If the menu button changes its colour to blue, the registration is successful. To logout, press the **logout button**.

7.2. Switching ON/OFF

Before switching ON the touchscreen, the correct access code must be entered (**1-2-3-4**).

When not logged in, automatically the login screen appears, when the freezer is turned ON. Press the **ON/OFF** button in the menu to turn OFF the freezer.



7.3. Changing the setpoint

By pressing the set value an input field with the keys appears on the screen. This value can be changed using the **up** and **down** button. By pressing the **menu** button, the setpoint value is taken over and switched back to the main screen.

7.4. Reset alarm

When an alarm situation occurs, a message appears in the display with a blinking alarm bar. Also the alarm relay is activated and the buzzer is switched ON. To reset the alarm (buzzer), press the flashing alarm bar. To remove/accept the alarm, the alarm bar can be pressed (after logging in with the access code). The current alarm will be shown.

By pressing the **acknowledge button**, followed by selecting a reason, followed by the **acknowledge button** again, the alarm is accepted.

The alarm is only accepted/deleted, if its cause has been eliminated.

7.5. Reading of the percentage charge status of the battery

By pressing the **battery status** button in the menu, the current state of the battery charge is shown in the screen. The **menu** button can be used to return to the previous screen. After a certain time, the screen changes automatically to the main screen.

7.6. Storage of the log on an USB stick

To put the log files on a USB stick, first a USB stick with enough free space must be inserted. Then press the **export log to USB** button, after entering the access code via the menu. Then press the button in the menu, to export the log.



7.7. Change language

The language can be changed in the menu, by pressing the **language** button.

7.8. Door contact

If the door is opened, the door alarm delay will start to run. If the door alarm delay is set on 0, a door-open alarm is activated immediately. If the door alarm delay is set higher than 0, first this time will wait, before the door-open alarm is activated. The status of the door will be shown on the main screen.



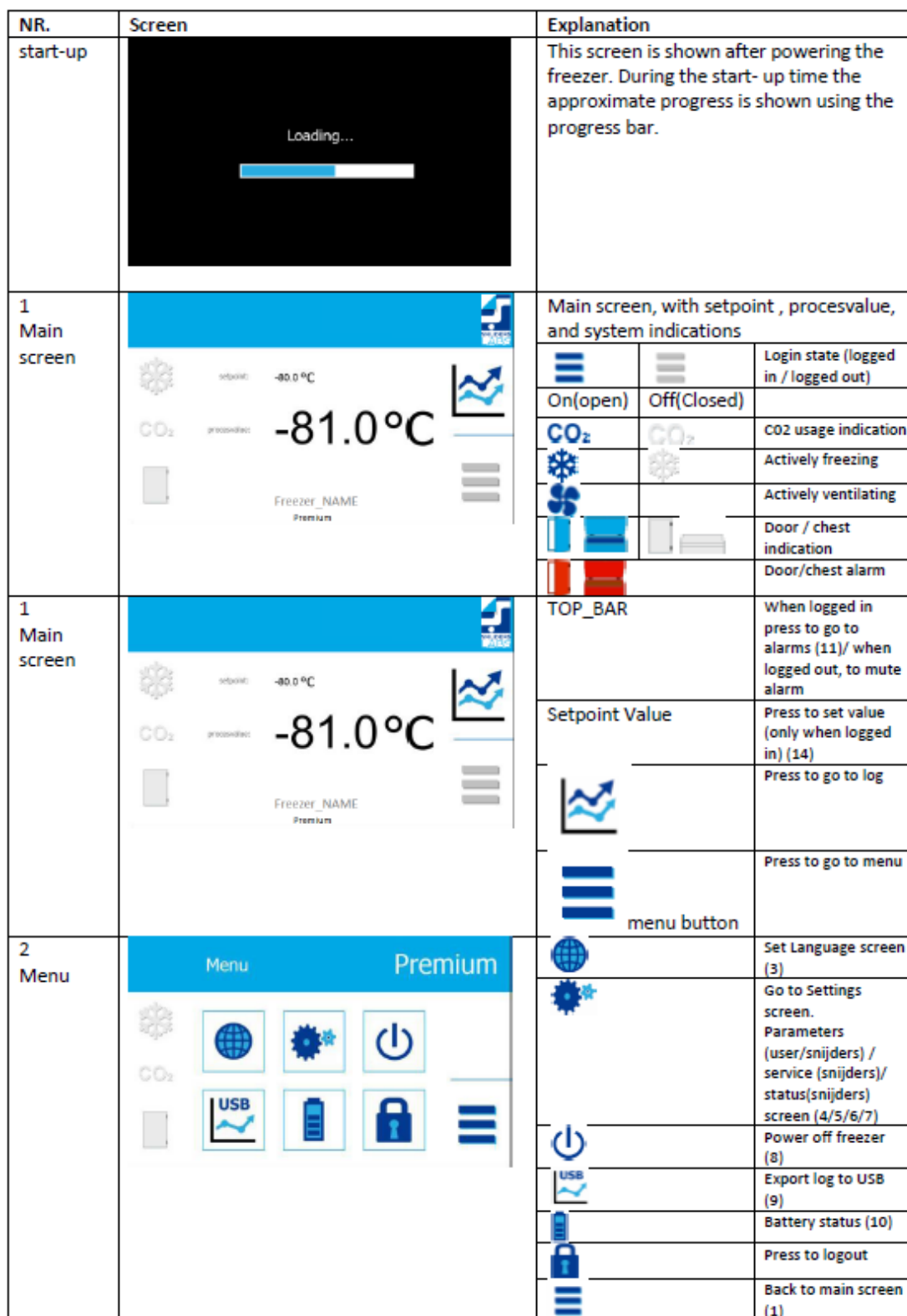
7.9. Temperature graphic in screen


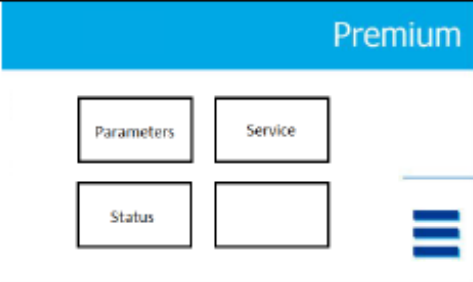
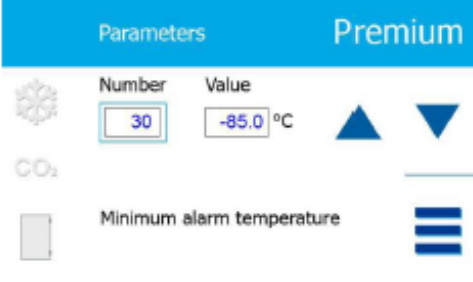

The temperature gradient can be graphically represented in the screen. Press the **graph button** on the main screen. With the arrow keys, per day the temperature graphs can be shown.


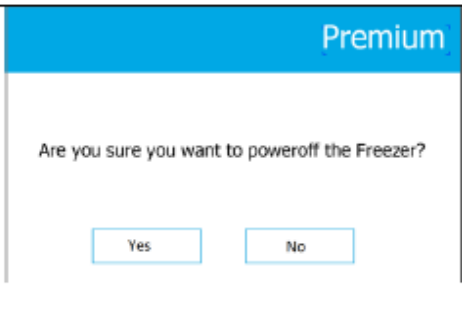
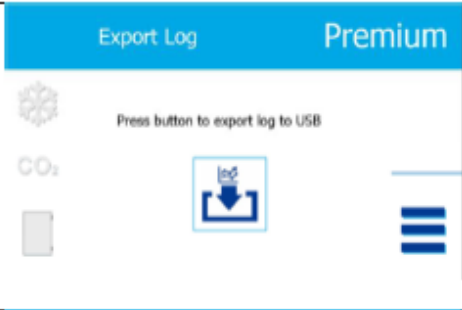
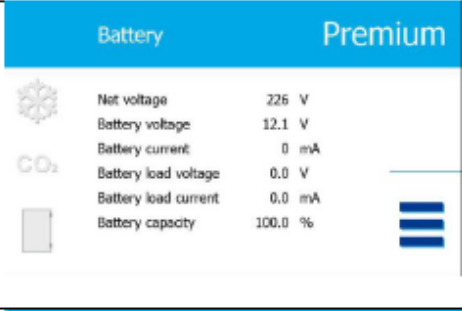
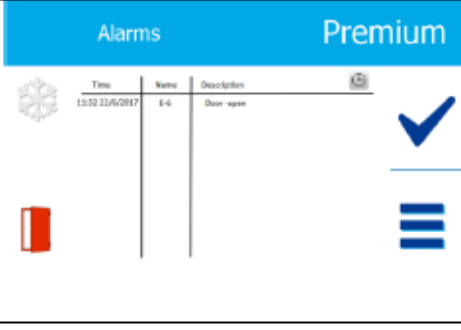






7.10. Screen overviews

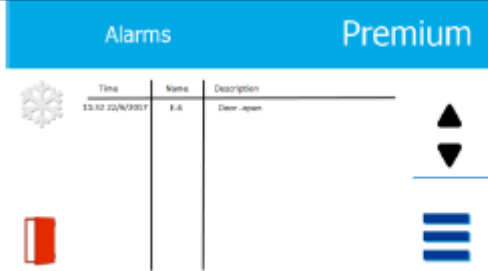

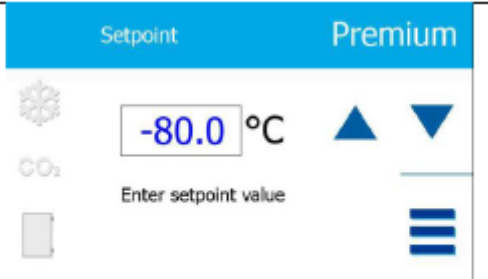
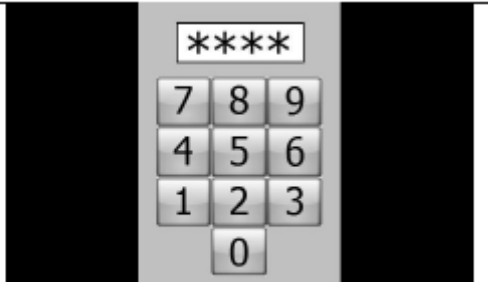
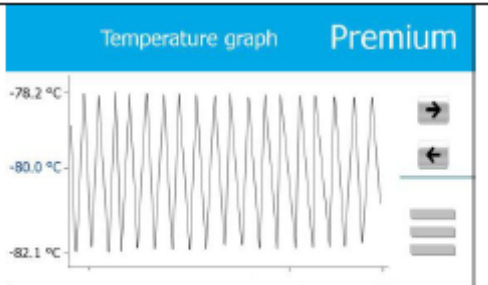
Page 14-17.

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3. set language	<div><div>LanguagePremium</div><div></div></div>	<p>To set the language of the screen , press the according flag of the country, the square indicates the selected language.</p> <p>To return press the menu button.</p>
4. Setting screen(logged in as Snijders	<div><div>ParametersServiceStatusPremium</div><div></div></div>	<div><div>Parameters</div><div>Press to go to parameter menu (5)</div></div> <div><div>Service</div><div>Press to go to service menu (Add service logs, and read service history) (6)</div></div> <div><div>Status</div><div>Press to go to status menu (Readout sensors and relay status) (7)</div></div>
4. Parameter screen (logged in as User)	User is directly put forward to parameter screen (5).	
5. Parameter screen	<div><div>ParametersPremium</div><div></div></div>	<p>To set a parameter :</p> <ul style="list-style-type: none">- Select the Number box (indicated with blue square if selected)- Use the up and down arrows to go to the according parameter.- Select the value box (indicated with blue square if selected)- Use the up and down arrows to change the value.- Select the number box to commit the change of the parameter value <p>Use the menu button to return.</p>
6. Service screen (only accessible with snijders login)	<div><div>ServicePremium</div><div></div></div>	<p>To record a service :</p> <ul style="list-style-type: none">- Select the according service jobs from the list by pressing the button- Use the up and down button to scroll through the list- Press the acknowledge button (A list is shown with the selected service jobs)- If correct press acknowledge again. <div><div></div><div>Press to see the service history log</div></div> <div><div></div><div>Acknowledge button.</div></div>

<p>7. Status Screen</p>		<p>In the status screen, the current state of the relay can be seen. Red indicates that the relay is set active.</p> <p>By pressing on the screen, the mode is switched to the next.</p> <p>Modes:</p> <ol style="list-style-type: none"> 1. Relay status 2. Sensor values1 3. Sensor values2 <p>Use the menu button to return</p>	
<p>8. Power off screen</p>		<p>Yes</p>	<p>Freezer is powered down and screen is in standby mode.</p>
<p>9. Export USB screen</p>		<p>To export log from the freezer to USB:</p> <ul style="list-style-type: none"> - Put a usb-stick into the freezer. - Press the button on the screen. <p>Use the menu button to return.</p>	
<p>10. Battery status screen</p>		<p>On this screen the current state of the battery is displayed.</p> <p>Use the menu button to return.</p>	
<p>11. Alarm screen. (only accessible when logged in)</p>		<p>In this screen the current alarms can be seen and acknowledge.</p> <p>To acknowledge an alarm:</p> <ul style="list-style-type: none"> - Press the acknowledge button - Select a Note - Press the acknowledge button 	
			<p>Press to see the alarm history (12)</p>
			<p>Acknowledge button</p>

12. Alarm history screen. (only accessible when logged in)	 <p>The screen displays a table with columns: Time, Name, and Description. The first row shows '13:02 22/07/2017', 'E.B', and 'Door open'. Navigation buttons (up, down, and menu) are on the right.</p>	<p>Use the up and down buttons to scroll through the alarm history.</p> <p>By pressing on the Description column the note added to the alarm will become visible .</p> <p>Use the menu button to return.</p>
13. Off screen	 <p>The screen is black with a white power button icon in the center and the word 'Standby' at the bottom.</p>	<p>This screen is shown when the freezer is off, and the screen has been pressed. To power the freezer on:</p> <ul style="list-style-type: none"> - Press the power icon - Login (with the correct login) (15) - Wait Approximately 10 seconds for the freezer to verify . The main screen will be shown (1)
14. Setpoint screen.	 <p>The screen shows a temperature setpoint of -80.0 °C. It includes a snowflake icon, a CO2 icon, and a box labeled 'Enter setpoint value'. Navigation buttons (up, down, and menu) are on the right.</p>	<p>To set the setpoint, use the up and down buttons to modify the value.</p> <p>Use the menu button to return.</p>
15. Login screen	 <p>The screen shows a login interface with a display showing '****' and a numeric keypad with buttons 0-9.</p>	<p>This screen is shown, if a login is required.</p>
16. Log screen.	 <p>The screen displays a temperature graph with a y-axis ranging from -78.2 °C to -82.1 °C. It includes navigation buttons (right, left, and menu) on the right side.</p>	<p>In this screen the log is seen per day. (from 0:00 till 23:55)</p> <p>Using the back-forward buttons a different day can be visualized.</p> <p>Use the menu button to return.</p>



7.11. Programming internal parameters

Before programming the parameters, the correct access code must be entered (**menu button** is dark blue). The parameters can be accessed by pressing the **setting button** in the menu. First select the correct parameter number with the arrow keys. Then press on the value. The value can be changed by pressing the arrows. Then press the parameter number again to use the value, just set.

User parameter table

This table is accessible, if the user enters the access code P90 or the MASTER code.

Number	Description	Range	Unit	Default
P 30	Min. alarm temperature regulating sensor	-100 ... +25	°C	-85,0
P 31	Max. alarm temperature regulating sensor	-100 ... +25	°C	-70,0
P 37	Alarm temperature telephone relay RY6	-90 ... -30	°C	-45,0
P 50	Switch in temperature CO ₂ /LN ₂ -cooling	-100 ... +25	°C	-60,0
P 70	Alarm relay delay	0 ... 999	seconds	60
P 80	Actual time: year	0 ... 9999	-	-
P 81	Actual time: month	1 ... 12	-	-
P 82	Actual time: day	1 ... 31	-	-
P 83	Actual time: hour	0 ... 23	-	-
P 84	Actual time: minute	0 ... 59	-	-
P 90	Access code (4-digits)	1 ... 9999	-	1234
P 91	MAC-address	-	-	-



8. INITIAL LOADING

- After the freezer has switched on the set point (for example -80°C), it can be filled with the racks/boxes, preferably cold.
- Do not leave the freezer door open too long. A door alarm E6 is activated after 30 seconds.
- Fill the freezer for 25% with preferably cold racks/boxes.
- Then, close the freezer door and wait till the set temperature is reached.
- Fill the next 25%, etc.



IMPORTANT

Failure to follow these procedure or overloading the unit may cause undue stress on the compressors or jeopardize user product safety.

Closing the door without making sure the latch engages fully with the strike can result in substantial prying forces on the door.



9. ALARMS

The alarm relay is attracted in the idle state and falls off in case of an alarm. This activates an alarm during a power failure.

An alarm can be activated by:

- Non-existence of a sensor.
- Empty battery.
- Lack of a 230 VAC supply voltage.

By pressing the **alarm bar**, the acoustic alarm will be reset.

Alarms can be accepted by pressing the **acknowledgment button**, after pressing the alarm bar and logging in first.

If the cause of the alarm has been eliminated, the alarm is deleted from the screen.

The error message will remain in the screen, for the duration of the error. The alarm bar will also constantly flash.

In the next table the alarm codes are listed:

CODE	DESCRIPTION	CHECK
E1	Temperature sensor cabinet defective.	Connections
E2	Condenser sensor defective.	Connections
E3	Battery not connected.	Connections, fuses, battery
E4	Main voltage absent.	Absence voltage, fuse internal
E5	Battery voltage too low.	Battery
E6	Door alarm.	Closure of the door
E10	Main voltage deviates too much.	Parameter P72/P73, contact Snijders
E20	Emergency modus active	Contact Snijders Labs
Lo1	Temperature line sensor inside too low.	See chapter 10
Hi1	Temperature line sensor inside too high.	See chapter 10
Hi2	Temperature condenser sensor too high.	See chapter 10



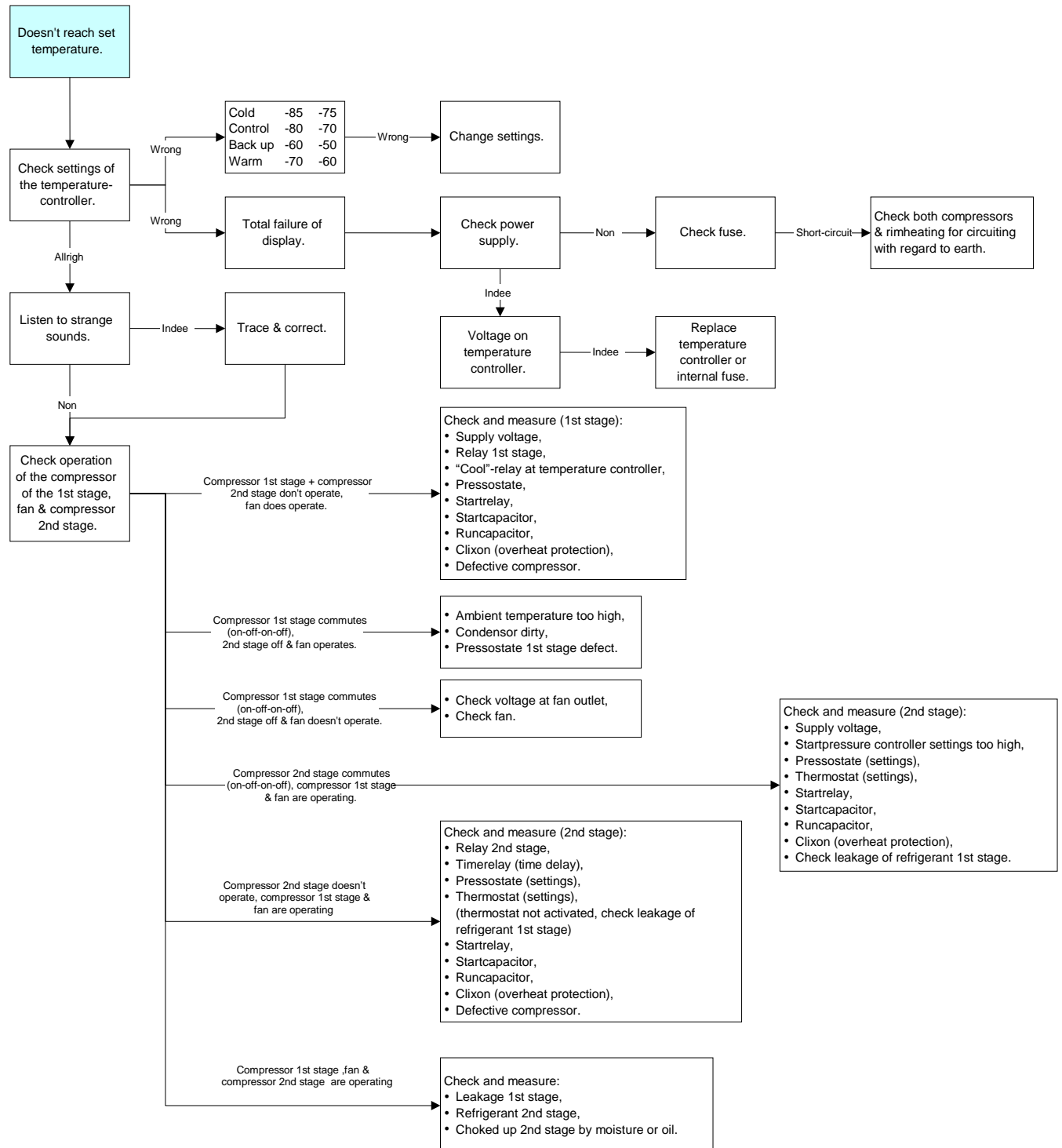
10. WARNINGS



IMPORTANT

1. In spite of the anti-condense heating in the edges of the freezer, freezing can occur. To guarantee a proper functioning of the lockable rubbers, this freezing needs to be removed.
2. Keep the freezer dry at the outside when there is some drip water.
3. Check frequently the vacuum release (left side upright freezers), if it's ice-free. The vacuum release can easily be removed.
4. The freezer must be cleaned with a cleaning-solution or with a disinfection solution, max. 70% alcohol inside.
5. Always switch off the freezer completely (by using the entry code and the power on/off switch) and unplug the power cable to a 230V outlet, when starting a repair inside the machine room, for example changing parts.
6. When unexpected problems occur during working with the freezer, which can be dangerous for yourself and/or your surroundings, remove the plug immediately from the outlet.
7. Do not position the freezer, so that it's difficult to operate the disconnection device.
8. For personal safety and trouble-free operation, this unit must be properly grounded before it is used. Failure to ground the equipment may cause personal injury or damage to the equipment.
9. Never cut the grounding prong from the power cable. If the prong is removed, the warranty is invalidated.

11. a. TROUBLE SHOOTING AIRCOOLED CONDENSER





b. EXTRA, TROUBLE SHOOTING WATERCOOLED CONDENSER

Compressor 1^{ste} stage commutes (on-off-on-off), compressor 2^e stage off & ventilator functions:

- Magnet switch for water is defect;
- Constipation warmth exchanger;
- Water temperature too high;
- Water pressure too low;
- Absence of water circulation.

12. FIRST-AID MAINTENANCE



WARNING!

Unauthorized repair of your freezer will invalidate your warranty. Contact your distributor for additional information.



CAUTION! Maintenance should only be performed by trained personnel.

12.1. Condenser filter maintenance

Clean the condenser at least every six months; more often if the laboratory area is extremely dust prone.

To clean the condenser, complete the following steps:

1. Pull the grill open.
2. Remove the filter.
3. Shake the filter to remove loose dust, rinse the filter in clean water, shake the excess water from the filter or replace the filter.
4. Place the filter back.
5. Close the grill.



12.2. Gasket maintenance

Periodically check the gaskets around the door or lid for punctures or tears.
Keep the lid and door gaskets clean and frost free by wiping gently with a soft cloth.

12.3. Defrost procedure

To defrost the equipment, complete the following steps:

1. Remove all products and place in another freezer.
2. Turn off the freezer and allow the interior to warm to room temperature.
3. Dispose of the ice and wipe out any water standing in the bottom of the cabinet.

If there is freezer odor, clean the freezer with a cleaning-solution or with a disinfection solution, max. 70% alcohol inside.

12.4. Alarm battery maintenance

Check the condition of the alarm battery several times a year (refer to chapter 7.4.).

When the error-codes E3 and/ or E5 appear on the display of the controller the battery have to be replaced. Complete the following steps:

- First switch off the freezer.
- Then disconnect the power-supply plug from the power-socket.
- Unscrew the left side plate from the engine-room, where the controller is situated.
- The battery is situated at the backside of the controller.
- Disconnect the connectors of the red and the black wires.
- Remove the screw from the battery holder.
- Replace the battery.
- Replace the screw from the battery holder.
- Connect the connectors of the red and the black wires. (pay attention: '+'-side = **red**; '-' side = **black**).
- Place back the side plate of the engine-room by fastening the screws.
- Connect the power-supply to the power-socket.
- Switch on the freezer.
- Test the freezer if alarm is gone.



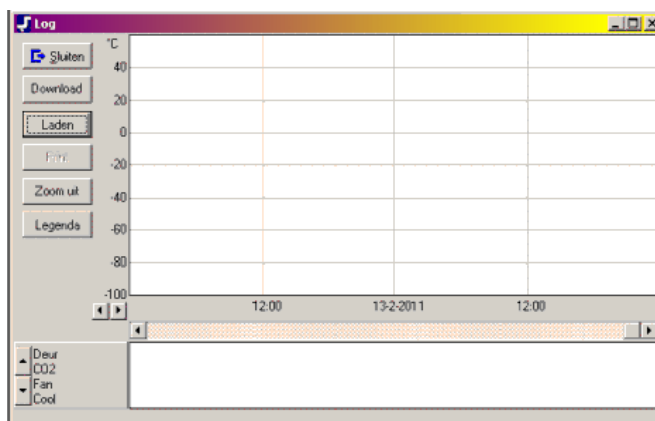
CAUTION! Reloading of the battery could take a maximum time of approx. 24 hours. During this time the E3 and/ or E5-alarm can still be active.

12.5. Service once a year

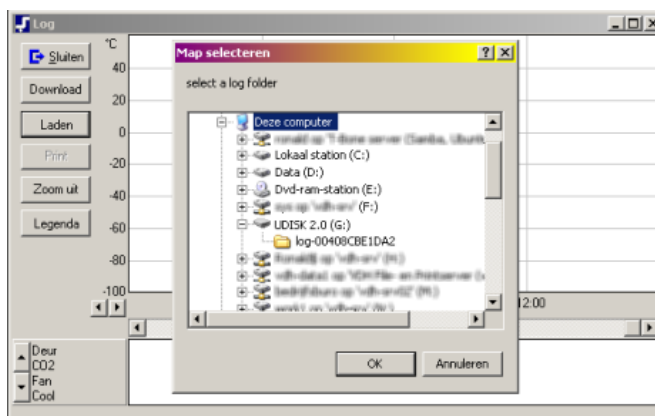
Contact your distributor for additional information.

13. IFREEZE PC-PROGRAM

The log (with the correct MAC-address) on the USB stick can be opened by using the pc program sl_log.exe (which can be downloaded or send to you without any costs). After opening the program, the following screen appears.

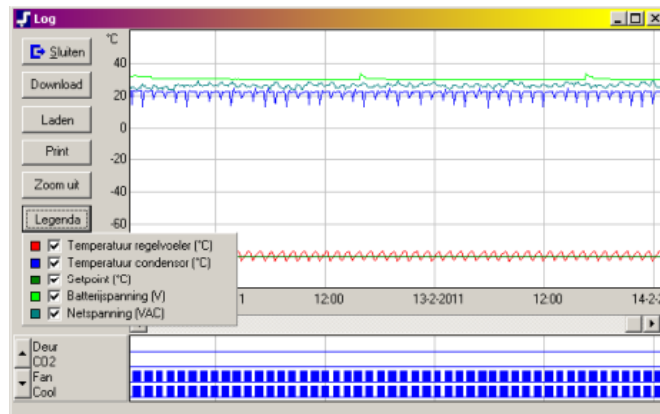


Click on the Snijders logo, left above and CHOOSE LANGUAGE. Select the language you wish. Press button load and below dialog screen appears to select the map with the log data.



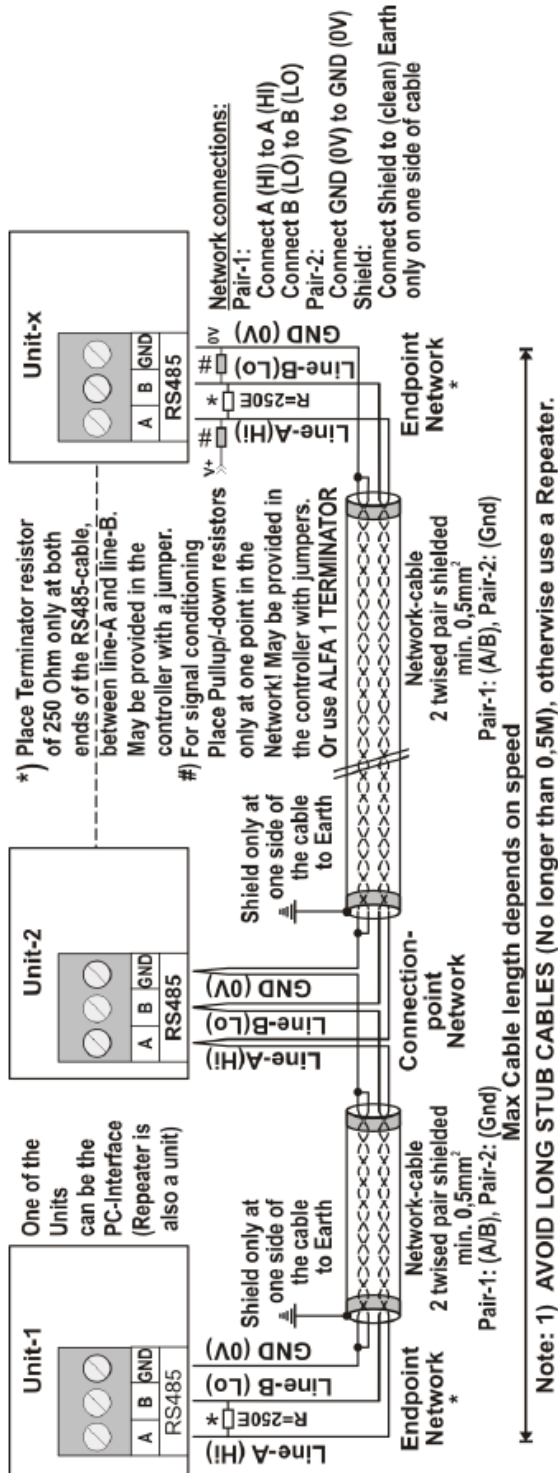


Press **OK** and the data will be read in and appears in the program.



14. CONNECTING DIAGRAM RS485-NETWORK

RS 485 NETWORK CONNECTIONS 2-twisted pair shielded cable:





15. CONNECTING AN ETHERNET NETWORK WITH A PC

Configuration of the network settings

Please inform Snijders Labs!

The program **vdh_conf** is used to change the network settings of the interface. Download the program **setup.exe** in the **vdh_conf** folder, to start the installation.

Start the program and press the **scan** button to search the network for connected interfaces. Make sure that the controllers are connected on the same network as the PC. Use a standard Ethernet cable, straight-over, or a cross-over Ethernet cable, depending how you want to connect it. Use a straight-over cable if it is connected to the interface with a switch, or a cross-over cable if it is connected directly to the PC.

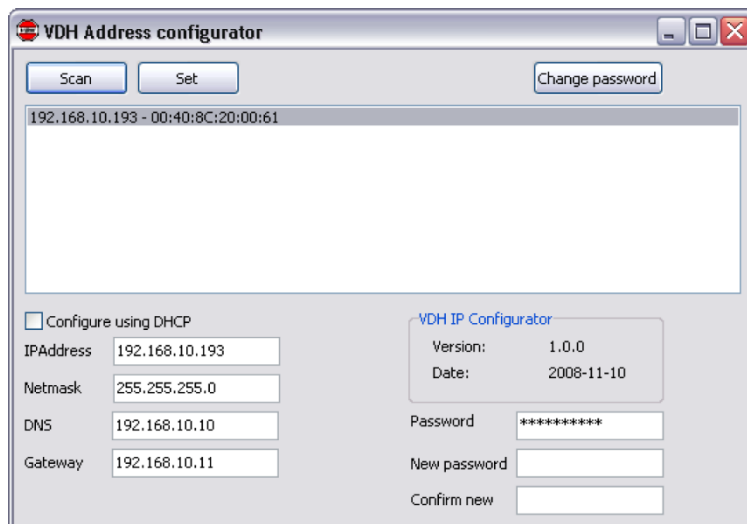
If the interface is found, select it from the list, the network settings can be changed now. Enter the password in the password field and press the set button to send the settings to the interface. The standard password is **admin**.

The password can be changed by entering a new password in "**New password**", followed by to confirm at "**Confirm new**". Press on "**Change password**" to change the password.



IMPORTANT

**** Just select the DHCP setting, if a DHCP server is present.**



**** Ask your network administrator for the correct settings.**



16. APPENDIXES

- Installation instruction
- STEK-Control-Certificate
- Test form



INSTALLATION INSTRUCTION SNIJDERS LABS LABS -86°C FREEZER

Name company/institution :
Department :
Area :
City :
Date :
Unit/ model number :
Serial number :

Check the following:

- Packaging removed.
- Unit located approx. 15 cm from the wall, left, right, wheels on their brakes.
- Freezer connected to a separate group, 230 V, 16 Amp. slowly fused.
- Check external alarms, when possible.
- Start the system.
- Vibration checked.
- Alarms/ building management system tested.
- Door rubbers checked.
- Door locks checked.
- Platforms installed (for upright models only).
- Condenser filter and clamps checked.
- Spacers installed at the back of the freezer.
- CO₂ or LN₂ emergency system checked/ installed (if available, optional).
- Temperature recorder checked (optional).
- Check if there is ice forming at the walls of the interior, when the temperature on the display is -15°C .
- Has the freezer/controller been demonstrated to the users.
- Service possibilities of SNIJDERS explained.
- Manual in the possession of the users.
- Keys and entry code known.
- Packing list signed by the responsible person.

Water-cooled condenser:

- Water leakages at connections checked.
- Enough water pressure available? : bar
- What is the temperature of the supplied water? : °C
- Is a water flow available? : liter/ min.

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Specialties:

- Unit doesn't fit through the door or in the lift and isn't installed on the required location.
- Area where the unit is located is very warm (Temp ambient = °C).
- Area where the unit is located doesn't have enough air circulation.
- Unit is located in direct sunlight.
- There are other units in the same area, which produce a lot of heat.

Settings:

- Temperature (°C) setting of the unit :
- Over/ under temperature setting (°C) :
- Back up setting (°C) :

Peculiarities and/or problems:

.....
.....
.....

Name and signature SNIJDERS LABS representative:

.....
.....
.....

Name and signature customer: