

**SNIJDERS LABS**

ISO9001 certified by Lloyd's

**EXPERIENCED INNOVATORS**



# **OPERATION- & INSTALLATION MANUAL**

**SNIJDERS LABS**

## **ULTRA LOW TEMPERATURE FREEZERS**

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**OPERATING- & INSTALLATION MANUAL SNIJDERS LABS ULTRA LOW TEMPERATURE FREEZERS**

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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 are intended to store blood products for transfusion purposes.

The ULT series Ultra Low Temperature freezers have a storage freezing system with a temperature range from  $-50^{\circ}\text{C}$  up to  $-86^{\circ}\text{C}$ . 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) R507 (VF-model) or R404A (HF-model) is used as refrigerant and in the lowest stage (second) a mix of R508b and 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  $\text{CO}_2$  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  $\text{CO}_2$ -alarm temperature, the  $\text{CO}_2$  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  $\text{CO}_2$ -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 internal memory of 512 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 CO<sub>2</sub> 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: 120-244-360-480-600-711-830-965 liter.
Material internal	Stainless Steel
Material external	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	R507
Refrigerant second stage	Mix of R508b and R170
Heating door	Door warmth cooling system
Controller	SL9002
Temperature sensor	PT1000
Temperature adjustments	-50°C till -86°C
Minimum temperature	-86°C
Time delay second stage	180 seconds
Locker	All models by using a key
Transit/vacuum release	Ø 26 mm / vacuum release situated in transit (only for upright freezers)
Condenser	Air-cooled Water-cooled (optional), see chapter 4
Requirements	220/240 VAC, 50 Hz, fuse 16 Amp. slow
Power and current rating	HF400-86: 930 VA / 910 W / 4,2 Amp. HF570-86: 950 VA / 940 W / 4,25 Amp. VF120-86: 1362 VA / 756 W / 6,3 Amp. VF240-86: 965 VA / 885 W / 4,3 Amp. VF360-86: 991 VA / 980 W / 4,3 Amp. VF475-86: 1320 VA / 1240 W / 6,2 Amp. VF620-86: 1364 VA / 1260 W / 6,3 Amp. VF720-86: 1540 VA / 1430 W / 6,9 Amp. VF830-86: 1840 VA / 1600 W / 8,4 Amp. VF1000-86: 1900 VA / 1680 W / 8,6 Amp.



## 3.2. Controller

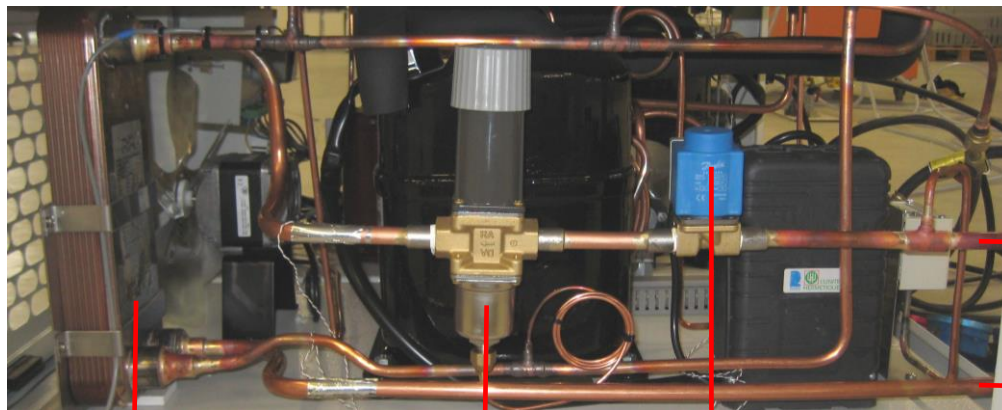
Type	SL9002 – Slimline, version 1.04
Case	Aluminium built-in profile
Dimensions	200 * 72 * 30 mm (lxhxd)
Hole in the panel	min. 173 * 66 mm (bxh)
Front	Polycarbonate (IP-44)
Display	4-digit digital display
Connections	RS485 powered by 2x twisted-pair secured min. 0,5 mm <sup>2</sup>
Operating temperature	-20°C/ +50°C
Storage temperature	-20°C/ +60°C
Operating humidity	10% / +90 % RH not condensing
Accuracy	± 0,5 % of the range
Status leds	COOL = relay cooling on BACKUP = CO <sub>2</sub> backup cooling on PRG. = PRG active CODE = CODE active
Alarm leds	LOW BATT = battery empty TEMP HIGH = warm temperature alarm TEMP LOW = cold temperature alarm
Buttons	POWER ON/OFF = on/off button ▲ = value increasing button ▼ = value decreasing button PRG. = program button CODE = access code button SETP. = set point button MUTE-BATT. = battery state button & mute alarm
Buzzer	Built-in buzzer for alarm



### 3.3. 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 <sub>2</sub> RY3 = Cooling RY4 = Fan RY5 = Free contact RY6 = Temperature alarm relay, telephone

## 4. WATER-COOLED CONDENSOR (optional)



Water inlet (4)

Water outlet (1)

Condensor (6)

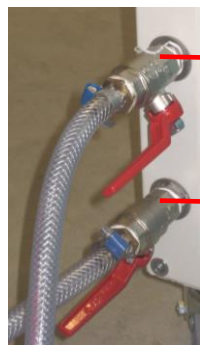
Water control valve 5

Water valve (3)

Water-cooled condenser system SNIJDERS freezer



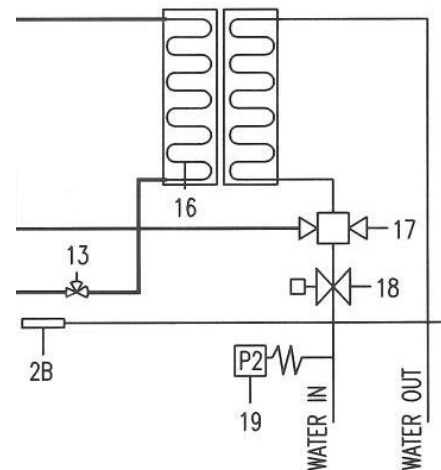
Pressure pressostat (2)



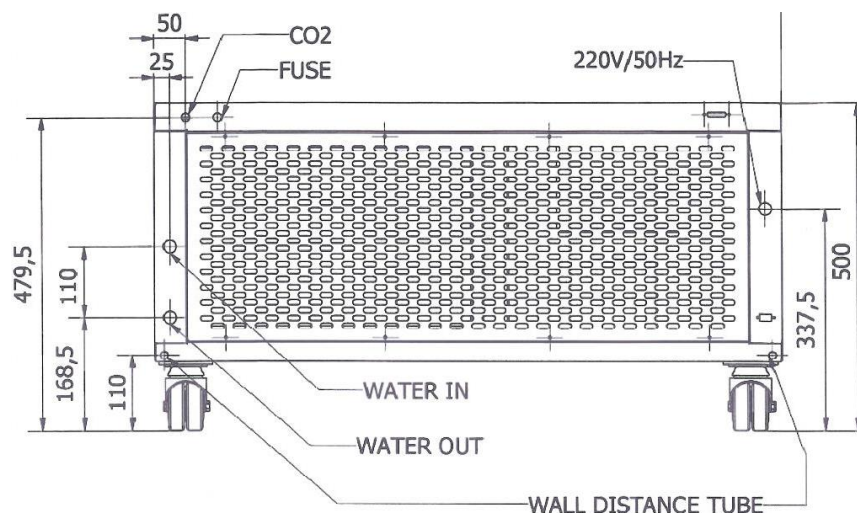
Water inlet (4)

Water outlet (1)

Water in- & outlet (1)



Cool technical diagram  
freezer with water-cooled  
condenser



Example back of upright  
freezer, water-cooled  
condenser, CO<sub>2</sub> emergency  
cooling system (optional)

Fixation points  
spacers



## Explanation

At the back of the freezer you'll find the connections for the water inlet (4) and the water outlet (1). The water flows in through the water inlet and flows out through the water outlet.

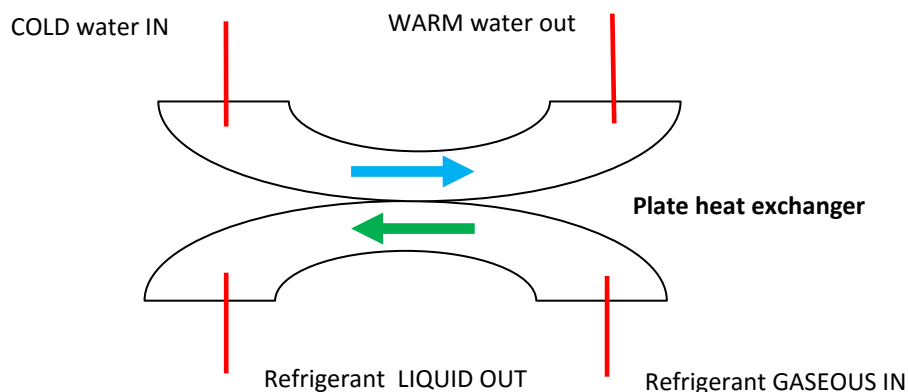
The measuring PT1000 sensor (temperature sensor which passes the value through to the display) signals an electronic control, which makes the cooling system operating, when cooling is required. This system also directly switches a water valve (3) on, which is connected with the water inlet.

the water (circa +15°C) flows through the water control valve (5) to the water cooled condenser (6) .

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.

The water condenser system is protected by means of a pressure pressostat (2). So, when there is no water pressure available, the cooling system of the freezer cannot be switched on which finally increases the temperature inside the freezer.

## Schematic drawing



## 5. INSTALLATION INSTRUCTION

See page 21-22.



## 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<sup>e</sup>) stage compressor will operate at first, as well as the ventilator which cools the condenser. After ± 6 minutes the low temperature (2<sup>e</sup>) 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).

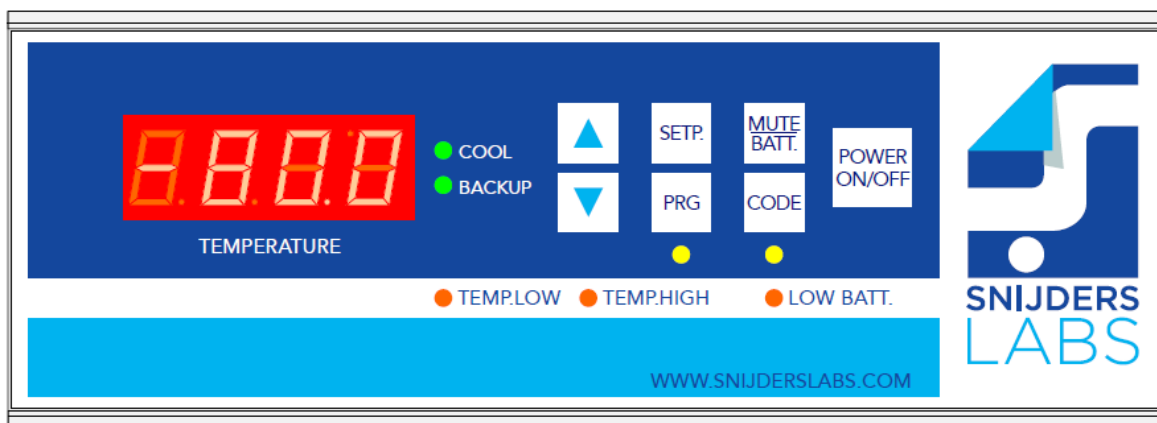
### **Water-cooled condenser, see chapter 4:**

- 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(1).
- Open the water drainage and check it for leakages. Remember the drainage also when the freezer operates.
- Take care that there are no nods 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 10.
- Connect the power cable to a 230V outlet, fitted with a 16A slow fuse. Incorrect voltage can result in severe damage to the equipment.
- LOAD will appear in the display.
- When LOAD is off, switch on the freezer as mentioned in chapter 7.

## 7. OPERATION ULT FREEZER



### 7.1. Entry of the Access code

Insert a special 4-digit code to avoid undesirable alterations of the settings by non-authorized users or to switch the controller on or off.

Press the **Code** button. After that, it's possible to enter an access code with a combination of the following 6 buttons:

▲ = 1; **Setp.** = 2; **Batt.** = 3, ▼ = 4; **Prg** = 5 and **Code** = 6 .

**The standard code from the factory is '1 2 3 4'.** During the input of the code, the led above the '**CODE**' button flickers. When the code correct, the led above the '**CODE**' button will burn continuously.

By pressing again on the **Code** button, the led above the '**Code**' button will switch off and the code disappears. If during 30 seconds no button is pressed, automatically the adjust mode will be de-activated.



## 7.2. Switching ON/OFF

The ULT freezer is switched on by pressing the **'POWER ON/OFF'** button, if the access code is correct (see chapter 7.1.). In normal mode the controller will display the measured temperature of the temperature sensor. When the freezer has been switched on and the set temperature have been reached, the temperature alarm relay will be activated. When the controller is off you have to enter the correct code first by pressing on the **'CODE'** button. Then the **'POWER ON/OFF'** button can be used again.

## 7.3. Reading the setpoint

By pressing the **'SETP.'** button, the value of the setpoint will appear on the display. After releasing the **'SETP.'** button, the actual temperature will appear in the display.

## 7.4. Reading the battery capacity

When the **'BATT.'** button is pressed, the display will show the current capacity of the battery.

After releasing the **'BATT.'** button, the actual temperature will appear again in the display.

***The set points as mentioned in the paragraphs 7.5, 7.6 and 7.8 need to be set at the requested value, by the responsible user (the microprocessor controller is set on the factory settings).***

## 7.5. Changing the setpoint

If the correct access code is used, the setpoint can be changed in the display by pressing **'SETP.'** button. Press with the **Setp.** button the ▲ or ▼ at the same time to alter the setpoint.

## 7.6. Changing the alarm

When the correct access code is used, the minimum and maximum alarm temperature, the alarm temperature of the relay (evt. the telephone selector) , the switch-on temperature of the CO<sub>2</sub> cooling and the entry code can be set by pressing the **'PRG'** button.

After pressing the PRG button, the display will show **P30** (LED under **'PRG'** button will burn). By pressing **'SETP.'** The set value of the **minimum alarm temperature** appears. This can be changed by pressing the **'SETP.'** and ▲ or ▼ button at the same time. Release the buttons when the correct value is reached. The display will returns to its normal status when the **'PRG'** button is pressed or when during 30 seconds no button is used.



When the ▲ button is pressed, the display will show **P31**. When the 'SETP.' is pressed, the display will show the adjusted value of the **maximum alarm temperature**. This can be changed by pressing the 'SETP.' and ▲ or ▼ button at the same time. Release the buttons when the correct value is reached. The display will go back to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

When again the ▲ button is pressed, the display will show **P37**. When the 'SETP.' is pressed, the display will show the adjusted value of the **alarm temperature relay (eventually telephone selector)**. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

When again the ▲ button is pressed, the display will show **P50**. By pressing 'SETP.' the display will show the set value of the **'switch on' temperature of the CO<sub>2</sub> backup system**. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

When again the ▲ button is pressed, the display will show **P70**. By pressing 'SETP.' the display will show the set value of the **'alarm relay'**. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

When again the ▲ button is pressed, the display will show **P80**. By pressing 'SETP.' the display will show the set value of the **'actual year'**. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

When again the ▲ button is pressed, the display will show **P81**. By pressing 'SETP.' the display will show the set value of the **'actual month'**. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

When again the ▲ button is pressed, the display will show **P82**. By pressing 'SETP.' the display will show the set value of the **'actual day'**. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.



When again the ▲ button is pressed, the display will show **P83**. By pressing 'SETP.' the display will show the set value of the 'actual hour'. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

When again the ▲ button is pressed, the display will show **P84**. By pressing 'SETP.' the display will show the set value of the 'actual minute'. This can be changed by pressing the 'SETP.' and ▲ or ▼ at the same time. Release the buttons when the correct value is reached. The display returns to its normal status when the 'PRG' button is pressed or when during 30 seconds no button is used.

## 7.7. Alarm test function

- Key in the access code, standard factory setting 1234.
- After activation, hold 'BATT.-MUTE' & ▼. All segments, led, buzzer and potential free contact will switch/be activated.
- The display returns to its normal status when the buttons are released and when during 30 seconds no button is used.

## 7.8. Changing access code

If the correct access code from the factory is used, the customer can change this code. This can be done by pressing the 'PRG' button (LED under PRG button burns). By pressing several times on the ▲ button the display will show **P90**. Hold the 'SETP.' button till the display is flickering 6 times. A new code can be entered by using the following buttons: ▲ = 1; Setp. = 2; Batt. = 3, ▼ = 4; Prg = 5 en Code = 6. The display returns to its normal status when the buttons are released and when during 30 seconds no button is used.



### **Important**

**Remember the new access code at all times! The freezer cannot be switched off or the adjusted values can not be changed or made visible on the display without the access code. When you forgot the code, Snijders Labs can supply you a master code. With this master code, all parameters including the access code can be adjusted.**



## 7.9. Door contact

This is only valid for the upright models. When the door is opened, an alarm delay-time will start. When this alarm time-delay has passed, an alarm will be generated (E6). The alarm time-delay is set to 30 seconds. When the door is closed, the alarm is de-activated. The potential free contact will not be activated.

## 7.10. Resetting alarm/buzzer

If there is an alarm situation, a message will appear on the display or one of the status LED's will burn (with the exception of the alarm temperature relay). At the same time the potential free contact shall be activated and the buzzer will sound. The buzzer can be mute by pressing the 'MUTE' button. When the alarm situation is corrected by the machine itself, the buzzer, the relay and the display will be reset automatically. The original error remains in the display, to show that there has been an alarm.

### Reset alarm

- Press **Code**.
- Press **▲** = 1; **Setp.** = 2; **Batt.** = 3, **▼** = 4, the access code.
- Press **Setp.** for the reset of the alarm.

When a temperature sensor is defect during installation, the controller will not work and the sensor needs to be replaced. If the sensor is defective after some time of operation, the controller shall switch the cooling on and off, depending on the previous ON/OFF switching times of the cooling cycles. In this way the temperature in the freezer remains. Of course this situation needs to be repaired as soon as possible.

## 7.11. Storage of the log on an USB stick

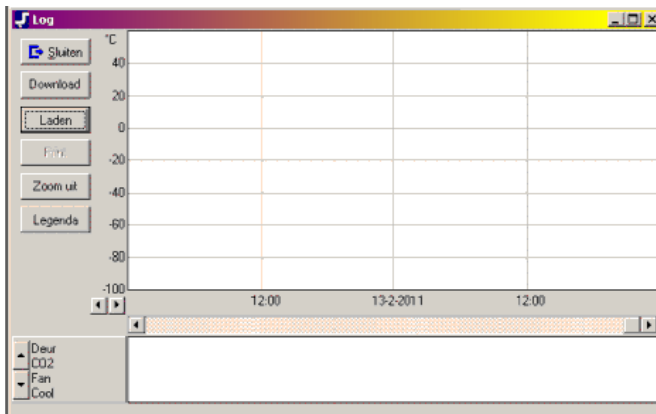
To put the log files on an USB stick, this stick (with sufficient free space) needs to be put in the USB connection at the front of the freezer (behind the condenser plate, which can be removed very easily). Then press on the **▲** button after the entry code has been entered. When the text **L.USB** appears on the screen, the **Setp.** button needs to be pressed to start up the storing. During the storing, the counter which shows the completed percentage is to be seen on the screen as well. After the transfer of all the log files, the text "donE" will appear on the display. There are two error codes possible: **E.US1**, no USB stick has been inserted. **E.US2**, there is not enough free space on the stick.

To check the name of the file (MAC-address), please do the following:

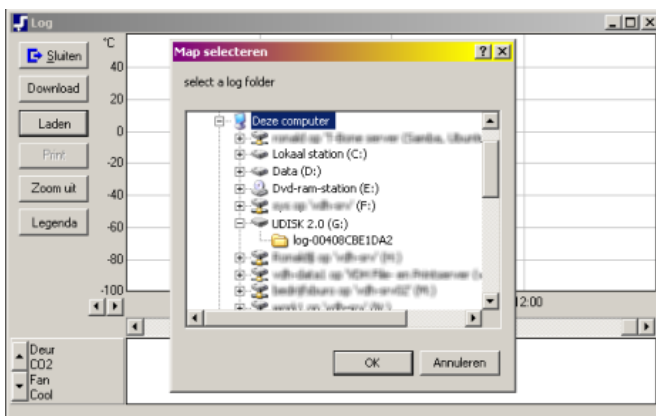
- If the correct access code is used, press the '**PRG**' button.
- Press **▲** button, the display will show **P91**.
- By pressing '**SETP.**' the display will show a '**MAC address**'.
- Write this number down.
- The display returns to its normal status when the '**PRG**' button is pressed or when during 30 seconds no button is used.

## 7.12. Open log

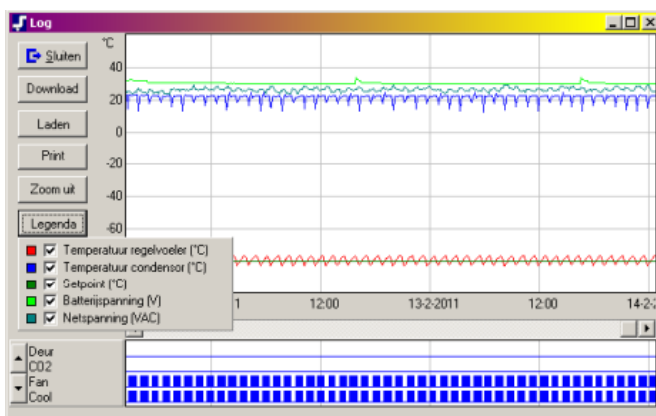
The log (with the correct MAC-address) on the USB stick can be opened by using the pc program sl\_log.exe (which can be downloaded or send to you without any costs). After opening the program, the following screen appears.



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.







## 8. INITIAL LOADING

- After the freezer has switched on the set point (for example  $-80^{\circ}\text{C}$ ), 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 relays are activated in normal position and will be de-activated during alarm. Therefore an alarm will be generated during Total power failure. An alarm can be generated when:

- one of the temperature sensors is defective;
- the lead battery is empty/ voltage is too low/ battery is not connected;
- no 220-240 Vac is present or an excessive voltage deviation;
- temperature is out of cold- or warm range;
- maximum time door-open;
- maximum temperature of the condenser sensor is exceeded.

By pressing '**Setp.**' button the buzzer will be reset. The alarm codes will be staying on the display. The alarm leds will keep on flickering. When the failure hasn't been restored, the buzzer will be activated again after one minute.

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
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

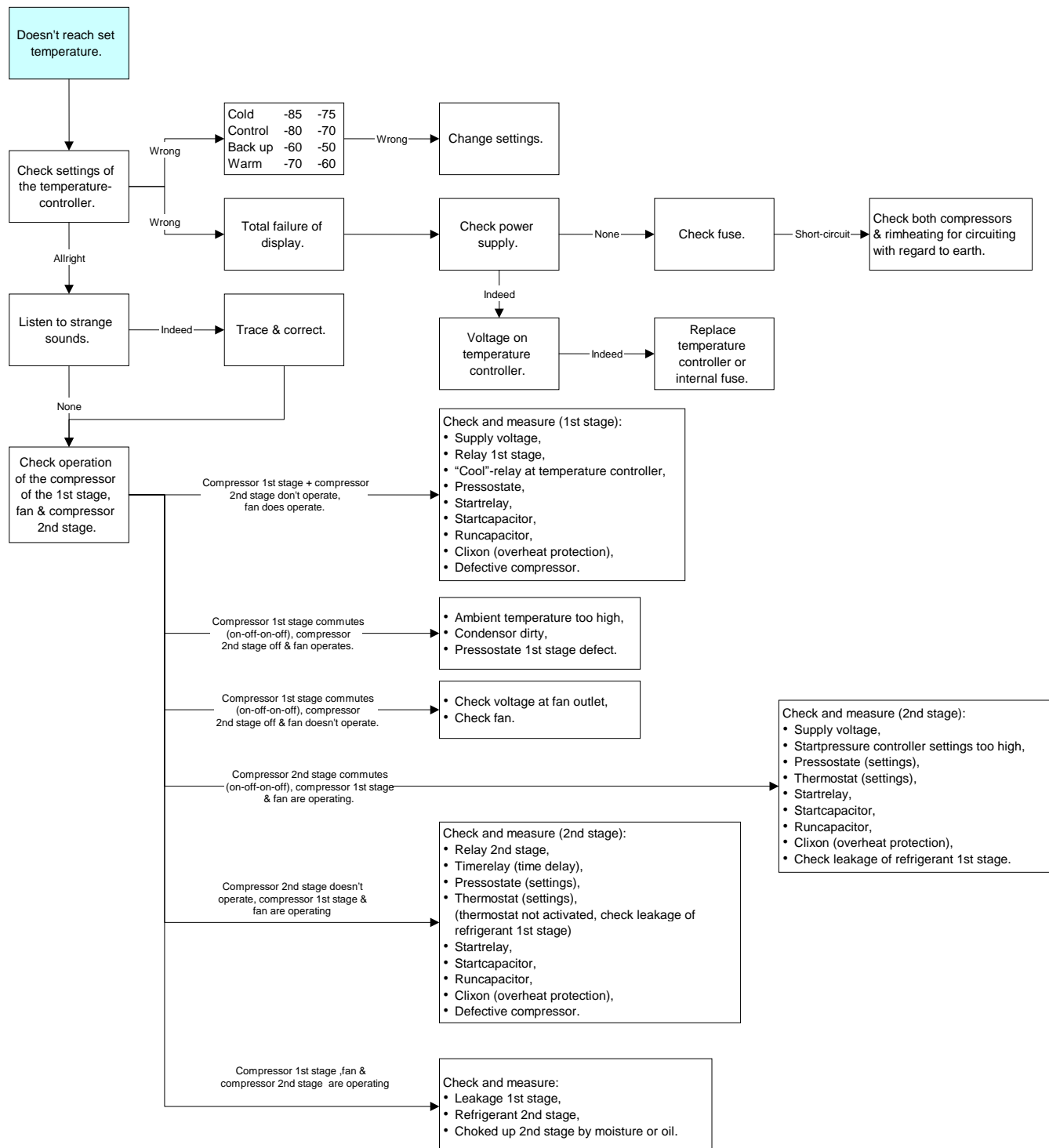


### **Important**

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 CONDENSOR



## b. EXTRA, TROUBLE SHOOTING WATERCOOLED CONDENSOR

*Compressor 1<sup>ste</sup> stage commutes (on-off-on-off), compressor 2<sup>e</sup> 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.**

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## 13. APPENDIXES

- Part list upright- and chest freezers.
- Installation instruction
- Cool- and electrical drawings all model ULT freezers
- STEK-Control-Certificate
- Test form

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## INSTALLATION INSTRUCTION SNIJDERS 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.
- CO<sub>2</sub> or LN<sub>2</sub> 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 representative:**

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

## **Name and signature customer:**