

OPERATING INSTRUCTIONS

LABORATORY UNIT

LR 100-ST

ARCTIKO

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IMPORTANT

Before using the appliance

For safety reasons, the instructions should be read before the appliance is commissioned.
The operating instructions should always be available and accessible to personnel!

Low Voltage Directive 2006/95/EEC.

Electromagnetic Compatibility Directive 2004/108/EEC.

Only use the appliance for its specific purpose.

Safeguarding the environment:

Packing

The packing material is entirely recyclable, please follow the local regulation for scrapping.

Appliance

By disposal deliver the appliance to an authorised centre for recovery of refrigerant. Make the appliance unusable by cutting of the power supply cord.

Information

This appliance contains a mixture of various refrigerants. For more information please refer to the rating plate affixed to the freezer.

Precautions and general recommendations:

WARNING: Keep ventilation openings, in the appliance enclosure or in the built-in structure, clear of obstruction

WARNING: Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

WARNING: Do not damage the refrigerant system.

WARNING: Do not use electrical appliances inside the appliance storage compartment, unless they are of the type recommended by the manufacturer.

- Always keep the keys in separate place and out of reach of children.
- Before servicing or cleaning the appliance, unplug it from the mains or disconnect the electrical power supply.
- The power supply cable may only be replaced by an authorised person.

Installing the appliance

1. Always allow an authorised electrician to install the appliance.
2. The appliance should be located in a cool, dry place out of direct sunlight. The appliance gives off a great deal of heat when in operation. If the ambient temperature is too high there is a risk that the appliance will not operate correctly. It is recommended that the room be ventilated so that the room temperature does not exceed ambient temperature.
3. Place the appliance on a solid and flat substrate. This will eliminate any vibration and irritating noise. The appliance should be placed with at least 10cm free to the sides, at least 16mm free at the back.

Electrical Connection

The appliance meets current EU directives. Low voltage 2006/95/EEC.
Electromagnetic compatibility 2004/108/EEC.

The appliance should be given extra protection in accordance with Electricity Supply Regulations in order to protect the user against dangerous electric shocks in the event of faults.

If the switch is for three-pin plug, a three-pin plug should be used and the conductor with yellow/green insulation connected to the Earth terminal.

Data regarding voltage and absorbed power/current is given on the rating plate.

Electrical connection must be made in accordance with the local regulations.

Warning

Regulations require that this appliance be earthed:

The manufacture declines all liability for injury to persons or animals and for damage to property resulting from failure to observe the above procedures and reminders.

If the socket and plug are not of the same type either the socket or the plug must be replaced by a qualified electrician.

Under no circumstances use extension leads or adaptors.

1. The appliance should be connected by an authorised electrician or by the company that sold the appliance. Incorrect installation may damage the appliance.
2. Place the appliance on a flat floor that can bear the weight of the appliance.
3. The electrical installation should be earthed.
4. Do not use extension cables. Connect the appliance directly to a fixed installation. If the appliance is connected to a long extension cable there is a risk that the cable will become hot.
5. The appliance should be placed in a dry location. Do not allow water to come into contact with the cabinet. Water entering electrical parts may cause short-circuiting.
6. In the event of functional or electrical irregularities, please contact an authorised service engineer.

Before Commissioning

Clean the appliance both inside and out using a damp, wrung out cloth. Dry with a dry cloth.

Starting procedure

Put the plug in the socket.

The digital thermostat/thermometer will start to flash. The thermostat pre-set by the producer. The appliance should run for at least 6 hours before the thermostat is changed to allow for stabilisation of the cooling system.

The alarm function will not start before it has reached temperature for the first time.

Change of alarm and of set-point – see table for parameters.

Starting up the appliance

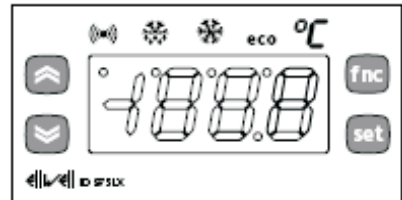
Set the digital thermometer at the required.

Disconnecting the appliance

Electrical disconnecting must be possible either by unplugging the appliance or by means of a double pole switch located up-line from the socket.

Functional description of the control panel (Eliwell ID975LX-Contoller)

- UP button  Scrolls through the menu items
Increases the values
- DOWN button  Scrolls through the menu items
- fnc button  ESC function (exit)
- set button  Accesses the setpoint
Accesses the menus
Confirms the commands
Displaying the alarms (if present)



START UP

When starting up the appliance, it performs a Lamp Test, for a few seconds the display and the leds will blink, in order to verify their integrity and correct operation. The controller has two main menus: the "Machine Status" and "Programming" menu.

ACCESSING AND USING MENUS

Resources are arranged in a menu, which can be accessed by pressing and quickly releasing the "set" button ("Machine Status" menu) or by holding down the "set" button for more than 5 seconds ("Programming" menu). To access the contents of each folder, indicated by the relevant label, just press the "set" button once. You can now scroll through the contents of each folder, modify it or use its functions. If you do not use the keyboard for over 15 seconds (time-out) or if you press the "fnc" button once, the last value shown on the display is confirmed and you return to the previous view.

MACHINE STATUS MENU (See Machine Status Menu Diagram)

To access the "Machine Status" menu press and quickly release the "set" button. If alarms are not present, the text "SEt" appears. By using the "UP" and "DOWN" buttons you can scroll through the other folders in the menu:

- AL: alarm folder (if alarms are present, except for faulty probe(s) / probe(s) error(s);
- Pb1: probe 1 value folder;
- Pb2: probe 2 value folder
- Set: Setpoint setting folder.

Setting the Set points

Access the "Machine Status" menu by pressing and quickly releasing the "set" button. The "SEt" folder appears. To display the Setpoint value press the "set" button again. The value appears on the display. To change the Setpoint value, use the "UP" and "DOWN" buttons within 15 seconds. If the parameter is LOC = y the Setpoint cannot be changed.

Alarm on

If alarm condition exists, when accessing the "Machine Status" menu the "AL" folder appears (see the "Diagnostics" section).

Displaying Probes

By pressing the “set” button when the appropriate probe appears, the value of the probe associated to it is displayed.

PROGRAMMING MENU (See Programming Menu Diagram)

1) Level 1 Parameters

To access the “Programming” menu, press the “set” button for more than 5 seconds. If specified, the level 1 access PASSWORD will be requested (see parameter “Pa1”) and (if the password is correct) the text of the first folder will follow. If the password is wrong, the display will show PA1 again.

To scroll other folders, use the “UP” and “DOWN” buttons; the folders contain only the level 1 parameters.

NOTE: At this point level 2 parameters are NOT visible, even if they aren’t protected by a password.

2) Level 2 Parameters

In the Programming Menu go to the “CnF” folder, scroll all the parameter until you reach PA2. By pressing and releasing the “set” button you will enter to level 2 parameters and the label of the first folder in the programming menu will follow.

The level 2 parameters may be protected by a second password (see “PA2” parameter inside “diS” folder, not to be confused with PA2 label inside “CnF” folder. If specified, level 2 parameters are hidden to user; accessing the “CnF” folder the level 2 access PASSWORD will be requested and (if the correct password is entered) the text of the first folder in the programming menu will follow.

NOTE: At this point you will see only level 2 parameters.

Level 1 parameters will NOT be visible; to reach them you need to exit the Programming Menu and enter the Programming Menu section again (see step 1).

To enter the folder, press “set”. The text of the first visible parameter appears. To scroll through the other parameters, use the “UP” and “DOWN” buttons; to change the parameter, press and release “set”, then set the desired value using the “UP” and “DOWN” buttons, and confirm with the “set” button. Go to the next parameter.

PLEASE NOTE:

It is suggested to switch-off and then switch-on the appliance every time you change the configuration of the parameters: this prevents malfunctioning on regulation and delay time occurring.

LED	Position	Related Function	Status
		Compressor or relay 1	ON when the compressor is started up; flashing in case of delay, protection or blocked enabling
		Defrost	ON when defrosting; flashing in case of manual enabling
		Alarm	ON when the alarm is enabled; flashing when the alarm is silenced
		Fans	ON when the fan is working

PASSWORD

The passwords "PA1" and "PA2" allow access respectively to level 1 and level 2 parameters. In the standard configuration passwords are not present. To enable them (value $\neq 0$) and assign them the desired code, access the "Programming" menu, within the folder called "diS". If passwords are enabled, they will be requested: - PA1 at the entrance of the "Programming" menu (see the "Programming Menu" section); - PA2 within the folder with the "Cnf" label containing level 1 parameters.

DIAGNOSTICS

The alarm condition is always signalled by an acoustic alarm (if present) and by the led of the alarm icon. The alarm signal produced by a faulty thermostat probe (referred to probe 1) is shown as E1 on the instrument display. The alarm signal produced by a faulty evaporator probe (probe 2) is shown as E2 on the display.

Probe faults table	
Display	Fault
E1	Faulty probe 1 (thermostat)
E2	Faulty probe 2 (evaporator)
If simultaneous, they will be shown on the display alternately, every 2 seconds.	

The error condition of the probe 1 (thermostat) causes the following:

- viewing E1 code on the display
- activating compressor as indicated by "Ont" and "OfT" parameters, if these are programmed for duty cycle or:

Ont	OfT	Compressor output
0	0	Off
0	>0	Off
>0	0	On
>0	>0	dc

Other signalling alarms are not shown on the display, but from the "Machine Status" menu within the "AL" folder. The signals for maximum and minimum alarms do not appear on the instrument display but are viewable on the "Machine Status" menu in the "AL" folder, with the text "AH1" or "Al1" and the red bulb placed beside the display will flash. The regulation of the maximum and minimum temperature alarm refers to the room probe. The temperature limits are defined by the parameters "HAL" (maximum alarm) and "LAL" (minimum alarm).

MINIMUM AND MAXIMUM TEMPERATURE ALARMS

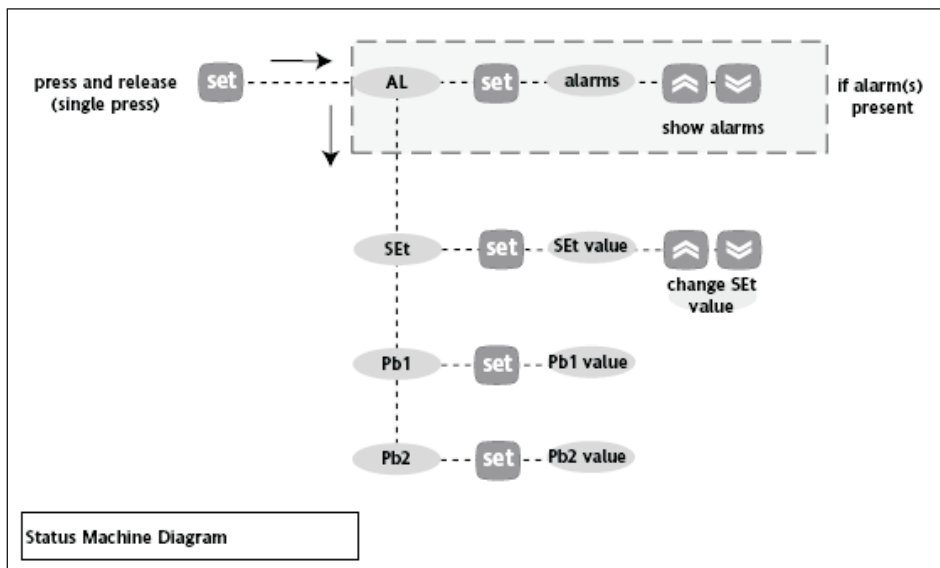
Regulation of the minimum and maximum temperature alarms refers to the thermostat probe. The temperature limits defined by the "HAL" (maximum temperature alarm) and "LAL" parameters (minimum temperature alarm) are in absolute temperature value. When an alarm status occurs, if no alarm exclusion phases are underway (see alarm exclusion parameters), the alarm set icon will light and the acoustic alarm, and/or the relay configured as an alarm, is activated. The occurrence of this alarm does not in any way effect the control activities in progress. This alarm status can be viewed in the "AL" folder under AH1-AL1.

****NOTE:** At level 1 the folders will show only level 1 parameters. At level 2 the folders will show only level 2 parameters.

***** PA2** is visible (it will be required, if necessary) at level 1 and can be set (editable) at level 2.

PAR.	DESCRIPTION	RANGE	DEFAULT	LEVEL**	U.M.
dif	DESCRIPTION COMPRESSOR REGULATOR (folder called "CP") diFferential. Relay compressor tripping differential. The compressor stops on reaching the Setpoint value (as indicated by the adjustment probe), and restarts at temperature value equal to the Setpoint plus the value of the differential. Note: the value 0 cannot be assumed.	0.1...30.0	2.0	1	°C/°F
HSE	Higher SEt. Maximum possible setpoint value.	LSE...302	99.0	1	°C/°F
LSE	Lower SEt. Minimum possible setpoint value.	-55.0...HSE	-50.0	1	°C/°F
Att	ALARMS (folder with "AL" label) Alarm type. Parameter "HAL" and "LAL" modes, as temperature absolute values or as differential compared to the Setpoint. 0 = absolute value; 1 = relative value.	0/1	0	2	flag
HAL	Higher ALarm. Maximum temperature alarm. Temperature value (absolute or related to Setpoint depending on Att parameter) which if exceeded in an upward direction triggers the activation of the alarm signal. See Max/Min. Alarm Diagram;	LAL...150.0	50.0	1	°C/°F
LAL	Lower ALarm. Minimum temperature alarm. Temperature value (absolute or related to Setpoint depending on Att parameter), which if exceeded in a downward direction, triggers the activation of the alarm signal. See Max/Min. Alarm Diagram.	-50.0...HAL	50.0	1	°C/°F
AOP	Alarm Output Polarity. Polarity of alarm output. 0 = alarm activated and output disabled; 1 = alarm activated and output enabled.	0/1	1	2	flag
PA1	PAssword 1. When enabled (value other than 0) it constitutes the access key for level 1 parameters.	0...250	0	1	num
PA2***	PAssword 2. When enabled (value other than 0) it constitutes the access key for level 2 parameters.	0...250	0	1	num
CA1	Calibration 1. Positive or negative temperature value added to the value read by probe 1, based on "CA" parameter settings.	-12.0...12.0	0	1	°C/°F
CA2	Calibration 2. Positive or negative temperature value added to the value read by probe 2, based on "CA" parameter settings.	-12.0...12.0	0	1	°C/°F
CA	Calibration Intervention. Intervention on view offset, thermostat offset or both. 0 = modifies the temperature displayed only; 1 = adds to the temperature used by regulators, not to the temperature displayed, which stays unchanged. 2 = adds to the temperature displayed that is also used by regulators.	0/1/2	2	2	num

Status Machine Diagram



Wiring diagram

TERMINALS

1 - 2	Common relay contact
3	Defrost relay output (A) configurable (see par. H22)
4	Compressor relay output (B) configurable (see par. H21)
5	Fan relay output (C) configurable (see par. H23)
6	Auxiliary or alarm relay output (D) configurable (see par. H24)

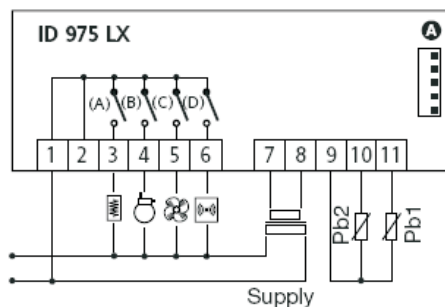
7 - 8 Power supply 12V~/m

9 - 10 Probe 2 input (evaporator) **Pb2**

9 - 11 Probe 1 input (thermostat) **Pb1**

A TTL input for Copy Card and connection to Televis system

NOTE: Default user settings (see diagram below)





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