

Instruction Manual

Cold Box B 35-85

Erection

Erect the appliance the way that the very best aeration is assured viz. At least 30 cm shall remain free at the right and the left side. Avoid locations exposed to excessive heat (max. +28°C) or direct sun rays, because this would lead to failures of the appliance.

Technical design

The cooling space of refined steel 4301 has 35 litres capacity. It is to be closed by a insulated door with a double gasket. The refrigerating system consists of a two-stage refrigerating unit with fully hermetic compressors. There are two axial fans to cool the refrigerating unit.

The isolation of the chamber is out of vacuum panels, so there can't be drilled holes in the chamber.

The Cold Box has the following dimensions:

Outside: 585 x 765 x 540 mm WxDxH

Inside: 425 x 300 x 285 mm WxDxH

Starting

Insert mains plug in a 230 volts/50 Hz socket with protection ground.

Please control the chamber, it has to be empty until the temp. reaches the SET point.

All buttons has to be pressed 2-3 sec. for the right function.

Switch on the cooling with the standby-switch (left side of control panel) and adjust the working temperature wanted by means of the set-point adjuster-buttons.

Operating range is between -50°C and -85°C.

The refrigerating machine starts cooling and the temperature prevailing inside is displayed on the great blue display in the middle.

Please let the cold box runs about 4 hours and until the SET-temp. is reached, before filling in the goods. The red alarm starts automatically with the cooling and is automatically activated when the SET-temp. is reached or after a adjusted time-difference.

Temperature Controlling

The regulation of the SET-temp. is made by the electronical controller ST100 (panel in the front).

Please see the following drawing for explain the functions of the ST100.

The electronical controller is equiped with an PT100 sensor, which measures the inside temperature of the chamber. Another separate sensor measures the inside temp. for the function of the alarm unit, so it is a really safety alarm system.

--- next page 2 ---



**Fisher
Bioblock Scientific**

Parc d'innovation - BP 50111 - F67403 illkirch cedex

France

tél 03 88 67 14 14
fax 03 88 67 11 68
email infos@bioblock.fr
www.bioblock.com

Belgique / België

tél 056 260 260
fax 056 260 270
email belgium@bioblock.com
www.bioblock.be

España

tfno 91 515 92 34
fax 91 515 92 35
email ventas@bioblock.com
www.es.fishersci.com

Safety equipment

The refrigerating units are equipped with internal thermal protection to switch off the machines in the case of excessive heat. The units may be switched on again after cooling of the compressors (approx. 1 hour). In the case of overheating please control the reason of the overheating (surrounding temp., clean the heat exchanger on the sides behind).

Service connections

On the rear left side there are sockets with a 10mV/K output (signal 0V = +0°C and -1V = -100°C) for connection of a suitable temperature recorder and a potential-free alarm contact for connection of an external alarmsystem.

Alarm unit

The alarm is placed in the control panel on the right side and has some different alarm signals.

Please see therefore the explanation of the signals in the table on the following pages.

The alarm is completely separated from the controller and works always if the controller is defect. So there is a very high level of safety.

The alarm starts automatically with the cooling and is automatically activated when the SET-temp. is reached or after a adjusted time-difference (a small red point is on).

The alarm can only be switched off when the cooling is switched off by the standby-switch. Then in both displays is showed "off". This should prevent an unintentionally switch off from the alarm.

The following buttons are for the alarm unit:

"sound off" = With this button the acoustic alarm signal can be switched off for 15 min. Is the alarm after this time always present, the signal comes again.

"reset" = With this button the alarm can be reseted, only if the alarm isn't present.

"alarm off" = With this button the alarm can be deactivated, only if the cooling is also off.

The following red LED's are on the alarm display:

Display = Normally there is a small red point, when the alarm is on and in normal function. At a temperature alarm there is displayed the highest temperature during the alarm. At another alarm the defect code is displayed (see table at the next page).

„temperature alarm“ = Is on when there is a present temp. alarm (see table).

„error“ = Is on at other defects (see table).

„power failure“ = Is on when the battery of the alarm unit is defect or if there is a complete power-failure.

If the alarm is in normal function (small red point is on in the display) it can be done a self-test with the alarm, if it is allright with the alarm unit. For starting the self-test press the „sound off“ button. The self-test needs nearly 10 sec. Is after the self-test „F8“ in the red display, there is a defect in the alarm unit. If it is OK the display turns back to the small red point.

In the alarm unit is a small battery. This guaranteed the function of the alarm signal for 60 hours. In the normal function the battery is loaded.

Attendance

The entire components of the appliance are suitable for continuous operation. There is not required any attendance. The condenser of cooling-air should, however, be checked and cleaned at regular intervals according to the degree of pollution at the place of erection. Check this at first in the case of any interruption. **A dirty condenser of air causes excessive heat and failures of the equipment.**

For cleaning the air-condenser, take away the right bars behind and blow in the condenser with compressed air.

Interruption / Repair

Opening the housing and repairs are only allowed from employees ordered by the deliverant or the manufacturer or after contacting the deliverant / manufacturer.

Accessories

For the chamber there are different storage systems available. For recording is a temperature-recorder available with paper strips (each for recording a month).

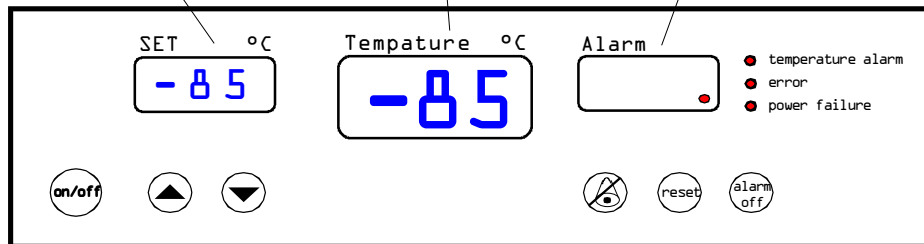
For informations about the accessories please contact the deliverant.

Alarm Messages

Display 1 Set °C	Display 2 Temp. °C	Display 3 Alarm	acoustic	LED 1 temp. alarm	LED 2 error	LED 3 power failure	Cause
SET temp	Actual temp	Red point					Normal function
	OFF						Cooling machine off
		OFF					Alarm unit off
---							SET temp. adjustment closed
	flashing temp.	Max Temp	1:3 Sec	On			Temperature alarm cooling machine
		Max Temp	1:3 Sec	On			Temperature alarm alarm-unit
	F1		1:3 Sec		On		Sensor F1 defect Controller works like parameter C10
	F2		1:3 Sec		On		Sensor F2 defect
		F3	1:3 Sec		On		Sensor F3 defect Alarm unit not works
		F4	1x / Min	On			Temp. range alarm sensor F4 (value is stored)
		F4	1:3 Sec		On		Fühlerfehler F4
		F5	1:3 Sec		On		Fühlerfehler F5
		F6	1:3 Sec			On	Batterie defekt
No display	No display	Max Temp	1:3 Sec			flashing	Power failed, battery defect
	F7		1:3 Sec		On		Door is open
		F8					Self-test not OK
	EP		1:3 Sec		On		Defect temp. controller
		EP	1:3 Sec		On		Defect alarm-unit

Control Panel ST100 at the B 35-85

blue - SET-temperature blue - Actual inside-temperature red - max. alarmtemp.



Standby-Switch Cooling

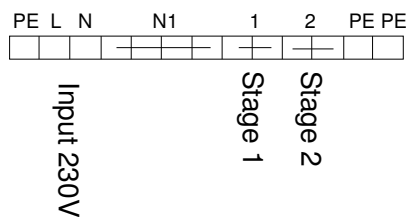
SET-Adjusting
(Buttons have to be push
nearly 2 sec.)

On / Off Alarm-unit
Reset - after an alarm
Alarm signal off for 15 min.
or self-test alarm unit

**All buttons have to be pushed
for 2 seconds that it is realized !**

Parts List (Electric)

Terminal:



Voltage: 230 V / 50 Hz

Current: 5,0 A

Parts List

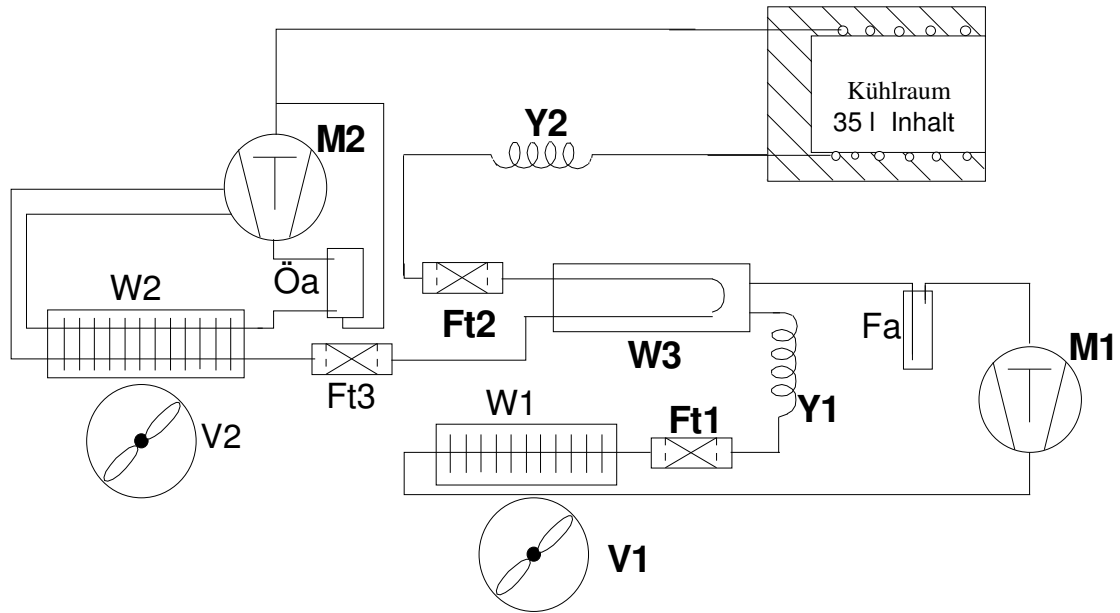
		Mainboard of Controller	ST100	
		Front Panel	ST100	
	K 1	Compressor Stage 1	FR 8,5 GX	Relais 117U6015 Kond. 117U5015
		Condenser Fan Stage 1	GT 5 170 sg.	
	K 2	Compressor Stage 2	SC 12 GX-Z	Relais 117U6003 Kond. 117U5017
		Condenser Fan Stage 2	GT 5 170 dr.	
	F 1	Temperature Sensor Controller	PT 100-J	
	F 3	Temperature Sensor Alarm	PT 100-J	
	F 4	Temperature Sensor Overheating	PT 100-1m	
	K 5	Door Frame Heating	FST 10	

Version:
050314

B 35-85

Temperature Range -50 / -85°C

Refrigeration Diagram



Refrigerants:	Stage 1: R 507 120 gr.	Stage 2: R 508-P +6,5 bar
Machine Oil:		600 cm ³ Zerol 150 im Compressor SC 12 GX

Parts List

M 1	Compressor Stage 1	FR 8,5 GX	
W 1	Condenser Stage 1	FCE 12.1.180	
V 1	Fan Motor Stage 1	GT 5 170 dr.	
Ft 1	Filter Dryer Stage 1	Fischer 20	
Y 1	Capillary Tube Stage 1	2x1x3000	
Fa	Suction line separator	15x1x250	
W 3	Heat Exchanger Stage 1/2	Fryka	
M 2	Compressor Stage 2 with Oilcooler	SC 12 GX-Z	
W 2	Condenser Stage 2	FCE 12.1.180	
V 2	Fan Motor Stage 2	GT 5 170 dr.	
Ft 2	Filter Dryer Stage 2	Fischer 20	
Ft 3	Filter Dryer Stage 2	ADK 036 MMS	
Y 2	Capillary Tube Stage 2	3x1,5x5000	
Öa	Oil Separator Stage 2	SA-1-FC	

Version:
050314

Refrigeration Diagramm & Parts List

B 35-85
Temperature Range -50 / -85°C