

Quick-Guide for Software Ver. 3.0

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Quick guide for software version 3.0

Cabinet On/OFF

Press the Q-key to switch on the cabinet. Press and hold it for 6 sec. the cabinet will switch off (Stand-by). During the start-up the program variant and SW version will be presented shortly. Revision number can be presented under "Display test".

Other short cuts

Using the key-pad functions is accessed or activated.

Key combination:	Time:	Function:
P+Q	> 3 sec.	Start or stop a defrosting cycle manually.
Q+1	> 6 sec.	Key pad lock on/off. With a lock key it's not possible to access any menu or make any changes.
(+)	-	Showing highest recorded temperature peak since the last reset of alarm history.
(-)	-	Showing lowest recorded temperature peak since the last reset of alarm history.
(+) + (-)	> 6 sec.	Re-setting alarm history.
P+1+3	> 6 sec.	Re-setting all changes in the parameters and brings the settings back to default.
P+1	> 6 sec.	Access to User menu and alarm settings . See more in the tables below.
P+2	> 6 sec.	Access to System monitoring and presentations . See more in the tables below.
P+3	> 6 sec.	Access to Cooling system setup . See more in the tables below.
P+4	> 6 sec.	Access to the Test Program . See more in the tables below.
P+5	> 6 sec.	Access to the Control of the Sensors . See more in the tables below.

Changes in product setup

If changes are needed in the controllers settings, then enter the menus as according to above. The values is changed using the + and - keys. The new setting is saved by pressing the P-key. Leave the menus with Q-key.

User menu and alarm settings

The alarm system is separated into two. One alarm system triggers alarms only locally, which means the error only is displayed. The second alarm system triggers locally and external. Error codes in the display, but also alarm activates also the potential-free alarm output. Each alarm system is working independently.

Menu access P+1 →	↓	→		
Dry cooling	dC			Activation of dry cooling program. [H1=off / H0=active]
Local alarm setting	LAL	LhL	[° C]	Setting the upper alarm limit. At alarm the display is showing: [A2].
		LLL	[° C]	Setting the lower alarm limit. At alarm the display is showing: [A3].
		Lhd	[min.]	Time delay for upper alarm limit.
		LLd	[min.]	Time delay for lower alarm limit.
		dA	On/off	Activation of door alarm [1=on / 0=off]. At alarm the display is showing: [A1].
		dAd	[min.]	Time delay for door alarm.
		BU	On/off	Activation of buzzer [1=on / 0=off]. The buzzer sounds at alarms [A1], [A2], [A3].
External alarm setting	EAL	EhL	[° C]	Setting the upper alarm limit. At alarms the display is showing: [A4].
		ELL	[° C]	Setting the lower alarm limit. At alarms the display is showing: [A5].
		Ehd	[min.]	Time delay for upper alarm limit.
		ELd	[min.]	Time delay for lower alarm limit.
		dA	On/off	Activation of door alarm [1=on / 0=off]. At alarms the display is showing: [A1].
		dAd	[min.]	Time delay for door alarm.
		BU	On/off	Activation of buzzer [1=on / 0=off]. The buzzer sounds at alarms [A1], [A4], [A5].
Sensor calibration	cAL	cA	[° K]	Offset adjustment on A-sensor. Cabinet sensor.
		cE	[° K]	Offset adjustment on E-sensor. Extra sensor (placed in air or in bottle).
		cF	[° K]	Offset adjustment on F-sensor. Sensor for frost protection.
Frost protection	FP	Act	On/off	Activation on frost protection.
		tES	On	Test the frost protection. Switch off compressor after time = C4.
		SEt	[° C]	Adjustment of cut-out for compressor.
		PrE	[...]	Presentation of F-sensor.
	ALL			Activation of escorting alarm limits. [FAS] = locked borders / [ESC] = following set point.
	dEF			Numbers of defrosting pr. day.
	dPS			Selection of sensor displaying in the display. Choose between: A, E or F.
The alarms:				Text in display and description:
Alarm messages from above.	A1			Door alarm is triggered either by the LAL or EAL alarm systems.
	A2			Alarm code triggered by a too hot temperature associated with the local alarm system.
	A3			Alarm code triggered by a too cold temperature associated with the local alarm system.
	A4			Alarm code triggered by a too hot temperature associated with the external alarm system.
	A5			Alarm code triggered by a too cold temperature associated with the external alarm system.
	A6			Frost protection has stopped compressor and ensured that the room temperature is not too cold.

Temperature monitor and presentations

Menu for setting the monitoring, alarm history, sensor choice for alarm systems and temperature read-out.

Menu access P+2 →	↓	→		
Alarm setting	A	A1	[° C]	By overheated condenser this starts the compressor protection program
		A2	[° C]	Temperature in condenser to de-activate the compressor protection program.
		A4	On/off	Activation of alarm history [1=on / 0=off]. The program only works with alarm system: LAL .
		A5		Choose between A, E or F sensor for the alarm systems LAL and EAL .
Presentation in display	P	P1	[min.]	Freezing the temperature in minutes in display after a defrosting cycle.
		P2	[° K]	Freezing the temperature in display under normal run. Temperature fluctuation filter.
		P3	[sec.]	Display refresh rate.
		P4		Selection between Celsius or Fahrenheit temperature scale.

Settings for cooling system

Menu for setting the evaporator fan, compressor and defrosting cycles.

Menu access P+3 →	↓	→	RX-model V1+	BioUltra E3+	
Compressor setting	C	C1		C1	[° K] Differential for compressor cut-in and cut-out.
		C2		C2	[° C] Maximum allowable temperature limit.
		C3		C3	[° C] Lowest allowable temperature limit.
		C4		C4	[min] Forced break time for the compressor between cut-out and cut-in
		C5			Number of condenser sensor connected to controller
		C6			[min] Permitted time the door can be open before the compressor stops.
			C7		[° K] (RX-model / Soft differential for cool/heat cut-out).
				C8	[° C] (BioUltra / Set point for condenser fan.)
				C9	[° K] (BioUltra / Cut-out differential for condenser fan).
Evaporator fan setting	F	F1		L1	[° C] Temperature for fan start after the defrosting cycle. Start of LT compressor in E3+
		F2			[min.] Time evaporator is paused while the compressor is stopped.
		F3			[sec.] Time evaporator fan is in operation while the compressor is stopped
				L4	[° C] Stop temperature in cascade heat exchanger for LT compressor – At normal run.
				L5	[° C] Stop temperature in cascade heat exchanger for LT compressor – By abnormal run.
				L6	[° K] Temperature deviation for choosing between "normal or abnormal" run.
				L7	Running mode for LT compressor [1=slave / 0=independent].
Defrosting cycle setting	d	d1			Numbers of defrosting pr. day.
		d2			[° C] Defrosting stop temperature measured in the evaporator
		d3			On/off Activating the defrosting cycle on first power-up start [0=on / 1=off]
		d4			[min.] Maximum defrosting time.
		d5			Choose between automatic [1], air [2] or electrical defrosting method [3]
		d6			[min.] Dripping time after defrosting cycle ends.
		d7			[° C] The maximum level that determines the defrosting method when d5 = [1]
		d8			[° C] Temperature in evaporator to start an extra defrosting cycle automatically.
				d10	[min.] Defrosting window.
				d11	[h] Time delay at 100 % compressor running before forced defrosting cycle.

Test program

Individually control of relay outputs and connected external components. Select the menu item and press the P-key. The relay switches and power is connected to external component. The display shows [on]. Stop the test with Q-key.

Menu access P+4 →	↓	→	BioUltra E3+	P-key → [on] / Q-key [off]
Compressor	tC	tHt		Control of compressor and condenser fan / (BioUltra: Control of HT compressor).
Evaporator fan	tF	tLt		Control of evaporator fan / (BioUltra: Control of LT compressor).
Defr. heating element	td	td		Control of defrosting heating element. Warning: The heating element becomes very hot. Danger!
Light	tL	tCF		Control of light / (BioUltra: Control of condenser fan speed change – 900 rpm to 1200 rpm).
Alarm output	tA	tA		Control of the potential free relay out-put.
Display test	tdP	tdP		All LED's in the display will lights up for 1 sec. followed by the software revision number.

Control of sensor and display

With this menu it's possible to have instantaneous sensor read-outs.

Menu access P+5 →	↓	P-key → [° C]	Message in display and cause
Cabinet sensor	P-A		F1 Error on cabinet sensor
Evaporator sensor	P-b		F2 Error on evaporator sensor
Condenser sensor 1	P-C		F3 Error on condenser sensor 1
Condenser sensor 2	P-d		F4 Error on condenser sensor 2
Extra/Reference sensor	P-E		F5 Error on Extra/Reference sensor
Sensor for frost protect.	P-F		F6 Error on sensor for frost protection
Overheated condenser caused by a clogged grease filter. Triggered by both C and d sensor			
BioUltra: High pressure switch has triggered by excessive pressure in the LT cooling system.			
When the door opens the symbol lights up. A too long open door this will trigger the alarm [A1] .			
			F7 Overheated condenser 1 or 2.
			F8
			-0- Symbol for open door



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Default factory settings

Below are all BioLine program variants shown. In the columns under each program variant, the factory settings is presented. Should any questions occur, then please take contact to BioLine Tech Support.

	Refrigeration										Extended				Freezer				Heat		Extreme low temp. range		
	K2+	K4+	K5+	K6+	K8+	K9+	K70	M4+	M5+	F5+	F6+	F51	F61	F70	V1+	E1+	E3+	E4+					
Systemware revision number	94.102	94.102	94.102	94.102	94.102	94.102	94.98	94.80	94.102	94.80	94.80	94.80	94.80	94.98	94.80	94.80	94.80	94.80					
Setpoint (celsius)	5	5	5	5	5	5	5	4	5	-20	-20	-20	-20	-20	5	-35	-80	-40					
Temperature range (celsius)	+20/+2	+20/+2	+20/+2	+20/+2	+20/+2	+20/+2	+15/+2	+6/+2	+20/-2	-5/-25	-5/-25	-5/-25	-5/-25	-5/-25	+45/0	-5/-38	-60/-95	-5/-45					
User menu: P-1	↓																						
Dry refrigeration on=H0/off=H1	dC																						
Thawing on/off	UF																						
Local Alarm Limits	↓																						
Upper local alarm limit (celsius)	LHl	25	-	-	25	25	25	25	6	25	25	-	25	-	0	50	25	25	25				
Lower local alarm limit (celsius)	LLl	0	-	-	0	0	0	0	2	-5	-35	-	-35	-	-35	-5	-45	-99	-60				
Time delay for upper alarm limit (min.)	LHd	0	-	-	0	0	0	0	0	0	0	-	0	-	0	0	0	0	0				
Time delay for lower alarm limit (min.)	LLd	0	-	-	0	0	0	0	0	0	0	-	0	-	0	0	0	0	0				
Door alarm on=1/off=0	dA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Time delay for open door (min.)	dAd	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Buzzer for local alarm on=1/off=0	BU	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
External Alarm Limits	↓																						
Upper external alarm limit (celsius)	EHL	25	-	-	25	25	25	-	25	25	25	-	25	-	-	50	25	25	25				
Lower external alarm limit (celsius)	ELL	0	-	-	0	0	0	-	0	-5	-35	-	-35	-	-	-5	-45	-99	-60				
Time delay for upper alarm limit (min.)	EHD	0	-	-	0	0	0	-	60	0	60	-	60	-	60	60	60	60	60				
Time delay for lower alarm limit (min.)	ELD	0	-	-	0	0	0	-	60	0	60	-	60	-	60	60	60	60	60				
Door alarm on=1/off=0	dA	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0				
Time delay for open door (min.)	dAd	5	5	5	5	5	5	-	5	5	5	5	5	5	5	5	5	5	5				
Buzzer for local alarm on=1/off=0	BU	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0				
Calibration of sensor	↓																						
Offset adjustment sensor A (kelvin)	CA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Offset adjustment sensor F (kelvin)	CF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Offset adjustment sensor F (kelvin)	CE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Frost Protection	↓																						
Activation of frost protection On=1/Off=0	Act	0	0	0	0	0	0	-	0	0	-	-	-	-	0	-	-	-	-				
Test of frost protection	IES	0	0	0	0	0	0	-	0	0	-	-	-	-	0	-	-	-	-				
Setpoint of frost protection (celsius)	SEt	2	2	2	2	2	2	-	2	2	-	-	-	-	2	-	-	-	-				
Display of current sensor temperature (celsius)	PRE	-	-	-	-	-	...	-	-	-	-				
Fixed or escaping alarm limits (FAS - ESC)	FAS	FAS	FAS	FAS	FAS	FAS	FAS	-	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS	FAS				
Soft chilling (soft-chill)	SCL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Hard chilling (hard-chill)	HCL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Time controlled chilling (timed-chill)	PCL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Number of defrosts / 24h	dF	4	4	4	4	4	4	-	4	4	4	4	4	4	4	4	4	4	4				
Selected sensor display	dPS	E	A	A	E	E	E	-	E	E	E	E	E	E	E	E	E	E	E				
Possible choice for sensor displaying in display	dPS	A,E,F	A,F	A,F	A,E,F	A,E,F	A,E,F	-	A,E,F	A,E,F	A,E	A,E	A,E	A,E	A,E,F	A,E	A,E	A,E	A,E				
Alarm & presentation: P-2	↓																						
Alarm settings	↓																						
Condenser monitoring alarm on (celsius)	A1	65	65	65	65	65	65	-	65	65	65	65	65	65	65	65	65	65	65				
Condenser monitoring alarm off (celsius)	A2	40	40	40	40	40	40	-	40	40	40	40	40	40	40	40	40	40	40				
Genindrædesliden for akustisk alarm (min.)	A3	5	5	5	5	5	5	-	5	5	5	5	5	5	5	5	5	5	5				
Alarm history on=1/off=0	A4	1	-	-	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1				
Selection of sensor for alarm system	A5	E	A	A	E	E	E	-	E	E	E	E	E	E	E	E	E	E	E				
Possible choice for sensor displaying in display	A5	A,E,F	A,F	A,F	A,E,F	A,E,F	A,E,F	-	A,E,F	A,E,F	A,E	A,E	A,E	A,E	A,E,F	A,E	A,E	A,E	A,E				
Presentation of temperature	↓																						
Temperature display hold after defrost	P1	0	30	30	0	0	0	-	0	0	0	0	30	0	0	0	0	0	0				
Temperature display hold during normal operation	P2	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0				
Display updating frequency (sec)	P3	10	10	10	10	10	10	-	10	10	10	10	10	10	10	10	10	10	10				
Temperature display, Celsius or Fahrenheit	P4	C	C	C	C	C	C	-	C	C	C	C	C	C	C	C	C	C	C				
System setup: P-3	↓																						
Compressor settings	↓																						
Differential for compressor start and stop (kelvin)	C1	1	2	2	1	2	2	-	1	1	4	4	4	4	2	4	3	4	4				
Max. allowed setpoint (celsius)	C2	20	20	20	20	20	20	-	6	20	-5	-5	-5	-5	45	-5	-60	-5					
Min. allowed setpoint (celsius)	C3	2	2	2	2	2	2	-	2	-2	-25	-25	-25	-25	0	-38	-90	-45					
Compulsory compressor pause time (min.)	C4	1	1	1	1	1	1	-	1	1	3	3	3	3	1	3	3	3					
No. of sensors for condenser monitoring	C5	1	1	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1					
Door open time before compressor stops (min.)	C6	1	1	1	1	1	1	-	1	1	1	1	1	1	1	1	1	1					
Soft differential for cool/heats cut-out (kelvin)	C7	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	35					
Setpoint for condenser fan	C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35					
Cut-out differential for condenser fan (kelvin)	C9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5					
Evaporator fan settings	↓																						
Evap. fan start after defrost, and during dry refig. (celsius)	F1 (L1)	-	-	-	-	-	-	-	-1	-1	-1	-1	-1	-1	-1	-35	-35	-35					
Evap. fan pause time at compressor stop (min.)	F2	0	0	0	0	0	0	-	0	0	0	0	5	5	3	0	0	0					
Forc. vent. start/stop compressor stop (sec.)	F3	60	60	60	60	60	60	-	60	60	60	60	60	60	60	60	60	60					
Stop temp. of LT compressor (in cascade evaporator at normal deviation (celsius)	F4 (L4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-20					
Stop temp. of LT compressor in cascade evaporator at large deviation (celsius)	F5 (L5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-5					
Temp. deviation for determining between "normal" or "abnormal" run	F6 (L6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5					
Operation mode for LT compressor (slave or independent)	(L7)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0					
Defrost settings	↓																						
Number of defrosts / 24h	d1	4	4	4	4	4	4	-	4	4	4	4	4	4	4	4	4	1	4				
Stop temperature in evaporator during defrost (celsius)	d2	4	4	4	4	4	4	-	2	2	2	2	2	2	6	4	2	2					
Defrosting on/off = (d1) at power up first time	d3	0	0	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0					
Max allowed defrosting time (min.)	d4	30	30	30	30	30	30	-	30	30	30	30	30	30	30	30	30	30					
Defrosting mode (1=automatic, 2=air, 3=electrical)	d5	2	2	2	2	2	2	-	1	1	3	3	3	3	1	3	3	3					
Dip time after defrost stop (min.)	d6	0	0	0	0	0	0	-	0	0	1	1	1	1	0	1	1	1					
Limit for automatic defrosting mode (celsius)	d7	2	2	2	2	2	2	-	4	4	4	4	4	4	4	4	4	4					
Evaporator monitoring (celsius)	d8	-35	-35	-35	-35	-35	-35	-	-35	-35	-35	-35	-35	-35	-35	-50	-50	-52					
Defrost after chilling stop	d9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Defrosting window after compressor cut-out (min.)	d10	-	-	-	-	-	-	-	-	-	2	2	2	2	-	2	-	2					
Time for overruled defrosting cycle at 100 % compressor running (hours)	d11	-	-	-	-	-	-	-	-	-	3	3	3	3	-	3	-	3					
Sensor configuration	↓																						
St. = +25 °C / 1505 = 40 °C / 1513 = -80 °C	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.				
St. = +25 °C / 1505 = 40 °C / 1513 = -80 °C	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.				
St. = +25 °C / 1505 = 40 °C / 1513 = -80 °C	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.				
St. = +25 °C / 1505 = 40 °C / 1513 = -80 °C	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.				
St. = +25 °C / 1505 = 40 °C / 1513 = -80 °C	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.				
St. = +25 °C / 1505 = 40 °C / 1513 = -80 °C	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.	St.				
Other Software Features	↓																						
Dry Cooling	dC	-	-	-	-																		



LABORATORY EQUIPMENT MAINTENANCE, REPAIR, CALIBRATION AND SALES

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