Quick-Guide to Software Version 3.0 Year 2022

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Keypad with 9-buttons

The keypad with 9 buttons is available in two variants. One for solid door models and one for glass door models. The difference can be seen with a lamp symbol by the button for switching On/Off the LED lighting in the glass door.

Figure 1: Keypad for solid door models. Used for both refrigerator and freezers.

Figure 2: Keypad for glass door models with LED-lighting.

Switch the product on and off

Press the Q-button to switch the product On. Press the Q-button for 6 sec. To switch the product Off. During start-up, the program variant of the software and version number are displayed.

Other short cuts

Using the key-pad functions is accessed or activated.

Button combination:	Time:	Function:
P+Q	> 3 sec.	Start or stop a defrosting cycle manually
Q+1	> 6 sec.	Keypad 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 controller settings, then enter the menus as according to above. The values are changed using the + and - buttons. The new setting is saved by pressing the P-button. Leave the menus with Q-button.

User menu and alarm settings

The alarm system is separated into two. One alarm system trigger alarms only locally, which means the error is presented only is in the display. The second alarm system triggers locally and externally. Error codes will be presented in the display, but the second alarm system will also activate the potential-free alarm output. The two alarm systems can be set individually and therefore work independently of each other.

Menu access P+1 ↦	↴	↦	Function:	
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 Off-set	cAL	cA	[K]	Offset adjustment on A-sensor. Cabinet or room sensor
		cE	[K]	Offset adjustment on E-sensor. Extra or reference sensor (placed in air or in bottle)
		cF	[K]	Offset adjustment on F-sensor. Sensor for frost protection
Frost protection setting	FP	Act	On/off	Activation of frost protection
		tES	On	Test the frost protection. Switching 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 together:	Text in display and description:
Alarm message from the two above alarm systems.	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 the compressor and ensured that the room temperature is not getting too cold

Temperature monitor and presentations

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

Menu access P+2 ↦	↴	↦		Function:
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
		A3	[min.]	The re-entry time of the acoustic alarm
		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 ended 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. Program variant K82, K92, M5+, F52, E3+ and E6+ cannot present temperatures in Fahrenheit scale!
		P5		Measurement filter function.

Settings for cooling system

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

Menu access P+3 ⇥	↴	RR/ER/BR	RF/BF EF/PF	RX-V1+	BioUltra E3+/E6+		Function:
Compressor setting	C	C1		C1	C1	[K]	Differential for compressor cut-in and cut-out
Only the program variants K82, K92 and F52 use parameter points C10 and C11 for Cut-in and Cut-out.		C10	C10			[K]	Differential for compressor cut-in
		C11	C11			[K]	Differential for compressor cut-out
		C2	C2	C2	C2	[°C]	Maximum allowable temperature limit
		C3	C3	C3	C3	[°C]	Lowest allowable temperature limit
		C4	C4	C4	C4	[min.]	Forced break time for the compressor between cut-out and cut-in
		C5	C5	C5	C5		Number of condenser sensor connected to controller
		C6	C6	C6		[min.]	Permitted time the door can be open before the compressor stops
				C7		[K]	Soft differential for cool/heat cut-out
					C8	[°C]	Setpoint for increased condenser fan speed (Speed 1 to Speed 2)
					C9	[K]	Differential for resetting Speed 2 and back to Speed 1
Evaporator fan setting	F	F1	F1	F1	L1	[°C]	**[F1]** - Start temperature of evaporator fan measured in evaporator **[L1]** - Start of LT compressor in E3+ and E6+
		F2	F2	F2		[min.]	Time evaporator is paused while the compressor is stopped
		F3	F3	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 at 'abnormal run'
					L6	[K]	Temperature deviation for switching between "normal or abnormal" run
					L7		Running mode for LT compressor [1 = slave / 0 = independent]
Defrosting cycle setting	d	d1	d1	d1	d1		Numbers of defrosting pr. day
		d2	d2	d2	d2	[°C]	Defrosting stop temperature measured in the evaporator
		d3	d3	d3	d3	On/off	Activating the defrosting cycle at power-up [0 = On / 1 = Off]
		d4	d4	d4	d4	[min.]	Maximum defrosting time
		d5	d5	d5			Choose between automatic- [1], air- [2] or electrical defrosting method [3]
		d6	d6	d6		[min.]	Dripping time after ended defrosting cycle
		d7	d7	d7		[°C]	The temperature level that determines the defrosting method when d5 = [1]
		d8	d8	d8		[°C]	Temperature in evaporator to automatically start an extra defrosting cycle
			d10			[min.]	Defrosting window
			d11			[h]	Time delay at 100 % compressor running before forced defrosting cycle

Test program

Relay output check. Select the menu item and press the P key. The display shows [on]. The relay changes position and power is directed to the external component. Stop the test with Q-button or it happens automatically after a short time.

Menu access P+4 ⇥	↴	↴ BioUltra E3+/E6+	Function: *P-button ⇥ [on] / Q-button [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)
Defrosting heating element	td	td	Control of defrosting heating element. Warning: The heating element becomes extremely hot. **Danger!**
Light	tL	tCF	Control of light / (**BioUltra**: Control of condenser fan speed change from 900 rpm to 1200 rpm)
Alarm output	tA	tA	Control of the potential free alarm output relay
Display test	tdP	tdP	Buzzer sounds and all LED's in the display will light up for 1 sec. followed by the software revision number

Control of sensor and messages in display

With this menu the sensors can be checked for their value.

Menu access P+5 ⇥	↴	Function: *P-button ⇥ [° C]*	Message in display and cause	
Cabinet or room sensor	P-A	The current room temperature measurement is shown in the display	F1	Error on cabinet sensor
Evaporator sensor	P-b	The current evaporator temperature is shown in the display	F2	Error on evaporator sensor
Condenser sensor 1	P-C	The current condenser temperature is shown in the display	F3	Error on condenser sensor 1
Condenser sensor 2	P-d	The current condenser temperature is shown in the display	F4	Error on condenser sensor 2
Extra/Reference sensor	P-E	The current reference sensor temperature is shown in the display	F5	Error on Extra/Reference sensor
Sensor for frost protection	P-F	The current frost protection sensor temperature is shown in the display	F6	Error on sensor for frost protection
An overheated condenser. Triggered by either one or both C and d sensors.			F7	Overheated condenser 1 or 2
BioUltra E3+ and E6+: The overpressure protection is triggered by a too high pressure in the LT cooling system.			F8	Excess pressure in LT cooling circuit
When the door opens the symbol lights up. A too long open door this will trigger the alarm **[A1]**.			-0-	Symbol for open door