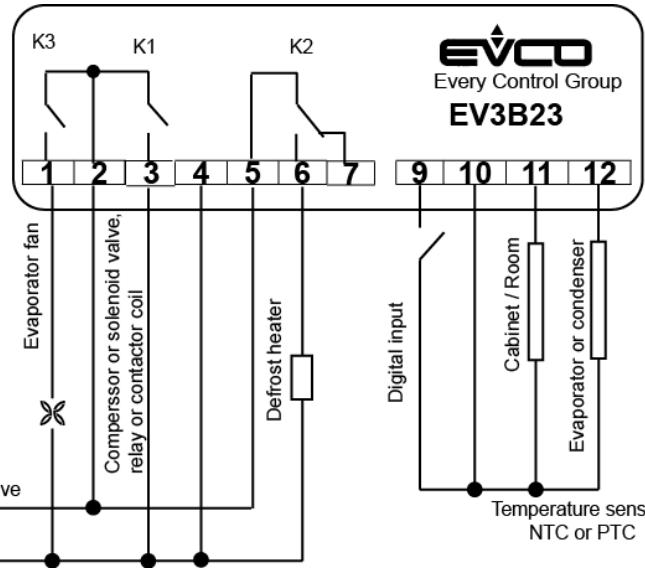# EV3B23

Every digital thermostat for low temperature refrigeration applications.
Defrost and fan management.
Display protection: IP 65
Power supply: 230 VAC, 2 VA
Working temperature: 0°C to 55°C
Working range: (PTC)-50 to 150, (NTC) –40 to 110
Relays output: K1=16A @240 VAC
                 K2 = 8A and K3 = 5A @240 VAC

Programming procedure

Unlock the controller to begin programming

Temperature Set Point

Press "**SET**" button once, ☀ will flash
Press ▼ or ▲ to set the desired value
Press "**SET**" button to confirm

Alternatively the Temperature Set Point can be selected using parameter "SP", first on the list

All parameters

Press "**SET**" for 4 seconds
"**PA**" will be displayed
Press "**SET**"
Press ▼ Or ▲ to select password "**-19**"
Press "**SET**"
"**SP**" will be displayed (first parameter on the list)
Press ▼ Or ▲ to select the parameter

To modify selected parameter

Press "**SET**"
Press ▼ Or ▲ to set the desired value
Press "**SET**" to confirm

To confirm all changes

Press "**SET**" for 4 seconds or leave the controller untouched for approx. 1 min.

Switch the power supply "**OFF/ON**" after the modification of the parameters

Manual defrost can be activated by pressing
▲ Button for 4 seconds**.**
Possible only if evaporator temperature is below parameter "d2"

	LED ON	LED Flashes
❄	compressor is running	compressor delay "C0", "C1", "C2" or modification of the **Set Point**
❄	defrost in progress	defrost delay or dripping time "C0", "C1", "C2", "d7"
⟳	evaporator fan runs	dripping time delay "F3"
⦸	Energy saving LED	N/A

To lock or unlock the display

Loc	To lock: do not operate for 30 s
UnL	To unlock: press any button for 2 s, display will show "**UnL**"

Error messages

CODE	REASON	REMEDIES	EFECTS
AL	Low temperature alarm	Check "A1"	No effects
AH	High temperature alarm	Check "A4"	No effects
Pr1	Room / cabinet sensor damaged, poor connection, wrong type of sensor, the cabinet temperature is outside the limits allowed by the working range of the controller	Check parameter "**P0**", check the connection, check the temperature next to the sensor	The compressor will work in accordance with parameters C4 & C5
Pr2	Evaporator / defrost sensor damaged, poor connection, wrong type of sensor, the evaporator temperature is outside the limits allowed by the working range of the controller	Check parameter "**P0**", check the connection, check the temperature next to the sensor	If "P4"=1 the defrost will last as per"d3" If "P4"=1 and "d8"=2, controller will work as if "d8"=0 If "F0"=3 or 4, controller will work as if "F0"=2

EV3B23 Parameters

	Min.	Max.	unit	def	
SP	r 1	r 2	↑C	0.0	Temperature Set Point
CA1	-25.0	25.0	°C	0.0	Room/cabinet sensor calibration
CA2	-25.0	25.0	°C	0.0	Evaporator/condenser sensor calibration
P0	0	1		1	Type of sensor 0 = PTC, 1 = NTC
P1	0	1		1	Decimal point 1 = Yes
P2	0	1		0	0 = ↑C 1 = ↑F
P4	0	3		1	Evaporator sensor function: 0 = none 1 = defrost & fan management 2 = fan thermostat 3 = condenser probe
P5	0	2		0	Display temperature: 0 = cabinet temp. 1 = Set Point 2 = evaporator temp if P4 = 1 or P4 = 2, Condenser temp if P4 = 3
r0	0.1	15	↑C	2.0	Differential
r 1	-99.0	r 2	°C	-40	Minimum set point
r 2	r 1	99.0	°C	50	Maximum set point
r5	0	1		0	0 = cooling, 1 = heating
r12	0	1		1	Working set point differential: 0 = asymmetric 1 = symmetric
C0	0	240	min	0	Delay on power up
C2	0	240	min	3	Minimum time compressor remains OFF
C3	0	240	s	0	Minimum time compressor remains ON
C4	0	240	min	10	Time compressor remains OFF in the event of cabinet/room sensor failure
C5	0	240	min	10	Time compressor remains ON in the event of cabinet/room sensor failure
d0	0	99	h	8	Defrost interval (0 = defrost disabled)
d1	0	2		0	0 = electric, 1 = hot gas defrost, 2 = compressor stop
d2	-55.0	99.0	°C	2.0	Defrost termination temperature
d3	0	99	min	30	Maximum defrost duration if P4 = 1 Defrost duration if P4 = 0 or 2
d4	0	1		0	Defrost activation on power up (1 = YES)
d 5	0	99	min	0	Defrost delay after power up (if d4 = 1)
d 6	0	1		1	Override display during defrost (1 = YES, 2 = "dEF")
d 7	0	15	min	2	Dripping time
d8	0	2		0	Kind of defrost interval, the defrost will be activated when: 0 = controller will stay ON for the time=d0 1 = compressor will stay ON for the time=d0 2 = the evaporator temp will stay below d9 for the time=d0
d 9	-99	99	↑C	0	Evaporator temp. above which the count of the defrost interval is suspended (only if d8=2)
d15	0	99	min	0	Minimum compressor run before hot gas defrost activation (d1=1)
A1	-99	99	↑C	-10	Temp. below which the low temp alarm is activated
A4	-99	99	°C	10	Temp. above which the high temp alarm is activated
A6	0	240	min	120	Delay of alarm activation after power up
A7	0	240	min	15	Temperature alarm delay
A8	0	240	min	15	Delay of alarm after the last completion of defrost cycle
F0	0	4		1	Fan management (0 = OFF, 1 = ON, 2 = with compressor, 3 = according to F1, 4 = with compressor according to F1
F1	-99	99	°C	-1	Evaporator fan stop temperature
F2	0	2		0	Stop fan during defrost (0 = Yes, 1 = No 2 = according to F0)
F3	0	15	min	2	After dripping evaporator fan delay
HE3	0	240	min	2	Time interval to "energy saving" mode, 0 = OFF

We recommend the following settings:

❖ **r12 = 0**

❖ **HE3 = 0**

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