COOLING – HEATING CONTROLLER Model VD2F (GB) KIOUR

ATTENTION *Firmware V4.0.2*

Read carefully these instructions before installing and using this device and keep them for future reference. Attention to installation and electrical wiring. Use this device only as described in this document and never use itself as a security device. The device must be disposed of in accordance with local standards for the collection of electrical and electronic equipment.

DESCRIPTION

VD2F / VD2FX is a temperature controller for cooling – heating applications (bain marie). **VD2FX** is an anti-explosive type. The room temperature is controlled with an NTC/PTC sensor with a temperature range -50÷+110°C for NTC and -50÷+150°C for PTC. It has 3 indication digits of temperature display with an accuracy of 0.5 °C and 4 buttons. It has a digital input for controlling the cabinet's door. It has one relay 30A 250VAC that through parameters adjusted in operation: cooling or heating and one relay auxiliary 10A 250VAC (fan, lamp, alarm). It has a buzzer that activates in case of alarm. The device is mounted on a panel hole 29x71mm and it is restrained with plastic side brackets. Through the serial input it can be connected to a network either through Cloud IoT on the CORTEX platform, or through a local computer in the CAMIN program for complete local recording and monitoring of the device.

INDICATIONS AND BUTTONS FUNCTION

Display indications	
	relay ON in cooling mode
	relay ON in heating mode
	auxiliary relay ON
	defrost ON
	ECO operation is ON
	alarm ON
	malfunction ON

Keyboard	
↵	enter/exit the parameter's menu
SET	display the parameter's value enter parameter's value manual defrost or manual heating with countdown
T2	up arrow
⏻	down arrow mute buzzer ON/OFF device (see below)

For more indications regarding the alarms please see the alarm's table at page 3.

ADJUSTING TEMPERATURE – SET POINT

1. Press ↵ to display the first parameter **SPo**. In case of **EEr failure** press and hold ↵
1. Press SET to display its value. With T2 or ⏻ change **SPo** value.
2. Press SET to save the new value. The device is working properly with the new adjustment.

INDUSTRIAL FACTORY SETTINGS

1. Press ↵ to display **SPo**. By pressing ⏻ the parameter **Cod** is displayed.
2. Press SET to display its value and press T2 to enter the value **31**. Press SET to store the value to parameter **Cod.**
3. Press ↵ again to exit the parameter menu, 'YES' is displayed on the screen. All appropriate factory settings are now stored in the device.

⏻ ON/OFF DEVICE

To activate or deactivate the device, press for 3 seconds ⏻.

MANUAL DEFROST

Press for 3 seconds SET to start a manual defrost with duration based on the parameter **dd2.**

PROGRAMMING A PARAMETER

ATTENTION*: to gain full access to the parameter's menu, the 2nd parameter* ***Cod*** *must be adjusted to* ***22*** *(see parameter table next page)*

1. Press ↵ to enter the parameter menu.
2. Choose the parameter you want to adjust by pressing ⏻ or T2 and press SET to display its value.
3. Press ⏻ or T2 to change its value and then press SET to store the new value.
4. Press ↵ to exit the parameter menu.

TECHNICAL SPECIFICATIONS

Model **VD2F/VD2FX** power supply: 230VAC 50/60Hz / Maximum power consumption: 3W. Model **VD2FW / VD2FXW** switching power supply 100-264VAC 50/60Hz 5W.
It is recommended using a power supply safety fuse: 0.5A (not included)
Room temperature sensor NTC 10K 1% 25°C IP68 with temperature range -50÷+110°C (-58÷+230°F) (or PTC 1K 25°C with temperature range -50 ÷ +150°C (-58÷+302°F) not included) / Accuracy: ±0.5°C
Alarm buzzer / Serial input with 5pin connector / Digital input door
One relay cooling/heating 30A res. 250VAC normally open contact / One relay auxiliary 10A res. 250VAC normally open contact / Max current load 18A
Connections: cable cross section 2.5 mm² for all relays / cable cross section from 0.25 to 1.0 mm² for the sensors and door switch
Connections with terminal blocks 18A using cable with cable cross section up to 2.5 mm² / It is recommended using a torque wrench with maximum torque 0.4Nm
Operating temperature: -15÷+55°C / Storage temperature: -20÷+80°C
Dimensions 37x79x81mm / The device is mounted on a panel hole 29x71mm and it is restrained with plastic side brackets / Protection IP65 front
Firmware: V4.0.2

SERIAL INPUT

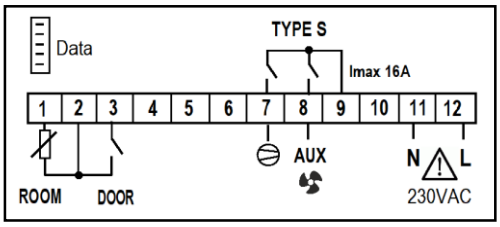
VD2F / VD2FX connects via serial input to the cloud and the online CORTEX platform or to a local computer with the CAMIN program or to the memory key or to the Mini Logger or to any Modbus network.

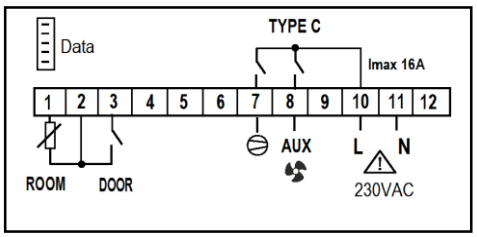
- Cloud and CORTEX platform: connection to the cloud and the CORTEX platform for monitoring - recording and managing the thermostat from your mobile, tablet or any computer.
- CAMIN program: local connection and monitoring - recording and management of the thermostat through the CAMIN program installed on a local computer.
- Mini Logger recorder: The thermostat can be connected to the recorder and record based on selected minutes on a microSD memory card, its temperatures and the state of the relays and alarms. It is connected via a cable to the serial input and we program the parameter Add = 1.
- Memory key: the parameter values are stored in the memory key or recorded by it in the thermostat. Connect the memory key to the thermostat and by pressing [SET] + [▲] at the same time the device is connected to the memory key and the display shows "Eo". To read the parameters of the thermostat from the memory key, press [▲] and the indication is displayed: "**ro**" = read O.K. or "**rF**" = read Fail. To save the parameters in the memory key, press [▼] and the indication appears: "**Yo**" = Write O.K. or "**YF**" = Write Fail. In case of a failed sequence (**rF** or **YF**) we reposition the memory at the serial input and repeat the same procedure from the beginning. The memory key is connected to all KIOUR thermostats. If you try to read the parameters of another device, "**rF**" will appear. The registration is done at any time and there is no commitment from previous registrations. After 10sec the memory key is disconnected from the device automatically

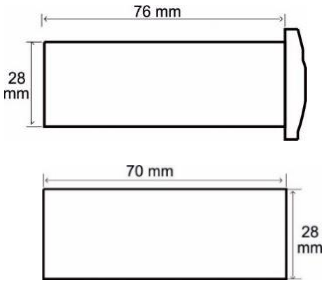
ELECTRICAL DIAGRAM - DIMENSIONS

***ATTENTION**: according to safety standards, the device must be properly positioned and protected from any contact with electrical parts. The device must be fastened in such a way that it cannot be removed without the use of tools. Disconnect the main safety switch of the installation before proceeding to any maintenance. Disconnect the power supply of the device before proceeding to any maintenance. Do not place the device near heat sources, equipment containing strong magnets, in areas affected by direct sunlight or rain. Prevent electrostatic discharges and sharp objects from been inserted to the device. Separate signal cables from power supply cables to prevent electromagnetic disorders. Signal cables must never be in the same pipe with the power supply cables.*
***ATTENTION**: Read carefully the technical specifications and make sure that the working conditions are appropriate. According to safety standards, the device must be fastened in such a way that it cannot be removed without the use of tools.*

Dimensions are in mm. The device is mounted on panel hole with cut 29x71mm and restrained with plastic side brackets.
Type S means that the relay common is voltage free. **Type C** means that the relay common is connected to 230 VAC







PARAMETER TABLE

#		description	min	max	Default	UoM
1	**SPo**	SET POINT: room temperature setting	LSP	HSP	2.0	°C/°F
2	**Cod**	Enter password code Cod = 22 and press [⏻] to enter the other parameters	0	255	0	-
	ANALOG INPUTS - TEMPERATURE					
3	**diF**	Differential of room temperature SPo (thermostat delay)	0.1	25.5	3.0	°C/°F
4	**LSP**	Lower setting limit of SPo	-50.0	+150	-2.0	°C/°F
5	**HSP**	Maximum setting limit of SPo	-50.0	+150	8.0	°C/°F
6	**dEC**	Temperature indication as integer or decimal, where 0 = integer / 1 = decimal	0	1	1=decimal	-
7	**Sen**	*Sensor type NTC/PTC* 0 = PTC / 1 = NTC	0	1	1=NTC	-
8	**SE1**	Room sensor offset	-10	+10.0	0.0	°C/°F
9	**SE2**	out of order	--	--	--	--
10	**tdS**	Delay in displaying the actual room temperature on the screen when the door is opened	0	255	0	min
11	**oS2**	out of order. Evaporator sensor operation. 0 = OFF. 1 = ON	--	--	--	--
12	**C_F**	Temperature measurement unit: toggling between °C/°F do not adjust the SPo automatically, it must be changed by the user: 0 = °C / 1 = °F	0	1	0=°C	°C/°F
	ALARMS					
13	**ALo**	**lower alarm limit** temperature of the cabinet	-50.0	+150	-4.0	°C/°F
14	**AHi**	**higher alarm limit** temperature of the cabinet	-50.0	+150	+15.0	°C/°F
15	**At2**	Time delay in activating the "AHI" and "ALo" alarms with parallel buzzer operation, where the setting does not apply to the sensor and door failure alarms: -1 = OFF buzzer 0 = direct ON buzzer 1 to 120 minutes = delay on buzzer ON.	-01	120	0	min
	DIGITAL INPUT – DOOR SWITCH					
16	**dLd**	Adjusting the door switch 0 = OFF, the switch and also the Virtual door switch. 1 = NC (normally close contact). 2 = NO (normally open contact). 3 = Virtual switch. With the operation of the virtual switch it does not activate on the door ALARM and does not stop the compressor. The duration of defrost dd2 continues and counts normally. If the 1st relay (30A) is in heating mode,then the door control is deactivated.	0	3	1= NC	UNITS
17	**tdo**	Time delay in activating the ALARM door of the Virtual switch. (the compressor is OFF, when door ALARM is activated)	1	250	120	sec
18	**Vdt**	Retention time of signal of the Virtual switch in an open door	10	250	10	sec
19	**VdS**	Detection sensitivity of open door,of the Virtual switch. When the value increases then the sensitivity increases	2	30	20	UNITS
	ECO FUNCTION					
20	**ECt**	Value = 0 => the **ECO** function is deactivated. If the door does not open after the time specified by the parameter, then the SET POINT of the economic mode (**ECo**) is activated.	0	240	0	min

21	**ECo**	SET POINT of economic operation. The economic mode SET POINT is activated when the door remains closed for a time longer than the value of the **ECt** parameter. When the thermostat is in **Eco** mode, the LED lights up.	-50	30	4.0	°C/°F
DEFROST						
22	**dFr**	Time between two successive defrost, where if dFr = 0 or the relay is in heating mode, defrost is deactivated.	0	100	6	hours
23	**dd2**	Defrost duration (manual and automatic)	1	120	18	min
24	**dE5**	Defrost end temperature is the temperature of the room	0.0	100	10.0	°C/°F
25	**dP3**	Dripping time, where the compressor is OFF after defrost	0	15	0	min
26	**dY4**	Display indication during defrost 2 = temperature display equal to SPo + diF when the room temperature is higher by SPo + diF -1 = display "dFr" when the room temperature is higher than SPo + diF 0 = room temperature display 1 to 40 minutes = "dFr" display for 1 to 40 minutes from the initiation of defrost	-1	40	-1	min
COMPRESSOR						
27	**CP2**	Compressor's minimum time OFF	0	15	3	min
28	**CF3**	*Compressor's operation in case of room's sensor malfunction* *-1 = compressor OFF* *0 = compressor ON while defrosting starts based on time dFr and lasts dd2 time* *1 ÷ 150 minutes = constant compressor operating time. The minimum compressor pause is determined by the CP2 parameter.* *Defrosting starts on time dFr and lasts dd2 If the 1st relay (30A) is in heating mode with parallel room sensor failure (LF1), the 1st relay (30A) switches off*	-1	15	0	min
RELAY						
29	**rHC**	Relay operation mode, where 0 = cooling / 1 = heating	0	1	0=cooling	-
30	**OAU**	Operation of 2nd auxiliary relay 0 = OFF 1 = parallel relay operation with the ON / OFF of the thermostat. 2 = fan function based on the door switch, where the door switch must be activated. In heating mode the door control is deactivated. 3 = lamp function based on the door switch, where the door switch must be activated. In heating mode the door control is deactivated. 4 = ON in case of alarm: when the cause of activation of the alarms is gone, then the relay is deactivated. In heating mode the door control is deactivated. 5 = parallel operation with the 1st relay 30A	0	6	2	-
NETWORK - GENERAL SETTINGS						
31	**tPE**	*Unique product number – no access*	-	-	230	-
32	**Add**	Device address on network	0	255	1	-
33	**trE**	Response time of the device on network	5	100	40	msec
34	**bAU**	*Baud rate: 0 = 2400 / 1 = 4800 / 2 = 9600 / 3 = 19200* Enter the new value, exit the parameter menu by pressing and toggle the power supply of the device	0	3	3	-
35	**Pro**	*Cabinet's program (factory settings) is displayed – no access*	-	-	31	-
36	**SrU**	*Room service*: after the end of the selected time, 'SrU' is displayed and informs that the room needs service. The thermostat continues to operate normally and its functions are not suspended. -1 = disabled function 0 to 150 weeks = remaining time to activate the 'SrU' room service notification. The countdown starts once a new value is stored. Whenever we enter the parameter, the remaining time until the activation of 'SrU' notification is displayed. To deactivate the notification, insert SrU = -1.	-1	150	-1	weeks
37	**UEr**	*Firmware version - no access*	-	-	4.0.1	-

ALARM TABLE		
1	**LF1**	Room sensor malfunction
2	**LF2**	Not working
3	**ALo**	Low room temperature
4	**AHi**	High room temperature
5	**dor**	Open door alarm (when the cabinet's door opens, the fan stops)
6	**SrU**	room service notification: timer has elapsed and the cabinet needs a service (see parameter 31, SrU)
7	**EEr**	Error in memory RAM: re-enter the SPo (see ADJUSTING TEMPERATURE – SET POINT page 1)
The alarms are automatically deactivated once the cause of the alarm disappears.		

Made in Greece.

The device is under two year's guarantee. The guarantee is valid only if the manual instructions have been applied. The control and service of the device must be done by an authorized technician. The guarantee covers only the replacement or the service of the device. KIOUR PC implements a Quality Management System according to EN ISO 9001:2015 Standard with registration number 01013192. KIOUR preserves the right to adjust its products without further notice