

ATTENTION

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 is a thermostat for cooling-heating cabinets; room and evaporator temperature is controlled with NTC/PTC sensors; 3 indication digits with resolution 0.5°C and 4 buttons; one digital input for controlling the cabinet's door; 2 relays: a main relay 30A 250VAC that is configured via parameter in operation: cooling or heating mode and an auxiliary relay 10A 250VAC (defrost, fan, lamp, alarm); defrosting may be electric or hot gas, a buzzer in case of an alarm, the device is mounted on a panel hole 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 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
AUX	auxiliary relay ON
	defrost ON
	alarm ON
	malfunction ON

Keyboard	
	enter/exit the parameter's menu
	display the parameter's value enter parameter's value manual defrost
	up arrow display evaporator temperature T2
	down arrow mute buzzer ON/OFF device (check 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**.
2. Press to display its value. With or change **SPo** value.
3. Press to save the new value. The device is working with the new adjustment.

INDUSTRIAL FACTORY SETTINGS

1. Press to display **SPo**. Press once and the parameter **Cod** is displayed.
2. Press to display its value and press to enter the value **31**. Press 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 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 page 2).

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

TECHNICAL SPECIFICATIONS

Model **VD2F** power supply: 230VAC 50/60Hz / Maximum power consumption: 3W. Model **VD2FW** switching power supply 100-264VAC 50/60Hz 5W
 It is recommended using a power supply safety fuse: 0.5A (not included)
 Room and evaporator temperature sensors NTC 10K 1% 25°C IP68 and temperature range -50÷+112°C (-58÷+230°F) (or PTC 1K 25°C and temperature range -50÷+150°C (-58÷+302°F) not included) / Accuracy: ±0.5°C
 Alarm buzzer / Serial input with 5pin connector / Digital input door
 Relay cool/heating 30A res. 250VAC normally open contact / Relay auxiliary 10A res. 250VAC normally open contact / Max current load 16A
 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 panel hole 29x71mm and restrained with plastic side brackets / Protection IP65 front
 Firmware: V3.1

SERIAL INPUT

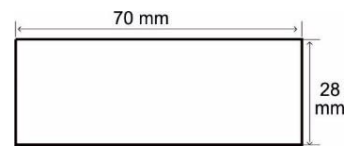
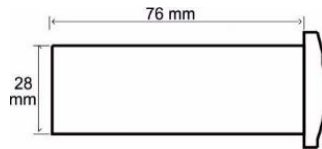
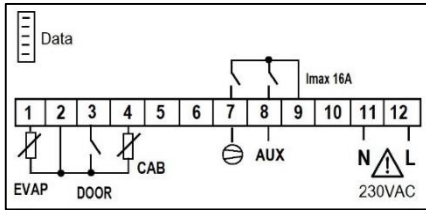
VD2F connects via serial input to the following options:

- Cloud IoT CORTEX platform: connection to the cloud and the CORTEX platform for monitoring - recording and managing the thermostat from your mobile, tablet or any computer, notifications via email and Viber SMS
- 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.

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 being 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.



PARAMETER'S TABLE

No		Description	min	max	VD2F	UOM
1	SPo	SET POINT: room temperature setting	LSP	HSP	2.0	°C/°F
2	Cod	Enter password Cod = 22 and press to access all parameters menu	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	-10.0	+10.0	0.0	°C/°F
9	SE2	Evaporator sensor offset	-10.0	+10.0	0.0	°C/°F
10	tdS	Delay in displaying the actual room temperature on the screen when the door opens	0	255	0	minutes
11	oS2	Evaporator's sensor operation 0 = OFF sensor 1 = ON sensor When the sensor is OFF, by pressing it is displayed "----". For more information regarding the defrost without the evaporator's sensor, check parameter No 20 dE5.	0	1	0= OFF	-
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	Low room temperature	-50.0	+150	-4.0	°C/°F
14	AHi	High room temperature	-50.0	+150	+15.0	°C/°F
15	At2	Time delay in activating "AHi", "ALo" and the buzzer among them. This setting does not apply to sensor failure and door alarm. -1 = OFF buzzer 0 = ON buzzer in case of an alarm 1 to 120 min = delay in buzzer activation in case of an alarm	-01	120	20	minutes
DIGITAL INPUT - DOOR SWITCH						
16	dLd	Door switch operation 0=OFF / 1=NC (normally close contact) / 2=NO (normally open contact) If cabinet's door is open during defrost for more than time tdo, defrost relay turns OFF and resumes once door is closed. Defrost duration based on timer dd2 keeps counting from the beginning of defrost. If the first relay (30A) is in heating mode the door control is deactivated.	0	1	1= NC	-
17	tdo	Time delay in deactivating the compressor once the door opens	1	250	120	sec
DEFROST						
18	dFr	Time between two successive defrost, where if dFr =0 or if the first relay (30A) is in heating mode, the defrost is deactivated	0	100	6	hours
19	dd2	Defrost duration (manual and automatic)	1	120	18	minutes
20	dE5	Defrost end temperature - evaporator temperature - sensor EVAP T2 In case of deactivated evaporator sensor, defrost end temperature is the room temperature. In case of evaporator's sensor malfunction (LF2), there is no check of defrost end temperature and defrosting is completed after timer adjusted in parameter dd2 elapses.	0.0	100	10.0	°C/°F
21	dp3	Dripping time, where the compressor is OFF after defrost.	0	15	0	minutes

22	dY4	Display indication during defrost -2 = SPo + diF value is displayed when room temperature is greater than SPo + diF -1 = "dF" is displayed when room temperature is greater than SPo + diF 0 = room temperature is displayed 1 to 40 minutes = "dFr" is displayed from 1 to 40 minutes from the initiation of defrost	-1	40	-1	minutes
COMPRESSOR						
23	CP2	Compressor's minimum time OFF	0	15	3	minutes
24	CF3	Compressor's operation in case of room's sensor malfunction LF1 -1 = compressor OFF 0 = compressor ON while defrost starts based on timer dFr and ends based on timer dd2 or temperature dE5, whichever comes first. 1 to 150 min = compressor time ON while defrost starts based on timer dFr and ends based on timer dd2 or temperature dE5, whichever comes first. In heating mode and during sensor malfunction, the main relay 30A is deactivated.	-1	15	0	minutes
RELAY AUXILIARY						
25	rHC	First relay 30A operation mode, where 0=cooling / 1=heating	0	1	0=ψύξη	-
26	OAU	Auxiliary relay operation 0 = OFF 1 = parallel relay operation to the ON / OFF operation of the thermostat 2 = defrost function: if the first relay (30A) is in heating mode, defrost operation is switched off 3 = fan operation based on the door switch, where the door switch must be activated. During defrost, the fan switches off. If the first relay (30A) is in heating mode, the door control is deactivated. 4 = light function based on the door switch, where the door switch must be activated. If the first relay (30A) is in heating mode, the door control is deactivated. 5 = ON in case of alarm: once the alarms are cleared, then the relay is deactivated. If the first relay (30A) is in heating mode, the door switch is deactivated. 6 = parallel operation to the first relay 30A operation	0	6	0	-
NETWORK - GENERAL SETTINGS						
27	tPE	Unique product number – no access	-	-	230	-
28	Add	Device address on network	0	255	1	-
29	trE	Response time of the device on network	5	100	40	msec
30	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	-
31	Pro	Cabinet's program (factory settings) is displayed – no access	-	-	31	-
32	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
33	UEr	Firmware version – no access	-	-	3.1.X	-

ALARM'S TABLE

1	LF1	Room sensor malfunction
2	LF2	Evaporator sensor malfunction
3	ALo	Low room temperature
4	AHi	High room temperature
5	dor	Open door alarm (when the cabinet's door opens, the fan stop)
6	SrU	room service notification: timer has elapsed and the cabinet needs a service (see parameter 32, 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.