DESCRIPTION

VD2F is a temperature controller for cooling and heating applications. It has two relays. The first one is **16Amps** which can operate via an adjustable parameter in: a) cooling mode with automatic deFrost and a digital door input for controlling the cabinet's door, b) heating mode and c) heating mode with countdown. The second relay is for the fan operation. It has also a buzzer alarm. The sensor can be either **NTC** scale -37÷+110°C (-34÷+230°F) or **PTC** scale -37÷+110°C (-34÷+230°F) by adjusting a parameter. The controller has a serial input and can connect to the **KIOUR CAMIN** Modbus network for full monitoring and data logging of the device.

INDICATIONS AND BUTTON OPERATIONS OUTSIDE THE PARAMETER'S MENU

Indications	
❄	relay ON
🍥	fan ON
❄❄	deFrost ON
⚠	alarm ON
🔧	malfunction ON

button	Operations outside the parameter menu	
	pressed once	pressed mode than 3 sec
↵	enter parameter's menu	-
▼ MUTE	temperature scale °C/°F and mute the buzzer	-
▲ T2	-	-
SET ❄❄	-	start manual defrost or manual heating with countdown

PROGRAMMING THE PARAMETERS

By pressing [↵] we **enter or exit** the parameter's menu.

The first parameter "**SPo**" is displayed and with the [▲], [▼] we scroll into the parameters based on the parameter's table below.

By pressing [**SET**] the value of the parameter is displayed and with the [▲], [▼] we adjust the value.

By pressing [↵] **or** [**SET**] we **confirm** the new value and the name of the parameter is displayed.

⏻ SWITCHING ON/OFF THE DEVICE

By pressing **at the same time the** [▲] + [▼] we **switch OFF** the device. By pressing **more than 3 sec** [▼] we **switch ON** the device.

TECHNICAL SPECIFICATIONS

Power supply: 230VAC 50/60Hz / Maximum power consumption: 3W
Use of external power supply safety switch (not included): 0.5A
Cabinet's temperature sensor NTC 10K 1% 25°C IP68 (or PTC 1K 25°C is not included) / Accuracy: 0.5°C
Alarm buzzer / Serial Input
Relay 250VAC 16A resistive load / Fan relay 250VAC 10A
Operating temperature: -15÷+55°C / Storage temperature: -20÷+80°C
The device is mounted through panel hole 29x71mm and is restrained with two plastic side brackets / Connection with terminal blocks 18A

SERIAL INPUT

VD2F can connect to the **key programmer** or to the data logger **Mini Logger** or to the **KIOUR CAMIN** network.

▪ **Key programmer:** controller's parameter values can be saved or retrieved from the programming key. Plug in the programming key to the controller and press at the same time [**SET**]+[▲]. The device connects to the key and the message "**Eo**" is displayed. By pressing [▲] the device downloads the parameters from the key and the message "**ro**" = read O.K. or "**rF**" = read Fail is displayed. By pressing [▼] the device uploads the parameters to the key and the message "**Yo**" = Write O.K. or "**YF**" = Write Fail is displayed. In case of failure (**rF** or **YF**) reenter the key to the serial input and repeat the procedure from the beginning. The key can connect to all **KIOUR** devices. If you try to read the parameters of a different device, message "**rF**" is displayed. At any time, we can perform the aforesaid operation. After 10sec the key is disconnected.

▪ **Data logger Mini Logger:** the controller is connected to the data logger via cable and by programming the parameter **Add = 1**. Automatically, based on selected minutes, the data logger writes to a microSD memory card the controller's temperatures, status and alarms.

▪ **CAMIN network:** the controller can connect to the **CAMIN** network via an interface **NET-INS-485**. **CAMIN** is an PC software application designed to collect information, watch and fully control a net of **KIOUR** devices while sending SMS and email in case of an alarm. The maximum length of the net can be 1000 meters.

HEATING MODE WITH COUNTDOWN

When the parameter **rHC = 2,** the relay operates in heating mode based on the parameter "**Hod**" while "**SET**" is displayed. By pressing [**SET**] the relay is activated and the indication "**rUn**" is displayed. By pressing [▲] the remaining time is displayed. When the time expires, the relay is deactivated and "**End**" is displayed on screen. By pressing [**SET**] again, the procedure starts over. The thermostat constantly controls the relay based on the adjusted Set Point (SPo). If the **SPo** changes during "**rUn**", automatically the control of the relay is adjusted. If the timer "**Hod**" changes during "**rUn**" mode, it will not change until the next running cycle.

CONNECTIONS - DIMENSIONS
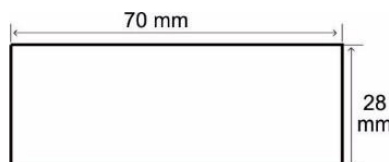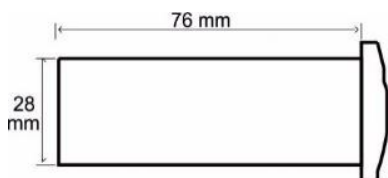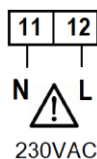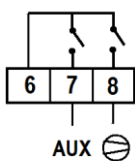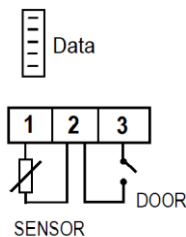
PARAMETER TABLE

#		description	min	max	VD2F	UOM
1	SPo	SET POINT: temperature control of the cabinet	LSP	HSP	2	°C/°F
2	LSP	**minimum** temperature limit of SPo	-50	HSP	-2	°C/°F
3	HSP	**maximum** temperature limit of SPo	LSP	+150	8	°C/°F
4	diF	**differential relay function**	0.1	25	3	°C/°F
5	Cod	code to enter parameter's menu **Cod = 22** resetting to **factory settings VD2F** for **Cod = 31**	0	255	0	-
6	Cr	minimum **pause time** of the compressor	0	4	0	min
7	CF	In case of **sensor's malfunction (LF1)** and in cooling mode, the compressor operates as follows: 0 = 40% compressor's operation (3min ON, 4min OFF), 1 = compressor is ON continuously. In **heating mode** the relay is deactivated.	0	1	0	-
8	dFr	**time** between two successive deFrost For **dFr=0** or in **heating mode** the **deFrost** is deactivated.	0	50	6	h
9	dd2	**maximum duration of deFrost**	1	90	18	min
10	dL	**temperature limit of the deFrost**: above this temperature the automatic deFrost stops. The **manual deFrost** does not stop based on the "**dL**" temperature limit.	0	25	10	°C/°F
11	CAb	(not in use)	-	-	-	-
12	dr	**dripping time,** in which the compressor remains OFF after **deFrost** ends	0	10	0	min
13	td	during **deFrost** the indication "**dFr**" is displayed, for "0" = cabinet's temperature is displayed during defrost.	0	99	20	min
14	Se1	**zero adjustment of temperature sensor**	-9	+15	0	°C/°F
15	Ft2	**fan's operating mode**, where -01 = works continuously, 0 = starts and stops with the compressor and 1÷15 min = operates with the compressor and when the compressor stops, fan stops after timer "**Ft2**" elapses	-01	15	-01 = continuously ON	-
16	FOd	fan's operation during deFrost, where 0 = OFF and 1 = ON during the deFrost	0	1	1 = continuously ON	-
17	C_F	**switch °C/°F** (0=°C, 1=°F) **ATTENTION**: changes between °C/°F do not apply on SPo	0	1	0=°C	°C/°F
18	Hod	timer for countdown during heating mode (adjust parameter rHC = 2)	1	255	1	min
19	trE	time response of the device to the **CAMIN network**	5	100	40	msec
20	dHL	**time delay in activating alarms "AHi" and "ALo"**	0	99	0	min
21	Fdt	fan activation delay after deFrost	0	255	0	min
22	ALo	**lower alarm limit** temperature of the cabinet	-50	+150	-4	°C/°F
23	AHi	**higher alarm limit** temperature of the cabinet	-50	+150	+15	°C/°F
24	dor	**door input polarity** for 0=OFF, 1=ON with **NO** contact, 2=ON with **NC** contact. In **heating** mode, the door input is deactivated.	0	2	0=OFF	-
25	tH	**time delay** in activating the high temperature alarm **"AHi"** after defrost. During **deFrost**, the alarm **"AHi"** is not activated.	1	255	1	sec
26	dE	**after "dE" timer expires,** the open door **alarm "dor" is activated** and the compressor turns off, when the door closes, the compressor starts to operate and the alarm disappears.	0	99	0	min
27	rHC	relay operation, where 0=cooling, 1=heating, 2=heating with countdown based on timer "**Hod**"	0	2	0=cooling	-
28	dEC	temperature indication as **integer or decimal,** where dEC=0 integer, dEC=1 decimal	0	1	1=decimal	-
29	Add	**address of the device** in the network for connecting to **Mini Logger** adjust **Add = 1**.	0	255	1	-
30	Sen	**NTC/PTC sensor selection** for Sen = 0 **PTC** and Sen = 1 **NTC**	0	1	1=NTC	-
31	ts	**time delay for refreshing the temperature indication** on screen	0	20	0	sec

ALARM TABLE

1	LF1	cabinet's sensor malfunction
2	ALo	alarm low temperature in the cabinet
3	AHi	alarm high temperature in the cabinet
4	dor	open door alarm, when the door opens the fan stops immediately

The alarms are automatically deactivated when the cause of the alarm disappears.

Made in Greece.