

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 more than 3 sec |
| | enter parameter's menu | - |
| MUTE | temperature scale °C/°F and mute the buzzer | - |
| T2 | - | - |
| | - | 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

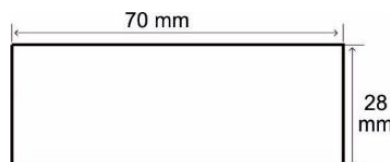
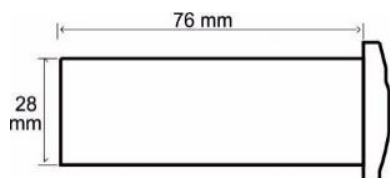
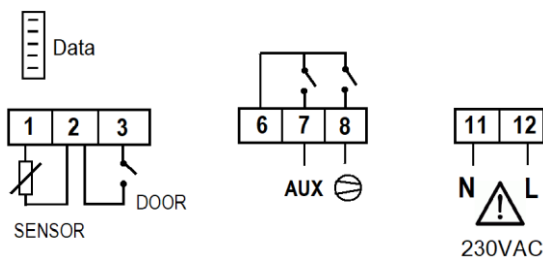
VD2F can connect to the **key programmer** or to the data logger **Mini Logger** or to the **KIOUR CAMIN** network.

- **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 a 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 | tS | time delay for refreshing the temperature indication on screen | 0 | 20 | 0 | sec |
| 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 | - |

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.



ATTENTION according to safety standards, the device must be properly positioned and protected from any contact with electrical parts. All parts that provide protection must be fastened in such a way that they cannot be removed without the use of tools. **ATTENTION:** disconnect the power supply of the device before proceeding to any kind of maintenance. **ATTENTION:** do not place the device near heat sources, equipment containing strong magnets, in areas affected by direct sunlight or rain. **ATTENTION:** prevent electrostatic discharges at the side slots of the device and sharp objects from being inserted. **ATTENTION:** separate the signal's cables from the power supply's cables to prevent electromagnetic disorders. Signal cables must never be in the same pipe with the power supply cables. **Use the device only as described in this document, not to 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. Read and keep these instructions.** The device is under two year's guarantee of good operation. 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 preserves the right to adjust its products without further notice.