

DESCRIPTION



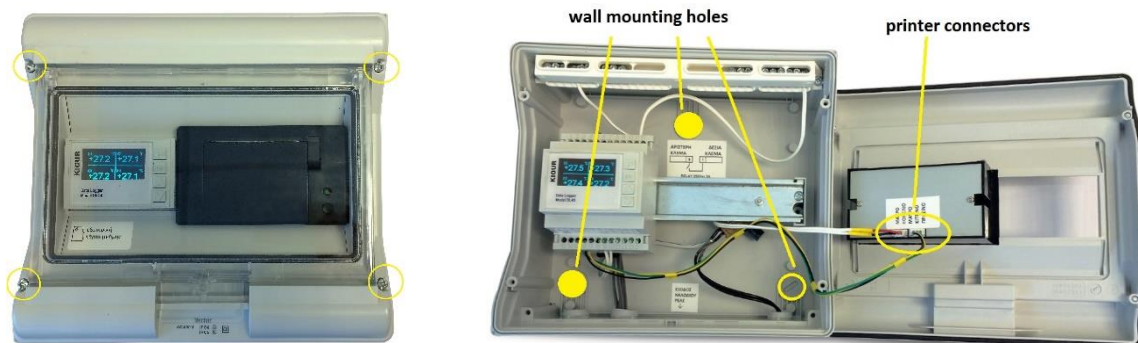
- Temperature recording from 4 sensors type NTC 10K 1% 25°C IP68 scale -50 to +110 °C and cable length 1.5m
- Display and recording up to 3 digits, from -50.0 to 99.9 °C
- Programmable low and high temperature alarm for every sensor
- Activation or deactivation of any sensor
- Clock with embedded (non-rechargeable) battery with 10 years' autonomy with no power supply connected to the device
- Internal flash memory with cyclic recording (the last recording erases the first in case the memory is full) and record's capacity:
 - ✓ 5 months for 1 recording per 5 minutes
 - ✓ 1 year for 1 recording per 15 minutes
- MicroSD port for saving the records in an external 2GB memory card giving the ability to print records via a PC
- Relay 250Vac 3A which activates after Low or High Alarm (it can be used for example to sound a siren)
- Connection to thermal printer for instant printing of the recordings
- Display with OLED lighting (128x64 dots)
- Power supply: 230VAC $\pm$ 10% (or 12Vdc without the transformer)
- Consumption: 3W
- Degree of protection: IP65 with the lid of the plastic shell closed and the cable glands placed on the box
- Operating temperature: -15 $\div$ +55 °C
- Storage Temperature: -20 $\div$ +80 °C

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WALL MOUNTING OF THE DEVICE AND CONNECTIONS OF DEVICE / RELAY

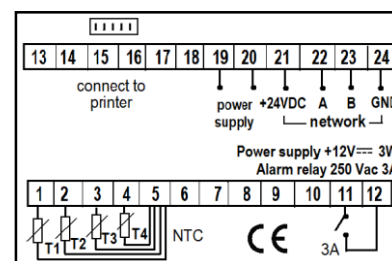
Unscrew the 4 screws and remove the front cover and the 2 connectors from the printer in order to make electrical connections easier. Be careful with the direction of the 2 connectors when reconnecting. Inside the box there are 3 spots (holes) which can be used to mount the device on wall.



The **connections of the relay** can be seen on the label inside the box, while the cable connected to the relay goes through the middle cable gland in order to get out of the box.

In case of temperature alarm or sensor failure, the relay is activated (250Vac 3A). By pressing [**SET**] we **reset the relay**.

When the mounting is done, we place the front cover back in its initial place and tight the screw enough so that the slot of the

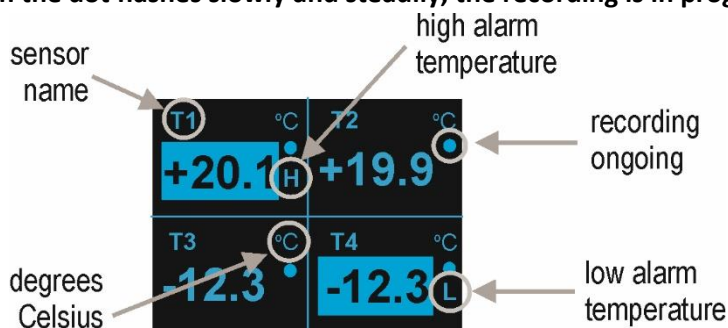


external memory card can be clearly visible:

The last step is to insert the external memory card in its slot minding its proper direction.

INDICATION OF SYMBOLS AND BUTTONS – RECORDING IN PROGRESS

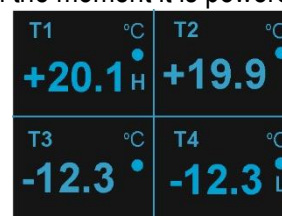
When the dot flashes slowly and steadily, the recording is in progress.



Buttons	Description
←	Enter-Exit the parameter's menu
SET	Value entry
▲	Navigation through parameters / values
▼	Navigation through parameters / values

START UP

The device records the temperature from the 4 sensors in its internal build-in memory from the moment it is powered.



After starting up with its factory settings (table 1) the following screen appears:

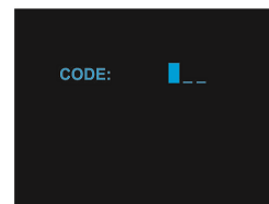
By pressing [▼] we navigate through the 3 following screens:



ACCESS PASSWORD TO THE PARAMETER MENU

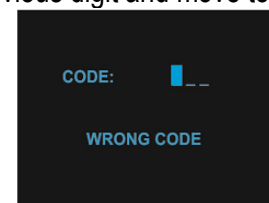


In order to enter the parameters menu we need to **start from the main screen**:



By pressing [] the following screen appears:

By using the arrows, we choose one digit at a time and by pressing [**SET**] we save the previous digit and move to the next one.



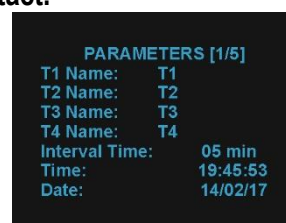
In case of entering a wrong password the following screen appears:
and the unlocking procedure must start from the beginning.

If we forget the password, we remove the device from the power supply. Then we press [] continuously while putting the device back to power supply. To enter the parameters menu, we use the password "111".

CAUTION all settings will be reset to factory settings. The recording data of the internal memory will be maintained.

PROGRAMMING THE PARAMETERS

In case of switching off the device, all programmable adjustments remain intact.

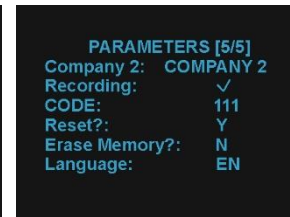
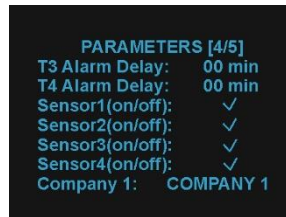
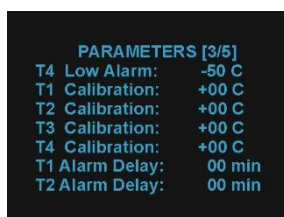


After the successful entry of the user password, the following screen appears:

By using the **arrows**, we navigate through the parameter's menu (a total of 5 different screens) and change the value of a parameter.

By pressing [**SET**], we save every digit, and move on to the next digit and then to the next parameter automatically.

These are the 4 following parameter screens:



By pressing [] we exit the parameter's menu, **otherwise it will automatically exit the menu after 1 minute**.

The following table explains the parameters in detail.

PARAMETER TABLE 1

#	Parameter	Description	min	max	DL4S	UOM
1	T1 Name	T1 sensor name up to 9 characters	-		T1	-
2	T2 Name	T2 sensor name up to 9 characters	-		T2	-
3	T3 Name	T3 sensor name up to 9 characters	-		T3	-
4	T4 Name	T4 sensor name up to 9 characters	-		T4	-
5	Interval Timer	Time between two successive recordings in minutes	5	99	5	minutes
6	Time	Current time in format: hours/minutes/seconds	-		Current time	-
7	Date	Current date in format: day/month/year	-		Current date	-
8	T1 High Alarm	High temperature Alarm from sensor T1	Low	+99	+50	°C
9	T1 Low Alarm	Low temperature Alarm from sensor T1	-99	High	-50	°C
10	T2 High Alarm	High temperature Alarm from sensor T2	Low	+99	+50.0	°C

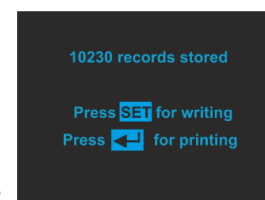
11	T2 Low Alarm	Low temperature Alarm from sensor T2	-99	High	-50.0	°C
12	T3 High Alarm	High temperature Alarm from sensor T3	-Low	+99	+50.0	°C
13	T3 Low Alarm	Low temperature Alarm from sensor T3	-99	High	-50.0	°C
14	T4 High Alarm	High temperature Alarm from sensor T4	Low	+99	+50.0	°C
15	T4 Low Alarm	Low temperature Alarm from sensor T4	-99	High	-50.0	°C
16	T1 Calibration	Zero adjustment of sensor T1	-99	+99	0.0	°C
17	T2 Calibration	Zero adjustment of sensor T2	-99	+99	0.0	°C
18	T3 Calibration	Zero adjustment of sensor T3	-99	+99	0.0	°C
19	T4 Calibration	Zero adjustment of sensor T4	-99	+99	0.0	°C
20	T1 Alarm Delay	Time Delay to T1 Sensor Alarm Activation	0	99	0	minutes
21	T2 Alarm delay	Time Delay to T2 Sensor Alarm Activation	0	99	0	minutes
22	T3 Alarm Delay	Time Delay to T3 Sensor Alarm Activation	0	99	0	minutes
23	T4 Alarm Delay	Time Delay to T4 Sensor Alarm Activation	0	99	0	minutes
24	Sensor 1 (on/off)	Activation/Deactivation of sensor 1	✓ / X		✓	-
25	Sensor 2 (on/off)	Activation/Deactivation of sensor 2	✓ / X		✓	-
26	Sensor 3 (on/off)	Activation/Deactivation of sensor 3	✓ / X		✓	-
27	Sensor 4 (on/off)	Activation/Deactivation of sensor 4	✓ / X		✓	-
28	Company 1	Save the business details to appear on top of the records	up to 9 characters		COMPANY 1	-
29	Company 2	Save any additional business details to appear in the records	up to 9 characters		COMPANY 2	-
30	Recording	Start ✓ / Stop X of all recordings	✓ / X		✓	-
31	CODE	Access password to the parameter's menu	0	999	111	-
32	Reset?	Reset parameters to factory settings DL4S	Y(YES) / N(NO)		NO	-
33	Erase memory?	Erase all internal memory entries	Y(YES) / N(NO)		NO	-
34	Language	Adjust device's language either English EN or Greek GR	EN/GR		ENGLISH	-

ALARM TABLE

1	OVF	Sensor malfunction
2	H	High temperature alarm
3	L	Low temperature alarm
4	Please erase memory	The internal memory of the device must be erased immediately
The alarms are automatically deactivated when the cause of the alarm disappears.		

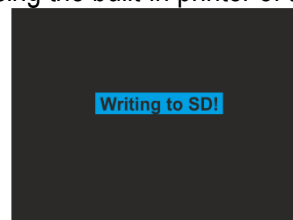
WRITING DATA ON THE EXTERNAL MEMORY CARD

We place the external memory card on the slot minding its proper direction.



By pressing twice the down arrow [▼], when being at the main screen, the following screen appears :

In this screen we see the number of the recordings that have been saved in the internal memory of the device and 2 options for **writing** recording data on the external memory card and **printing** them using the built-in printer of the device.



By pressing [SET] the following screen appears:

This screen indicates that the writing from the internal memory to the external memory card has begun.



When the transfer of data is completed the following screen appears:

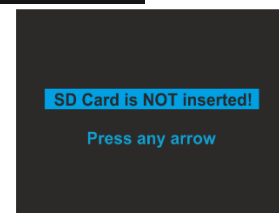
We also see the name of the file in which the recordings are now saved. In the above case, the name of the file is “Log_232.txt”.

CAUTION we never remove the external memory card from the device before the transfer is completed and the corresponding screen appears! **There is a danger of damaging the external memory card!**

At this stage we can also erase the internal memory by choosing “Y” with the arrows and then press [SET]. It is highly recommended that we first confirm the successful writing on the external memory card using the computer before erasing the internal memory! In



case of proceeding with memory erase, the following screen appears:

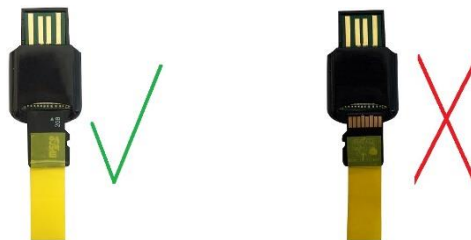


In case of no external memory card being present, the following screen appears:

At this stage we insert the external memory card and repeat the procedure.

PRINTING THE RECORDS FROM THE COMPUTER

We remove the external memory card from the device and we insert it to the USB stick that is included in the device.



Caution mind the direction!

We connect the stick to any USB port of a computer and open the last file:

COMPANY 1		COMPANY 2					
Mon 12/06/17	10:30	[T1	+29.1 T2	+29.1 T3	OFF T4	+29.3]	
Mon 12/06/17	10:35	[T1	+30.1 T2	+29.5 T3	OFF T4	+29.5]	
Mon 12/06/17	10:35	[T1 ALARM HIGH >+30]					
Mon 12/06/17	10:40	[T1	+28.6 T2	+28.8 T3	OFF T4	+28.8]	
Mon 12/06/17	10:45	[T1	+28.8 T2	+28.8 T3	OFF T4	+29.6]	
Mon 12/06/17	10:50	[T1	+28.9 T2	+28.8 T3	OFF T4	+28.9]	
Mon 12/06/17	10:50	[T1 ALARM LOW <+29]					
Mon 12/06/17	10:55	[T1	+28.9 T2	+28.6 T3	OFF T4	+28.8]	

At the beginning of the text, the company details are displayed (**COMPANY 1, COMPANY 2**) as they have been saved in parameters 28 and 29.

Each row then displays the date/time and the recordings from the four sensors according to the desired recording time, parameter 5 **Interval Timer**. It is also recorded if there is any sensor that is **OFF**, for example sensor named T3.

In case of an **ALARM** a recording is automatically made after the end of the **time delay** that has been set (parameters 20 to 23), e.g. T1 with ALARM HIGH and T1 with ALARM LOW.

Records in the external memory card files cannot be modified.

CAUTION when the USB stick is removed from the computer, without using safe removal! There is a danger of losing all external memory card entries! It is highly recommended that the external memory card records are stored on the computer at regular intervals!

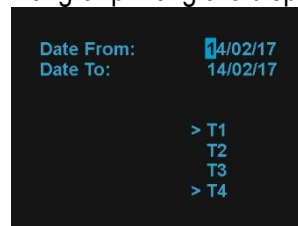
PRINTING WITH THE THERMAL PRINTER

ATTENTION with the printing set up because we cannot stop it, rather than pulling out the power supply.

By pressing [▲] + [▼] when being at the main screen, an instant print of the company name, the current date/time and all 4 temperatures is occurred. If a sensor is out of order, then it is not printed.



By pressing twice [▼] when being at the main screen the following screen appears:
The number of stored records in the recorder's internal memory and the options for writing or printing are displayed.



By pressing [↵] the following screen appears:

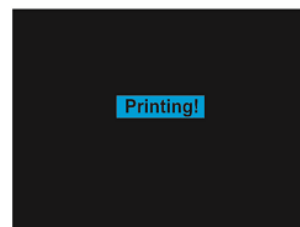
By pressing [SET] we move the cursor from digit to digit. By using the **arrows** we select the time range of the records we want to print and with the symbol [>] we select among the 4 sensors. In this particular example, sensors T1 and T4 have been selected for the date 14/02/17.

We exit the printing screen at any time by pressing [↵].

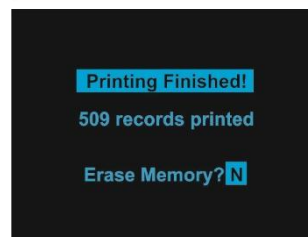
Having selected date and sensors we automatically pass to the next screen where we confirm printing by pressing [SET] or cancel



it by pressing [↵]:



The printing starts automatically and the following screen appears:



When printing is completed the following screen appears:

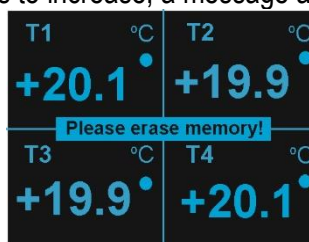
If the printer runs out of paper during printing, we repeat the above steps to reprint.

To insert a **thermal paper** into the printer, we carefully pull the switch next to the lid. We place the thermal strip as shown in the picture and close the lid. By pressing the button on the bottom right, the thermal strip moves one line along the line, confirming that the paper is placed correctly:



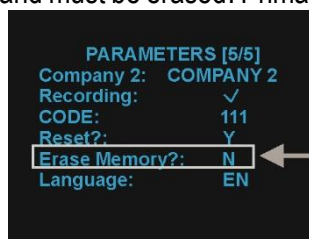
ERASING INTERNAL MEMORY

When the number of records in the device's internal memory starts to increase, a message appears on the screen:



"Please erase memory"

The internal memory has an increased number of records and must be erased. Primarily they must be copied to the external memory



erase
internal memory

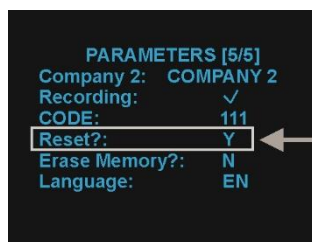
card or printed and then erased in the following way:

We enter the access password and move to the 5th parameter screen, then select **"Y" (YES)** in the **"Erase Memory?"** parameter and press **[SET]**. **All records are automatically deleted** from the device's internal memory and the message **"Please erase memory"** disappears from the screen. If desired, we can delete the records from the internal memory at any time by following the above procedure.

CAUTION please make sure all records are retained before deleting the device's internal memory!

RESETTING FACTORY SETTINGS

We enter the access password and move to the 5th screen of the parameters, then we select **"Y" (YES)** in the **"Reset?"** parameter and press **[SET]**. All parameter values will automatically reset to factory settings as they can be seen on Table 1 page 4.



resetting
factory settings



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.

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