ANALOG TEMPERATURE CONTROLLER Model AN1 V1

KIOUR

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.

DECRIPTION

AN1 has the following technical specifications:

1. One input, which is adjustable via a parameter for temperature sensor either **NTC** scale -37÷+110°C or **PTC** scale -50÷+110°C or **4-20 mA** signal. The **4-20mA** signal is analyzed from 0 to 100 digits. This scale is adjusted via the parameter **r nA.** For example, if parameter **r nA= 30,** then the scale of **4-20 mA** will correspond to **0-30 units.**

2.Output for 0-10 Volt signal. The signal is adjusted from the parameter table below

3.One relay which is controlled based on the SET POINTs and their corresponding cooling and heating differentials, parameters **diC** and **diH**

4.Power supply +12VDC for transmitter

Via parameter **AS2** we setup the analog input based on the cooling set point **SCo** (**AS2=1**) or the heating set point **SH1** (**AS2=2**) or both set points (**AS2=3**). In the third case, the analog input is controlled in the cooling and heating area while the relay operates only in the cooling area.

PROGRAMMING THE PARAMETERS

ATTENTION**: to gain full access to the parameters menu, the 3rd parameter **Cod** must be adjusted to **22.

1. Press ↵ to enter the parameter menu.
2. Choose the parameter you want to adjust by pressing ▲ or ▼ and press SET 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.

RESTORE DEFAULT SETTINGS

To restore default settings of the parameters, we enter in **parameter Cod = 31** and press two times ↵ in order to store the new value and exit the parameters menu.

PARAMETERS TABLE

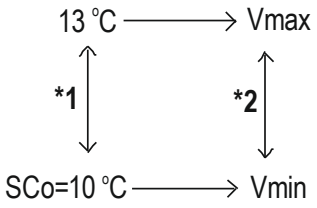
No		description	min	max	default	U.O.M
1	**SCo**	SET POINT in cooling mode	-50.0	150	10.0	°C/°F
2	**SHt**	SET POINT in heating mode	-50.0	150	20.0	°C/°F
3	**Cod**	**Access code to the following parameters Cod = 22.**	0	255	0	-
4	**ArC**	Cooling mode: temperature range in which the output analog volt is applied (see sketch below for more details)	1.0	25.0	3.0	°C/°F
5	**ArH**	Heating mode: temperature range in which the output analog volt is applied (see sketch below for more details)	1.0	25.0	3.0	°C/°F
6	**LLo**	Lower analog output voltage: The analog output has range between **LLo** and **HLo** in a temperature range adjusted by the corresponding set point and the parameter **ArH** or **ArC**. *For example, if LLo = 3VDC, HLo = 10VDC, set point in heating mode is SHt = 45 °C and ArH = 3 °C, then the voltage will change from 3 to 10 VDC from 42 to 45°C.*	0.0	5.0	3.0	Volt DC
7	**HLo**	Upper analog output voltage	6.0	10.0	10.0	Volt DC
8	**IAO**	Analog output signal setup: 0 = Compressor operation / 1 = reversed signal for fan operation (see sketch below for more details)	0	1	0 = compressor	units
9	**AS2**	Analog input setup: 1 = cooling set point / 2 = heating set point / 3 = bot set points	1	3	1 = cooling SPo	units
10	**AIn**	Input setup to PTC or 4-20 mA signal: 1 = PTC / 2 = 4-20mA	1	2	1 = PTC	units
11	**r nA**	Adjustment of upper limit of mA scale, for example instead of 0 - 100 it is readjusted to 0 - 30	10	100	100	units
12	**diC**	Differential of temperature in cooling mode	0.5	25.0	3.0	°C/°F
13	**diH**	Differential of temperature in heating mode	0.5	25.0	3.0	°C/°F
14	**SEn**	*Sensor type NTC/PTC* 0 = PTC / 1 = NTC	0	1	0	units
15	**SE1**	Sensor offset	-10.0	15.5	0.0	°C/°F
16	**rtd**	Time delay of relay from OFF to ON	0	240	0	seconds
17	**tS**	Time delay in displaying real temperature on screen	0	20	0	seconds
18	**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
19	**trE**	Response time of the device on network	20	100	30	units
20	**Add**	Device address on network	0	255	1	units

TECHNICAL SPECIFICATIONS

Power supply 230VAC 50/60Hz / Maximum power consumption: 3W
It is recommended using a power supply safety fuse: 0.5A (not included)
One temperature sensor PTC 1K 25ºC with metal tube and temperature range -50÷+110°C (-58÷+230°F) / Accuracy: ±0.5°C
One input for signal 4-20 mA
Relay 16A res. 250VAC normally open contact / Serial input
Connections: cable cross section 2.5 mm² for the relay / cable cross section from 0.25 to 1.0 mm² for the sensor

The device is mounted on a rail type Ω / 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 / Protection IP20
Operating temperature: -15÷+55°C / Storage temperature: -20÷+80°C

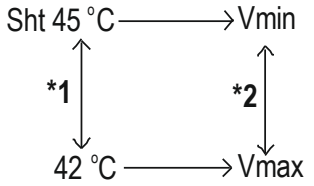
OPERATION AND SETTINGS OF ANALOG OUTPUT IN COOLING MODE



For **compressor operation** (parameter IAO = 0), 10 °C corresponds to Vmin and 13 °C corresponds to Vmax
For **fan operation** (parameter IAO = 1), the foretold match is reversed and 10 °C corresponds to Vmax while 13 °C corresponds to Vmin

***Note 1:** The range is adjusted from parameter ArC = 3 °C
***Note 2:** Analog voltage to the output (terminal blocks 9-11, Analog Out) which corresponds to 10 till 13 °C
Vmin: minimum limit of analog voltage at **10 °C** to the output. It is adjusted from parameter **LLo** (range from 0 to 5 Volt).
Vmax: maximum limit of analog voltage at **13 °C** to the output. It is adjusted from parameter **HLo** (range from 6 to 10 Volt).

OPERATION AND SETTINGS OF ANALOG OUTPUT IN HEATING MODE

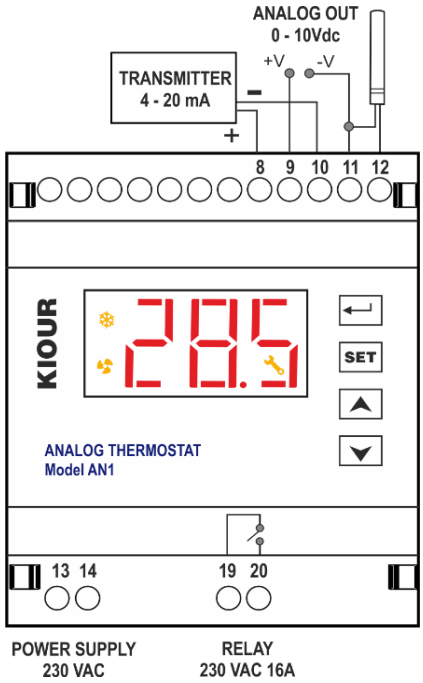


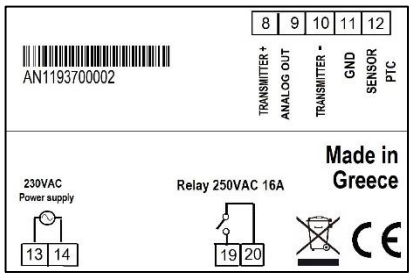
For **compressor operation** (parameter IAO = 0), 45 °C corresponds to Vmin and 42 °C corresponds to Vmax
For **fan operation** (parameter IAO = 1), the foretold match is reversed and 45 °C corresponds to Vmax while 42 °C corresponds to Vmin

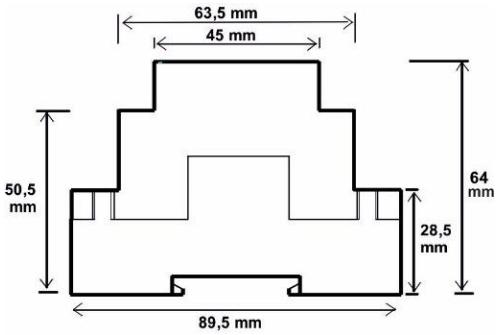
***Note 1:** The range is adjusted from parameter ArC = 3 °C
***Note 2:** Analog voltage to the output (terminal blocks 9-11, Analog Out) which corresponds to 42 till 45 °C
Vmin: minimum limit of analog voltage at **45 °C** to the output. It is adjusted from parameter **LLo** (range from 0 to 5 Volt).
Vmax: maximum limit of analog voltage at **42 °C** to the output. It is adjusted from parameter **HLo** (range from 6 to 10 Volt).

ELECTRICAL DIAGRAM - DIMENSIONS

ATTENTION: At terminal block No.8 no other device can be connected accept the transmitter







Made in Greece.

__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.
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 preserves the right to adjust its products without further notice.