



Description

Specific controllers for maintenance of refrigerated milk tanks and other machines that require protection from mains fluctuations. 2 output relays y 1 input probe (PTC/NTC). Supply voltage monitoring for loads protection as configuration parameters. Incorporates a cyclic timer controlled output for shaker. It allows to display temperature and voltage. 3 digits, minus sign and decimal point.

Model references

The model reference is given by: KLT21 - MDX230
Where each suffix can take the following values:
X Display Color R=Red, G=Green, B=Blue

Installation

NOTE: Unit must be mounted away from vibration, impacts, water and corrosive gases.

- Cut hole in panel 71 x 29 mm (2.80 x 1.14 inches)
- Apply silicone (or rubber gasket) around the perimeter of the hole to prevent leakage.
- Insert unit into hole of panel.
- Slide removable fitting clips onto unit from the back until secure to panel.
- Wiring diagram is displayed on the top of the unit

NOTE: DO NOT INSTALL PROBE CABLE NEAR POWER CABLES.

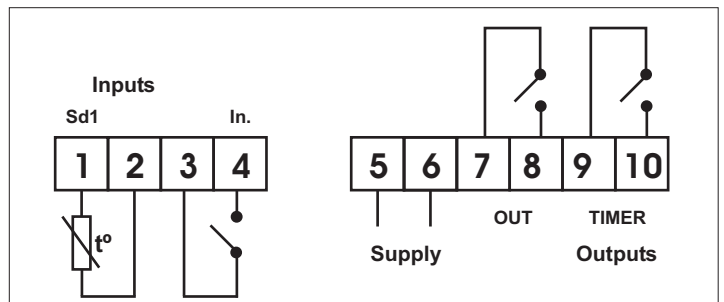
Maintenance, cleaning and repair

After final installation of the unit, no routine maintenance is required.

Clean the surface of the display controller with a soft and damp cloth. Never use abrasive detergents, petrol, alcohol or solvents.

All repairs must be made by authorised personnel.

Wiring Diagram



Technical Data

Supply voltages

230Vac \pm 10%

Supply powers

4VA (230Vac)

Storage temperature

-20°C to 70°C (-4 to 158°F)

Operating temperature

0°C to 55°C (32 to 131°F)

Measurement range

PTC -50°C to 150°C (-58 to 302°F)

NTC -50°C to 110°C (-58 to 230°F)

Accuracy

Better than 1% of full scale

Resolution

0,1° (3 digits)

Display

3-digit and sign (red, green or blue)

Probe Input (Selectable by parameter)

PTC1000 probes (25°C - 1000 Ohm) / NTC

Outputs

OUT SPST Relay Resistive load 5A/240Vac

TIMER SPST Relay Resistive load 5A/240Vac

Dimensions

Front 77 x 36 mm Depth 62 mm (3.03 x 1.42 x 2.44 inch)

Front Protection IP54

List of parameters

	Description	Units	Range
SP	Set Point	Degrees	P4 to P5
P1	Access code to parameters	Numeric	0 to 255
P2	Probe adjustment	Degrees	-9.9 to 9.9
P3	Cooling or heating control	Option	Ht/Co
P4	Lower value for SP	Degrees	-58 to P5
P5	Higher value for SP	Degrees	P4 to 302
P6	Differential or hysteresis	Degrees	0.1 to 20.0
P7	Minimum stopping time of OUT	Seconds	0 to 999
P8	Time scale of TIMER	Option	Sec/Min
P9	ON time of TIMER	Sec./Min.	1 to 999
P10	OFF time of TIMER	Sec./Min.	1 to 999
P11	Initial state of TIMER	Option	on/off
P12	TIMER ON with OUT	Option	Yes/no
P13	Minimum operating voltage OUT	Volts	190 to P14
P14	Maximum operating voltage OUT	Volts	P13 to 280
P15	Voltage adjustment	Volts	-50 to 50
P16	Validation time for voltage error	Seconds	1 to 30
P17	Display indication	Option	tV/t-V
P18	Digital input configuration	Numeric	0 to 2
P19	On time of fault cycle	Minutes	0 to 999
P20	OFF time of fault cycle	Minutes	0 to 999
P21	Temperature scale	Option	°C/°F
P22	Probe type	Option	ptc/ntc

Parameter descriptions

SP = Set Point

Temperature we wish to regulate the machine (variable from P4 to P5)

P1 = Access code to parameters. 0 from factory.

P2 = Probe adjustment.

Offset for temperature probe.

P3 = Cooling or heating control

Co = Cool

Ht = Heat

P4 = Lower value for SP.

P5 = Higher value for SP.

P6 = Differential or hysteresis.

If P3 = Co :

If temperature probe \geq SP+P6 : OUT relay ON.

If temperature probe \leq SP : OUT relay OFF.

If P3 = ht :

If temperature probe \leq SP-P6 : OUT relay ON

If temperature probe \geq SP : OUT relay OFF.

P7 = Minimum stopping time of OUT

Minimum stopping time of the relay OUT.

P8 = Time scale of TIMER

Time base for the parameters P9 and P10.

P9 = ON time of TIMER

Time of relay connected in cycle TIMER

P10 = OFF time of TIMER

Time of relay disconnected in cycle TIMER

P11 = Initial state of TIMER

State begins the relay to start a new cycle TIMER.

P12 = TIMER ON with OUT

Yes = TIMER relay always connected if relay OUT connected

No = TIMER relay runs independent of OUT relay

P13 = Minimum operating voltage OUT

If the power supply remains below this value during P16 the OUT relay will disconnect. This will be indicated by the flashing of the alarm led.

P14 = Maximum operating voltage OUT

If the power supply remains above this value during P16 the OUT relay will disconnect. This will be indicated by the flashing of the alarm led.

If P13 = P14 disables the voltage monitoring.

P15 = Voltage adjustment.

Offset for voltage measurement.

P16 = Validation time for voltage error.

Time the voltage has to remain outside (inside) the P13-P14 range to activate (deactivate) the alarm.

P17 = Display indication.

t= Permanent display of temperature probe

V= Permanent display of power supply.

T-V= Alternative display temperature and voltage.

P18 = Digital input configuration.

0= Digital input disabled

1= If digital input open TIMER disconnected. If closed, TIMER in normal operation.

2= If digital input open TIMER and OUT disconnected. If closed, TIMER and OUT in normal operation.

P19 = On time of fault cycle.

Minutes the relay will remain ON if there is a temperature probe error.

P20 = OFF time of fault cycle.

Minutes the relay will remain OFF if there is a temperature probe error.

P21 = Temperature scale.

Select °C or °F.

P22 = Probe type.

Select PTC or NTC.

Set-up and operation.

Set Point Setup

-Press and release **Set** key . The SP label appears.

-Press and release **Set** key. Current set point value appears blinking.

-This value can be changed with the **▲** and **▼** keys.

-Press **Set** to confirm the new value of Set Point.

-Press **Set + ▼** to exit or wait one minute to automatically exit programming mode.

View logs

-Press and release **Set** key. The SP label appears.

-Press **▲** and **▼** to select the desired log:

Mt = Maximum temperature

nt = Minimum temperature

MV = Maximum voltage

nV = Minimum voltage

-Press and release **Set** key to view the value

-Press **Set** and hold until the label appears to delete a log.

-Press **Set + ▼** to exit

Parameter programming

-Press **Set** key for 8 seconds. The access code value 0 is shown on the display .

-With the **▲** and **▼** keys, code can be set to user needs. (0 from factory)

-Press **Set** to enter the code. If code correct, the first parameter label is shown on the display (SP).

-Move to the desired parameter with the **▲** and **▼** keys.

-Press **Set** key to view the value on the display.

-The value can be modified with the **▲** and **▼** keys. Press **▲ + ▼** simultaneously to set the parameter to 0 or the minimum value.

-Press **Set** to enter the value.

-Repeat until all necessary parameters are modified.

-Press **Set + ▼** to exit or wait one minute to automatically exit programming mode.

Reset the keyboard code

The keyboard code can be reset to ZERO by turning off the controller and turning it on again while keeping the **Set** pressed.

Manual TIMER operation

Pressing the **▲** key for 8 seconds toggles the state of the TIMER output if it is doing cycles in normal operation. **tOn** or **tOF** will be shown on the display.

Operation in error case

In case of probe error, the control will connect the relay OUT depending on the parameters P19 and P20.

In case of memory error the relay OUT will disconnect.

View of TIMER time

Press the **▲** key. The label **tiM** will appear on the display followed by the time the TIMER output has been active.

Alternative view

If P17 = -t- pressing the **▼** key, the values of voltage and frequency will be shown sequentially on the display.

If P17 = -V- pressing the **▼** key, the values of temperature and frequency will be shown sequentially on the display.

If P17 = t-V pressing the **▼** key, the value of frequency will be shown on the display.

Led indication and display messages



Indicates OUT connected. It blinks while waiting until P7 has expired.



Indicates TIMER connected.



Indicates voltage error. It blinks when the voltage is out of range P13 and P14. It stays ON when there is error in the voltage measurement.

In case of alarm or error, the following messages can be shown:

- Er Memory read error.
- ErP Temperature probe error
- ErV Voltage measurement error.

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