



EWTM 052/053

electronic digital thermometers

WHAT IT IS

EWTM 052 and 053 are electronic, digital temperature indicators with display and lowest/highest temperature recording functions; two or three-digit display.

HOW IT IS MADE

- **Housing:** made of PC+ABS plastic material, self-extinguishing degree UL94 V0
- **Size:** front 64x31 mm (2.52x1.22 inches), depth 33 mm (1.3 inches) excluding wires
- **Protection:** IP65 protection degree on front
- **Connections:** 2.8 mm faston; 6.3 mm faston for probe and power supply
- **Display:** 3 digit display plus minus sign (2 digit for 052), 12.5 mm digit height (0.5 in.)
- **Power supply:** 230 V~ or alternatively 12 V~/-

DESCRIPTION

EWTM 052 and 053 are electronic digital temperature indicators with display, capable of recording the lowest and highest values; two (052) or three-digit (053) display plus minus sign, with or without decimal point.

Display range:

052: -50...99 °C (-58...99 °F).

053: -50...110 °C (-58...230 °F).

In addition to the minus sign led, there is another led (for calibration function, located on the upper side of the display).

Decimal point: it can be available (with automatic display) or not, depending on the model you choose.

If it is available, it is displayed for the following value ranges:

052: -9.9 and 9.9 (°C, °F) included.

053: -50.0...99.9 (°C, °F) included.

Minus sign: it is displayed by means of a led. The standard probe, equipped with an NTC sensor, is made of PVC and has reinforced insulation. It is connected by means of two 2.8 mm fastons.

INSTALLATION

This device must be installed in compliance with the following rules.

General: wiring must be carried out in compliance with the compulsory safety rules in force and according to the instructions given below, so as not to endanger the sound operation of the card due to electromagnetic disturbances. The device must never be open.

Wiring: when installing this device in a customer's application, it is necessary to use different raceways for probe wires and for power supply wires. This is also true in the case of household applications.

It is advisable to keep the probe wire away from other power cables.

Fixing: this device is to be carefully fixed to the panelboard of the system. If necessary, use a protective gasket between the panelboard and the device. Do not force its

housing or bend its cables tightly. If necessary, use a wire holder in order to avoid tearing the set or subjecting it to strong stress.

Faston connectors with different sizes for probe and power supply prevent their wrong connection. The probe should be fixed in such a way as to place the cap on a higher position compared to the cable, in order to prevent any liquid from entering into the cap.

OPERATIONS

Key simulation: the analogue ST1 input (temperature probe) can simulate pressure on a key by closing the circuit for at least 2 seconds.

If it remains closed for more than 20 seconds, a probe error message is displayed.

Recording and displaying the lowest and highest temperatures measured: the recording function activates 10 seconds after start-up.

It allows storing the highest and lowest temperature value measured after turning on the instrument.

Storing stops in case of alarm E1 and during "pressed key" condition.

Displaying lowest and highest values: while the instrument is working, do a key simulation by closing the circuit for 2 seconds. The following sequence is displayed:

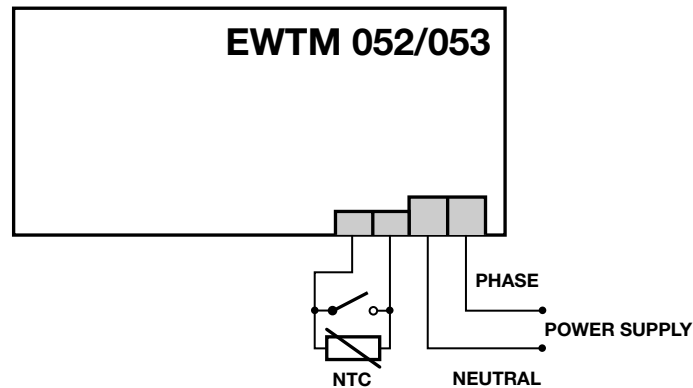
- label "Lt";
- lowest recorded temperature;
- label "Ht";
- highest recorded temperature.

Temperature recording reset: while the instrument is working, carry out a key simulation by closing the circuit for 2 seconds. The following sequence is displayed: "Lt">lowest temperature>"Ht">highest temperature>"CAL" ("CA" for 052)>calibration value.

Then the blinking "rES" ("rE" for 052) label is displayed.

Carry out a key simulation again for 2 seconds (the "rES"/"rE" label does not blink





any more); then, the instrument starts operating normally again (a new recording starts) after a set time has elapsed (time out). If a second short-circuit is not effected, the instrument returns to normal operation (reset not effected).

Temperature value calibration: it is possible within the standard values $-10...10\text{ }^{\circ}\text{C}$ ($-18...18\text{ }^{\circ}\text{F}$).

Displaying calibration value: while the instrument is working, carry out a key simulation for 2 seconds; after the sequence "Lt">lowest temperature>"Ht">highest temperature, the following is displayed:

- label "CAL" ("CA" for 052), set calibration value. Led DL1 blinks during calibration;
- calibration setting: by means of a potentiometric screw located on the back of the instrument. See the corresponding section under "USE SAFETY".

DIAGNOSE

E1: probe error (ST1 probe input); the measured temperature is outside the display range.

Features: automatic reset; it has priority over any other displaying.

USE SAFETY

Concerning the instrument installed on the equipment:

- protection degree refers only to the front and in any case it depends on the quality of the executed installation and in particular on the accessibility of other components excluding the front;
- insulation class refers to accessible components only (front and probe cap);
- Customer is responsible for any further protection, at his expense, according to laws in force and applicable regulations.

Therefore, Invensys Controls Italy s.r.l. guarantees the compliance of the instrument itself with the mentioned directives.

Any test or certification on the customer's machine must be carried out by the customer himself, at his own expense. The device can be identified thanks to a product label placed on the lower side which indicates: product code, week of production lot, voltage, internal configuration, quick

connections.

Wiring and calibrating diagrams are shown on the upper label.

Any protection, including those provided for by specific rules concerning the application, is to be supplied by the customer at his expense. Only the following components can be accessed: housing front, probe body, potentiometer axe, and power cord plug (if present).

Live contacts (faston) are protected by their flush-mount position in the plastic housing. It is however advisable to prevent users from accessing them, especially in the case of the 230 V~ version.

For the 230 V~ version:

- calibration is to be performed when the instrument is not energized;
- the probe must have a reinforced insulation.

In this case, the supplied probe has an adequate insulation, except near the faston connectors (access to such component must be prevented).

Access to the area near the power cord fastons must be prevented.

To set the potentiometer, use a small screwdriver to turn the corresponding axe. It is advisable to have such operation performed by skilled technicians and to take the necessary precautions in the case of the 230 V~ version.

INTENDED USE

This electronic device has been designed to be used as a component to be integrated on customers' applications within electromechanical commercial refrigeration systems, or for household applications, or as a spare part to replace especially electromechanical instruments. All applicable sections of the low voltage directive concerning the declared field of use must be observed. This product has been designed to comply with all safety regulations for its user (non-access to those parts of the card subject to high voltage). However, be particularly careful when installing it and using it, as the coupling points of the probe connectors might not offer a reinforced insulation from high voltage.

FORBIDDEN USE

Any other use different from the allowed one is FORBIDDEN.

REFERENCE REGULATIONS

- Low voltage CEE 73/23, EN 61010-1;
- electromagnetic compatibility CEE 89/336, EN 50081-1, 50082-1.

LIABILITY AND RISKS

Invensys Controls Italy s.r.l. is not liable for damages caused by:

- use different from the allowed one or improper use;
- tampering or incorrect execution of installation and use procedures.

TECHNICAL DATA

Housing: made of PC+ABS plastic material, self-extinguishing degree UL94 V0.

Size: front 64x31 mm (2.52x1.22 inches), depth 33 mm (1.3 inches) excluding wires.

Mounting: flush-mount on panel, cut-out 59x26 mm (2.32x1 inches).

Protection: IP65 protection degree on front.

Connections: 2.8 mm faston; 6.3 mm faston for probe and power supply.

Display: 3 digit display plus minus sign (2 digit for 052), 12.5 mm digit height (0.5 in.).

Measuring: in $^{\circ}\text{C}$, alternatively in $^{\circ}\text{F}$. With decimal point or, alternatively, without it, within the following ranges:

052: -9.9 and $9.9\text{ }(^{\circ}\text{C},\text{ }^{\circ}\text{F})$, included.

053: $-50.0...99.9\text{ }(^{\circ}\text{C},\text{ }^{\circ}\text{F})$ included.

Display range:

052: $-50...99\text{ }^{\circ}\text{C}$ ($-58...99\text{ }^{\circ}\text{F}$).

053: $-50...110\text{ }^{\circ}\text{C}$ ($-58...230\text{ }^{\circ}\text{F}$).

Input: for NTC probe.

Resolution: $1\text{ }^{\circ}\text{C}$ or $0.1\text{ }^{\circ}\text{C}$ depending on the model.

Accuracy: better than $0.5\text{ }^{\circ}\text{C}$.

Operating environment: temperature $0...60\text{ }^{\circ}\text{C}$ ($32...140\text{ }^{\circ}\text{F}$), humidity $10...90\%$ (non condensing).

Storing environment: temperature $-30...75\text{ }^{\circ}\text{C}$ ($-22...167\text{ }^{\circ}\text{F}$), humidity $10...90\%$ (non condensing).

Power supply: 230 V~ or alternatively 12 V~/=.

Power supply information: voltage tolerance $\pm 10\%$, frequency 50/60 Hz ($\pm 5\%$), absorbed power 0.5 VA.

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