

INTENDED USE

The temperature calibrator model 150 calibrates contact thermometers with external submersion or injection temperature sensors. The calibration body is an electrically controlled heating element with 6 integrated bores (5 in the front, 1 at the top of the housing). The bores have different diameters for different sensor diameters.

The temperature setting in °Celsius is performed user-compatibly using foil buttons. It can be inspected via target and actual temperature displays. An integrated fan permits fast temperature changes at the calibration body. The setting range is from +33 to +300 °C.

The product is set up according to protection class 1. The voltage source must be a proper mains socket (230 V/AC, 50 Hz) of the public mains with a ground contact. The mains socket must be close to the device and easily accessible or must have an emergency stop device.

Operation under unfavourable ambient conditions is not permitted. Unfavourable ambient conditions are:

- Dampness or too high humidity
- Dust and flammable gases, vapours or solvents.
- Thunderstorms or similar conditions such as strong electrostatic fields, etc.

Any use other than that described above damages the product. Moreover, this is linked to dangers such as short circuit, fire, electric shock, etc. No part of the product must be modified or converted!

Always observe the safety information!

Kalibrator sond i czujników temperatury

Piecyk grzewczy

model:150



SAFETY INFORMATION



Please read the operating instructions completely before taking the device into operation. They contain important information for correct operation.

The guarantee/warranty will expire if damage is incurred resulting from non-compliance with the operating instructions! We do not assume any liability for consequential damage!

We do not assume any liability for damage to property or personal injury caused by improper use or the failure to observe the safety instructions! In such cases the warranty/guarantee will expire.

This device left the manufacturer's factory in safe and perfect condition.

To maintain this condition and to ensure safe operation, the user must observe the safety information and warning notes in these operating instructions. Observe the following symbols:



An exclamation mark in a triangle shows important notes in these operating instructions that must be strictly observed.



This device is CE-compliant and meets the applicable European directives.



The "arrow" symbol indicates that special advice and notes on operation are provided.



Connection point for the internal protective ground. This screw/contract must not be loosened.



For use in dry indoor areas only



Caution, hot surface!

There is a danger of burns when touching. Never touch the heating and cooling areas in operation. Let the device cool down sufficiently before touching it.

For safety and approval reasons (CE), unauthorised conversion and/or modification of the device are not permitted.

Consult an expert when in doubt as to the operation, safety or the connection of the device.

The device must not be opened. Live components may be exposed if covers are opened or parts are removed (unless this can be done without tools). Capacitors inside the device may still carry voltage even though the device has been disconnected from all power sources.

Comply with the safety and operating instructions of any other devices that are connected to the device and in the individual chapters of these instructions.

Never touch the device with wet or damp hands. There is the risk of a potentially fatal electric shock.

The device must not be operated unsupervised.

Only insert the sensor shaft into the intended heating body openings (4/5). Never push the sensor into housing openings that serve ventilation and venting. There is a danger of electric shock and injury.

Only fuses of the indicated type and rated current must be used. Using mended fuses or bridging the fuses is not permitted.

Meters and accessories are not toys and have no place in the hands of children!

At industrial sites, the accident prevention regulations of the association of the industrial workers' societies for electrical equipment and utilities must be followed.

In schools, training centres, computer and self-help workshops, handling of meters must be supervised by trained personnel in a responsible manner.

Do not switch the device on immediately after taking it from a cold to a warm environment. The condensation that forms might destroy your device. Allow the device to reach room temperature before switching it on.

Handle the product with care. Impact, blows or falls from even a low height may damage the product.

Do not leave packaging material lying around carelessly. It may become a dangerous toy for children.

The device heats up in operation. Ensure sufficient ventilation; the housing must not be covered!

Protect the product from extreme temperatures direct sunlight, high humidity, moisture, flammable gases, vapours and solvents.

Never pour any liquids over electrical devices or put objects filled with liquid on top of them (e. g. glasses).

Do not operate the device in rooms or under unfavourable conditions where combustible gases, vapours or dusts are or may be present.

When secure operation is no longer possible, shut off the product and protect it from inadvertent use. Secure operation is no longer warranted if the product:

- has visible damage,
- no longer works properly,
- was stored under detrimental ambience conditions for an extended period or
- was subjected to considerable transport strain.

Also observe the safety information in the different chapters or in the operating instructions of the devices to be calibrated.

SCOPE OF DELIVERY

Temperature calibrator model150

Mains cable

Operating instructions

CONTROL ELEMENTS

See fold-out page

- 1 Function displays
 - AT Display for factory reconciliation only
 - OUT Heating indicator
 - ALM1 Overtemperature (heating element off)
 - ALM2 Overtemperature (reinforced cooling is active)
 - °C Display of the temperature unit for Europe in degrees Celsius (°F not active)
- 2 Green display "target temperature"
- 3 Red display "actual temperature"
- 4 Measuring opening for contact sensor (max. \varnothing 3 mm)
- 5 Calibration body (heating body) with bores
- 6 Cooling surface
- 7 "UP" button to increase the setting
- 8 "DOWN" button to reduce the setting
- 9 Button for factory reconciliation only (not active)
- 10 "SET" button for input confirmation
- 11 Fan opening
- 12 Fuse holder for heating element fuse
- 13 Fuse holder for mains protection
- 14 Mains Connection
- 15 Operating switch for switching on/off

Piecyk do kalibracji czujników temperatury model: 150



COMMISSIONING

Unit Installation



Place the device on a level, heat-resilient surface. The storage area may heat up slightly when air escapes. Keep flammable objects away from the calibration body (5). Make sure that there is sufficient air circulation. A minimum distance of 20 cm must be complied with on all sides.

Connecting and Activating the Device

Plug the included mains cable into the mains connection (14) at the back of the device and into a mains socket with a protective ground.

Switch on the device with the operating switch (15).

Switch position "ON" (I)

Switch position "OFF" (0)

The device fan runs and a system test is performed. After about 3s, the last set target and actual temperatures are displayed.

TEMPERATURE SETTING



The cooling and heating surfaces at the front heat up in operation. There is danger of burning at touch!

The desired temperature can be set at the temperature calibrator with two buttons.

Button "UP" (7) increases the temperature target value. Button "DOWN" (8) reduces the target value.

Every push of a button switches the temperature up or down by 0.1 °C. Long pushing of one of these buttons permits fast adjustment. Adjustment takes place in three speed levels, depending on how long the button is pushed.

During setting, the green target value display (2) flashes quickly (flickering). This shows that you are in setting mode. The temperature is not adjusted yet.

When you have set the desired temperature, confirm your input with the "SET" button (10). The green target value display (2) continues to be lit.

The red actual value display slowly adjusts to the target value.



The set area is larger than the control area for system reasons. Settings outside of the indicated temperature range of 33 to 300 °C are not specified and may cause overload of the device.



The control time is about 30 minutes until 95% of the set temperature are reached. The cooling time from +300°C to 100°C is approx. 40 minutes. The temperature calibrator needs about 15 – 20 minutes until the specified stability is reached once the set temperature is reached.

If the temperature is increased, the heating process is signalled by the function display "OUT" (1).

If the temperature is reduced, the function display "OUT" goes out or flashes.

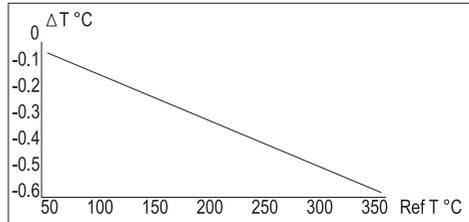
If the actual temperature value (display 3) is $>4\text{ }^{\circ}\text{C}$ over the target temperature value (display 2), the two red function displays "ALM1" and "ALM2" are activated. These displays signal a larger temperature deviation at the moment. When the temperature difference of $>4\text{ }^{\circ}\text{C}$ is undercut, this display goes out.

ALM1 : Heating has been interrupted briefly

ALM2 : Cooling is increased.

The physically generated temperature (heating element) has a low difference between actual and target temperature. The table shows the deviation between reference temperature and actually pending temperature.

Outer influences like drafts may increase this difference.



MEASURING

Temperature sensors have different shaft diameters. To be able to use as many different sensor types and diameters as possible, different bores are placed in the calibration body.

Unfortunately, not all dimensions can be considered. Therefore choose the bore that matches your sensor diameter best.

Push the sensor shaft straight into the matching opening (4/5), until the sensor has contact.



Since air is a bad heat conductor, it can be beneficial to use heat conductor paste during calibration. This paste serves as a heat bridge between the calibration body and the temperature sensor. Measuring deviations are reduced by this. After use, clean the cooled measuring openings of the heat conductive paste thoroughly with a cotton swab or similar.

The top of the housing also has an opening (4) for penetration thermal sensors with a shaft diameter of max. 3 mm. This opening can be used for calibration, like the front bores, or to monitor the temperature of the calibration body with an external thermometer.



After measurement has been completed, the temperature must be adjusted to $<60\text{ }^{\circ}\text{C}$. Do not switch off the device if the display shows a temperature of $>60\text{ }^{\circ}\text{C}$. The accumulated temperature could destroy the device. Never operate the device unattended.

MAINTENANCE AND CLEANING

Apart from an occasional cleaning or exchanging the fuse, this device is maintenance-free. Use a clean, lint-free, antistatic and dry cloth to clean the device. Do not use any abrasive or chemical agents or detergents containing solvents.



Let the device cool down fully before cleaning. There is a danger of burns when touching the heating and cooling surface.

Fuse Replacement

The heating element and the control electronics in the device have separate fuses.

Fuse (12) for heating element, fine-wire fuse 6.3 x 30 mm fast-blowing F1.5 A/250 V

Fuse (13) for control electronics, fine-wire fuse 6.3 x 30 mm fast-blowing F500mA/250 V

Proceed as follows to replace the fuse:

- Switch off the device and unplug the mains cable.
- Turn the respective fuse holder from the casing.
- Replace the defective fuse with a new fuse of the same type and rated current.
- Screw on the fuse holder carefully.
- The device may be taken into operation again.

DISPOSAL



Old electronic devices are raw materials and should not be disposed of in the household waste. At the end of its service life, dispose of the device at the community collection points according

to the applicable statutory regulations. It is prohibited to dispose of the device in the household waste.

TROUBLESHOOTING

With this device, you purchased a product built to the state of the art and operationally safe.

Nevertheless, problems or errors may occur.

For this reason, the following is a description of how you can easily remove possible malfunctions yourself:



Always observe the safety information!

Error	Possible cause	Remedy
No display, no function	No operating voltage	Check the proper fit of the mains cable. Check the fuse (13).
No heating function	Fuse of the heating element defective	Check the fuse (12)
Displays "ALM1" and "ALM2" flash	Temperature difference currently too high	Wait until the heating element has reached the desired temperature.

TECHNICAL DATA

Operating voltage	230 V/AC +/- 10%
Max. power consumption.....	400 W
Temperature range	33 to 300 °C
Accuracy.....	+/- 0,8 °C at <= 100 °C +/- 1,6 °C at >100 to 200 °C +/- 2,8 °C at >200 to 300 °C
Stability	+/- 0,1 °C <= 100 °C +/- 0,2 °C >100 to 200 °C +/- 0,4 °C >200 to 300 °C
Display resolution	0,1 °C
Measuring openings Ø approx.	3.5 mm, 4.2 mm, 5 mm, 6.8 mm
Operating temperature	5 to 35°C
Rel. humidity.....	< 80%, non-condensing
Weight	Approx. 2.1 kg
Dimensions (LxWxH mm).....	248 x 190 x 113

Definition of accuracy

The indicated accuracy is valid for one year at a temperature of 5°C to 35°C, and at a relative humidity of less than 80 %, non-condensing.