

# **DATA SHEET**

## **Controller TC2-150**

Version 1.3

### **Notice:**

No liability or warranty can be accepted for any errors.  
We reserve the right to make technical changes at any time

# Data Sheet

## Controller TC2-150





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## 2 General Description

The temperature controller TC2-150 is a two-channel compact temperature controller with 10k NTC measuring point inputs.

The temperature controller is provided with an undertemperature detection and a switching hysteresis. The easy to read display shows all relevant information for the user. Furthermore, both a sensor break detection and a short circuit at the sensor input can be detected via the diagnostics of the TC2-150. In the event of a fault, an alarm is triggered both by a visual indication on the display and by the switching of a potential-free contact.

The TC2-150 can be configured to operate as a single or dual channel controller. This makes the TC2-150 variable applicable.

The temperature controller TC2-150 offers an alarm in case of error via a voltage-free contact.

### 3 Controller Operation

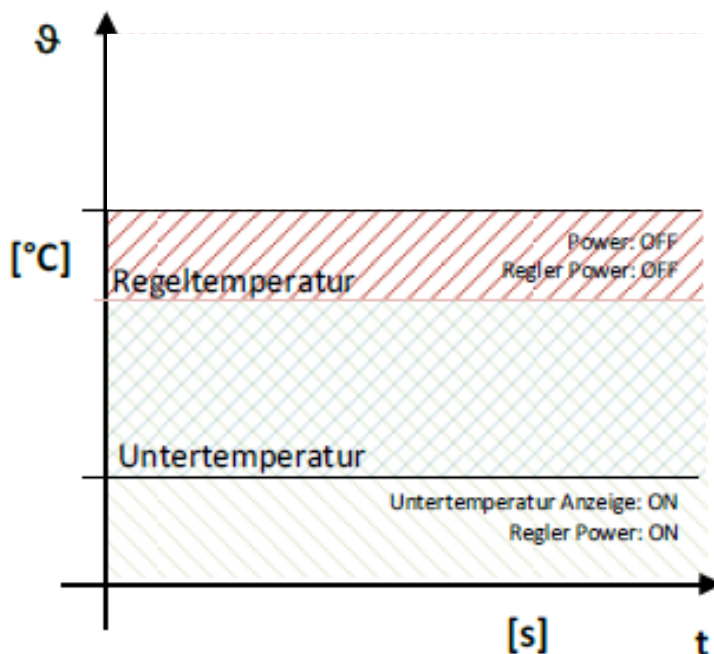
The described functions apply to both channels of the TC2-150. The settings or displays are to be made or seen according to the circuit diagram.

#### 3.1 Regulation

The measuring point temperature is recorded via the connected temperature sensor and the switching output is activated when the temperature falls below the setpoint. With a switching hysteresis, the relay output is switched off again after reaching the setpoint.

When the temperature at the temperature sensor falls below an adjustable lower temperature, the alarm output is activated. The control is not influenced by this. If the temperature at the sensor exceeds the set undertemperature, the alarm output is switched off again.

If a cable break or a short circuit is detected at one of the two temperature sensors, an alarm is triggered and the control is interrupted.



### 3.2 Display

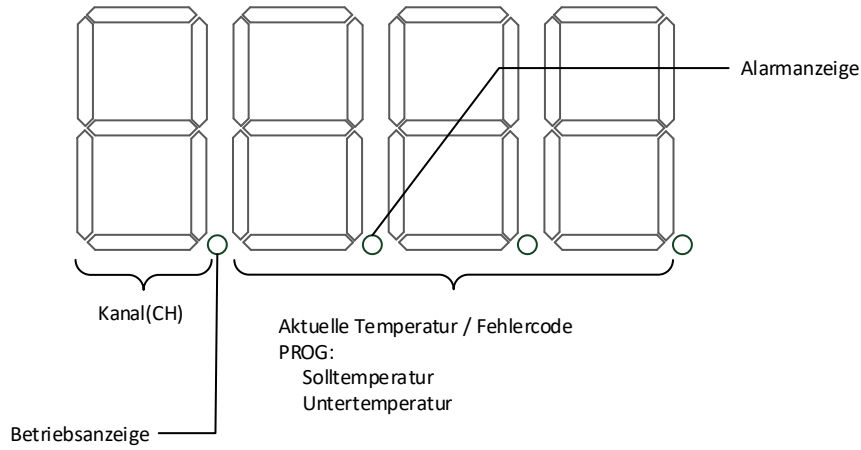


Figure 1: Display

### 3.3 Menu guidance

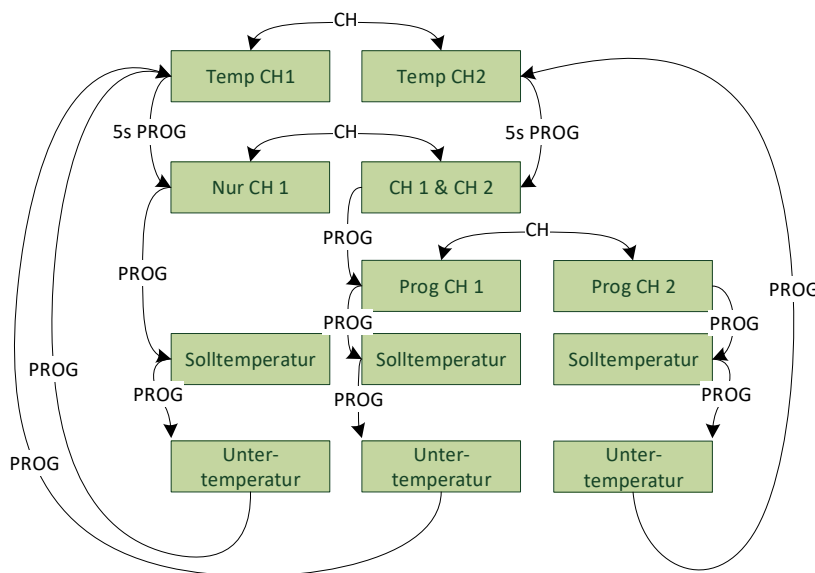


Figure 2: Menu guidance

### 3.4 Deactivate and activate channel 2

To deactivate or activate channel 2, the programming menu must be started by pressing the programming key for 5 seconds. Then, in the first step, the CH key can be used to select between the single-channel and dual-channel operating modes..

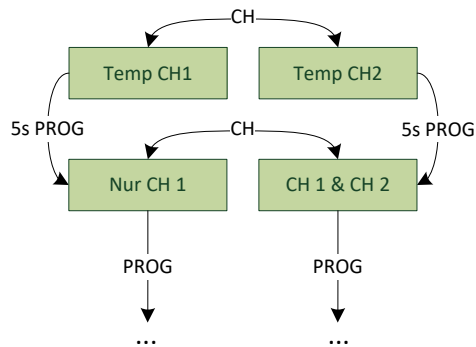


FIGURE 3: DEACTIVATING AND ACTIVATING CHANNEL 2

### 3.5 Error codes

Error code	Description
EU	Undertemperature undercut
E4	Temperature below the measuring range
E5	Temperature above the measuring range
Cb	Cable break at temperature sensor
Sc	Short circuit on temperature sensor
Alarm display without error code	Watchdog

### 3.6 Connection design

The execution of the connection must be carried out according to VDE0100, 0800, etc. and is subject to the respective national standards and may only be carried out by a qualified electrician.



Proper fusing of L1 of the TC2-150 must be performed by the electrician installing the unit.

Failure to properly and professionally install and connect the TC2-150 controller assembly will immediately invalidate any warranty or liability.

### 3.7 Configuration on delivery

Set temperature:	5°C
Undertemperature:	2°C
Channel 2:	Disabled



## 4 Technical Data

Nominal voltage:	230V, 50Hz - 60Hz
Self-consumption:	approx. 2 VA
Self-consumption:	approx. 2,5 VA (2,5 W)
Switching capacity output 1:	230V (AC) 6A <sup>1</sup> / 30V (DC) 6A <sup>2</sup>
Switching capacity output 2:	230V (AC) 6A <sup>3</sup> / 30V (DC) 6A <sup>4</sup>
Switching capacity alarm relay:	30V (DC) 1A
Switching hysteresis:	2°C
Operating temperature:	0 °C to +50 °C
Storage temperature:	0 °C to +70 °C
Humidity:	5%...90% (Non condensing)
Temperature measurement range:	-30°C ... +150°C (depending on the sensor used)
Temperature sensor:	10k NTC ( $\beta_{25}$ - Value: 3894K)
Display accuracy:	1°C
Measurement accuracy:	± 3% (depending on the sensor used)
Alarm contact:	Changer 24V (DC) 2A / 230V (AC) 2A
Display:	7-Segment, beleuchtet
Protection type:	IP20 – Control cabinet installation, shock-free, vibration-free
Isolation test:	2 KV
Required space:	3TE to DIN 43880

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<sup>1</sup> 230 V / 8 A under certain time limited conditions

<sup>2</sup> Total current of all contacts 10A

<sup>3</sup> 230 V / 8 A under certain time limited conditions

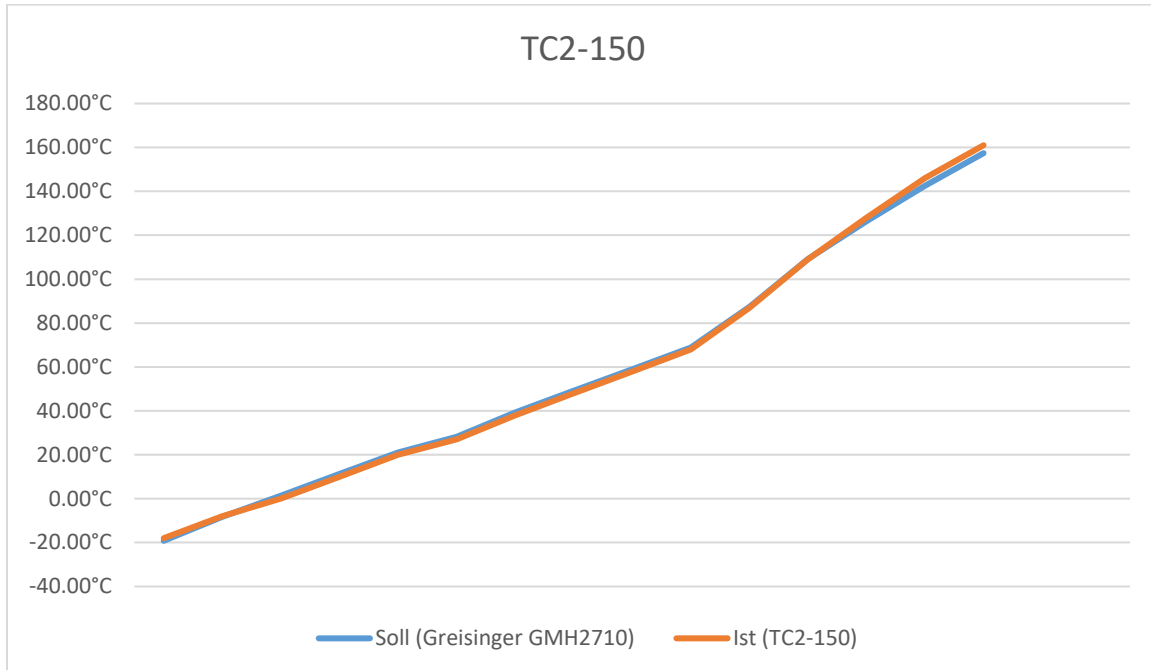
<sup>4</sup> Total current of all contacts 10A

## 4.1 TC2-150 Temperature reference measurement

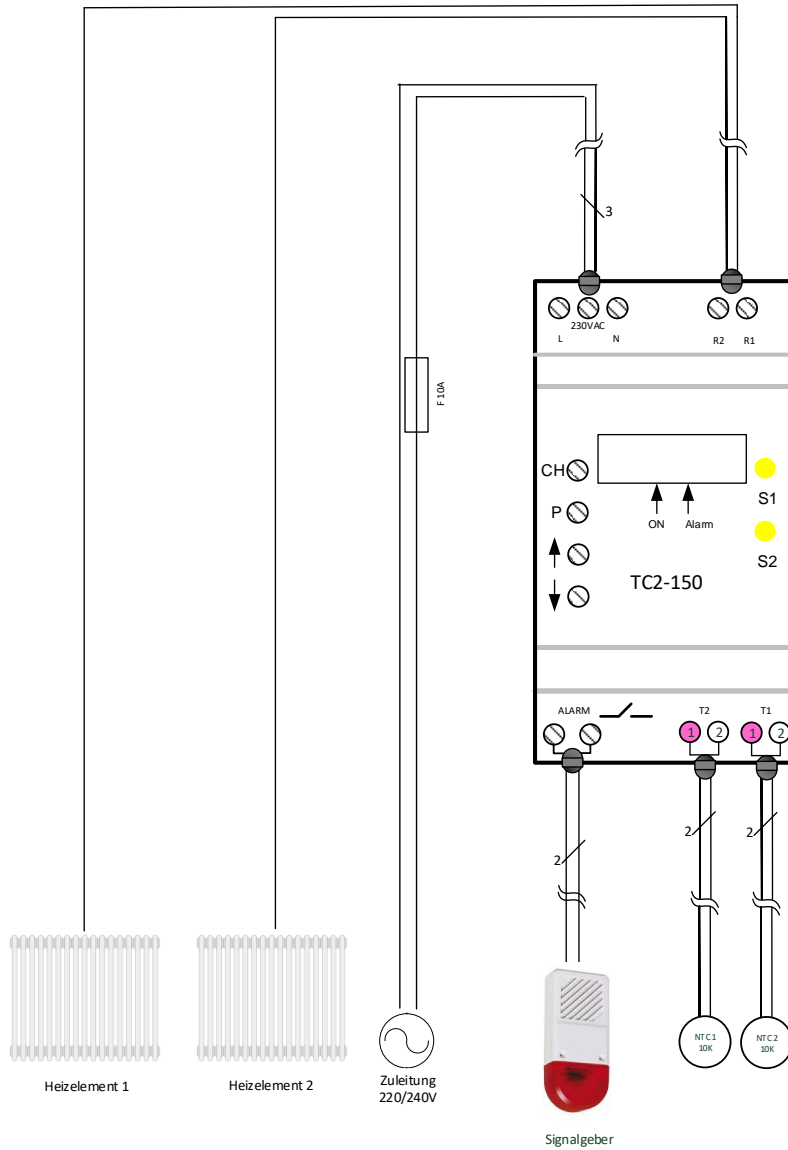
Reference thermometer: Greisinger GMH2710

Sensor type: Pro Therm 10k NTC sensor

Humidity: 0%

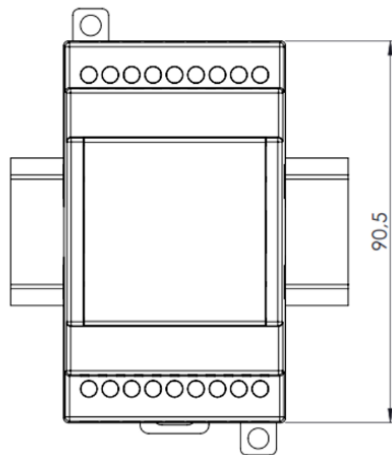
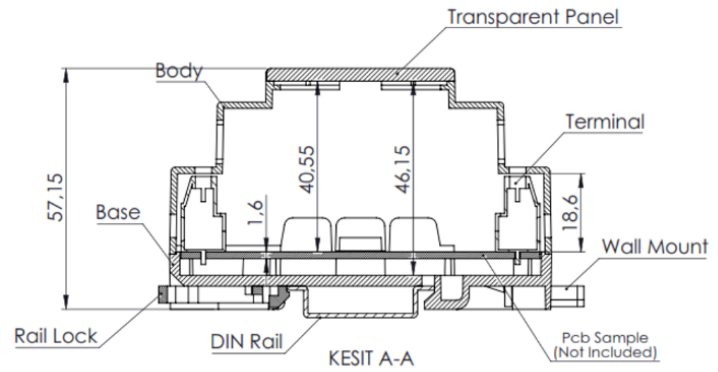
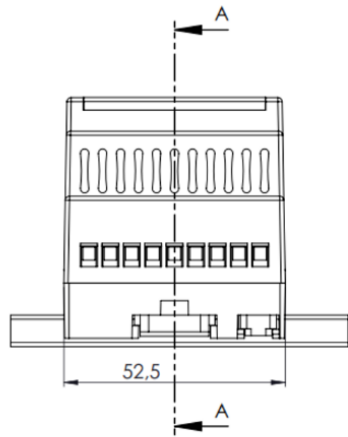


## 5 Connection diagram



### Terminal assignment

## 6 Dimensions



## 7 Terminal Configuration

### Inputs:

T 1	10k NTC Temperature sensor 1
T 2	10k NTC Temperature sensor 2
L + N	Power supply (fuse protection must be to be provided professionally) (230V AC, F10A)

### Outputs:

R1 (OUT1)	Normally open contact (switching of the resistor via the L-line of the power supply)
R2 (OUT2)	Normally open contact (switching of the resistor 2 via the L-line of the power supply)
ALARM (IN +OUT)	Closer

**The protective conductor is not required!**<sup>5</sup>

## 8 DIN Rail Installation

Before installing the device on a DIN rail, the fastening spring must be unlocked with a suitable tool.

The TC2-150 may only be connected and operated according to the circuit diagram in chapter 5.

Changes or circuit modification of the connection (chapter 5), incorrect connection or when connecting consumers with higher power requirements than the maximum power data specified in chapter 4, will invalidate the warranty

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<sup>5</sup> Maximum voltages and currents see chapter 4

When installing the controller, make sure that it is installed on non-conductive surfaces or on grounded conductive surfaces.

The installation location should be chosen so that the control indicators are clearly visible.

The installation location must be chosen so that the maximum ambient temperatures, ambient humidity, vibrations or shocks are within the specified limits (chapter 4).

## 9 Repair

Opening or repairing the TC2-150 controller module must not be carried out by the operator.

Unauthorized repairs or opening of the housing (seal breakage) on the TC2-150 controller assembly will immediately invalidate any warranty or guarantee.

Defective devices should be sent to the manufacturer for repair after an inspection by the operator with a brief description of the error.



Electrical equipment is relevant to safety and must only be installed and de-installed by qualified electricians..