

# Product Group Temperature Controllers.

Product Category Process Control.





TRD-H

# Electronic Temperature Controller plug-in system

Version TRD-H1

Version TRD-H3

## Special Features

- 10 A version with 7-pin coupling socket
- 20 A version with 5-pin coupling socket
- Wall mount housing

## Application

The TRD-H series are ready-to-plug-in, on-off electronic temperature controllers which are especially suitable for controlling electrically heated sample lines of the 3/4/5-N/M/H series.

## Description

The TRD-H series on-off electronic temperature controller is mounted in a wall mount housing. A heated sample line with multi-pin plug for power supply and PT100 sensor cable is easily connected to the multi-pin socket inside of the temperature controller housing.

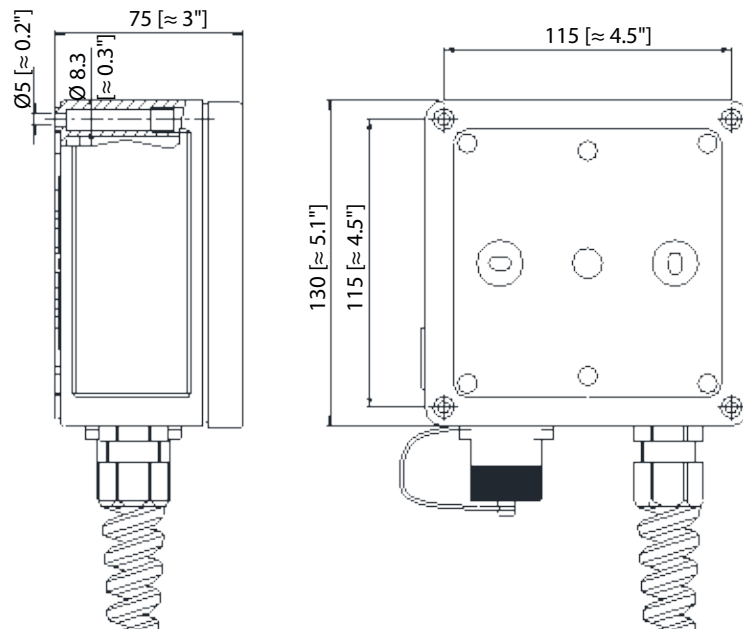
The temperature controller including plug connection is available in two power versions. The standard controller TRD-H1 can be used up to 10 A and the TRD-H3 up to 20 A. Both versions are equipped with a hybrid relay, a combination of a mechanical relay and a semiconductor switch. The TRD-H1 has a 7-pin and the TRD-H3 a 5-pole multi-pin socket.

The temperature sensor input is designed for PT-100 sensors and is equipped with a sensor breakage protection.

The user interface of the temperature controller consists of a display with LED indicators and three operating buttons. During operation the display shows the actual measured temperature. The buttons are used to adjust the required operating temperature.

The temperature controller has a transparent cover to avoid any unintended adjustments of the set values. With the transparent cover, the setpoint adjustment and switching function can be checked at any time.

Temperature Controller series TRD-H



Dimensions in mm [Inches]

Technical Data

Temperature controller	TRD-H1	TRD-H3
Part No.	03B7100	03B7110
Switching capacity relay K1	10 A	20 A
Adjustable temperature range	0 to +390 °C [32 to 734 °F] (adjustable)	
Display range/Resolution	-50 to +400 °C [-58 to 752 °F]	
Accuracy	± 1K, ± 2 Digits (-50 to 400 °C [-58 to 752 °F])	
Display indicator	LED, red, 11 mm	
Control type	On-off controller	
Alarmrelais K2	8 A/max. 250 VAC	
Temperature sensor input	PT100 DIN; 2-wires with sensor breakage protection	
Ambient temperature	-25 to +55 °C [-13 to 131 °F]	
Storage temperature	-30 to +60 °C [-22 to 140 °F]	
Plug for heated gas sample line	7-pin socket: switching power supply voltage and PT100-Sensor	5-pin socket: switching power supply voltage and PT100-Sensor
Electrical connections	2.5 m [≈ 8.2 ft] connection cable with 1.5 mm <sup>2</sup> cross section, power plug	2.5 m [≈ 8.2 ft] connection cable with 2.5 mm <sup>2</sup> cross section, no power plug
Power consumption	Max. 5 W	
Power supply	90 to 260 V AC, 50/60 Hz	
Housing type/International protection type	Wall mount housing/IP 66 EN60529	
Housing material	Polycarbonate (PC)	
Dimensions in mm [Inches]	See drawing	
Weight	1.2 kg [≈ 2.65 lbs]	

Option	TRD-H1	TRD-H3
Part No. 03B7099	Power supply of the portable gas sample probe PSP 4000	



701

# Electronic Temperature Controller 701

## Special Features

- In rail-mount enclosure
- Relay contact 10 A switching capacity
- Three-digit LCD display
- Indication in °C or °F selectable
- Protected parameter level
- Safe data storage in case of power failure

## Application

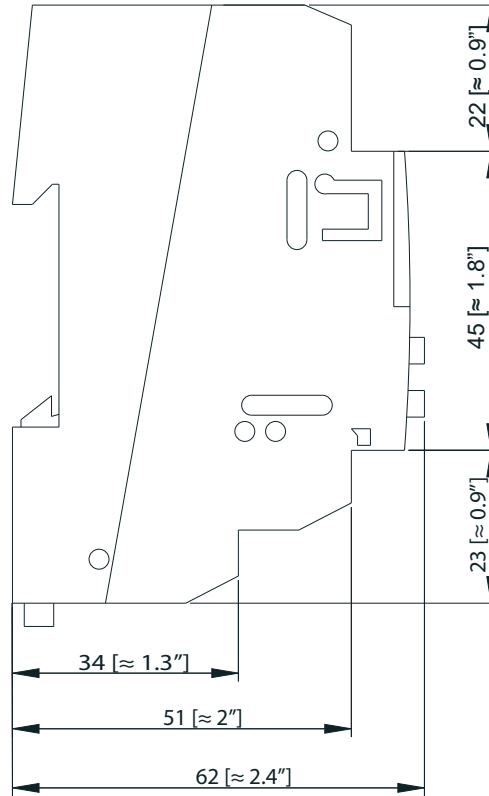
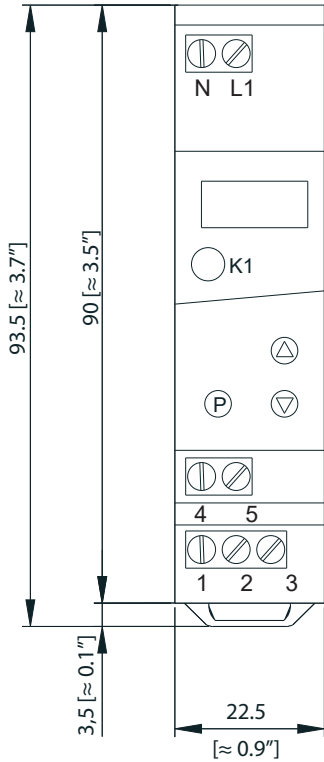
The electronic two-point temperature controller 701 is especially designed for controlling the electrically heated sample lines series 3/4/5-N/M/H and PSP-4M (-W).

## Description

The electronic two-point temperature controller 701 is mounted in a rail-mount housing. The temperature sensor input is developed for a two-wire PT100 sensor and is equipped with a protection against short circuit and sensor breakage.

The desired operating temperature can be set by using the respective keys. The actual value is indicated via a three-digit display and the controller function via LED. Switching hysteresis and zero point correction can be set via program functions.

# Electronic Temperature Controller 701



Terminals:

- L1 / N : Power IN
- 4 / 5 : PT100 IN
- 1 : Contact OUT NC
- 2 : Contact OUT MC
- 3 : Contact OUT NO

## Technical Data

Temperature controller type	701 230 V	701 115 V
Part No.	01B8240	01B8240a
Temperature control range	Adjustable in range -200 to +600 °C [-328 to +1112 °F], adjusted at works to 0 to +200 °C [32 to 392 °F]	
Switching capacity	250 V AC/10 A resistive load with relay contact	
Control mode	On-off controller	
Temperature sensor input	PT100 DIN; 2-conductor with short circuit and sensor breakage protection	
Ambient temperature	0 to +55 °C [32 to 131 °F], for close mounting 0 to +40 °C [32 to 104 °F]	
Storage temperature	-40 to +70 °C [-33.8 to 158 °F]	
Switching hysteresis	Adjusted at works to 5 °C [41 °F]	
Accuracy of control	±0.1 % of full-scale value	
Electrical connection	Terminals 2.5 mm <sup>2</sup>	
Power supply*/power consumption	230 V ±10 %, 50/60 Hz, 2 VA	115 V 50/60 Hz, 2 VA
Housing version	Rail-mount housing EN 50022	
International protection type	IP20 EN 60529	
Housing material	Polycarbonate	
Dimensions (H x W x D)	90 x 22.5 x 62 mm [≈ 3.5" x 0.9" x 2.4"]	
Weight	110 g [0.3 lb]	
Mounting position	As needed	
Climatic resistance	≤ 75 % rel. humidity average/year without occurrence of dew	
Electrical security	DIN EN 61010 part1 excess voltage category III, contamination level 2	
Electromagnetic compatibility	EN 61326	
Interference transmission	Class B	
Interference resistance	Industrial requirement	
Indications	Actual value, three-digit LCD, switching state relay via LED	

\*Galvanic separation from measuring input



70304G

# Microprocessor-Controlled Temperature Controller Type 70304

with self-optimization

## Special Features

- **Multifunctional application**
- **Small dimensions**
- **Available in various mounting versions:**
  - **As basic controller in DIN-format panel-mounting housing with a 48 x 48 mm [≈ 1.9" x 1.9"] front**
  - **With optional frame for mounting on top-hat rails (control cabinet mounting)**
  - **In a wall-mount housing 175 x 250 x 145 mm [≈ 6.9" x 9.4" x 5.7"] with 15 Amp. solid state relay**

## Application

The electronic temperature controller 70304 PID is especially designed for controlling the electrically heated M&C components with temperature sensor.

## Description

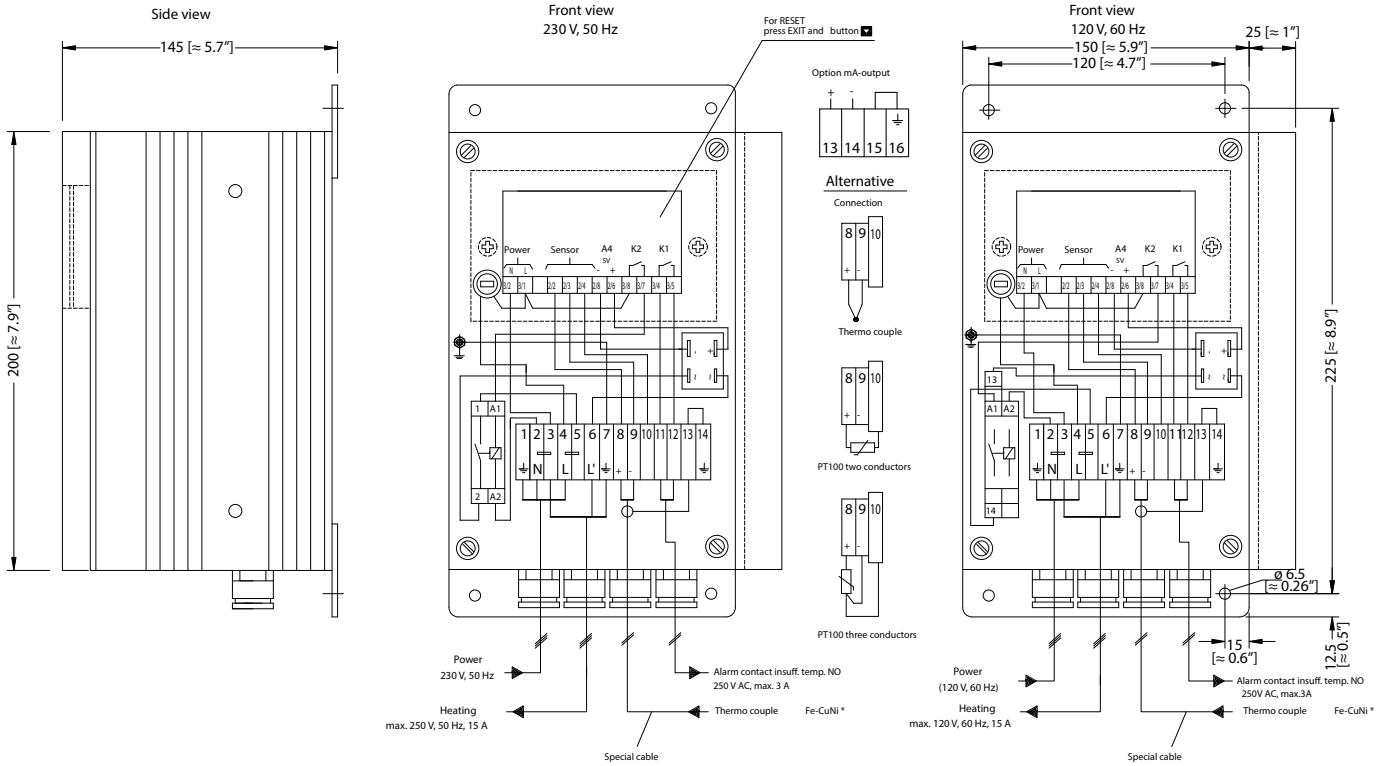
The microprocessor-controlled temperature controller type 70304 is available in a front-, wall- or rail-mount housing and has the following features:

- Programmable sensor input for thermocouples, PT100 or standard signals
- Logic output for solid-state relay control
- Integrated power supply unit for 110 V up to 240 V, 50/60 Hz
- Selectable functions via foil keypad
- Power failure-proof data storage
- Manually adjustable control mode On-Off; P, PD, PI or PID mode
- PID control mode with auto-tuning function
- Programmable alarm output with various functions
- Programming of heating or cooling functions
- Programming of switch cycle time
- Switching hysteresis with ON-OFF control mode adjustable
- Display pre-selectable in °C or °F
- Freely programmable temperature control range
- Programming of ramp function

- 4-digit display with a programmable decimal point
- Protection against unauthorized operation
- Plug-in unit exchangeable on the front side
- Overtemperature limiter with lock
- Line break monitoring also for thermocouple
- mA output optionally

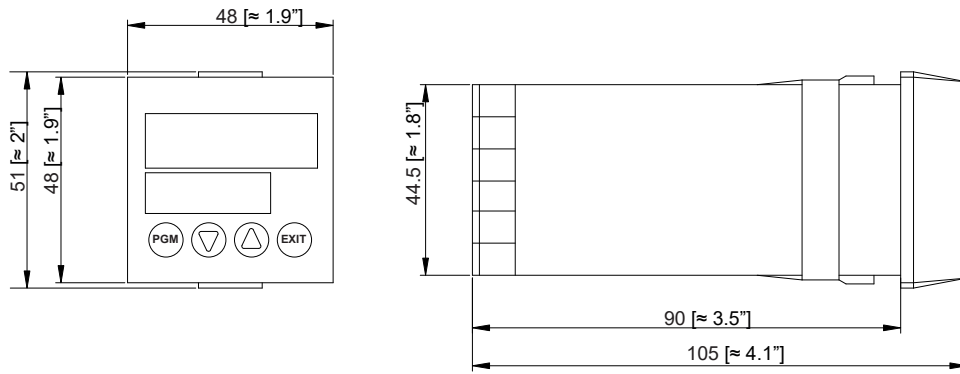
Temperature controller	Basic controller type 70304	Wall-mount housing type 70304G	
Part No.	01B8401	01B8451	01B8451a
Temperature sensors	Resistance thermometer, thermocouples		
Controlling output	0/12 V DC, max. 30 mA to an external solid state relay		
Switching capacity of solid state relays	External	Max. 15 A (overtemperature limiter with continuous cutoff)	
Control mode	PID with auto-tuning		
Status alarm	Overtemperature limiter with continuous shutdown, low temperature alarm: 1 contact NO each, potential free, contact rating 250 V AC, 3 A	Low temperature alarm: 1 contact NO, potential-free, contact rating 250 V AC, 3 A	
Display	ACTUAL value: 7-segment LED display 4-digit, red, 10 mm high; SET value: green, but 7.0 mm, control output, ramp function On, 2 alarms		
Temperatures	Ambient: 0 to 55 °C ; Storage: -30 to +70 °C [-22 to 158 °F]	Ambient: 0 to 50 °C [32 to 122 °F]; storage: -30 to +70 °C [-22 to 158 °F]	
Climatic conditions	< 90 % r.H., no dew	< 90 % r.H., dew allowed	
Electrical connection	Terminals 1.5 mm <sup>2</sup>	4 mm <sup>2</sup>	
Power supply	110-240 V +10/-15 % 48-63 Hz, 8 VA	230 V 50/60 Hz 3450 VA	115 V 50/60 Hz 1725 VA
Housing material	Synthetic material	Steel, white laquered	
Housing version	Front mounting	Wall-mount housing	
Weight/protection	200 g [≈ 0.4 lbs]/terminals IP20, housing IP20, front plate IP65 EN 60529	3.7 kg [≈ 8.2 lbs]/IP65 EN 60529	
<b>Options</b>			
Top-hat rail (DIN rail) mounting frame for controllers in the format of 48 x 48 mm	01B8380	No	No
Controller with mA output for actual value	01B8411	01B8453	01B8453a

Dimensions type 70304G, wall-mount housing

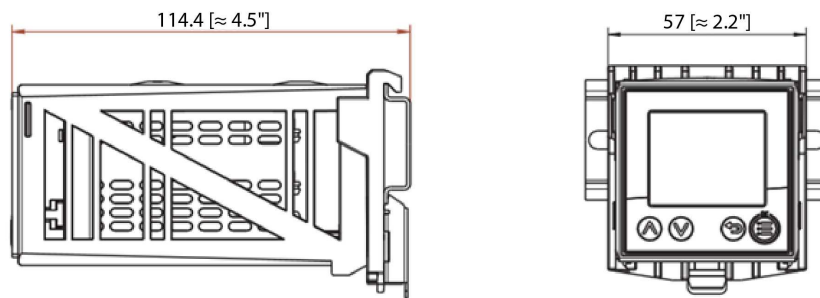


Dimensions in mm [Inch]

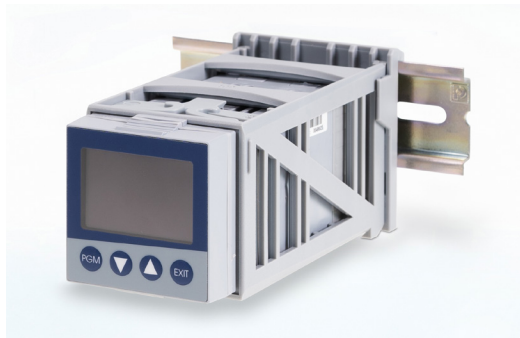
## Dimensions type 70304



## Dimensions type 70304 with frame for top-hat rail mounting



Dimensions in mm [Inch]



Type 70304 with frame for top-hat rail mounting mounted on a top-hat rail