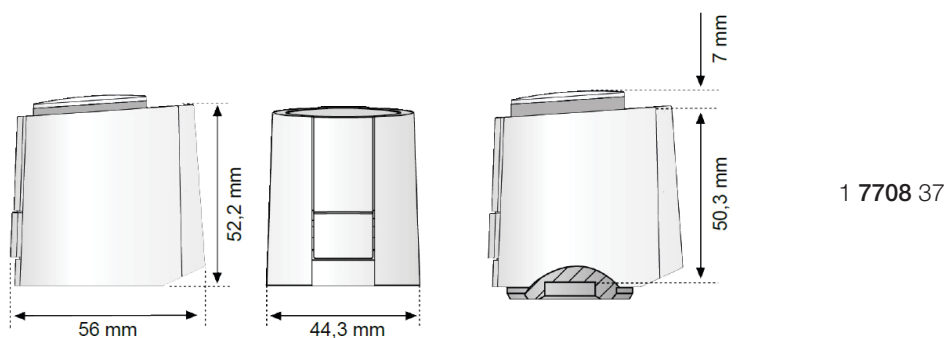


HERZ Actuator 7708, 7990

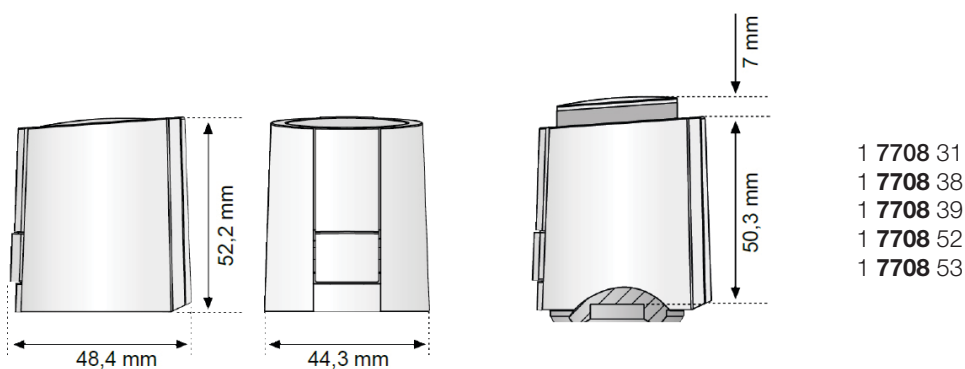
Data sheet for **7708, 7990** Issue **1115**

☑ Dimensions



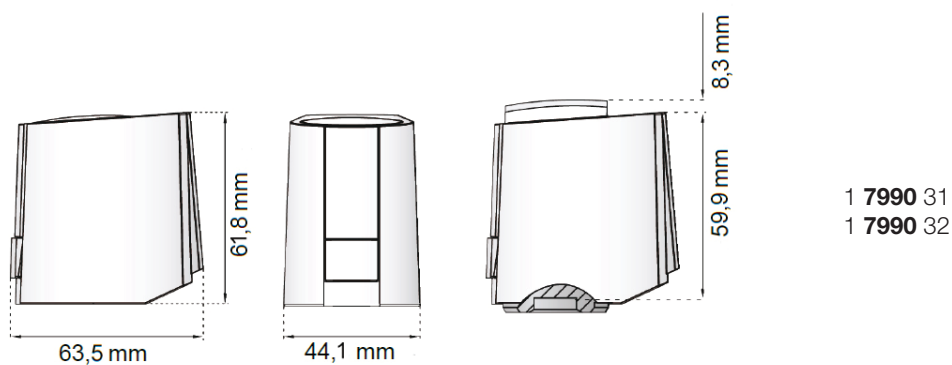
Dimensions

Installation height



Dimensions

Installation height



Dimensions

Installation height

☑ Models

- 1 **7708 31** **HERZ Actuator 2-point, M28 x 1.5, 230 V, 50 Hz**
normally open, closing force 100 N, operating voltage 230 V ~, threaded connection M28 x 1.5, blue adapter
1 **7708 85** is included, max. stroke 5 mm
- 1 **7708 37** **HERZ Actuator 2-point with end switch, M28 x 1.5, 230 V, 50 Hz**
normally closed, closing force 100 N, operating voltage 230 V ~, threaded connection M28 x 1.5, blue adapter
1 **7708 85** is included, max. stroke 5 mm
- 1 **7708 38** **HERZ Actuator 2-point, M28 x 1.5, 24 V, 50 Hz**
normally closed, closing force 100 N, operating voltage 24 V ~, threaded connection M28 x 1.5, blue adapter
1 **7708 85** is included, max. stroke 5 mm
- 1 **7708 39** **HERZ Actuator 2-point, M28 x 1.5, 230 V, 50 Hz**
normally closed, closing force 100 N, operating voltage 230 V ~, threaded connection M28 x 1.5, blue adapter
1 **7708 85** is included, max. stroke 5 mm
- 1 **7708 52** **HERZ Actuator 2-point, M28 x 1.5, 24 V, 50 Hz**
normally closed, closing force 100 N, operating voltage 24 V ~, threaded connection M28 x 1.5, red adapter
1 **7708 90** is included, max. stroke 5 mm
- 1 **7708 53** **HERZ Actuator 2-point, M28 x 1.5, 230 V, 50 Hz**
normally closed, closing force 100 N, operating voltage 230 V ~, threaded connection M28 x 1.5, red adapter
1 **7708 90** is included, max. stroke 5 mm
- 1 **7990 31** **HERZ Actuator modulating 0..10 V, M28 x 1.5, 24 V, 50 Hz**
normally closed, closing force 100 N, operating voltage 24 V ~, threaded connection M28 x 1.5, blue adapter
1 **7708 85** is included, max. stroke 5 mm
- 1 **7990 32** **HERZ Actuator modulating 0..10 V, M28 x 1.5, 24 V, 50 Hz**
normally closed, closing force 125 N, operating voltage 24 V ~, threaded connection M28 x 1.5, blue adapter
1 **7708 85** is included, with valve path recognition, max. stroke 6,5 mm

☑ Application 1 7708 37

The HERZ-Actuator 230 V with end switch is a thermoelectric valve drive for opening and closing valves and small valves used in the scope of HVAC technology. The integrated micro switch with floating contact allows direct operation of a pump or fan control unit. The HERZ Actuator 230 V with end switch is controlled by a 230 V room thermostat with two-point output or pulse-width modulation.

☑ Application 1 7708 31, 1 7708 38, 1 7708 39, 1 7708 52, 1 7708 53

The HERZ-Actuator 230 V / 24 V is a thermoelectric valve drive for opening and closing valves on heating circuit distributors of concealed floor heating and cooling systems. The main field of application is the energy-efficient individual room temperature control in the range of building management systems and home automation. The HERZ-Actuator 230 V / 24 V is controlled by a 230 V / 24 V room thermostat with two point output or pulse-width modulation.

☑ Application 1 7990 31, 1 7990 32

The HERZ-Actuator 2-point, Proportional 5/6,5 mm is a thermoelectric actuator for the control of heating and cooling systems in direct proportion to the applied control voltage. The control of the actuators is performed by a 0-10 V DC signal via a central DDC system or by a room thermostat. Principal area of application is the building management system range.

Furthermore, the variant 1 **7990 32** with valve path recognition automatically register the valve path for an optimum use of the active control voltage range. This guarantees an even more precise control of all valves.

☑ Operation

The actuating drive is switched on via an electrical contact, e.g. from a room thermostat, and starts opening or closing the thermostatic valve. The actuating movement is accomplished by an electrically-heated expansion element. When the heating current is switched off, the valve closes or opens respectively. The HERZ actuating drive is maintenance-free and offers silent operation.

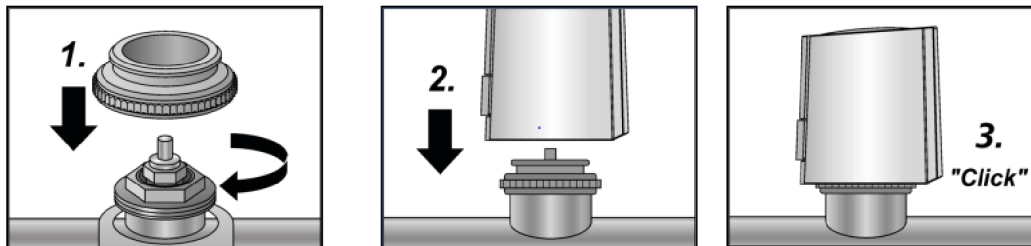
☑ Emergency function

With factory setting “normally closed” the valve can be opened by removing the drive in case of a power failure.

☑ Installation 1 7708 31, 1 7708 37, 1 7708 38, 1 7708 39, 1 7708 52, 1 7708 53

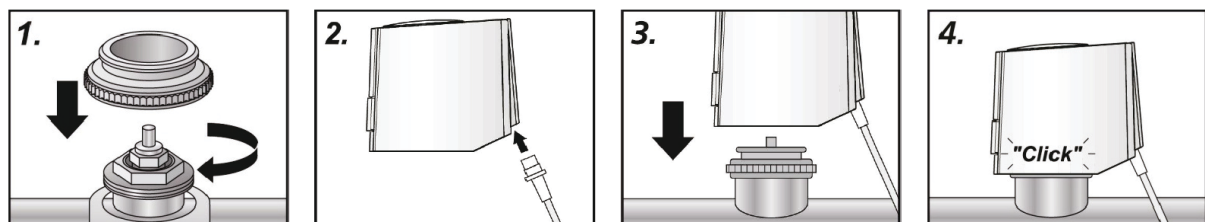
The wide selection of valve adapters guarantees a perfect match of the HERZ-Actuator to almost any valve bottom or manifold available on the market. Simply snap-on the HERZ-Actuator to the manually pre-installed valve adapter.

- First the valve adapter is screwed on the valve manually.
- The HERZ-Actuator is placed vertically on the valve adapter.



☑ Installation 1 7990 31, 1 7990 32

The valve adapter assortment guarantees a perfect match of the actuator to almost all valve bottoms and heating circuit distributors available on the market. The HERZ ActuatorProportional is simply plugged on to the valve adapter previously installed manually.



Screw the adapter manually onto the valve.

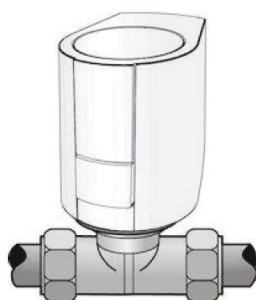
Connect the line to the actuator.

Position the HERZ Actuator manually in vertical position to the valve adapter.

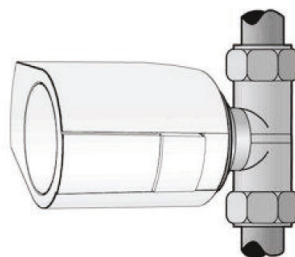
Latch the HERZ Actuator to the valve adapter by manually applied vertical pressure; this can be done noiselessly and without any problems.

☑ Installation position

The HERZ-Actuator must be installed preferably in vertical or horizontal installation position. For “upside down” installation special circumstances (e. g. drainwater) can reduce the lifetime of the actuator.



Vertical



Horizontal



Upside down

☑ Technical data 1 7708 31, 1 7708 39, 1 7708 53

Operating voltage	230 V AC, +10%...-10%, 50/60 Hz
Max. inrush current	< 550 mA during 100 ms max.
Operating power	1 W ¹⁾
Stroke (actuator travel)	5.0 mm
Actuating force	100 N ±5%
Fluid temperature	0 to +100°C ²⁾
Storage temperature	-25°C to +60°C
Ambient temperature	0 to +60°C
Type of protection	IP 54 ³⁾ / II
CE conformity according to	EN 60730
Housing material/housing colour	Polyamide / light grey (RAL 7035)
Connecting cable/colour	2 x 0.75 mm ² PVC / light grey (RAL 7035)
Cable length	1 m
Weight with connecting cable (1 meter)	100 g
Surge protection according to EN 60730-1	min. 2.5 kV

1) measured with precision reference instrument LMG95 - 2) in dependence of the adapter even higher - 3) in all installation positions

☑ Technical data 1 7708 38, 1 7708 52

Operating voltage	24 V AC/DC, +20%...-10%
Max. inrush current	< 300 mA during 2 min. max.
Operating power	1 W ¹⁾
Stroke (actuator travel)	5.0 mm
Actuating force	100 N ±5%
Fluid temperature	0 to +100°C ²⁾
Storage temperature	-25°C to +60°C
Ambient temperature	0 to +60°C
Type of protection	IP 54 ³⁾ / III
CE conformity according to	EN 60730
Housing material/housing colour	Polyamide / light grey (RAL 7035)
Connecting cable/colour	2 x 0.75 mm ² PVC / light grey (RAL 7035)
Cable length	1 m
Weight with connecting cable (1 meter)	100 g
Surge protection according to EN 60730-1	min. 2.5 kV

1) measured with precision reference instrument LMG95 - 2) in dependence of the adapter even higher - 3) in all installation positions

☑ Technical data 1 7708 37

Operating voltage	230 V AC, -10%...+10%, 50/60 Hz
Max. inrush current	< 550 mA during max. 100 ms
Operating power	1 W ¹⁾
Stroke (actuator travel)	5.0 mm
Actuating force	100 N ±5%
Switching current for micro switch	230 V AC: 5 A resistive load, 1 A inductive load
Switching point of micro switch NC	approx. 2 mm
Fluid temperature	0 - +100°C ²⁾
Storage temperature	-25 °C to +60°C
Ambient temperature	0 to +60°C
Degree / class of protection	IP 54 ³⁾ / II
CE conformity according to	EN 60730
Casing material / colour	Polyamide / light grey (RAL 7035)
Connection line / colour	4 x 0.75 mm ² PVC / light gray (RAL 7035)
Cable length	1 m
Weight with connecting cable (1 m)	approx. 150 g
Surge protection according to EN 60730-1	min. 2.5 kV

1) measured with precision reference instrument LMG95 - 2) in dependence of the adapter even higher - 3) in all installation positions

☑ Technical data 1 7990 31, 1 7990 32

Voltage	24 V AC, -20 %... +20 %
Control voltage range	0 V... 10 V DC
Max. inrush current	< 300 mA for max. 2 Min.
Operating power	1. W ¹⁾ (1 7990 31) / 1,2 W ¹⁾ (1 7990 32)
Resistance of control voltage input	100 kΩ
Stroke	5 mm (1 7990 31) / 6.5 mm (1 7990 32)
Actuating force	100 N ±5% (1 7990 31) / 125 N ±5% (1 7990 32)
Fluid temperature	0 to +100°C ²⁾
Storage temperature	-25°C to +65°C
Ambient temperature	0 to +60°C
Degree / class of protection	IP 54 ³⁾ / III
CE conformity according to	EN 60730
Casing material / colour	Polyamid / white
Connection line / colour	3 x 0.22 mm ² PVC / white

1) measured with precision reference instrument LMG95 - 2) in dependence of the adapter even higher - 3) in all installation positions

☑ Room thermostat

Standard room thermostats equipped with a thermal feedback loop can be used for piloting the HERZ actuating drive. If required, several drives can be connected in parallel taking the maximum admissible electrical load of the switch contact into account.

Design and planning notes

When selecting the switch contacts and mains fuses, the inrush current of the heating element must be taken into account. The voltage loss in the electric lines must not exceed 10 %, ensuring that the indicated runtime is guaranteed.

Max. cable length for an actuating drive with given cable cross-sections (information with voltage drop approx. 5 %; at 230 V voltage drop is 10 V, at 24 V voltage drop is 1 V).

When using several actuating drives, the indicated cable length must be divided by the number of actuating drives connected.

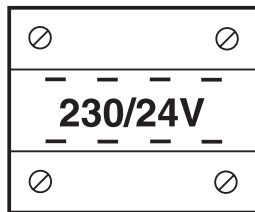
Cable cross-section (mm ²)	230 V , max. length (m)	24 V , max. length (m)
2 x 0.75	1500	168
2 x 1.0	2000	224
2 x 1.5	3000	340
2 x 2.5	5000	560

Resistance values

Please refer to the HERZ standard diagrams contained in the relevant standard sheets with regard to resistance values when operating HERZ valves with HERZ actuating drives. The curves "Valve fully open" or "max." apply.

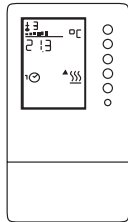
1 7796 04 HERZ Transformer 230/24 V

The overload-proof HERZ safety transformer 230/24 V is designed for the connection of HERZ room thermostats and HERZ actuating drives and suitable for operation of 8 HERZ actuating drives max.



Version	as per VDE 0551
Protection class	II
Protection class	IP 20
ISO Cl.	T40/E
Input voltage	230 V
Fuse in input circuit	50-60 Hz, 315 mA
Output voltage	24 V
Power	50 VA
Quick installation on device rail	ref. DIN 42227/3
Dimensions	106 x 90 x 74 mm (B x H x T)

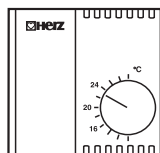
1 7791 23 HERZ Electronic room temperature controller for 2-point or pulse control with timer



For individual control with programmable times and temperatures. Timer with weekly and annual programs, automatic switchover from summer to winter time.

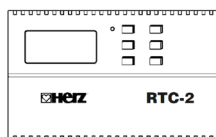
Setpoint range 8 – 38 °C
Switching differential as 2-point controller 0.4 – 8 K
Measurement accuracy 0.3 K at 20 °C
Operating voltage 230 V

1 7790 15 HERZ Electronic room temperature controller for 2-point control



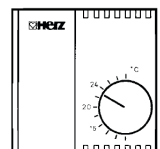
1 switchover contact
Setpoint range 10 – 30 °C
Switching differential +/-0.2 K fixed
Operating voltage 230 V

1 7940 62 HERZ-RTC-2 Room Temperature Computer



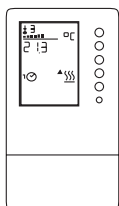
With 3 weekly programmes, 4 temperature steps, vacation programme for heating and cooling, switching difference adjusting. Set value range 5–40 °C, operating voltage 24 V, output voltage 0–10 V.

1 7790 25 HERZ Electronic room temperature controller for 2-point control

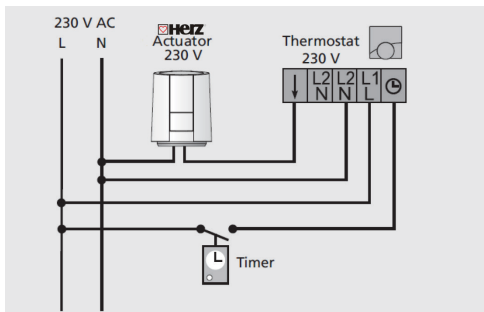


1 switchover contact
Setpoint range 10 – 30 °C
Switching differential +/-0.2 K fixed
Operating voltage 24 V

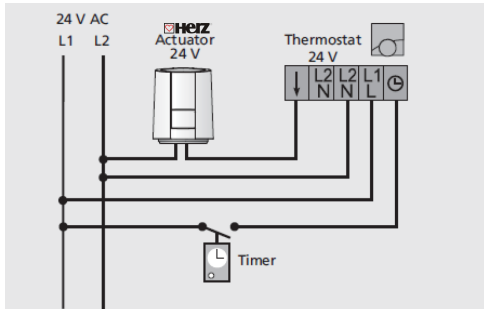
1 7794 23 HERZ Electronic climate controller with PI behavior



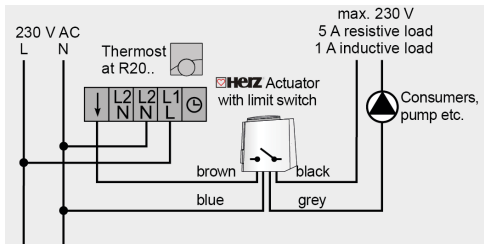
For heating and cooling operation, with programmable time and temperature settings. Outputs for actuating drive (3-point) and thermal drive and for one pump or fan (ON/OFF signal) Fixed basic program (factory setting) for initial commissioning, easy adaptation to the system by selecting of one out of 8 basic control modules via service parameters. Housing can be plugged onto electronics, white (RAL 9010), front with keypad and digital displays in viewing window. Timer with weekly and annual programs, relay with operating hours counter. For wall mounting or mounting onto in-wall socket.

Electric connections 1 7708 38, 1 7708 39, 1 7708 53


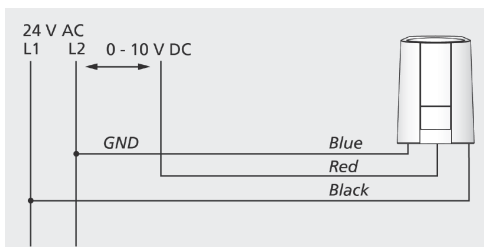
We recommend usage of the following lines for installing a 230 V system:
Light plastic-sheathed cable NYM 1.5 mm² or
flat webbed building wire NYIF 1.5 mm²

Electric connections 1 7708 38, 1 7708 52


We recommend usage of the following lines for installing a 24 V system:
Light plastic-sheathed cable NYM 1.5 mm² or
flat webbed building wire NYIF 1.5 mm²

Electric connections 1 7708 37


We recommend usage of the following lines for installing a 230 V system:
Light plastic-sheathed cable NYM 1.5 mm² or
flat webbed building wire NYIF 1.5 mm²

Electric connections 1 7990 31, 1 7990 32


Calculation of maximum cable length (copper cable) for 24 V rated voltage
 $L = C \times A / n$
L Cable length in m; K Constant (269 m/mm²); A Conductor cross-section in mm²; n Number of Alpha-Actuators

We recommend the following cables for installing a 24 V system:
Telephone line J-Y(ST)Y 0.8 mm²
Light plastic-sheathed cable: NYM 1.5 mm²
Flat webbed building wire: NYIF 1.5 mm²

Transformer: A safety isolating transformer according to EN 61558-2-6 must always be used. Transformer dimensioning results from the making capacity of the HERZ-Actuators.
Rule-of-thumb formula: $P_{\text{transformer}} = 7.2 \text{ W} \times n$
n = Number of OEM Actuators