HERZ Electronic room thermostat
analog and digital
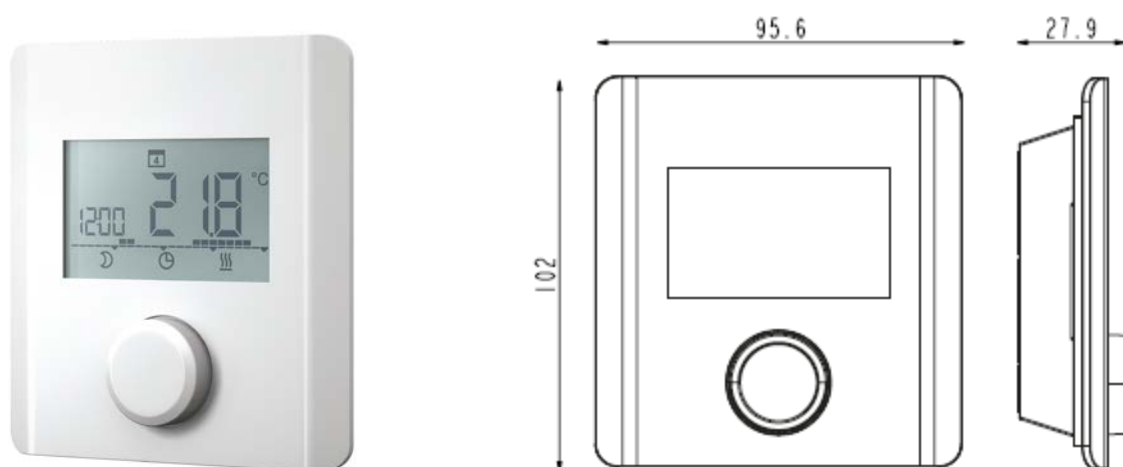
Data sheet for **F799 xx,** Issue 0317

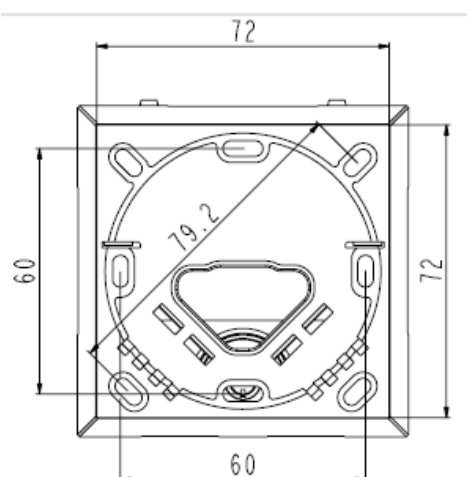## ⬚ Dimension in mm

3 **F799** 11 - 3 **F799** 14
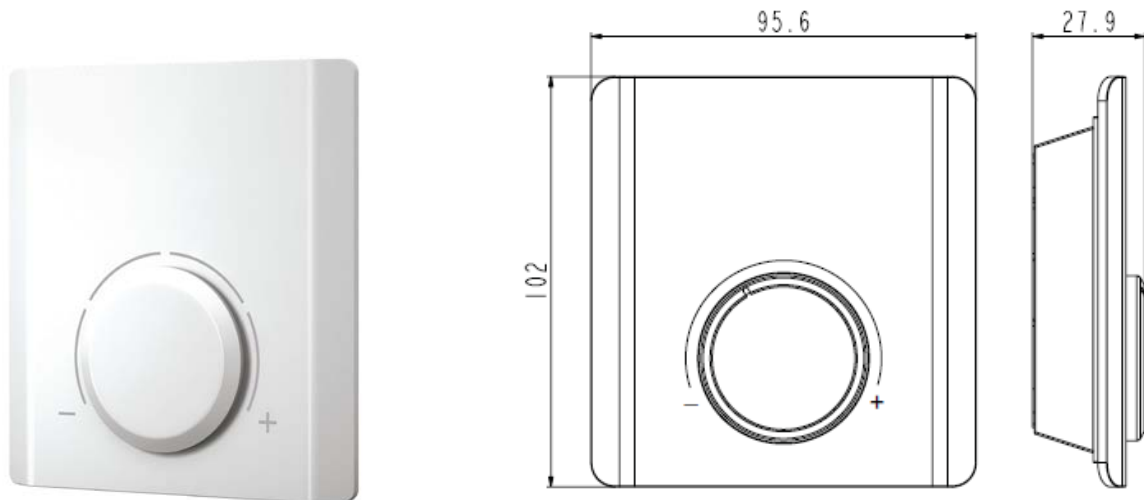
3 **F799** 15 – 3 **F799** 18

Mounting plate

☑ **Technical data**

	3 **F799** 11-14	3 **F799** 15-18
Power supply:		
Power supply	24V~/ 230V~	
Power consumption	< 0,3 in idle state	
Fuse	T2AH (230V)/ T1A (24V)	
Parameters:		
Number of actuators	AXT211/ 201: 230 V, max. 6 pcs. parallel 24 V, max. 4 pcs. parallel	AXT 211/ 201: 230 V, max. 5 pcs parallel 24 V, max. 4 pcs parallel
Setting range	10...28 °C	5...30 °C
Switching difference	+/- 0,5 K	+/- 0,2 K
Decrease	2 K	2 K or adjustable
Measuring elements	NTC	NTC 22k
Ambient conditions:		
Temperature	0...50 °C	
Humidity	5...80 % rh no condensation	
Construction		
Housing	Cover: White (RAL 9016) Lower part: Signal white (RAL 9003)	
Housing Material	Thermoplastic PC + ABS	
Fitting	Wall, recessed junction box	
Inputs-/ Outputs:		
Switching element	230 V, relay/ 24 V, Triac	
Switching rating	230 V, 2 A (0.8 A inductive) 24 V, 1 A	230 V, 1 A 24 V, 1 A
ECO input	230 V, voltage detection 230 V 24 V, voltage detection 24 V	
Heating/ cooling	230 V, voltage detection 230 V 24 V, voltage detection 24 V	
Pilot timer	-	Output: 230 V, 100 mA 24 V, 100 mA
Connection terminals/ cable:		
Connection terminals	Screw terminals 0,22 mm² to 1,5 mm²	
Power cable	-	Solid: NYM-J/NYM-O (max. 5 x 1,5 mm²) Flexible: H03V2V2H2-F / H05V2V2H2-F
Switching difference	+/- 0,5K	-
Cord grip	External	-
Standards, directives:		
Type of protection	IP 20 (EN 60529)	
Protection class 24V	III (EN 60730)	
Protection class 230V	II (EN 60730)	
CE- conformity according to EMC- Directive 2004/108/EC	EN 61000-6-1, EN 61000-6-3	
CE- conformity according to Low-voltage directive 2006/95/EG	EN 60730-1, EN 60730-2-9	

◪ **Safety information of electrical connection work**

Assembly and installation must be performed exclusively by licensed and specially trained fitters.

Damaged components must be replaced with original or alternative suitable and technically equivalent spare parts.

Prior to starting the system up, check all connection points for leak-tightness. After installation, check that all screws are mechanically secure.

It is prohibited to technically modify the system. The user must not implement technical changes to the device because no liability will be assumed for any resultant damage to the system.

◪ **Herz- Electronic room thermostat for heating and heating/cooling**

Electronic room thermostat analog

3 **F7998** 11
features	Heating, temperature set-back, frost protection function
nominal voltage	230V~, ± 10 %, 50 Hz
weight	90g

3 **F799** 12
features	Heating, temperature set-back, frost protection function
nominal voltage	24V~, ± 20 %, 50 Hz
weight	90g

3 **F799** 13
features	Heating/cooling, temperature set-back, frost protection and valve protection function, cooling lock
nominal voltage	230V~ ± 10 %, 50 Hz
weight	135g

3 **F799** 14
features	Heating/cooling, temperature set-back, frost protection and valve protection function, cooling lock
nominal voltage	24V~ ± 10 %, 50 Hz
weight	135g

Electronic room thermostat digital

3 **F799** 15
features	Heating, temperature set-back, frost protection function
nominal voltage	230V~, ± 10 %, 50 Hz
weight	130g

3 **F799** 16
features	Heating, temperature set-back, frost protection function
nominal voltage	24V~, ± 20 %, 50 Hz
weight	130g

3 **F799** 17
features	Heating/cooling, temperature set-back, frost protection and valve protection function, cooling lock
nominal voltage	230V~ ± 10 %, 50 Hz
weight	140g

3 **F799** 18
features	Heating/cooling, temperature set-back, frost protection and valve protection function, cooling lock
nominal voltage	24V~ ± 10 %, 50 Hz
weight	140g

☑ Description of operation

For intelligent unitary control (2-point) in residential and business spaces.

3 **F799** 11 –14:
With relay output at 230 V: Up to 6 thermal actuators.
With Triac outputs at 24 V: Up to 4 thermal actuators.

3 **F799** 15 –18:
With relay output at 230 V: Up to 5 thermal actuators.
With Triac outputs at 24 V: Up to 4 thermal actuators.

The room temperature is measured by a temperature sensor and compared with the current setpoint. Depending on the control offset, the heating or cooling in the room is increased or reduced. If there is a heat or cooling requirement, the thermal actuator is activated. Room temperature adjustments, control and operation are performed using the rotary knob/ button.

3 **F799** 11-14 and 3 **F799** 15-16: suitable for NC thermal motors

3 **F799** 17-18: integrated NC and NO switching

☑ Table with function summary

Function	3 F799 11-12	3 F799 13-14	3 F799 15-16	3 F799 17-18
Heating	x	x	x	x
Heating/cooling		x		x
Permanent set-back – ECO mode			x	
Adjustable set-back – ECO mode				x
Normal operating modes – reduced – OFF			x	x
Time programme integrated and adjustable				x
Optimised time programme				x
Set-back input	x		x	
Change-over input		x		x
Pilot clock output (set-back – switch-off)				x
Selection of heating system: floor – radiator – convector		x		x
Setpoint temperature restriction	x	x	x	x
10-hour backup power supply				x
Selection of NC or NO				x
Valve protection facility		x		x
Frost protection facility	x	x	x	x
LCD with backlight				x
Connection for floor sensor				x

☑ Decrease

In reduced mode, the defined temperature is decreased by 2 K. The room thermostat detects a voltage supplied by the electrical distributor or an external timer.

☑ **Heating/cooling**

The room thermostat is switched between heating and cooling via an external signal (voltage detection). There is no dead zone between heating and cooling.

☑ **Cooling lock**

A cooling lock is always possible by installing a jumper between two terminals. The cooling lock prevents the thermostat from switching to cooling mode in combination with the Herz electrical distributor 3 **F798** 02- 04.

☑ **Valve protection facility**

The valve protection facility is activated at 14-day intervals for 6 minutes (3 **F799** 11-14) or 10 minutes (3 **F799** 15-18) if no temperature regulation has taken place (output open). The actuator is activated and opens the valve.

☑ **Frost protection facility**

The integrated frost protection facility is fixed at 6°C and prevents pipes from freezing during periods with no regulation.

3 **F799** 15 –18:

All the required symbols as well as the thermal actuator output are indicated in the large display. The symbol for heating or cooling flashes slowly if the output is active.
The following table shows basic operation of the setting knob.

	Adjust setpoint
2x	Change operating mode
	Set functions and values
2x	Parameters for technicians

♡ Operating modes

3 **F799** 15-18:

The operating mode can be set by pressing the knob twice.
The following options can be selected by turning the rotary knob to the left or right:

Normal operation	☼
ECO mode	☽
ECO-In/Auto	⏰
Unoccupied (for 3 **F977** 17 and 18)	🏠
Locking	🔒
Switch-off	⏻
Back	BACK

Note:
The operating mode currently set is not visible. If, for example, normal operation is active, only ECO mode and the operating mode ECO-In/Auto is shown.

♡ "Normal" or "ECO" operating modes

3 **F7699** 15-16:
If ECO operating mode is selected, ECO can be operated either using the pre-set and reduced temperature of 2 °C or via the external input with a timer. The room thermostat detects a voltage supplied by the electrical distributor, external timer or pilot signal from the 3 **F799** 17- 18. If the input is active, the room thermostat automatically switches to ECO mode. As soon as the ECO signal is inactive, it switches to normal operation.

3 **F799** 17- 18:
If ECO operating mode is selected, ECO can be operated either using the adjustable reduced temperatures or via the internal time programme. The preset temperature for normal operation (21 °C) or reduced operation (19 °C) is automatically accepted by manual change-over of the operating mode or when switching using the time programme. These values can be defined in the "Settings" menu. The pilot clock output is active in accordance with the time programme independent of the operating mode when parameter Par-230 = 0. When parameter Par-230 = 1, the pilot clock output is not active in accordance with the time programme. The time programme can be used for the local set-back. If the operating mode ECO is selected, the pilot clock output is active.

☑ **Locking the operating knob**

The "turn and push" operating knob can be locked. Press the button for 5 seconds to unlock.

3 **F799** 15 –18:
On the public authority version, the lock can be secured with an access code. For more information, see the parameter Par-030.

☑ **Switching off the thermostat**

The room thermostat can be switched off. Temperature control is deactivated and the output is dormant. The valve protection and frost protection facility remain active at 5 °C, however.

3 **F799** 15 –18:
When parameter P-230 = 1 is activated, the pilot clock output can be used to switch-off via a separate relay in the system.

☑ **Settings**

The settings can be selected as follows:
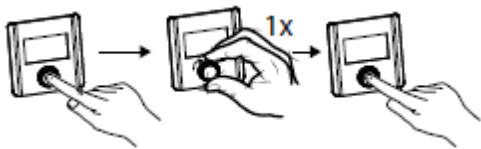
The following options are available:

☑ **Setpoint limit**

A minimum and maximum setpoint limit can be set.

☑ **Actual value correction**

The effect of the wall temperature can be corrected by ± 2 °C. The corrected temperature is the temperature indicated in the display.

3 **F799** 15 –18:

☑ **Temperature specifications in normal operation – Heating**

The factory temperature setting is 21 °C. The advantage of this function is that the value is applied again when the operating mode is changed or when a switch is made using the switching programme.

☑ **Temperature specifications in ECO mode – Heating**

The factory temperature setting is 19 °C. The advantage of this function is that the value is applied again when the operating mode is changed or when a switch is made using the switching programme.

☑ **Temperature specifications in normal operation – Cooling**

The factory temperature setting is 21 °C. The advantage of this function is that the value is applied again when the operating mode is changed or when a switch is made using the switching programme.

◻ **Temperature specifications in ECO mode – Cooling**

The factory temperature setting is 23 °C. The advantage of this function is that the value is applied again when the operating mode is changed or when a switch is made using the switching programme.

◻ **Temperature specifications for the floor sensor**

If a floor sensor is connected and activated in parameter 040, the following symbol is displayed next:
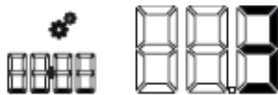
The factory setting is 3, which corresponds to approx. 22 °C. It is possible to change it:

°C	18	19	20	21	22	23	24	25	26	27	28
	1		2		3		4		5		6

When serving as a floor sensor, a comfortable floor temperature is controlled. As soon as this comfort temperature has been reached, the internal sensor continues to control the room.

◻ **Temperature specifications in unoccupied mode**

The temperature for this mode can be adjusted from 5 °C to 20 °C. The factory setting is 16 °C.

◻ **Setpoint limitation**

A minimum and maximum setpoint limit can be set.

◻ **Time and weekday**

The time and weekday must be entered for the time programme. When restarting or once the 10-hour backup power supply has run out, this setting must be renewed.
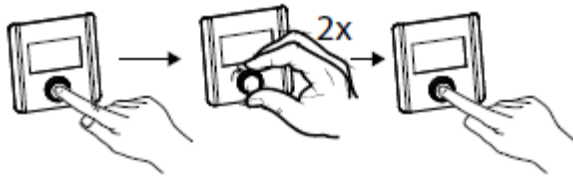
◻ **Time programme**

An individual temperature profile for each day provides the ideal comfort level with the minimum energy consumption. 4 time programmes for every day are available in the room thermostat. The settings can be made individually in blocks for the whole week (Monday to Sunday), for work days and weekends or every day. Two time programmes are preset for the week: Normal operation from 6 am to 10 am and from 3 pm to 10 pm. A set-back mode is activated for the hours in between. Additional time programmes can be programmed for temperature requirements that differ from these. The room thermostat includes a pilot clock output which is always active in accordance with the time programme and independently of the operating mode. This output can be used to switch further room thermostats to set-back mode, by using a Herz electrical distributor (3 **F798** 02- 04), for example.

◻ **Resetting to factory settings**

All settings and changed access codes can be reset to factory settings. The button must be pressed for 5 seconds in order to confirm the reset. The room thermostat is restarted after the reset. The time and weekdays have to be re-entered.
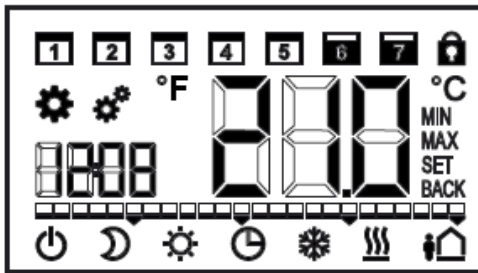
⊠ **Parameters**

To set the parameters, please proceed as follows:

The corresponding settings are shown in the manual.

 Code 1234

⊠ **Display**

Weekday	Confirm
7	**SET**
Unlocking	Level back
🔓	**BACK**
Operating mode	Switching times
✿	▼▯▯▯▯▯▯▼
Setting/parameter	Switch-off
✿°	⏻
Fahrenheit	ECO reduction
°F	☽
Actual value and setpoint	Normal operation
8̲8̲8̲	☀
Time	Time programme
8̲8̲8̲8̲	⏰
Celsius	Cooling
°C	❄
Minimum setpoint limit	Heating
MIN	☰
Maximum setpoint limit	Unoccupied
MAX	🏠

⊠ **Disposal and Safety Supply**

Place of installation: approximately 1.5 m above the floor on an interior wall. The location must be protected from direct sunlight and other heat sources, e.g. televisions, lamps or radiators, and also from draughts.

Once the backup power supply has run out (approx. 10 hours), the settings are not lost. Only the time and weekday has to be re-entered.

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.
All related product documents must also be adhered to. Modifying or converting the product is not admissible.

Whether the switching output is active and the thermal actuator is being controlled is indicated on the display. If the output is active, the "Heating" or "Cooling" symbol flashes slowly. The switching output display can be activated or deactivated from the "Parameters" menu.

Disposal must be carried out according to local and currently applicable laws. More information on materials can be found in the material and environmental declaration for this product.

⊠ **Accessories**

|	
1 7708 XX	Actuator 2-point, M28 x 1,5, 230V/ 24V
1 **7711** XX	Thermal Actuator M28 x 1,5, 230V/ 24V
F **7793** 41	Temperatur sensor, ‑50...160 °C, IP65
3 **F798** XX	Electric distributor, 24V~/ 230V~, 6 bzw. 10 channel

3 **F799** 15-18:

| Parameter	Description
Par-010	Preset PWM control algorithm for the following applications: Standard underfloor heating - Low-energy underfloor heating - Radiator - Passive convector (slow warm-up time) - Fan coil units – PI quasi 2-point control
Par-020	Activating/deactivating cooling lock The cooling lock prevents the controlled room from cooling down. When the cooling lock is activated and the operating mode is set to cooling, the heating mode is also inactive.
Par-030	Locking operation with a code or public authority version. Locking must also be activated in the operating mode menu. These settings cannot be changed. The locking code is requested when the button is pressed for 5 seconds.
Par-031	Codes for locking operation can be adjusted to between 0000 and 9999.
Par-040	Activating an external sensor Instead of an internal sensor, an external sensor can also be connected. When using as an external room sensor, the internal sensor of the room thermostat is deactivated. Setting the setpoint temperature of the external sensor in the "Settings" menu.
Par-041	Setting for correcting the floor temperature Any different measurement of the actual floor temperature can be corrected. Setting range -2 °C to +2 °C
Par-050	Adjusting the time period for which the display is illuminated. Determines the time period for which the display is illuminated after operation. The setting range is from 0 to 30 seconds in 5-second steps.
Par-090	Displaying the output signal status on the thermal actuator. When the output for thermal actuators is active, the heating or cooling symbol flashes slowly. If this output is inactive, the symbol is displayed continuously.
Par-110	Setting the direction of operation of the room controller (NC – normally closed, or NO – normally open). Factory setting: NC, normally closed. The direction of operation of the room controller and, in turn, the output for thermal actuators is reversed. Thermal actuators (NO) must be used to do so. When using this function together with the FXV 3210 control distributor, the direction of operation must also be set to NO on the control distributor
Par-161	Setting the frost-protection temperature. Automatically activates the frost-protection facility when the temperature goes below the set temperature of 5 °C. The limit value can be set to between 5 °C and 10 °C.
Par-170	Activate the "optimised time programme". If the "optimised time programme" function is activated (factory setting), the setpoint is reached at the defined time. In order to reach the setpoint, heating or cooling mode is initiated in good time ahead of the defined time. In order to save energy, the time needed to reach the temperature for reduced operation in good time is calculated.
Par-190	Setting the cycle time for the valve protection facility The cycle time for the valve protection function can be set. This function prevents the plug from sticking inside the valve. If the function is set to 0 days, the function is deactivated. The factory setting is every 14 days independently of the condition of the output during this period.
Par-191	Defining the actuation duration while the valve protection facility is active. The actuation time can be optimised depending on the running time of the thermal actuator. The factory setting is 5 minutes.
Par-230	Specification of the pilot clock output The pilot clock output can be used either to forward the time programme or to generally setback or switch-off the system.
Par-420	Service code 1234 is used to adjust the service menu. In order to avoid unwanted access to the service parameters, we recommend that the service code be changed by the installer and

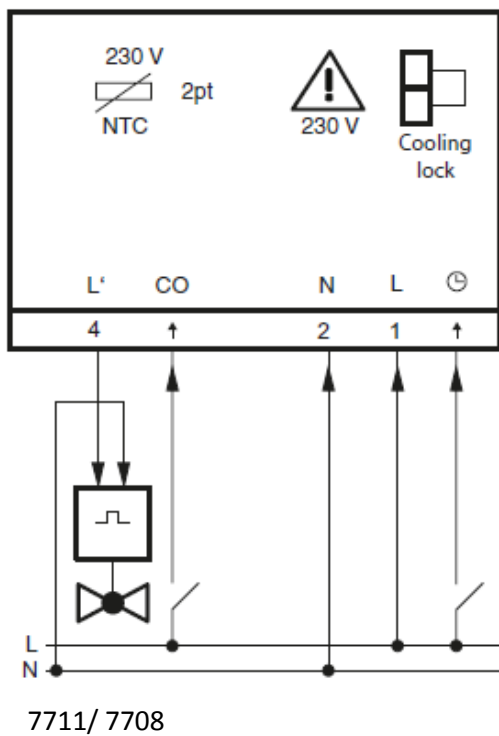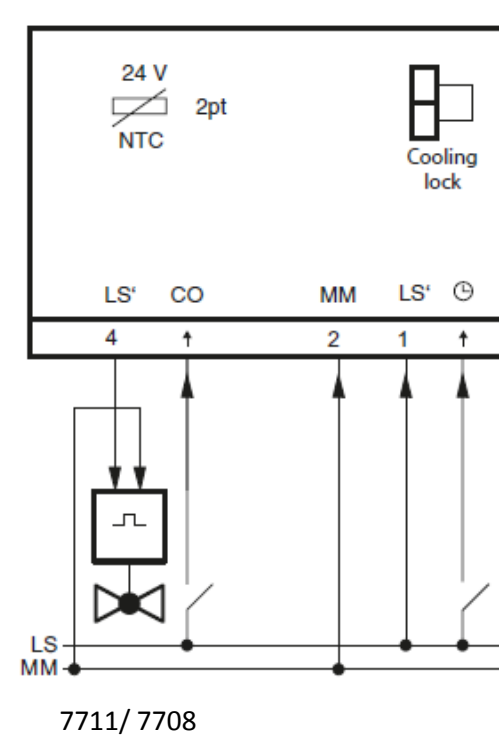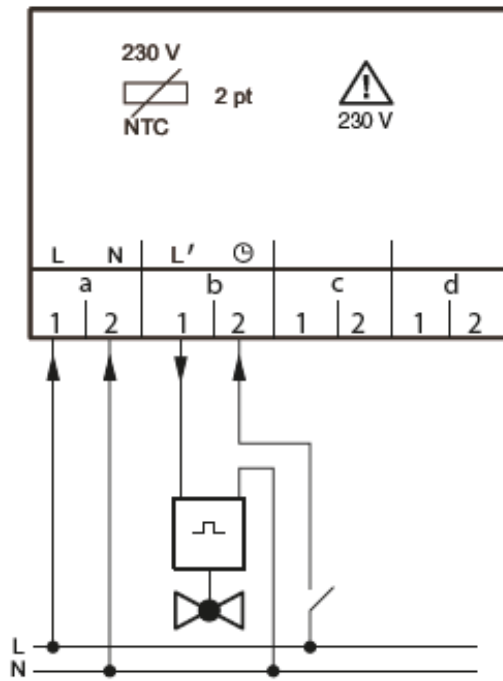|	documented in a safe location. The service code can be reset. See Settings for "Resetting to factory settings".

☑ Connection diagram

3 **F799** 11, 230V
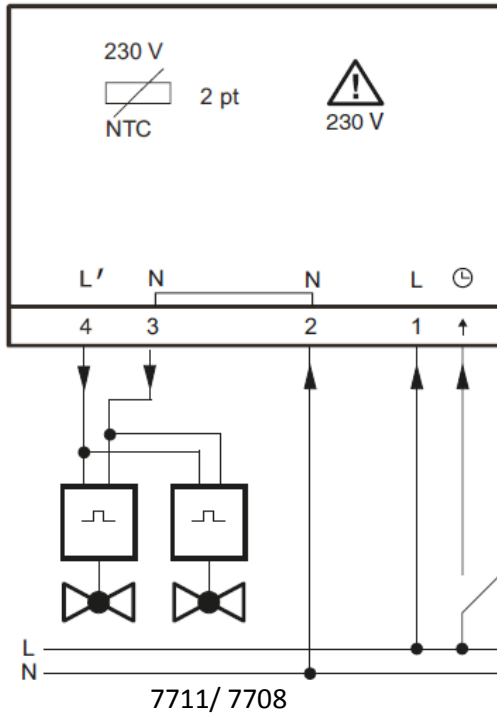
3 **F799** 12, 24V
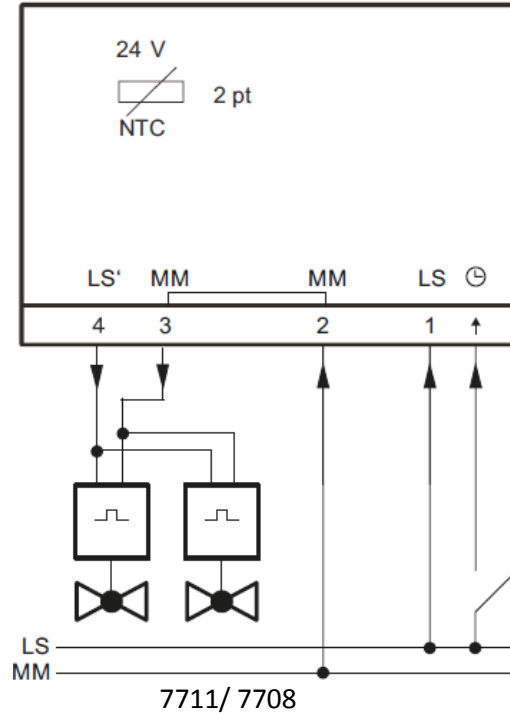
3 **F799** 13, 230V
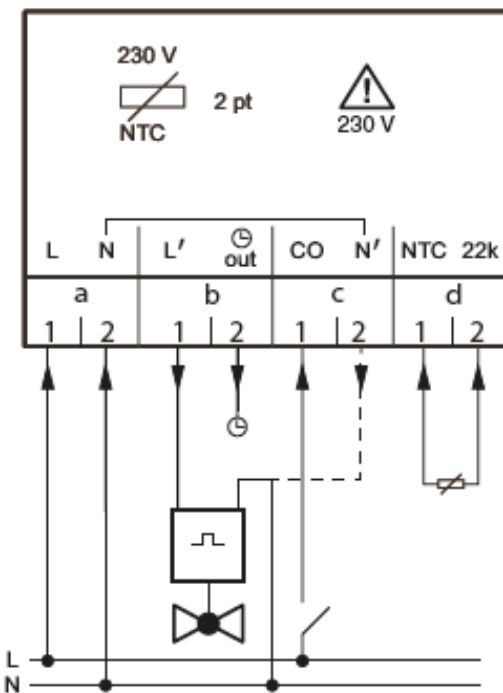
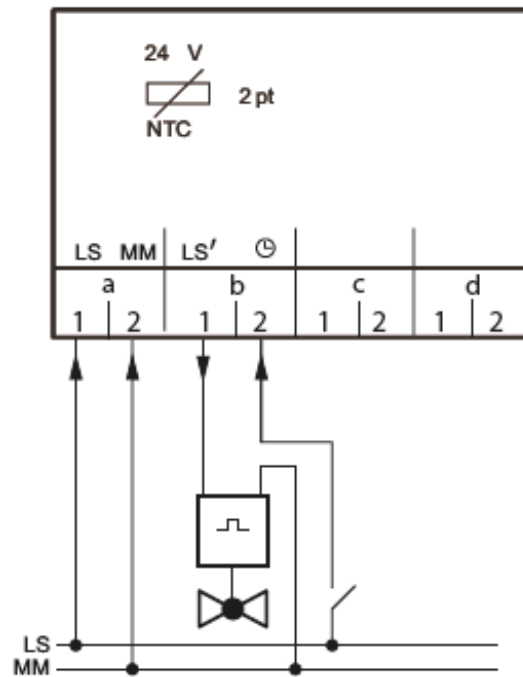3 **F799** 14, 24V

3 **F799** 15, 230V

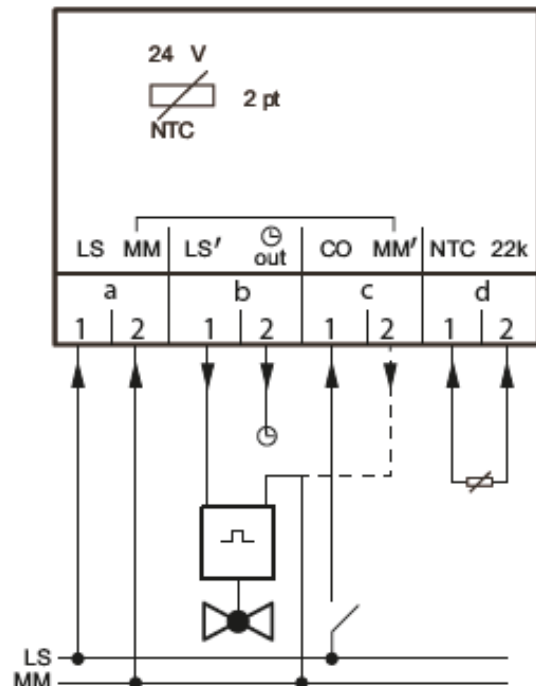
7711/ 7708

3 **F799** 16, 24V

7711/ 7708

3 **F799** 17, 230V

7711/ 7708

3 **F799** 18, 24V

7711/ 7708

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