

## T 2046 EN

### Type 2212 Safety Temperature Limiter (STL)

Self-operated Temperature Regulators



#### Application

Safety temperature limitation of the energy supply for heat generators and heat exchangers by closing and locking a valve. Additional pressure limitation if equipped with the Type 2401 Pressure Element.

For limit signals from 10 to 170 °C · Valves DN 15 to 150 · PN 16 to 40 · Max. 350 °C

#### Note

Further details on the application of safety temperature limiters can be found in Information Sheet ► T 2040.

The Type 2212 Safety Temperature Limiter (STL) with a Type 2111, 2422 or 2119 Valve operates without auxiliary energy and is designed for extended safety according to DIN EN 14597. The attached valve is closed and locked by a spring mechanism when the temperature reaches a limit, when the capillary tube ruptures or there is a leak in the sensor system. The safety temperature limiter (STL) can only be reset and put back into operation using the lever for unlocking (order no. 1490-7399). In this case, the fault that triggered the safety temperature limiter must be remedied and the temperature must be below the adjusted limit.

#### Version

**Type 2212 Safety Temperature Limiter** consisting of a temperature sensor (only with thermowell), capillary tube and connecting element with spring mechanism and limit adjuster.

**Type 2111/2212** · With Type 2111 Globe Valve for DN 15 to 50 and Type 2212 Safety Temperature Limiter · Unbalanced · Flanged connection

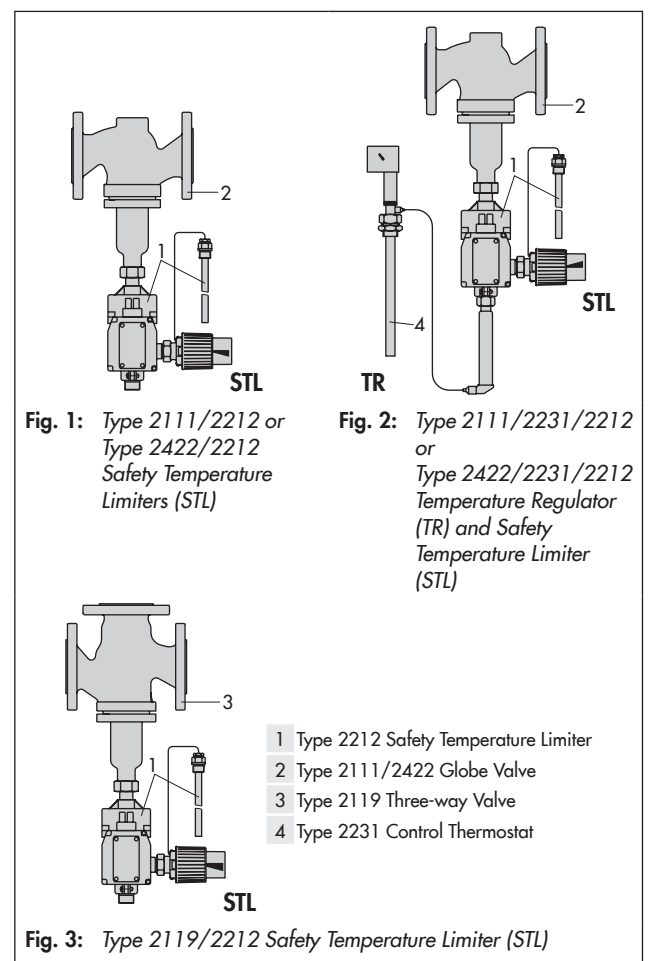
**Type 2422/2212** · With Type 2422 Globe Valve for DN 15 to 150 and Type 2212 Safety Temperature Limiter · Balanced · Flanged connection

**Type 2119/2212** · With Type 2119 Three-way Valve for DN 15 to 150 and Type 2212 Safety Temperature Limiter · Balanced <sup>1)</sup> · Flanged connection

**Temperature regulators and safety temperature limiters (TR/STL)** (Fig. 2) consist of one of the above mentioned devices Type ... /2212 and a type-tested Type 2231 Control Thermostat, for example:

**Type 2422/2231/2212** · With Type 2422 Valve, Type 2231 Control Thermostat and Type 2212 Safety Temperature Limiter

<sup>1)</sup> DN 15 to 25 unbalanced



#### Special version

- With electric signal transmitter for remote transmission of the plant state.
- Special  $K_{VS}$  coefficient (reduced) with Type 2422/2212
- With Type 2401 Pressure Element
- With 10 m capillary tube (not type-tested)

**Temperature regulators, safety temperature limiters and pressure limiters (TR/STL/PL)** consist of one of the above mentioned devices and a Type 2401 Pressure Element.

A typetested Type 2232 or Type 2234 Control Thermostat can be used in place of the Type 2231 Control Thermostats.

Details on valves and control thermostats can be found in:

- With Type 2111 Globe Valve (Data Sheet ► T 2111)
- With Type 2422 Globe Valve (Data Sheet ► T 2121)
- With Type 2119 Three-way Valve (Data Sheet ► T 2133)

**Principle of operation** (see Fig. 4)

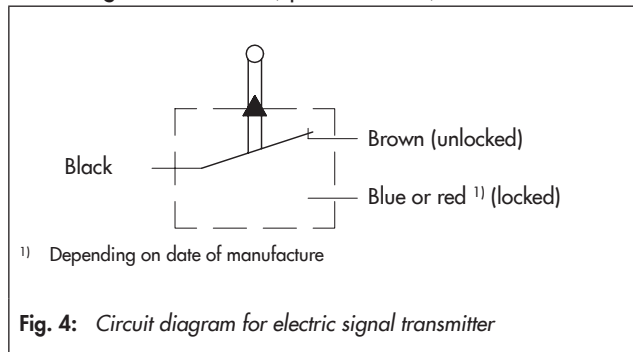
The safety temperature limiters (STL) are equipped with a temperature sensor which operates according to the adsorption principle.

The temperature of the measured medium creates a pressure in the sensor (9) which is proportional to the measured temperature. This pressure is transferred to an operating bellows through a capillary tube (10) where it is converted into a positioning force and compared to the force of the set point spring.

The spring force depends on the limit adjustment (11). If the measured temperature exceeds the adjusted limit, the spring mechanism in the connecting element (8) is triggered, moving the pin (6) and the plug stem (5) connected to it. The valve closes and the position is automatically locked.

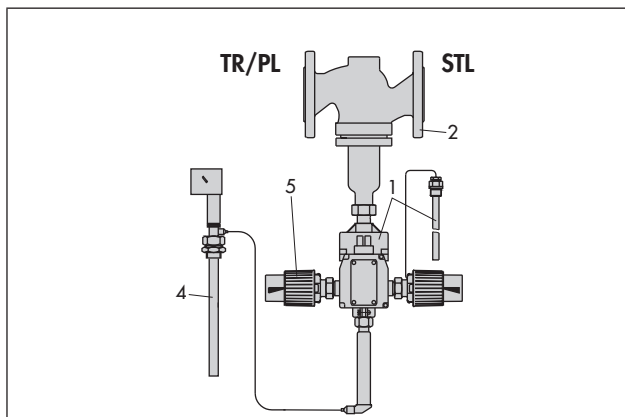
The limiters can only be unlocked and put back into operation with the lever for unlocking (order no. 1490-7399) after the temperature has fallen below the limit and the fault has been remedied.

**Electric signal transmitter** (special version)

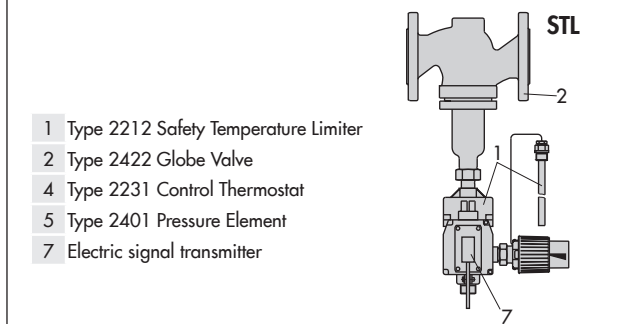


**Fig. 4:** Circuit diagram for electric signal transmitter

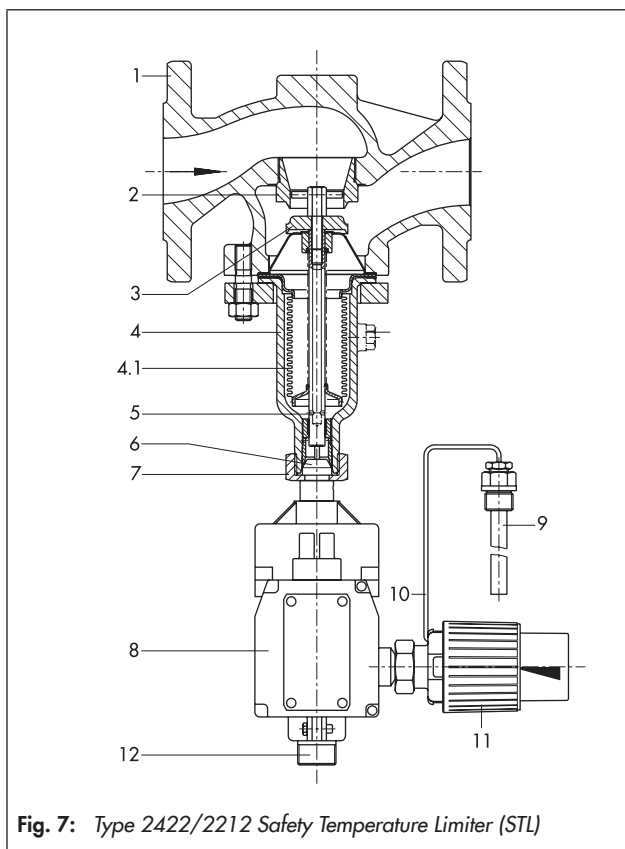
Type 2422 Valve		Type 2212 Safety Temperature Limiter	
1	Valve body	6	Pin of operating element
2	Seat (exchangeable)	7	Coupling nut G 1
3	Plug	8	Connecting element with spring mechanism
4	Bellows housing	9	Temperature sensor with thermowell
4.1	Metal bellows	10	Capillary tube
5	Plug stem with spring	11	Type 2212; limit value adjustment
		12	Connection for control thermostat



**Fig. 5:** Type 2111/2231/2212 or Type 2422/2231/2212 Temperature Regulator (TR) and Safety Temperature Limiter (STL) with Type 2401 Pressure Element



**Fig. 6:** Type 2111/2212 or Type 2422/2212 Safety Temperature Limiter (STL) with electric signal transmitter



**Fig. 7:** Type 2422/2212 Safety Temperature Limiter (STL)

## Installation

### – Valve

The valves must be installed in horizontal pipelines. The direction of flow must match the arrow on the valve body and the connecting element must be suspended downward.

### – Capillary tube

The capillary tube must be run in such a way that the ambient temperature range cannot be exceeded, any large deviations in ambient temperature cannot occur and that the tube cannot be damaged. The smallest permissible bending radius is 50 mm.

### – Temperature sensor

The temperature sensor can be installed in any position as required. Its entire length must be immersed in the medium. Select a place of installation where overheating and noticeable idle times will not occur.

Only the combination of the same kind of materials is permitted, e.g. a stainless steel heat exchanger with thermowells made of stainless steel 1.4571.

### Special installation regulations according to VdTÜV:

Install the regulator only in combination with an upstream strainer (e.g. Type 2 NI in Data Sheet ▶ T 1015).

Only use the thermowells delivered by the manufacturer.

## Accessories

- **Lever for unlocking** after the locking mechanism has been triggered (order no. 1490-7399)
- **Extension piece** to protect the connecting element against excessively high temperatures (see details in the associated data sheet).

In combinations of the Type 2422 Valve (cast iron or spherical graphite iron) with Type 2212 Safety Temperature Limiter, an extension piece is required for temperatures over 150 °C.

- **Separating piece** made of brass or CrNi steel
- **Thermowell** of CrNiMo steel

### Register number of devices tested according to DIN EN 14597:

The test marks for the type test of the Type 2111, Type 2422 and Type 2119 Valves with Type 2212 Safety Thermostat, with Type 2231, Type 2232 or Type 2234 Control Thermostats as well as Type 2401 Pressure Element are available on request.

**Table 1: Technical data** · All pressure stated as gauge pressure in bar

Valves		Type 2111, Type 2422, Type 2119											
Connection size	DN	15	20	25	32	40	50	65	80	100	125	150	
<b>Type 2111</b>	More details on the technical data for valves and control thermostats can be found in the specified data sheets.	Data Sheet ▶ T 2111							–				
<b>Type 2422</b>		Data Sheet ▶ T 2121											
<b>Type 2119</b>		Data Sheet ▶ T 2133											
Pressure rating		PN 16 to 40											
<b>Type 2212 Safety Temperature Limiter</b>		Size 50 <sup>1)</sup>						Size 150 <sup>1)</sup>					
Adjustable limit range		10 to 95 °C · 20 to 120 °C · 40 to 170 °C											
Max. perm. ambient temperature		+80 °C											
Min. permissible sensor temperature <sup>2)</sup> at 0 °C ambient temperature		Smallest adjustable temperature limit of the selected limit range											
Min. permissible temperature of the STL including sensor when the plant is shut down <sup>2)</sup> with													
Limit range 10 to 95 °C		–10 °C											
Limit range 20 to 120 °C		0 °C											
Limit range 40 to 170 °C		10 °C											
Max. permissible temperature at sensor		50 K above the adjusted limit											
Capillary tube length		5 m (10 m as special version) <sup>3)</sup>											
Pressure rating with G ½ thermowell		PN 40											
Electric signal transmitter, load at 230 V (AC)		10 A with resistive load											
Conformity		CE · UKCA											

<sup>1)</sup> Size 50: Type 2212 for valve DN 15 to 50 | Size 150: Type 2212 for valve DN 65 to 150

<sup>2)</sup> The STL is locked when the temperature falls below the specified temperature.

<sup>3)</sup> Not type tested

**Table 2: Materials** · Material numbers according to DIN EN

Type 2212 Safety Temperature Limiter	Standard version	Special version
Connecting element	GD AlSi 12 (230) · Connecting piece 1.4104	–
Sensor	Only with thermowell and conductive plate	
Thermowell	Copper SF-Cu F20	Stainless steel 1.4571
Capillary tube	Copper SF-Cu F20	–

Dimensions (see Table 3)

**Type 2212 Safety Temperature Limiter**

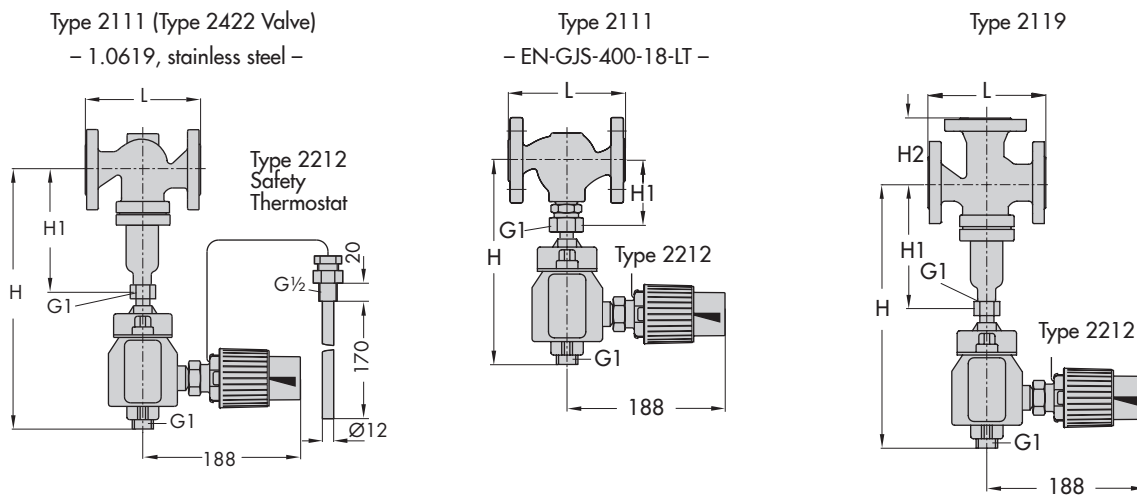


Fig. 8: Dimensions in mm

Table 3: Dimensions in mm and weights

Valve	Type 2111			Type 2422			Type 2111/(2422)			Type 2422				
Valve size DN	15	20	25	15	20	25	32	40	50	65	80	100	125	150
Length L	130	150	160	130	150	160	180	200	230	290	310	350	400	480
H1 <sup>5)</sup> Without extension piece	225 <sup>3)</sup> /82 <sup>4)</sup>			225			225 <sup>3)</sup> /152 <sup>4)</sup> /(225)			300	355	460	590	
With extension piece	365 <sup>3)</sup> /- <sup>4)</sup>			365			365 <sup>3)</sup> /- <sup>4)</sup> /(365)			440	495	600	730	
Weight (PN 16 body) <sup>3)</sup> , approx.	4 kg	4.5 kg	5.5 kg	5 kg	5.5 kg	6.5 kg	13 kg	13.5 kg	16 kg	27 kg	32 kg	40 kg	70 kg	113 kg
Valve	Type 2119													
Valve size DN	15	20	25	32	40	50	65	80	100	125	150			
Length L	130	150	160	180	200	230	290	310	350	400	480			
H2	70	80	85	100	105	120	130	140	150	200	210			
H1 Without extension piece	235			88/245			320		355	395	500			
With extension piece	375			- /385			460		495	535	640			
Weight (PN 16 body) <sup>2)</sup> , approx.	6 kg	7 kg	8.5 kg	12.5/15 kg	14.5/17 kg	17/19 kg	32 kg	50 kg	71 kg	On request				
Overall height H	Type ... /2212 STL						H = H1 + 255							
	TR/STL						H = H1 + 545							
Type 2212 Safety Temperature Limiter														
Weight, approx.	3.5 kg													

1) Type 2111: In combinations of valves made of cast iron or spheroidal graphite iron together with Type 2212 Safety Temperature Limiter, an extension piece is required for temperatures over 150 °C.

2) +15 % for PN 25/40

3) Type 2111, valve material 1.0619 and stainless steel

4) Type 2111, valve material EN-GJS-400-18-LT and EN-GJL-250

**Ordering text**

**Type .../2212 Safety Temperature Limiter**

PN ..., DN ..., K<sub>VS</sub> ..., body material ...

**With Type 2212 Safety Thermostat**

Limit range ... °C, limit adjusted to ... °C (normally 90 or 110 °C)

Optionally, accessories ..., lever for unlocking (order no. 1490-7399), special version

**Type ... /2231/2212 Temperature Regulators with Safety Temperature Limiters**

PN ..., DN ..., K<sub>VS</sub> ..., body material ...

**With Type 2231 Thermostat**

Capillary tube ... m, set point range ... °C

**and Type 2212 Safety Temperature Limiter**

Capillary tube ... m, limit range ... °C

Limit adjusted to ... °C (normally 90 or 110 °C)

Optionally, accessories ..., lever for unlocking (order no. 1490-7399), special version