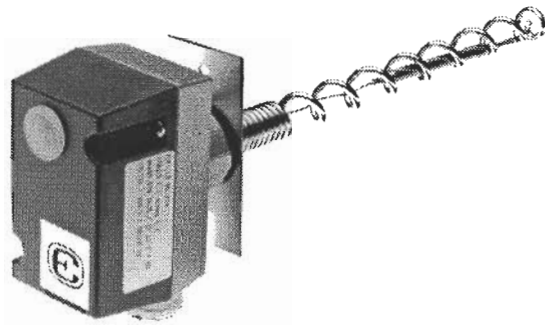
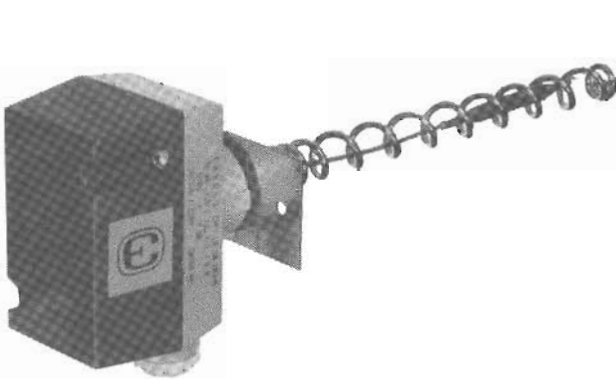


**ENGELS - ELECTRIC AIR HEATERS**  
**Engelcontrol®**  
**Temperature Monitoring and Limiting**



Illus. Temperature limited type ZB 121  
 (release knob now behind cover)

**Temperature monitor type ZB 111**

**Technical data**

Dimensions: as in illustration  
 Voltage: 230 V  
 Breaking capacity: max. 10A  
 Temperature range: adjustable from 313 - 383 K  
 (+40 °C to +110 °C)  
 adjustment at the scale located inside  
 Switch differential: 2 - 5 K (3 K)  
 Switch element: micro-switch as single-pole  
 change-over switch,  
 terminals 1+2 break contact with  
 increasing temperature  
 Terminals 1+3 make contact with  
 increasing temperature  
 Sensor length: 200 mm protective coil  
 Protective system: IP 43 with plug-in nipple  
 IP 54 only available as optional  
 equipment (extra charge).

**Design:**

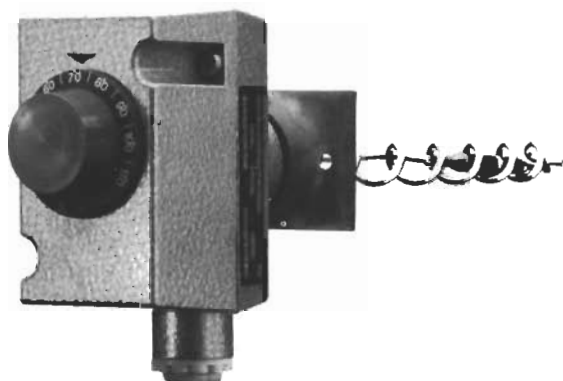
Fluid system with capillary tube, with small switch  
 differential and low-time constants.  
 Macrolon plastic housing and plastic cover.  
 Design acc. to VDE 0631 DIN 57631  
 TW/TÜV-tested acc. to DIN 3440. Approval seals SEV, SEMKO.  
 Ambient temperature at switch button approx. max. 353K (+80 °C).  
 Installation can proceed independently of position.  
 The sensor temperature must not exceed the scale value + 15%.  
 The units are delivered set at the smallest value.

**Temperature Limiter Type ZB 121**

Technical data and version as with Type ZB 111, but with  
 switch-on lock and release knob behind cover, locking as with  
 STB. TÜV-tested acc. to DIN 3440.  
 Type ZB 121 pre-set at 348 K (+75 °C).

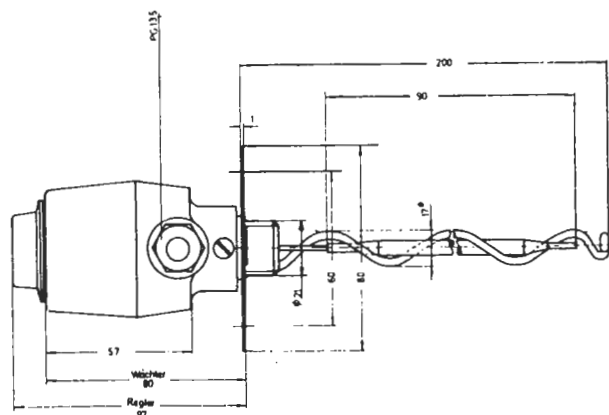
**Complete Type Designation**

TW-ZB 111/LR 80. 103-5  
 TB-ZB 121/LR 80. 319  
 TR-ZB 131/LR 80. 031



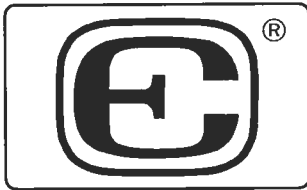
**Temperature Regulator Type ZB 131**

Technical data and design as with type ZB 111, but optionally  
 adjustable from 273 - 343 K (+0 °C to + 70 °C) by means of  
 outside adjusting knob.  
 Duct thermostat for single-staged control.  
 Scale only for 5K adjustment.  
 Should functional check be necessary, always note the max.  
 permissible sensor temperature.

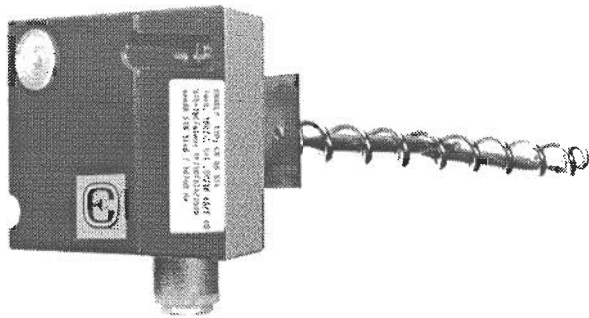


**Note**

The latest VDE regulation 0100/DIN 57100, part 420 (Nov. 91)  
 stipulates the use of two independent temperature-limiting devices  
 (e.g. TR and STB) in addition to air flow monitoring for fan heating  
 systems. Moreover, heating may be put in operation only after the  
 prescribed air flow rate is attained.  
 According to the „Building Inspection Guidelines“, which have  
 priority, however, at least one overheating protection device must  
 be provided as a safety temperature limiter (max. 383 K) (e.g. our  
 type ZB 123). Given its many advantages, we recommend unit type  
 STBW 225. TÜV-tested acc. to DIN 3440.



**ENGELS - ELECTRIC AIR HEATERS**  
**Engelcontrol®**  
**Temperature Monitoring and Limiting**

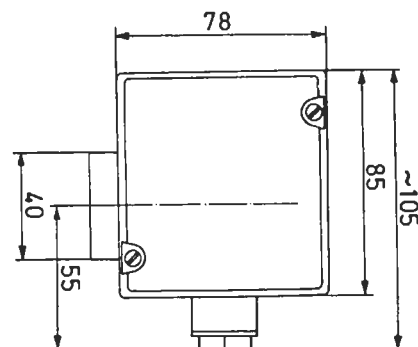
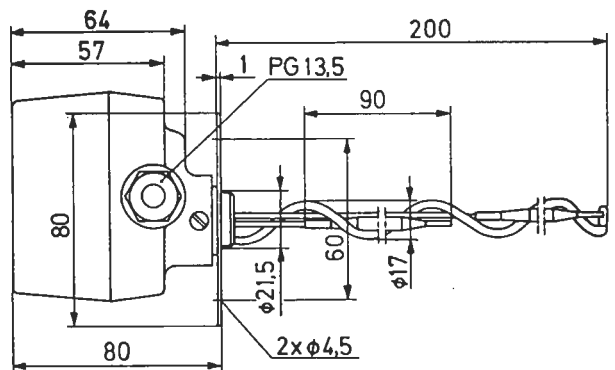


**Engelcontrol®**  
**Safety Temperature**  
**Limiter with**  
**Temperature Monitor**  
**Type STB 225**



**Technical data**

- Dimensions: as in illustration
- Voltage: 220/230 V
- Breaking capacity: 2 x max. 10A
- Temperature limiter sw. pre-set to 348 K (+75 °C)
- Temperature monitor adjustable from 273 K to 343 K (0 to +70 °C)
- Switch differential: 2 - 8 K  
Adjustment only at inside scale
- Re-setting: Release only after removal of cover
- Switch elements: 2 micro-switches as single-pole change-over switch, terminals 1+2 break contact with increasing temperature  
Terminals 1+3 make contact with increasing temperature
- Sensor length: 200 mm protective coil
- Protective system: IP 43 with plug-in nipple  
IP 54 only available as optional equipment (extra charge).



**Design:**

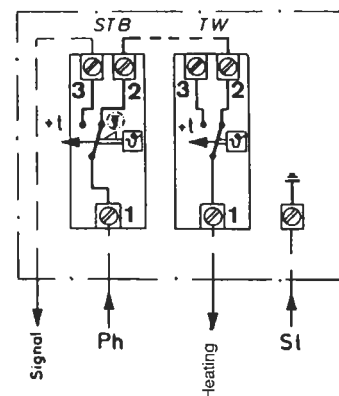
Fluid system with capillary tube, with small switch differential and low-time constants.  
 Aluminium cast housing with plastic cover  
 Design acc. to VDE 0631 DIN 57631, acc. to DIN 3440  
 TÜV-tested acc. to DIN 3440. R.-B. no. TW/STB 91491.

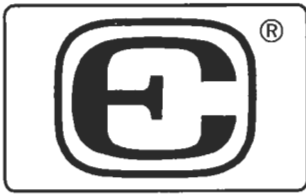
**Note:**

The unit has a switch-on lock and can only be released at the inside re-switch button (red), e.g. after removal of the cover.  
 The structural adjustment of the TW can take the highest value.  
 Adjust before starting operation, as delivered with setting at 0.

Should functional check be necessary, always note the max. permissible sensor temperature.  
 With all Engelnorm®, Engelvari-o® and Engelcanal® air heaters, we directly install the unit on request.  
 Cut-off may occur with ambient temperatures below 263 K.

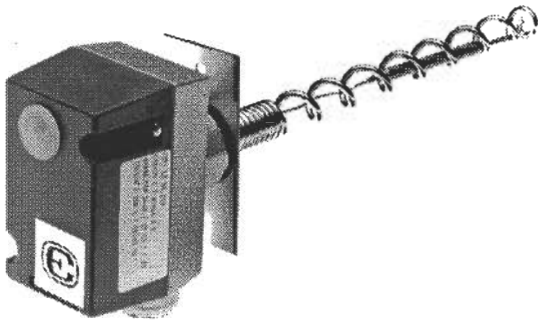
**Complete type designation:**  
 STBW 225/LR 85.516





**ENGELS - ELECTRIC AIR HEATERS**  
**Engelcontrol®**  
**Temperature Monitoring and Limiting**

**Engelcontrol®**  
**Safety Temperature**  
**Limiter**  
**Type ZB 123**



**Technical data**

Dimensions: as in illus.  
 Voltage: 230 V  
 Breaking capacity: max. 10A (5A)

Temperature range: pre-set to 373 K (+100 °C)  
 TÜV-tested acc. to DIN 3440  
 R.-B. no. TR/STB 91391

Switch differential: minus 9K  
 Re-setting: Release only after removal of cover  
 Switch elements: micro-switch as single-pole change-over  
 switch, terminals 1+2 break contact  
 with increasing temperature  
 Terminals 1+3 make contact with  
 increasing temperature

Sensor length: 200 mm protective coil  
 Protective system: IP 43 with plug-in nipple  
 IP 54 only available as optional  
 equipment (extra charge).

**Design:**

Fluid system with capillary tube, with small switch differential and low-time constants.  
 Macrolon plastic housing and plastic cover.  
 Design acc. to VDE 0631 DIN 57631  
 Ambient temperature at switch button approx. max. 353K (+80 °C).  
 Installation can proceed independently of position.  
 The sensor temperature must not exceed the scale value + 15%.

**Note:**

The unit has a switch-on lock and can only be released at the inside re-switch button (red), e.g. after removal of the cover.  
 Should functional check be necessary, always note the max. permissible sensor temperature.  
 When installing unit, our heater type E-HR 6 with TW-ZB01 should be used, if the STB-ZB 123 is to be directly connected to your air conditioning unit from the outside.  
 Installation should be made in the vicinity of the heater (electric air heater).  
 Cut-off may occur with ambient temperatures below 263 K.

**Complete type designation:**

STB-ZB 123/LR 80.318

