

# InBin-FR... frost protection thermostat

Electrical frost protection thermostat with internal transducer  
 24 VAC/DC supply voltage, output potential free switching contact

InBin - FR3
InBin - FR6
InBin - FR... - CT

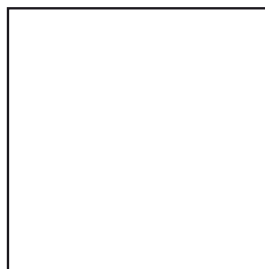
subject to change!

## Compact . Easy installation . Universal . Cost effective . Safe

Type	Capillary length	Supply	Output switch	Max. ratings	Wiring
InBin - FR3	3 m	24 VAC/DC	pot. free contact	250 VAC, 0.1A / 30 V, 0.5 A	SB 1.0
InBin - FR6	6 m	24 VAC/DC	pot. free contact	250 VAC, 0.1A / 30 V, 0.5 A	SB 1.0

### Product views / Application

#### InBin-FR6



### Description

The new InBin-FR... frost protection thermostat generation (available with 3m and 6m capillary length) is a revolution for switching sensors in HVAC systems, in chemical, pharmaceutical, industrial and Offshore-/Onshore plants.

IP 66 protection, small dimension, universal functions and technical data guarantee safe operation even under difficult environmental conditions.

### Highlights

- ▶ Industrial sensor
- ▶ Integrated junction box
- ▶ Power supply 24 VAC/DC
- ▶ Output potential free switching contact
- ▶ LED for switching state indication
- ▶ Compact design and small dimension (L x B x H = 177 x 107 x 66 mm)
- ▶ Robust aluminium housing in protection class IP 66
- ▶ Down to -20°C ambient temperature applicable

Technical data	InBin - FR...
Power supply	24 VAC/DC $\pm$ 20% (19,2...28,8 VAC/DC) 50...60 Hz
Current, power consumption	150 mA, $\sim$ 4 W, internal fuse 500 mA, without bracket, not removable
Galvanic isolation	Supply – output 1,5 kV
Electrical connection	Terminals 0,14...2,5 mm <sup>2</sup> at integrated junction box
Cable entry	2 $\times$ M16 $\times$ 1,5, cable diameter $\sim$ $\varnothing$ 5...10 mm
Protection class	Class I (grounded)
Display	Actual value indication via LEDs - green: temperature is over setpoint, LEDs – red temperature is under the setpoint
Housing protection	IP66 in acc. to IEC 60529
Housing material	Aluminium casting, coated
Dimension / weight	L $\times$ W $\times$ H = 177 $\times$ 107 $\times$ 66 mm / $\sim$ 950 g
Ambient temperature/-humidity	- 20...+ 50 °C / 0...95 % rH, non condensed, max. temperature capillary +80 °C
Maintenance	Maintenance free, nevertheless maintenance must be complied with regional standards, rules and regulations
Capillary Length	InBin-FR3: 3m $\pm$ 15cm / InBin-FR6: 6m $\pm$ 20cm
Active capillary length	$\sim$ 40 cm
Minimum capillary bending radius	2 cm
Temperature range	- 10°C...+ 15°C
Hysteresis	$\sim$ 6 K
Accuracy of threshold	$\pm$ 3 K
Start delay	5 sec.
Output switch	Potential free switching contact
Ratings load max.	0,5 A @ 30 VAC/DC / 0,1 A @ 250 VAC / 0,1 A @ 220 VDC
Ratings load min.	10 mW / 0,1 V / 1 mA
Mechanical life	10 $\times$ 10 <sup>6</sup>
Electrical life (rated load)	100 $\times$ 10 <sup>3</sup>
Wiring diagram (SB)	SB 1.0
Installation sensor / tubing	safe area

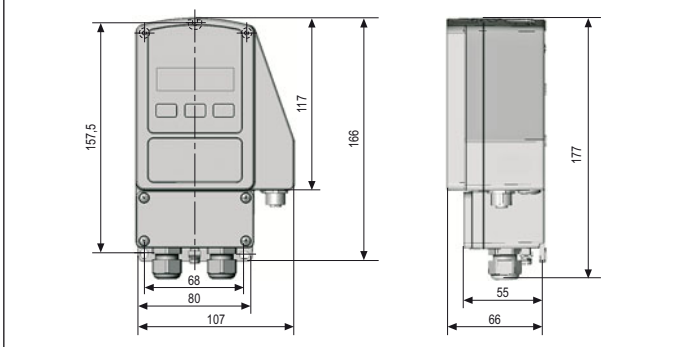
### Approvals

CE-Mark	CE
EMC directive	2004/108/EC
Low voltage directive	2006/95/EC
Protection type	IP 66 in acc. to EN 60529
Elect. safety	Protection class I (grounded), Over voltage category II acc. to. EN 61010-1

### Accessories

Installation kit 1.3	Assembly cramp and 4 assembly brackets for InBin-FR3
Installation kit 1.6	Assembly cramp and 8 assembly brackets for InBin-FR6
MKR	Mounting bracket for round ducts up to $\varnothing$ 600 mm

### Dimensions / Drillings



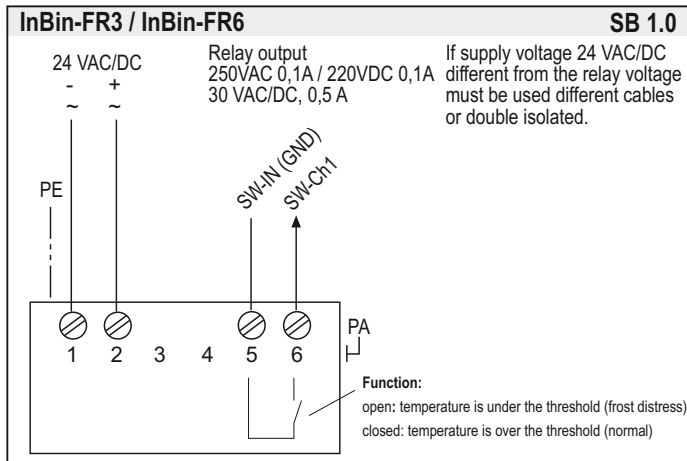
## Electrical connection

InBin-FR... transducers are equipped with a 24 VAC/DC power supply. The supply has to be connected at terminal 1 (-/~) and 2 (+/~). The electrical wiring must be realized via integrated junction box.

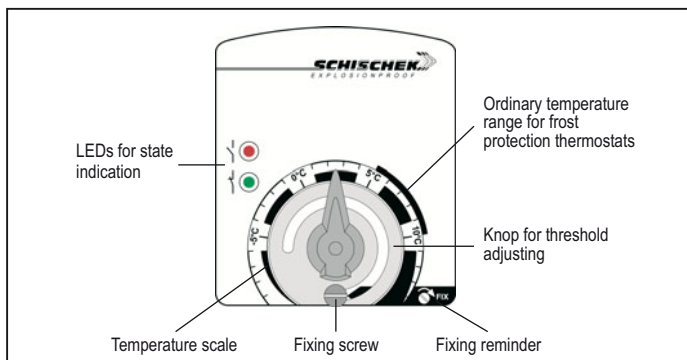
If supply voltage 24 VAC/DC different from the relay voltage must be used different or double isolated cables.

**Attention:** Do not open covers when circuits alive!

## Wiring diagram InBin-FR (terminal box)



## Display and Buttons



## Important information for installation and operation

### Installation, Commissioning, Maintenance

The cable has to be drawn through the cable gland. After electrical connection the cable gland must be fixed tight. IP66 must be fulfilled.

In acc. with operation InBin switches are maintenance free. Nevertheless maintenance must comply with regional standards, rules and regulations.

The sensors must not be opened by the customer. For outdoor installation a protective housing against rain, snow and sun should be applied. For electrical connection use the internal junction box.

**Attention:** Note the national rules before opening the internal junction box. Cut off the power supply.

### A. Supply and Contact

Wires from safety extra low voltage must be separated from others. Only at 24 VAC/DC is supply and signal wires in one cable permitted. All others use separate or double isolated cables. Install overload protection fuse < 10 A.

### B. Long cabling

For using long signal wires, shielded cables are recommended. The shield must be connected to the InBin... switch inside the terminal box.

### C. Separate ground wires

Use for supply and signal wires a separate ground.

## Installation

