Adjustable Temperature Switch With Actual Value Indicator and Float Switch  
Type: ETSM...

User manual

Intrinsic safety with polarity setting “A”:
The contacts of the relays are connected in normal rest position, that means upper limiting value is not exceeded. A defect of the sensor, the sensor connection, exceeding of upper limiting value or breakdown of the power supply results in a drop of the relays and eventually a failure indication.

Operating indication:
The indicator (red 3-digit display) indicates the operation as well as a failure. Every relay has a yellow LED which is on during operation, that means, the upper limiting value is exceeded.

Fault indication:
The combined operating and failure indication shows a failure code while blinking.
Indication: Type of failure
E 1: Short circuit conductor 1 sensor
E 2: Short circuit conductor 2 sensor
E 3: Sensor defective
E 4: Sensor short circuit

Commissioning:
During set up of the ETSM the indicator shows a small blinking “u2” for two seconds, this characterizes the undefined condition as well as version 2. At this stage the temperature LED shows by steady lightning how many steps are active. After some time of stabilisation of the sensor the actual temperature will be indicated and each step is represented with its respective evaluated value.

Parameter (adjustable in menu):
- Set value of every step in °C
- Hysteresis of every step in °C
- Polarity of every Step: "A" – switching off, "E" – switching on
- Number of steps

Operation (adjustable by push-buttons):
- List of parameter by using push-button ▲ and ▼
- Set up of parameter by using push-button ▲ and ▼
- Adjustment of parameter by using push-button P

Set up:
Upward (▲)
By using the push-button ▲ the menu – operation will be started, the LED "S" lights up, the LED of the first step is blinking and the display shows the chosen set value.
With the push-button ▲ the parameter list can be scrolled forward. The sequence is "set point", "hysteresis", "polarity" and "number of steps". When the parameter input is activated by the push-button "P", the parameter value will be incremented. The value increases until its upper limit and starts all over from the lower limit upwards.

Downward (▼)
By using the push-button ▼ the parameter list can be scrolled backward. The sequence is „number of steps", „polarity", „hysteresis", „set point" and „actual temperature". When the parameter list is on position "current temperature", the LED "S" is off.
If the parameter input is activated by the push-button "P", the parameter value will be decremented. The value decreases until its lower limit and starts all over from the upper limit downwards.
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set up:
P:
By using the push-button "P" a parameter input will be startet, and is visible by a blinking LED on “P”. After completion of the parameter input by means of this push-button, the chosen value will be stored and the LED “P” goes off.

Parameter setting range:

- Temperature value - 20 °C .. 120 °C (20)
- Hysteresis( H ) value 0 °C .. 50 °C (1)
- Polarity( P ) value “A”, “E” (A)
- Steps (C) value 1..6 (x)

(default set up)

Representation in the parameter field:

8.8.8. Temperature in °C.
H.8.8. Hysteresis in °C.
C.8.8. Number of steps.

Set up information:
Adjustments of temperature limiting values and hysteresis are checked by plausibility. The difference between temperature limiting values and hysteresis can't be less than the smallest adjustable value of –20°C (Temperature switching point - Hysteresis <= -20).

By pressing the push-button "P" a value is entered. If the difference between switching point and hysteresis is smaller than -20, the entered value will be rejected and the last valid value is shown.

Examples:
Temperature switching point Hysteresis
-20°C max. 0°C
29°C max. 49°C
30°C max. 50°C
120°C max. 50°C

General information:
By using the push-buttons ▲ or ▼ the parameter list will be scrolled or the parameter will be adjusted. The push-buttons trigger a single event if they are briefly pressed and increment or decrement the list or the value. Should a push-button be permanently pressed for longer than 0.5 seconds, an automatic scroll function will be activated.
Every 0.5 seconds it will be incremented or decremented.
In case nine changes have been made, the scroll time will be reduced to 50 milliseconds until the push-button is not pressed anymore.

By means of the parameter “number of steps” the number of active steps can be set irrespective of the actual existing steps. This always begins with Step 1.