

Temperature control in lifts according to EN81

→ Temperature control relay for lift service rooms - according to EN81 - 35 mm

- Control relay designed to monitor the temperature in lift machine rooms in accordance with standard EN81
- PT100 input
- Adjustable control between 5 °C and 40 °C
- Independent setting of high and low thresholds
- Built-in phase control option



HT81



HT81-2



HWT81

Part numbers

	HT81	HT81-2	HWT81
Function	Under/Overtemperature window mode	Under/Overtemperature window mode	Under/Overtemperature window mode + phase sequence and failure
Nominal voltage (V)	24 → 240 V ~	24 → 240 V ~	24 → 240 V ~
3-phase control	-	-	3 x 208 → 480 V ~
Part numbers	84874110	84874120	84874130

Product adaptations



- Customisable colours and labels
- Fixed threshold in the generic measurement range
- Fixed or adjustable time delay
- Adjustable fixed hysteresis

Accessories

Description	Code
Removable sealable cover for 35 mm casing	84800001

General characteristics

	HT81	HT81-2	HWT81
Inputs and measuring circuit			
Phase control voltage range	-	-	208 V → 480 V (-15% / +10%) *
Phase failure detection with regeneration	-	-	> 30% of the average of the 3 phases
Frequency of measured signal	-	-	50 → 60 Hz ± 1 Hz
Relay drop-out voltage (phase failure)	-	-	70%
3-phase input resistors	-	-	600 KΩ
Timing			
Maximum response time in the event of a 3-phase fault (ms)	-	-	500 ms
Output			
Type of output	1 single pole changeover relay	2 single pole NO relay	2 single pole NO relay
Insulation			
Galvanic isolation of power supply/measurement	Yes, between power supply and PT100 (transformer) Yes, between power supply and output (transformer and relay) Yes, between PT 100 and output (relay)	Yes, between power supply and PT100 (transformer) Yes, between power supply and output (transformer and relay) Yes, between PT100 and output (relay)	Yes, between power supply and PT100 (transformer) Yes, between power supply and output (transformer and relay) Yes, between power supply and 3-phase network (transformer) Yes, between 3-phase network and output (relay) No, between 3-phase network and PT100 (leakage current limited by several high-value resistors) Yes, between PT 100 and output (relay)
Nominal insulation voltage IEC 60664-1	250 V	250 V	400 V

General characteristics

HT81 / HT81-2 / HWT81

Supply	
Supply voltage Un	24 V → 240 V ~
Voltage supply tolerance	-15%, + 10% in ~ -10%, +10% in ---
Operating range	20.4 V → 264 V ~ 21.6 V → 264 V ---
Polarity with DC voltage	No
~ supply voltage frequency	50 / 60 Hz ±10%
Power consumption at Un	3.5 VA in ~ / 0.6 W in ---
Immunity from micro power cuts	10 ms
Inputs and measuring circuit	
Low temperature measurement selection	-1°C, 1°C, 3°C, 5°C, 7°C, 9°C, 11°C
High temperature measurement selection	34°C, 36°C, 38°C, 40°C, 42°C, 44°C, 46°C
Temperature measurement input resistance	1330 Ω
Fixed hysteresis	2 °C
Display precision	± 2%
Max. length of PT100 probe cables	10 m
Timing	
Delay on threshold crossing	1 → 10 s
Display precision	0, + 10%
Reset time	8 s
Delay on pick-up	200 ms
Maximum response time on disappearance of fault	3.5 s for a temperature fault, 500 ms for a phase fault
Output	
Type of contacts	No cadmium
Maximum breaking voltage	250 V ~
Max. breaking current	5 A ~
Min. breaking current	10 mA / 5 V ---
Electrical life (number of operations)	1 x 10 ⁴
Breaking capacity (resistive)	1250 VA ~
Maximum rate	360 operations/hour at full load
Operating categories acc. to IEC 60947-5-1	AC 12, AC 13, AC 14, AC 15, DC 12, DC 13, DC 14
Mechanical life (operations)	30 x 10 ⁶
Insulation	
Insulation coordination (IEC 60664-1 / 60255-5)	Overvoltage category III: degree of pollution 3
Rated impulse withstand voltage IEC 60664-1/60255-5	4 kV (1.2 / 50 μs)
Dielectric strength IEC 60664-1/60255-5	2 kV ~ 50 Hz 1 min.
Insulation resistance IEC 60664-1 / 60255-5	> 100 MΩ - 500 V ---
General characteristics	
Display power supply	Green LED
Display temperature	Yellow LED (HWT81)
Display phases	Yellow LED (HWT81)
High threshold relay	Yellow LED (HT81, HT81-2)
Low threshold relay	Yellow LED (HT81, HT81-2)
Casing	35 mm
Mounting	On 35 mm symmetrical DIN rail, IEC/EN 60715
Mounting position	All positions
Material: enclosure plastic type VO to UL94 standard	Incandescent wire test according to IEC 60695-2-11 & NF EN 60695-2-11
Protection (IEC 60529)	Terminal block: IP 20 IP 30 casing
Weight	121 g
Connecting capacity IEC 60947-1	Rigid: 1 x 4 ² - 2 x 2.5 ² mm ² 1 x 11 AWG - 2 x 14 AWG Flexible with ferrules: 1 x 2.5 ² - 2 x 1.5 ² mm ² 1 x 14 AWG - 2 x 16 AWG
Max. tightening torques IEC 60947-1	0.6 → 1 Nm / 5.3 → 8.8 Lbf.In
Operating temperature IEC 60068-2	-20 → +50°C
Storage temperature IEC 60068-2	-40 → +70°C
Humidity IEC 60068-2-30	2 x 24 hr cycle 95% RH max. without condensation 55°C
Vibrations according to IEC/EN60068-2-6	10 → 150 Hz, A = 0.035 mm
Shocks IEC 60068-2-6	5 g
Standards	
Marking	CE (LVD) 73/23/EEC - EMC 89/336/EEC
Product standard	NF EN 60255-6 / IEC 60255-6 / UL 508 / CSA C22.2 N°14 / EN 81-1
Electromagnetic compatibility	Immunity EN 61000-6-2/IEC 61000-6-2 Emission EN 61000-6-4/EN 61000-6-3 IEC 61000-6-4/IEC 61000-6-3 Emission EN 55022 class B
Certifications	UL, CSA, GL pending
Conformity with environmental directives	RoHS, WEEE
Comments	
* 3-phase mains with earth	

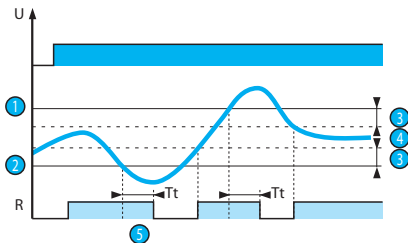
Temperature control in lifts according to EN81

Principles

Overview

Temperature control relays for lift machine rooms are designed for monitoring the temperature between 5 °C and 40 °C according to standard EN81.

HT81 - Under/Overtemperature



- ① High threshold
- ② Low threshold
- ③ Hysteresis
- ④ Monitored temperature
- ⑤ Threshold crossing delay adjustable on front face (Tt)

HT81 operating principle:

As long as the temperature controlled by the PT100 stays between the two preset thresholds on the front face, the output relay is closed and the yellow LEDs are lit.

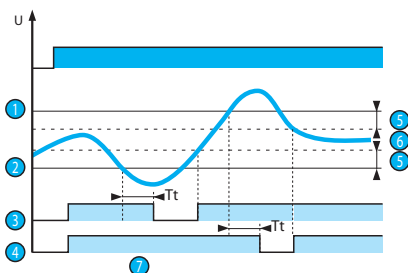
When the temperature exceeds one of the preset thresholds on the front face (upper or lower threshold), the preset time delay on the front face (Tt) is activated. The yellow LED corresponding to the threshold exceeded (upper or lower) flashes.

At the end of the time delay, if the temperature still exceeds one of the preset thresholds, the output relay opens and the yellow LED corresponding to the threshold is extinguished.

The output relay closes instantaneously (at about the response time for disappearance of a fault) when the temperature returns within the window of the two preset thresholds on the front face plus (or minus) the fixed hysteresis.

If the PT100 probe is wired incorrectly (missing or short-circuited) the output relays opens and all 3 LEDs flash.

HT81-2 - Under/Overtemperature



- ① High threshold
- ② Low threshold
- ③ Low threshold relay R1
- ④ High threshold relay R2
- ⑤ Hysteresis
- ⑥ Monitored temperature
- ⑦ Threshold crossing delay adjustable on front face (Tt)

HT81-2 operating principle:

As long as the temperature controlled by the PT100 stays between the two preset thresholds on the front face, the output relays are closed and their yellow LEDs are lit.

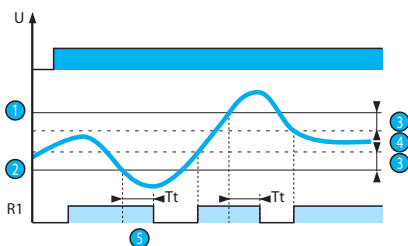
When the temperature exceeds one of the preset thresholds on the front face (upper or lower threshold), the preset time delay on the front face (Tt) is activated. The yellow LED corresponding to the threshold exceeded (upper or lower) flashes.

At the end of the time delay, if the temperature is still beyond one of the preset thresholds, the corresponding output relay opens and the yellow LED corresponding to the threshold exceeded is extinguished.

The output relay closes instantaneously (at about the response time for disappearance of a fault) when the temperature returns within the window of the two preset thresholds on the front face plus (or minus) the fixed hysteresis.

If the PT100 probe is wired incorrectly (missing or short-circuited) the output relays open and all 3 LEDs flash.

HWT81 - Under/Overtemperature



- ① High threshold
- ② Low threshold
- ③ Hysteresis
- ④ Monitored temperature
- ⑤ Threshold crossing delay adjustable on front face (Tt)

HWT81 operating principle:

As long as the temperature controlled by the PT100 stays between the two preset thresholds on the front face, the temperature relay is closed.

When the temperature exceeds one of the preset thresholds on the front face (upper or lower threshold), the preset time delay on the front face (Tt) is activated. The yellow temperature LED (R1) flashes. At the end of the time delay, if the temperature still exceeds the preset threshold, the output relay opens and the yellow LED is extinguished.

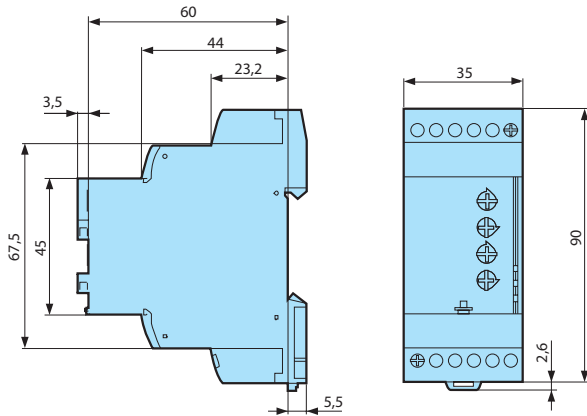
The output relay R1 closes instantaneously when the temperature returns within the window of the two preset thresholds on the front face plus or minus the fixed hysteresis.

The unit also monitors correct sequencing of phases L1, L2 and L3 of the 3-phase network and the total phase failure in the event of phase regeneration (<70%).

After a time delay on pick-up (t) and as long as the presence and sequence of the phases are correct, relay R2 and the R2 "phase" LED are active. When a fault appears, the "phase" relay opens and the R2 "phase" LED is extinguished instantly (response time from the appearance of a fault).

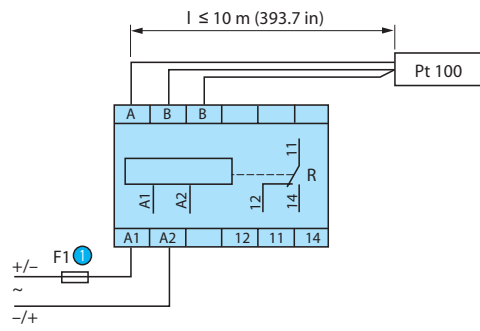
On disappearance of the fault, both relay R2 and the phase control LED are activated (response time from the disappearance of a fault). See "Phase failure and phase sequence" curve on page 67. If the PT100 probe is wired incorrectly (missing or short-circuited), output relay R1 opens and the yellow R1 LED flashes.

Dimensions (mm)



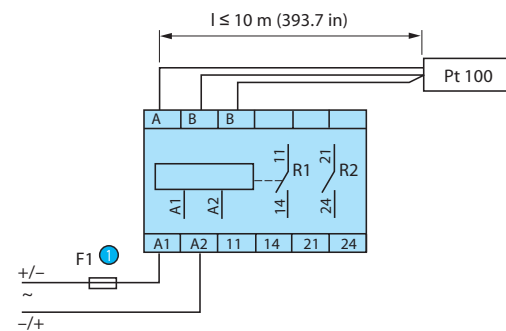
Connections

HT81



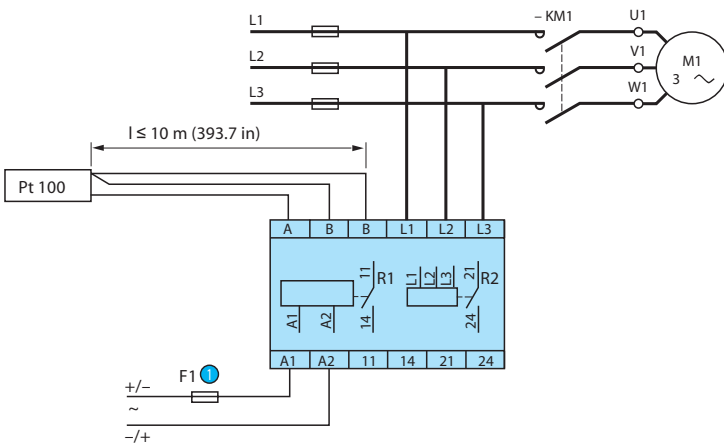
1 1 A fast-blow fuse or cut-out

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