

## ROOM TEMPERATURE TRANSMITTER / CONTROLLER TEHR LL

TEHR LL 2-wire temperature transmitter is designed for automatic HVAC systems to measure room temperatures. Temperature is measured by a Pt1000 element. The sensor element resistance information is converted to a 4...20 mA signal. The transmitter temperature range can be changed during the commissioning.

TEHR LL-N transmitter is equipped with a 3.5-digit liquid crystal display. The display resolution is 0.1 °C. TEHR LL settings can be changed by using the ML-SER tool. One point field calibration of the transmitter can be executed and the temperature output can be changed to the controller function.

The transmitter can be equipped with passive potentiometer. The passive potentiometer has a  $\pm 3$  °C scale. The passive potentiometer knob movement can be limited with the limiting pins.

There are also available 5-state switch options, K5 and K5R. The K5 is a static 5-stage switch for a fan control. The K5R is a 5-stage switch with resistance output. The resistance output signal can be easily read by NTC10k input in automatic HVAC system. See more information about the options from TEHR order form.

### Wiring:

1 +(-) temperature signal 4...20 mA

2 - (+) temperature signal 4...20 mA

NOTE: The electrical wiring is polarity free.

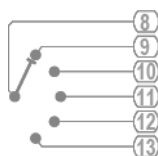
TEHR-P, passive potentiometer

5 potentiometer +  
6 potentiometer slide  
7 potentiometer -



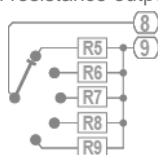
TEHR-K5, 5-state switch (30 V / 0.1 A)

8 selector switch  
9 switch position A  
10 switch position 0  
11 switch position 1  
12 switch position 2  
13 switch position 3



TEHR-K5R, 5-state switch with resistance output

8 selector switch  
9 K5R output



### Technical data:

sensor	Pt1000 EN 60751/B
measuring ranges	selectable
supply	15...35 Vdc
output	4...20 mA (temperature / controller)
accuracy	$\pm 0.5$ °C at 25 °C
potentiometer	470 $\Omega$ , 1 k $\Omega$ , 4k7, 10 k $\Omega$ , 22 k $\Omega$
ambient temperature	0...+50 °C
housing	ABS plastic, IP20
dimensions (w x h x d)	86 x 85 x 32 mm
mounting	on the wall or on the standard flush mounting box (60 mm hole distance)
transmitter type	2-wire

### Range selection:

* 0...+50 °C	0...+100 °C	-50...+50 °C	-50...+150 °C
S1 S2	S1 S2	S1 S2	S1 S2
● ●	● ●	● ●	● ●

\* = Factory setting

### Output signal:

0...+50	0...+100	-50...+50	-50...+150	Signal
0 °C	0 °C	-50 °C	-50 °C	4 mA
25 °C	50 °C	0 °C	50 °C	12 mA
50 °C	100 °C	50 °C	150 °C	20 mA

### Ordering guide:

Model	Product number	Description
TEHR LL	1177190	temperature transmitter
TEHR LL-N	1177191	temperature transmitter with display
TEHR-P	1170120	option, passive potentiometer
TEHR-K5	1170240	option, 5-state switch
TEHR-K5R	1170241	option, 5-state switch with resistance output
TEHR-N V2	1170260	option, display module+ cover
ML-SER	1139010	transmitter commissioning tool

Products fulfill the requirements of directive 2004/108/EC and are in accordance with the standards EN61000-6-3: 2001 (Emission) and EN61000-6-2: 2001 (Immunity).

## ROOM TEMPERATURE TRANSMITTER / CONTROLLER TEHR LU

TEHR LU temperature transmitter is designed for automatic HVAC systems to measure room temperatures.

The temperature is measured by a Pt1000 element. The sensor element resistance information is converted to a 0...10 V signal. The transmitter temperature range can be changed during the commissioning.

TEHR LU-N transmitter is equipped with a 3.5-digit liquid crystal display. The display resolution is 0.1 °C. TEHR LU settings can be changed by using the ML-SER tool. One point field calibration of the transmitter can be executed and the temperature output can be changed to the controller function.

The transmitter can be equipped with passive potentiometer. The passive potentiometer has a  $\pm 3$  °C scale. The passive potentiometer knob movement can be limited with the limiting pins.

There are also available 5-state switch options, K5 and K5R. The K5 is a static 5-stage switch for a fan control. The K5R is a 5-stage switch with resistance output. The resistance output signal can be easily read by NTC10k input in automatic HVAC system. See more information about the options from TEHR order form.

### Wiring:

- 1 supply, 24 Vac/dc
- 2 0 V
- 3 temperature signal 0...10 Vdc or controller

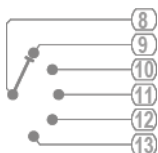
TEHR-P, passive potentiometer

- 5 potentiometer +
- 6 potentiometer slide
- 7 potentiometer -



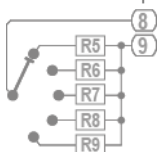
TEHR-K5, 5-state switch (30 V / 0.1 A)

- 8 selector switch
- 9 switch position A
- 10 switch position 0
- 11 switch position 1
- 12 switch position 2
- 13 switch position 3



TEHR-K5R, 5-state switch with resistance output

- 8 selector switch
- 9 K5R output



### Technical data:

sensor	Pt1000 EN 60751/B
measuring range	selectable
supply	24 Vac/dc (22...26 Vac/dc)
output	0...10 Vdc (temperature / controller)
accuracy	$\pm 0.5$ °C at 25 °C
potentiometer, passive	470 $\Omega$ , 1 k $\Omega$ , 4k7, 10 k $\Omega$ , 22 k $\Omega$
ambient temperature	0...+50 °C
housing	ABS plastic, IP20
dimensions (w x h x d)	86 x 85 x 32 mm
mounting	on the wall or on the standard flush mounting box (60 mm hole distance)

### Range selection:

* 0...+50 °C	0...+100 °C	-50...+50 °C	-50...+150 °C
S1 S2	S1 S2	S1 S2	S1 S2

\* = Factory setting

### Output signal:

0...+50	0...+100	-50...+50	-50...+150	Signal
0 °C	0 °C	-50 °C	-50 °C	0 V
25 °C	50 °C	0 °C	50 °C	5 V
50 °C	100 °C	50 °C	150 °C	10 V

### Ordering guide:

Model	Product number	Description
TEHR LU	1179190	temperature transmitter
TEHR LU-N	1179191	temperature transmitter with display
TEHR-P	1170120	option, passive potentiometer
TEHR-K5	1170240	option, 5-state switch
TEHR-K5R	1170241	option, 5-state switch with resistance output
TEHR-N V2	1170260	option, display module+ cover
ML-SER	1139010	transmitter commissioning tool

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## ROOM TEMPERATURE TRANSMITTER / CONTROLLER TEHR-M

TEHR-M Modbus temperature transmitter is designed for automatic HVAC systems to measure room temperatures. The temperature is measured by a Pt1000 element. The sensor element resistance information is converted to a 0...10 V signal and this voltage signal is available also via Modbus. The transmitter temperature range can be changed during the commissioning.

TEHR-M settings can be changed by using the ML-SER tool. One point field calibration of the transmitter can be executed, the temperature output can be changed to the controller function and communication settings of the Modbus can be configured.

TEHR-M-N transmitter is equipped with a 3.5-digit liquid crystal display. The display resolution is 0.1 °C. TEHR-M-PU model has two separate outputs. Output 1 can be used as a temperature output or a control function. Output 2 is used for active potentiometer.

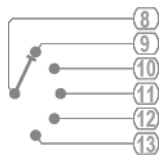
There are also available 5-state switch options, K5 and K5R. The K5 is a traditional 5-stage switch for a fan control. The K5R is a 5-stage switch with resistance output. The resistance output signal can be read by NTC10k input in automatic HVAC system. See more information about the options from TEHR transmitter order form.

### Wiring:

- 1 supply, 24 Vac/dc
- 2 0 V
- 3 temperature signal 0...10 Vdc or controller
- 4 active potentiometer (TEHR-M-PU model only)
- 5 Modbus B-
- 6 COM
- 7 Modbus A+

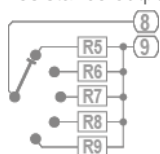
TEHR-K5, 5-state switch (30 V / 0.1 A)

- 8 selector switch
- 9 switch position A
- 10 switch position 0
- 11 switch position 1
- 12 switch position 2
- 13 switch position 3



TEHR-K5R, 5-state switch with resistance output

- 8 selector switch
- 9 K5R output



### Technical data:

sensor	Pt1000 EN 60751/B
measuring range	selectable
supply	24 Vac/dc (22...26 V)
output 1	0...10 Vdc (temp. / controller),
output 2 (-M-PU model)	active potentiometer
accuracy	±0.5 °C at 25 °C
ambient temperature	0...+50 °C
housing	ABS plastic, IP20
dimensions (w x h x d)	86 x 85 x 32 mm
mounting	on the wall or on the standard flush mounting box (60 mm hole distance)
communication	RS-485 Modbus RTU

### Range selection:

*0...+50 °C	0...+100 °C	-50...+50 °C	-50...+150 °C
S1 S2	S1 S2	S1 S2	S1 S2

\* = Factory setting

### Output signal:

0...+50	0...+100	-50...+50	-50...+150	Signal
0 °C	0 °C	-50 °C	-50 °C	0 V
25 °C	50 °C	0 °C	50 °C	5 V
50 °C	100 °C	50 °C	150 °C	10 V

### Ordering guide:

Model	Product number	Description
TEHR-M	117Z190	Modbus temperature transmitter
TEHR-M-N	117Z191	temperature transmitter with display
TEHR-M-PU	117Z350	Modbus temp. transmitter with two separate outputs
TEHR-K5	1170240	option, 5-state switch
TEHR-K5R	1170241	option, 5-state switch with resistance output
TEHR-N V2	1170260	option, display module + cover
ML-SER	1139010	transmitter commissioning tool

Products fulfill the requirements of directive 2004/108/EC and are in accordance with the standards EN61000-6-3 (Emission) and EN61000-6-2 (Immunity).