LFHV-2B65, LFHxx-2B65
DUCT HUMIDITY TEMPERATURE TRANSMITTERS

GENERAL
The LFHV-2B65 duct humidity temperature duct transmitter combines a capacitance-type relative humidity sensor and a temperature sensor in one housing, both with 0…10V output. The LFHxx-2B65 humidity temperature duct transmitter is additionally equipped with a passive temperature sensor. These temperature transmitters can be used:
- for checking and monitoring temperature and humidity in air duct applications (fresh air / exhaust);
- to avoid condensation in air duct applications;
- for humidification control.

<table>
<thead>
<tr>
<th>Models</th>
<th>OS-No.</th>
<th>Analog outputs</th>
<th>Passive temperature output</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFHV-2B65</td>
<td>0…10 V for temperature 0…10V for humidity</td>
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</tr>
<tr>
<td>LFH00-2B65</td>
<td>0…10 V</td>
<td>Pt1000</td>
<td>NTC10kΩ</td>
</tr>
<tr>
<td>LFH01-2B65</td>
<td>0…10 V</td>
<td>Ni1000</td>
<td>NTC20kΩ</td>
</tr>
<tr>
<td>LFH10-2B65</td>
<td>0…10 V</td>
<td>NTC10kΩ</td>
<td>NTC20kΩ</td>
</tr>
<tr>
<td>LFH20-2B65</td>
<td>0…10 V</td>
<td>NTC20kΩ</td>
<td>NTC20kΩ</td>
</tr>
</tbody>
</table>

FEATURES
- Wide sensing range
- Capacitance-type sensing element for rel. humidity

SPECIFICATION
Measured Values
Relative humidity (0…10 V)
- Working range: 10…90% %RH (non-condensing)
- Accuracy (active sensor): ±3% RH (30…70% RH) at 20 °C, otherwise ±5% RH
- Temperature dependency: typically ±0.05% RH / °C
- Typical response time: < 180 s

Temperature (0…10 V)
- Working range: -5…+55 °C (+23…+131 °F)
- Accuracy: ±0.3 °C at 20 °C
- Typical response time: < 180 s

Passive Temperature Sensor
NTC10kΩ
- Nominal value: 10kΩ ±0.5% at 25 °C
- Accuracy: ±0.2 °C at 25 °C
- Response time (typ.): t63 < 120 s at 3 m/s air velocity
- Sensitivity (typ.): ≈ -440 Ω / K at 25 °C (non-linear)

NTC20kΩ
- Nominal value: 20kΩ ±0.5% at 25 °C
- Accuracy: ±0.2 °C at 25 °C
- Characteristic: NTC20kΩ (see EN0B-0476GE51)
- Response time (typ.): t63 < 120 s at 3 m/s air velocity
- Sensitivity (typ.): ≈ -934.5 Ω / K at 25 °C (non-linear)

Ni1000
- Nominal value: 1000 Ω at 0 °C
- Accuracy: ±0.4 °C at 0 °C
- Characteristic: DIN 43760
- Sensitivity (typ.): ≈ 6.18 Ω / K

Pt1000
- Nominal value: 1000 Ω at 0 °C
- Accuracy: 0.3 + 0.005° C / °C at 0 °C
- Characteristic: see EN0B-0476GE51
- Sensitivity (typ.): ≈ 3.85 Ω / K

Outputs
- Analog output: 0…10 V = 0…100% relative humidity / 0…50 °C (Rc ≥ 10 kΩ)
- Passive temp. sensor (LFHxx-2B65, only): 2-wire, passive sensor; wire resistance (terminal-sensor), typ. 0.5 Ω; temp. unit: °C
**General**

- **Power supply (Class III)**: for 0…10 V, 15…35 VDC or 24 VAC ± 20%
- **Current consumption**:
  - DC power supply: typ. 5 mA
  - AC power supply: typ. 13 mA
- **Connection**: Screw terminals, max. 1.5 mm²
- **Housing material**: Polycarbonate, UL94V-0 appr.
- **Protection class**: IP65 / NEMA 4 for enclosure; IP40 for sensing part (cap filter)
- **Cable gland**: M16 x 1.5 / UL94-V2
- **Sensor protection**: PTFE filter, non-removable
- **EMC**: EN61326-1, EN61326-2-3; FCC Part 15, Class B; ind. environment: ICES-003 Issue 5 Class B
- **Working conditions**: -5…+55 °C (+23…+131 °F), 0…95% RH (non-condensing)
- **Storage conditions**: -25…+60 °C (-13…+140 °F), 20…80% RH
- **Dimensions**: See Fig. 1
- **Mounting**: Duct
- **Approvals**: CE

**WIRING**

<table>
<thead>
<tr>
<th>wiring run</th>
<th>maximum length</th>
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<tr>
<td>sensor to controller</td>
<td>200 m (660 ft)</td>
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</table>

**NOTE:**
- Installation of the sensor near high EMI-emitting devices may lead to faulty measurements.
- Use shielded wiring in areas with high EMI.
- Keep 15 cm (5.9'') min. distance between sensor lines and 230 Vac power lines.
- Use two transformers: one for sensors and actuators and one for the controller.

**Mounting**

- **Drilled hole for mounting**: ø 5 (ø 0.2)
- **Cable gland**: M16 x 1.5

*Fig. 1. Dimensions (mm / inch)*
TERMINAL ASSIGNMENTS

**Fig. 2. Connection diagram LFHV-2B65**

**Fig. 3. Connection diagram LFHxx-2B65**