

ELH temperature and humidity transmitters

ELH101 wall / ELH102 duct / ELH103 split | Complete English manual

1. Overview and features

ELH transmitters measure and control air temperature and relative humidity for environmental protection and monitoring, defense facilities, scientific research, postal and telecommunications facilities, chemical processes, pharmaceutical facilities, hotels, grain and material storage, and HVAC systems. The source describes imported high-accuracy sensors and control circuitry, supporting stable measurements and interference resistance. Installation and output options are available. The enclosure is compact and supports an optional dual temperature/humidity LCD. Power and outputs have overvoltage and reverse-polarity protection; the specified enclosure protection is IP65.

2. Relative-humidity specification

Parameter	Manual specification
Sensor	Digital
Measuring range	10–95%RH
Output options	RS485/Modbus; 0–10VDC; 4–20mA
Accuracy	±3%RH at 25°C over 20–80%RH; ±2%RH option in the selection table
Response time	≤10s at 25°C in slowly flowing air

3. Temperature specification

Parameter	Specification
Sensor	Digital or resistive temperature element; see selection table
Range choices	0–50°C; –20°C to 60°C; other specified ranges
Active outputs	4–20mA; 0–10VDC; RS485/Modbus
Passive outputs	RTD / thermistor types in the selection table; use the corresponding resistance-temperature characteristic
Digital sensor accuracy	±0.3°C from 5°C to 60°C
Passive sensor accuracy	Typically ±0.2°C to ±0.4°C at 25°C, depending on element type

4. Environment and construction

Operating environment: –20°C to 60°C and 5–95%RH, noncondensing. PC enclosure, PC probe and polymer filter; optional stainless steel probe and sintered stainless steel filter. Enclosure protection: IP65. Optional LCD shows units; backlight is available except on 4–20mA versions.

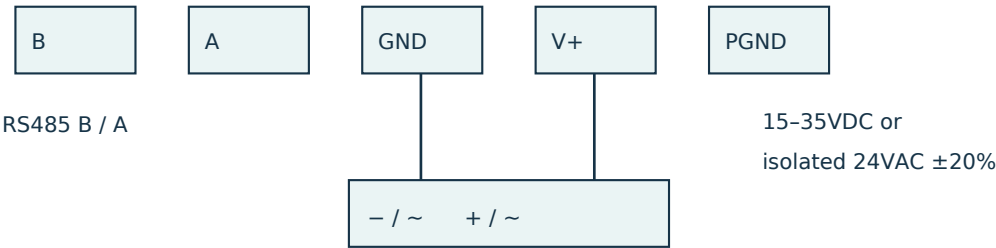
Power, loads and electrical connection

5. Power and output loads

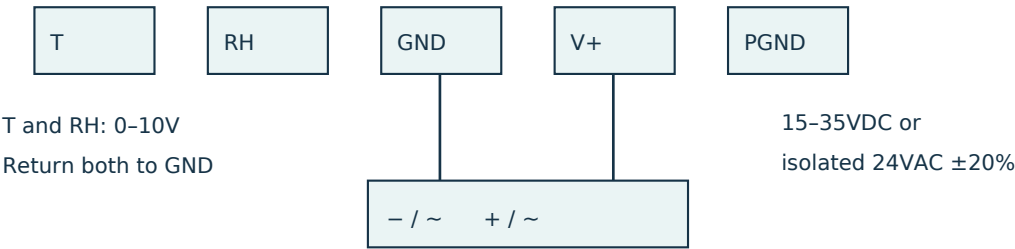
Output type	Supply / load
Voltage or RS485	15-35VDC or 24VAC ±20%
Current, RL = 500Ω	18.5-35VDC
Current, RL = 0Ω	8.5-35VDC
Current load	≤500Ω
Voltage load	≥2kΩ

The humidity current loop must be connected. It powers the current-output instrument; leaving it unused prevents normal operation. Use an isolated 24VAC supply when powering an RS485 version from AC.

6. RS485 terminal order



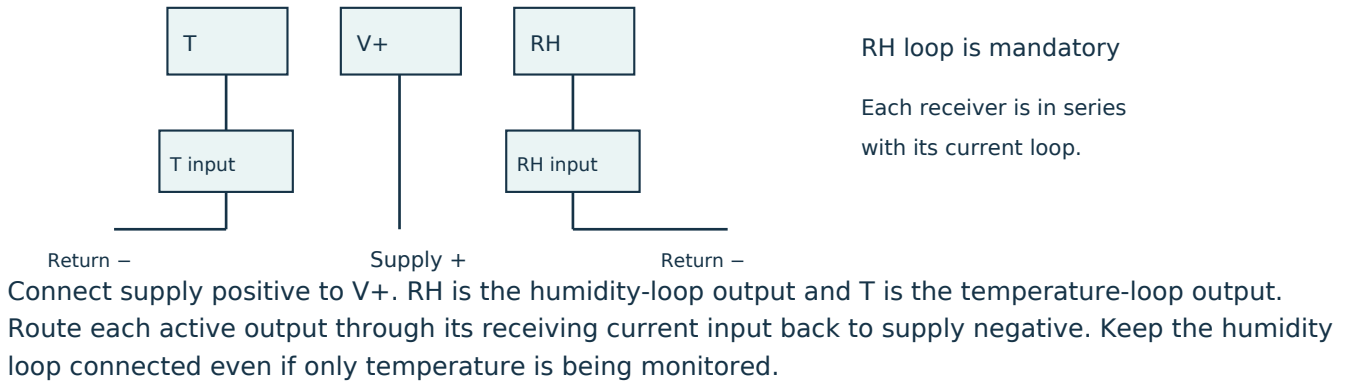
7. Voltage-output terminal order



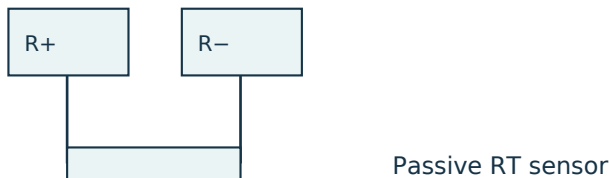
The terminal strips are shown left to right as in the source. PGND is retained as the marked terminal; the source does not draw an external connection to it. T is temperature and RH is relative humidity.

Current and passive sensor outputs

8. Two-wire current outputs

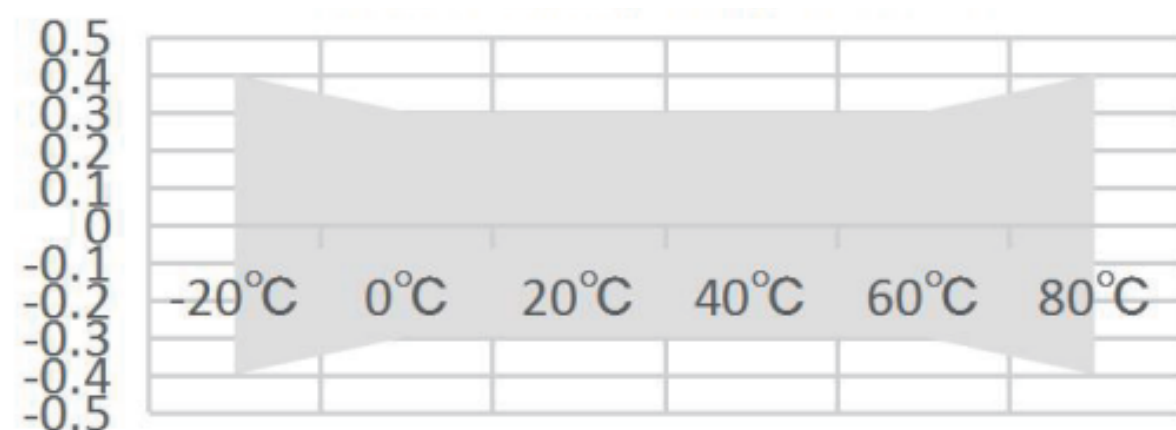


9. Passive temperature-sensor output



The passive resistive element connects between R+ and R-. Match the receiving input to the selected Pt1000, Pt100, NTC or Ni1000 element. These connections are separate from the active analog-output choices.

10. Digital temperature-accuracy curve



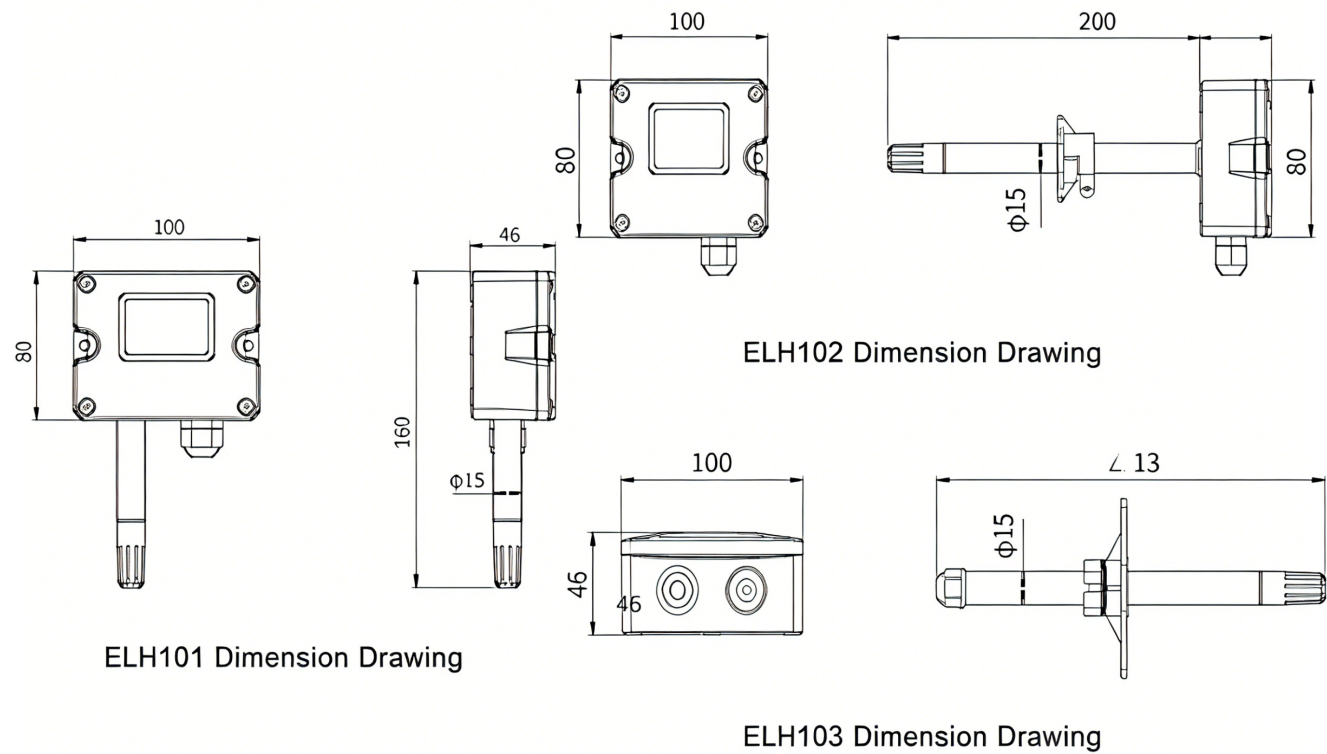
Horizontal axis: temperature in °C. Vertical axis: temperature error in °C. The numeric curve is retained from the Chinese manual. The tabulated digital accuracy is $\pm 0.3^\circ\text{C}$ from 5°C to 60°C ; the plotted curve also illustrates behavior beyond that interval.

Electrical commissioning

Complete wiring according to the selected output configuration and the instrument markings. Keep the power and signal conductors inside the sealed enclosure and secure the cable entry before closing the cover.

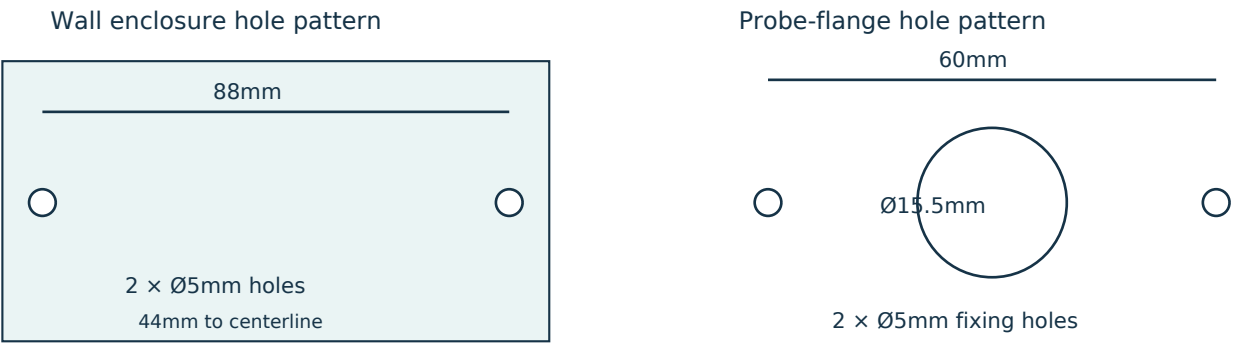
Dimensions and mechanical installation

11. Dimensional reference



Dimensions in mm. ELH101: 100×80mm case, 46mm depth, 160mm overall height, Ø15mm probe. ELH102: 200mm probe projection, Ø15mm probe, 46mm case depth. ELH103: 100mm case width, 46mm depth and 413mm remote-probe assembly length as marked in the drawing.

12. Mounting-hole patterns



The diagrams above retain the documented hole spacing and diameters; enclosure/flange outlines are schematic. Use the supplied components as the final mounting reference.

The flange drawing specifies a Ø15.5mm central opening, while the installation paragraph says Ø15.1mm. The wall-hole pattern gives 88mm fixing centers, while an adjacent assembly illustration labels 60mm and Ø6mm wall-plug drilling. Do not substitute the 60mm illustration spacing for the enclosure pattern; check the actual mounting base and flange before drilling.

Installation procedure

13. ELH102 duct mounting

Use the flange accessory where possible; it allows insertion-depth adjustment. Drill the duct opening and flange fixing holes to suit the supplied assembly. Fix the flange to the duct with two screws. Insert the probe and adjust its position, then tighten the flange locking screw. The source illustration calls the final fastener a flat-ended self-tapping screw. Seal around the finished probe installation to prevent air leakage.

14. ELH101 / ELH103 wall mounting

Mount the enclosure vertically with the probe pointing downward. Keep it away from hot or cold sources and avoid direct sunlight and rain. Fit a sunshade or rain cover if necessary.

Make two fixing holes using the enclosure mounting pattern. The wall-installation illustration shows drilling, inserting plastic wall plugs, positioning the transmitter and adjusting the hole alignment, then tightening the fixing screws. Secure the bottom enclosure with two screws. For the ELH103 remote probe, use the same flange procedure described for ELH102.

15. Wiring and enclosure sealing

Open the cover and pass the supply and signal cable through the waterproof cable gland into the bottom enclosure. Complete wiring, then replace the cover. Check the gland-to-enclosure seal and the cover-to-base gasket to maintain the overall IP65 protection.

16. Ordering-code structure

Example: ELH101-3A4A411

ELH101 | - | 3 | A4 | A4 | 1 | 1

Wall-mounted model; $\pm 3\%RH$ / $\pm 0.3^{\circ}C$ grade; humidity 4-20mA; temperature 4-20mA; temperature range 0-50°C; LCD display.

Segment	Code	Meaning
Model	ELH101	Wall-mounted transmitter
Model	ELH102	Duct-mounted transmitter
Model	ELH103	Split transmitter
Accuracy	2	$\pm 2\%RH$ / $\pm 0.3^{\circ}C$
Accuracy	3	$\pm 3\%RH$ / $\pm 0.3^{\circ}C$
Humidity output	V10	0-10VDC, three-wire
Humidity output	A4	4-20mA, two-wire
Humidity output	RS	RS485/Modbus

Ordering options and edition notes

17. Temperature output, range and display

Segment	Code	Meaning
Temperature output	V10	0–10VDC, three-wire
Temperature output	A4	4–20mA, two-wire
Temperature output	RS	RS485/Modbus
Temperature output	0	Pt1000; $\pm 0.2^{\circ}\text{C}$ at 25°C
Temperature output	1	Pt100; $\pm 0.2^{\circ}\text{C}$ at 25°C
Temperature output	2	NTC20K; $\pm 0.4^{\circ}\text{C}$ at 25°C
Temperature output	3	Ni1000; $\pm 0.4^{\circ}\text{C}$ at 25°C
Temperature output	4	NTC10K-II; $\pm 0.4^{\circ}\text{C}$ at 25°C
Temperature output	5	NTC10K-III; $\pm 0.4^{\circ}\text{C}$ at 25°C
Temperature output	6	NTC10K-A; $\pm 0.4^{\circ}\text{C}$ at 25°C
Temperature range	0	No analog temperature-range selection
Temperature range	1	0–50°C
Temperature range	2	–20°C to 60°C
Temperature range	8	Other customer-specified range
Display	0	No display
Display	1	LCD display

Dependencies: Select temperature-range code 1, 2 or 8 only when the temperature output is V10 or A4. For other temperature outputs, select range code 0. The humidity loop must remain connected on current-output products. A 4–20mA display has no backlight.

Translation and configuration notes

The ELH101 configuration uses a PC case and a 15–32VDC supply for voltage or RS485 output. For current output, use 18.5–35VDC at 500Ω or 8.5–35VDC at zero load. Keep the selected hardware and output-module ratings together. The $\pm 0.3^{\circ}\text{C}$ temperature-accuracy interval is 5–60°C.

Source identification

Original revision A/0; four booklet panels on two sheets. Authorized by Yueqing ELECALL Electric Co., Ltd.; manufactured by Yueqing Liangzi Electric Co., Ltd. Address printed in the source: Building 9, High-Tech Industrial Park, Yueqing Economic Development Zone, Zhejiang, China. Telephone: 0577-62792850. The two Chinese-site downloads have identical file contents and are consolidated in this edition.