

HI 8666 RH/°C TRANSMITTER



WARRANTY

HI 8666 RH/°C transmitter is warranted for two years against defects in workmanship and materials when used for its intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge.

Damage due to accidents, misuse, tampering or lack of prescribed maintenance are not covered.

If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

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Dear Customer,
Thank you for choosing a Hanna product. This manual will provide you with the necessary information for correct operation of the instrument. Please read it carefully before using the product. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com. This instrument is in compliance with the CE directives.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

Note: Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing.

GENERAL DESCRIPTION

The HI 8666 is a compact transmitter can be plugged into its wall-mounted receptacle for on-site, continuous monitoring of relative humidity and temperature in critical or controlled environments.

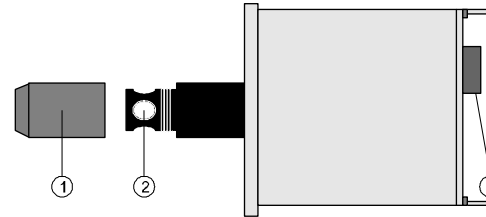
Each 4-20 mA analog signal can be sent to remote panel meters, controllers, or data acquisition systems.

The signals are to be powered by separate external voltage sources.

The meter is equipped with a removable sintered cap to protect the sensor against dust or unclean environments.

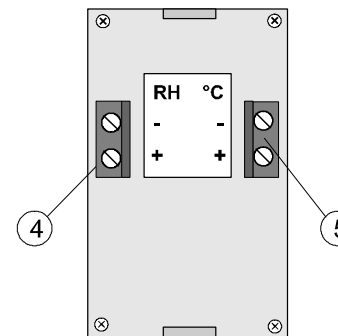
Note: After 30 minutes of measurements over 90% RH, the probe sensors could experience secondary absorption, leading to approximately +6% RH saturation. This means that the readings will be inaccurate. To restore the probe to normal condition, place the probe into the LiCl well (HI 7102) for 24 hours.

FUNCTIONAL DESCRIPTION



1. Sintered cap
2. RH and temperature sensor housing
3. Electrical connections

REAR PANEL



4. RH connection terminals
5. Temperature connection terminals.

SPECIFICATIONS

Range	RH	0% (4 mA) to 100% (20 mA)
	Temperature	-20°C (4 mA) to 60°C (20 mA)
Accuracy	RH	±2% (5 to 95% RH)
	Temperature	±1% FS
Typical EMC Deviation	RH	±2.5% (±0.4 mA)
	Temp.	±1°C (±0.2 mA)
Response Time	6 seconds without sintered filter;	
	60 seconds with filter	
Output Signal	4 to 20 mA	
Max Loop Impedance	50 x (Input voltage-10) Ohm	
Installation Category	II	
Power Supply	10-30 Vdc	
Environment	0 to 60°C (32 to 140°F)	
Dimensions	79 x 49 x 150 (3.1 x 1.9 x 5.9")	
Weight	150 g (5.3 oz.)	

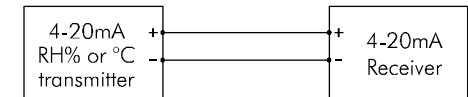
OPERATIONAL GUIDE

Connect the transmitter with a 2-wire cable to each of the connector terminals on the back of the instrument.

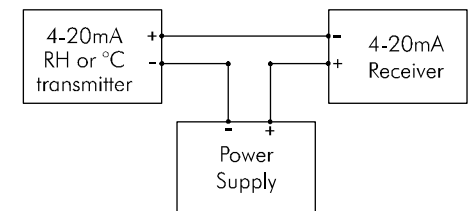
See pictures below for connection examples.

Note: Carefully observe the polarity for operations without any damage.

Active Receiver



Passive Receiver



The RH and °C value will be proportional to the current output signal (mA) according to the relation:

$$RH = (mA - 4) \times 100/16$$

$$^{\circ}C = (mA - 8) \times 80/16$$

CHECKING CALIBRATION

Hanna relative humidity transmitter are precalibrated at the factory, using state-of-the-art thermal humidity chambers.

It is generally recommended to have the RH transmitter recalibrated at least once a year. For an accurate annual recalibration, contact the nearest Hanna Service Center.

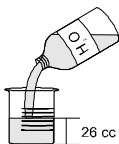
The user can check the calibration status of the transmitter by using the HI 7102 Hanna calibration chamber.

The kit includes two thermally isolated chambers, each one equipped with a threaded cap and three bottles containing the appropriate precalibrated saturated salts to create a known RH value.

This checking procedure is to verify that the meter still meets the electrical calibration specifications of the factory.

PREPARING THE CALIBRATION SOLUTIONS

- Pour approximately 26 cc of distilled water into a glass container.



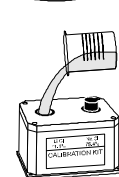
- Immerse this container into a bath of ice and water and shake briefly.



- Slowly add the contents of a HI 7111 bottle containing LiCl into the glass container while continuing to shake.



- When the salt has dissolved completely, add the content of the second bottle of HI 7111.



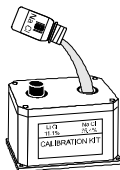
- Allow the solution to cool, and then pour it into the chamber marked "RH 11.1%", making sure that no residue remains on the walls of the glass container.

- Seal the chamber well when not in use, as the LiCl solution is extremely hygroscopic and tends to capture the humidity of the air causing the solution to expand and to overflow the container.

- Pour approximately 12 cc of distilled water into the other chamber marked "RH 75.4%".



- Add the contents of the HI 7121 bottle containing NaCl while continuously shaking the container to avoid the formation of lumps. Seal this container well when not in use.



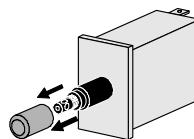
- The calibration kit needs approximately 4 hours for stabilization.



CHECKING THE RH CALIBRATION

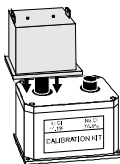
- Bring the calibration kit to a temperature of approximately 20°C.

- Remove the sintered cap from the sensor of HI 8666.



- Connect the unit to the power supply and hook up a multimeter (range of 20 mA) in series with the circuit.

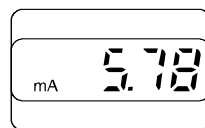
- Remove the cap from the "RH 11.1%" chamber containing the LiCl solution and insert the HI 8666 while paying attention not to dip it into the liquid.



- Wait for the measurement to stabilize (this will take approximately 4 hours).

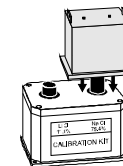


- Look at the multimeter display: the reading should be 5.78 mA, representing the theoretical chamber value of 11.1% RH.



- Remove the HI 8666 from the chamber and tightly seal the chamber containing the LiCl solution.

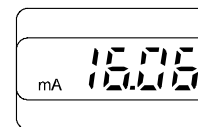
- Remove the cap from the "RH 75.4%" chamber containing the NaCl solution and insert the HI 8666.



- Wait for the measurement to stabilize (approximately 4 hours)



- With the probe inserted in the "RH 75.4%" chamber, the multimeter reading should be 16.06 mA: this represents the theoretical chamber value of 75.4% RH.



- The relative humidity calibration checking procedure is complete.

If the theoretical values are not within $\pm 5\%$, contact your dealer or the nearest Hanna Service Center for an accurate recalibration.

ACCESSORIES

- HI 710011 Sintered cap for RH probe
- HI 7102 RH calibration chamber, complete with pre-calibrated saturated salts
- HI 7111/P Spare saturation LiCl salts for low range humidity calibration (15 g, 6 pcs)
- HI 7121/P Spare saturation NaCl salts for high range humidity calibration (33 g, 6 pcs)

CE DECLARATION OF CONFORMITY

HANNA
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CE

DECLARATION OF CONFORMITY

We

Hanna Instruments Italia Srl
via E. Fermi, 10
35030 Sarmeola di Rubano - PD
ITALY

herewith certify that the RH/°C transmitter

HI 8666

has been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normative:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard
IEC 801-2: Electrostatic Discharge
IEC 801-3: RF Radiated
IEC 801-4: Fast Transient

EN 50081-1: Electromagnetic Compatibility - Generic Emission Standard
EN 55022: Radiated, Class B

EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 16/7/1998

P. Cesa - Technical Director
On behalf of
Hanna Instruments S.r.l.

Recommendations for Users

Before using this product, make sure that it is entirely suitable for the environment in which they are used.

Operation of this instrument in residential areas could cause unacceptable interferences to radio and TV equipment.

During operation, ESD wrist straps should be worn to avoid possible damage to the probe by electrostatic discharges.

Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance.

To avoid electrical shock, do not use these instruments when voltages at the measurement surface exceed 24 Vac or 60 Vdc.

To avoid damages or burns, do not perform any measurement in microwave ovens.