

## Calibration

Each unit is calibrated against our factory standard which is traceable to "NMI" in The Netherlands or National Physical Laboratory, UK.

## Calibration certificates

In addition to the normal calibration procedure, each transmitter can be supplied with its own traceable calibration certificate.

## Calibration interval time

Under normal ambient conditions (0..50 °C, 0..70 %RH) and for an accuracy  $\pm 2$  %RH, we recommend an annual calibration.

For an accuracy  $\pm 5$  %RH we recommend calibration every five years.

For environments with airborne chemicals or for high humidity and high temperature conditions we recommend more frequent calibration.

## EMC compatibility

The series HT-914 Humidity and Temperature transmitters are designed to meet the following European standards:

EN 61326 (1997) + A1 (1998) + A2 (2001)

Emission: Class B, Immunity: Industrial

EN 61000-3-2 (1995) + A1 (1998) + A2 (1998)

EN 61000-3-3 (1995)



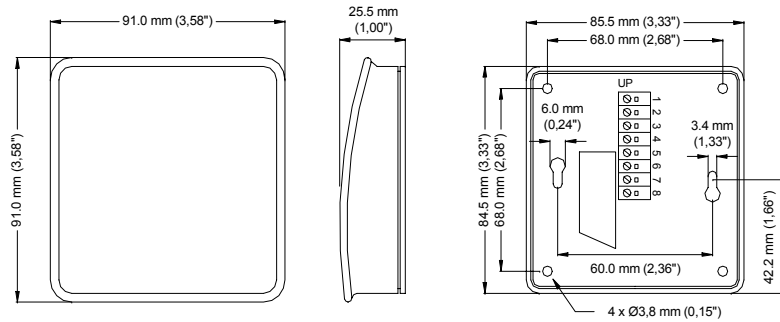
## Instruction Manual Rel. Humidity & Temperature Transmitter HT-914



### Introduction

The series 914 Relative Humidity Transmitters measures continuously the relative humidity and provides a standard signal directly proportional to the ambient relative humidity. Models with prefix "HX" measure relative humidity only; prefix "HT" includes a temperature transmitter or a temperature sensor. There are versions for voltage outputs and also for currentloop 4-20mA or 1-5mA outputs. Also there is a low-cost for HVAC applications with one point calibration.

Description	Low cost	Standard
Room, Humidity 0-10V	HX-914-M-L0	HX-914-I-00
Room, Humidity and Temperature 2 x 0-10V	HT-914-M-L0	HT-914-I-00
Room, Humidity 4-20mA currentloop	HX-914-M-L1	HX-914-I-01
Room, Humidity 0-10V, with Pt100 1/3 DIN B	HT-914-M-L2	HT-914-I-02
Room, Humidity 4-20mA currentloop, with Pt100 1/3 DIN B	HT-914-M-L3	HT-914-I-03
Room, Humidity 0-10V, with Pt1000 1/3 DIN B	HT-914-M-L4	HT-914-I-04
Room, Humidity 4-20mA currentloop, with Pt1000 1/3 DIN B	HT-914-M-L5	HT-914-I-05
Room, Humidity 1-5mA currentloop	HX-914-M-L8	HX-914-I-08
Room, Humidity and Temperature 2 x 1-5mA currentloop	HT-914-M-L8	HT-914-I-08



**Specifications**

**Humidity Transmitter**

Measuring range 0..100 %RH  
 Working range 5..95 %RH  
 Output 0..10V/ 0..1V selectable by solder links or 4..20mA currentloop  
 Accuracy @ 23 °C ± 3 %RH from 30-80 %RH (Low cost, 1 point calibration)  
 ± 2 %RH from 10-90 %RH (Standard, 2 points calibration)  
 Response time 10 sec typical without filter (90% of change)  
 Stability ± 1 %RH/Year typical, depending on environmental conditions  
 Supply voltage 14..30Vdc for 0..10V output,  
 5..30Vdc for 4..20mA currentloop and 0..1V output; see note  
 Supply influence ± 0.01 %RH / V typical

**Temperature Transmitter**

Measuring range 0..+50 °C to 0..10V, 0..100 °C to 4..20mA and 1..5mA  
 Output 0..10V/ 0..1V selectable by solder links/ 4..20mA or 1..5mA currentloop  
 Operating temperature 0..+50 °C  
 Accuracy @ 23 °C ± 0.3 °C (10..30 °C)  
 Supply voltage 14..30Vdc for 0..10V output  
 5..30Vdc for 4..20mA currentloop and 0..1V output; see note  
 Supply influence ± 0.01 °C/ V typical

Housing White plastic

CONNECTIONS			
VOLTAGE OUTPUT		4...20 mA / 1...5 mA CURRENTLOOP	
1 ○	1 ○	1 ●+	1 ●+
2 ○	2 ○	2 ●-	2 ●-
3 ○	3 ●	3 ●-	3 ●-
4 ● TEMP. OUT	4 ●	4 ●+	4 ●+
5 ● %RH OUT	5 ● %RH OUT	5 ○	5 ○
6 ● GND	6 ● GND	6 ○	6 ○
7 ● V+	7 ● V+	7 ○	7 ○
8 ○	8 ○	8 ○	8 ○
	Hum.with temp. sensor		Hum.with temp. sensor

**\*NOTE:**

We recommend to use the 4..20mA currentloop transmitters at low supply voltage, less than 15V to avoid less accuracy due to selfheating, specially for the combination humidity and temperature, although they can work up till 30Vdc. Also we can deliver 1..5mA currentloop, which have the advantage that selfheating is much reduced and save also at your power supply cost.

**Calibration Procedure Standard Version**

The S-503 humidity generator used in combination with the DM-509-T-03 handheld hygrometer is ideal for quick and accurate calibration. If re-adjustment is necessary: carefully open the housing. **Do not touch the sensor.** A special adapter is needed (part A-000190). Refer to figure 1 for the locations of the potentiometers.

The HT-914 standard version should be calibrated at two points, one low and one high point. Once the first low value is reached and the reading of the DM-509-Reference has stabilised, adjust the HT-914 with zero RH potentiometer. Compare with DM-509-Reference. After the second high value is reached and stabilised, adjust with span RH potentiometer. Repeat this procedure until the reading is within the limits. We recommend calibration at 20 and 80 %RH.

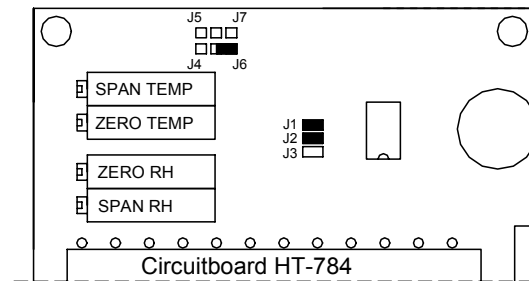
**Calibration Procedure Low Cost Version**

The HT-914 low cost version should be calibrated at one point, for example 50 %RH. Once this value is reached and the reading of the DM-509-Reference has stabilised, adjust the HT-914 with zero RH potentiometer.

As an alternative to the S-503 humidity generator, reference bottles with salt solutions can be used. However this method is less accurate and can take up to two hours per point to stabilise. Sensor Data bv is delivering the reference bottles too.

Output	0..100°C				0..50°C				-20..+80°C				-20..+30°C			
	J4	J5	J6	J7	J4	J5	J6	J7	J4	J5	J6	J7	J4	J5	J6	J7
0..1 Vdc		●							●	●			●			
0..2,5 Vdc	●		●				●		●	●	●	●	●	●		●
0..5 Vdc			●		●	●			●	●	●	●	●	●	●	●
0..10 Vdc		●	●			●			●	●	●	●	●	●	●	●

Rel. Humidity output			
Output	J1	J2	J3
0..1 Vdc	●		
0..2,5 Vdc			
0..5 Vdc			●
0..10 Vdc	●	●	



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