

## 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-922 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)

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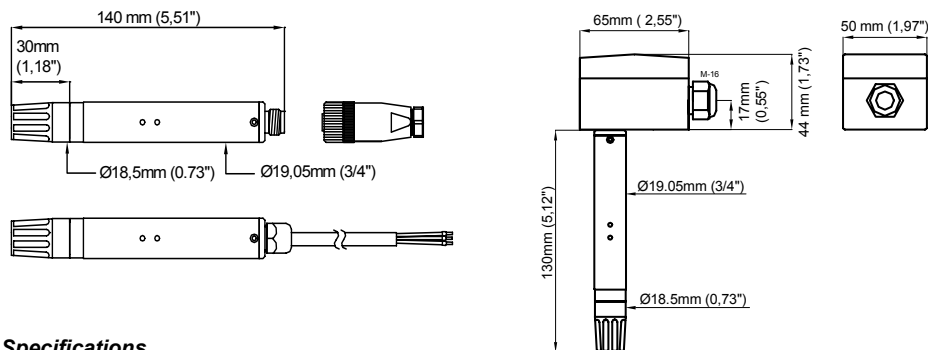
## Instruction Manual Rel. Humidity & Temperature Transmitter HT-922



### Introduction

The series 922 are 2-wire Relative Humidity Transmitters, optionally combined with a temperature transmitter or temperature sensor. The unit measures continuously the ambient relative humidity and provides a 4-20 mA signal directly proportional to the ambient relative humidity. The 2-wire transmitter uses the same wires for power and output. These transmitters are accurate and built with the latest SMD technology and are equipped with a thin film polymer capacitive sensing element. Models with prefix “HX” measure relative humidity only; prefix “HT” includes a temperature transmitter or temperature sensor.

Description	Model
Rel. Humidity Transmitter, connector	HX-922-I-01
Rel. Humidity and Temperature Transmitter, connector	HT-922-I-01
Rel. Humidity Transmitter, duct mount	HX-922-I-02
Rel. Humidity and Temperature Transmitter, duct mount	HT-922-I-02
Rel. Humidity Transmitter with Pt100 1/3 DIN B, 1.5m PVC cable	HT-922-I-03
Rel. Humidity Transmitter with Pt1000 1/3 DIN B, 1.5m PVC cable	HT-922-I-04
Rel. Humidity Transmitter with Pt100 1/3 DIN B, duct mount	HT-922-I-05
Rel. Humidity Transmitter with Pt1000 1/3 DIN B, duct mount	HT-922-I-06



## Specifications

### 2-wire Relative Humidity Transmitter

Measuring range	0..100 %RH
Working range	5..95 %RH
Output	4..20 mA
Accuracy @ 23 °C	± 2 %RH (10..90 %RH)
Stability	± 1 %RH/ year (depending on environmental conditions)
Temperature drift typ.	± 0.03 %RH/°C typ.
Response time	10 s typical without filter (90 % of the change)
Power supply	4,5..35 Vdc see supply voltage
Supply influence	± 0.003 %RH/Volt typ.
Operating temp.	-30..+60 °C

### 2-wire Temperature Transmitter

Sensor element	Pt1000
Range	0..100 °C or -20..+80 °C
Output	4..20 mA
Accuracy	± 0.2 °C (-10..+50 °C)
Power supply	4,5..35 Vdc see supply voltage
Supply influence	± 0.003 °C/Volt typ.

## Supply voltage

The specified supply voltage of this transmitter is 4,5..35 Vdc. To prevent a self heating effect which will influence the measurement, it is necessary to keep the voltage across the transmitter as low as possible. We advise a supply voltage of approx. 10 Volt across the transmitter at 20 mA current. If not possible place a resistor in series with the supply, so that the voltage across the transmitter will be 10 Volt at 20 mA.

### Example:

See drawing:  $U_p$  is the supply voltage,  $R_L$  is the load resistance and  $I$  is the current.

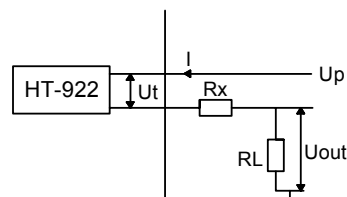
$U_p = 24V$  and  $R_L = 50\Omega$  and  $I = 20mA$ .

$R_x = (U_p - U_t) / I - R_L \Rightarrow R_x = (24V - 10V) / 0.02 - 50\Omega \Rightarrow$

$R_x = 14' / 0.02 - 50 \Rightarrow R_x = 650\Omega$

A good choice is a resistance from 620  $\Omega$ .

(Do not place this resistor in the transmitter housing)



## Calibration Procedure

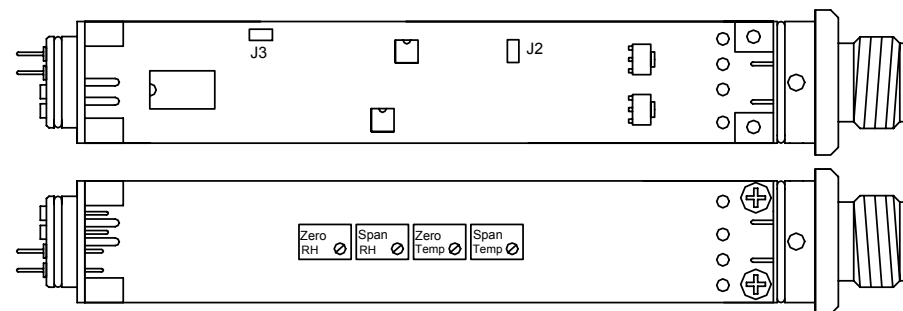
The S-503 humidity generator used in combination with the DM-509-T-03 handheld hygrometer is ideal for quick and accurate calibration.

If re-adjustment is necessary: refer to the drawing of the circuitboard for the location of the potentiometers.

Carefully remove filter from the head, if fitted. **DO NOT TOUCH THE SENSOR.**

The HT-922 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-922 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.

As an alternative to the S-503 humidity generator, reference bottles 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.



Circuitboard HT-922

CONNECTIONS			
	CONNECTOR	CABLE	DUCTMOUNT
+	PIN 1	WHITE	TERMINAL 1
	PIN 3	BROWN	TERMINAL 2
-	PIN 4	GREEN	TERMINAL 3
	PIN 2	YELLOW	TERMINAL 4
RTD		YELLOW	TERMINAL 4
		PINK GREY	TERMINAL 5 TERMINAL 6

TEMPERATURE RANGE		
	J2	J3
0...100 °C	OPEN	OPEN
-20...+80 °C	OPEN	CLOSE