Turnkey® TRH Temperature and Humidity Sensor



Turnkey's TRH Temperature and Humidity Sensor is compatible with the iGAS® and iDUST® range of instruments and boasts industry leading accuracy, stability (1.2 %RH over five years) and reliability.

The Turnkey TRH allows these instruments to accurately measure and record ambient temperature and relative humidity alongside the gas and dust air pollution readings.

Turnkey's TRH sensor uses a laser trimmed thermoset polymer capacitive sensing element. The element's multilayer construction provides resistance to most application hazards such as condensation, dust, dirt, oils and common environmental chemicals. This construction helps to provide the TRH with industry leading stability and reliability.

The sensing element is protected by a replaceable, breathable, PTFE membrane.

A 3D printed detachable solar shield is also available.

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Humidity Performance Specifications

Characteristic		Min.	Typ.	Max.	Units
Compensated humidity range		10	-	90	% RH
Compensated temperature range		5 [41]	-	50 [122]	°C [°F]
Resolution	14-bit ADC resolution	-	-	0.04	% RH
Accuracy (best fit straight line) [1]		-	-	± 4	% RH
Total error band [2]		-	-	± 5	% RH
Response time	Airflow > 20 l/min	-	6	8	s
Operating range	Non-condensing	0	-	100	% RH
Long term stability	50 % RH for 5 years	-	± 0.05	± 1.2	% RH

1. Accuracy is the maximum deviation from the ideal transfer function of relative humidity measured over the humidity range of 10 %RH to 90 %RH and includes all errors due to humidity non-linearity, humidity hysteresis and humidity non-repeatability.
2. Total error band is the maximum deviation from the ideal transfer function of relative humidity over the compensated range 5 °C to 50 °C. It includes all errors due to humidity non-linearity, humidity hysteresis, humidity non-repeatability, thermal effect on zero, thermal effect on span and thermal hysteresis.

Temperature Performance Specifications

Characteristic	Condition	Min.	Typ.	Max.	Units
Compensated temperature range		5 [41]	-	50 [122]	°C [°F]
Resolution	14-bit ADC resolution	-	-	0.025	°C
Accuracy (best fit straight line) [1]		-	-	± 1	°C
Response time	1/e slow moving air	5	-	30	s
Operating range		-25	-	+ 85	°C
Long term stability	25 °C for 5 years	-	-	± 0.05	°C/yr

1. Accuracy is specified over the compensated temperature range.

Please visit www.iGASES.uk to access other iGAS and iDUST documentation

If you need assistance, please contact:

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