

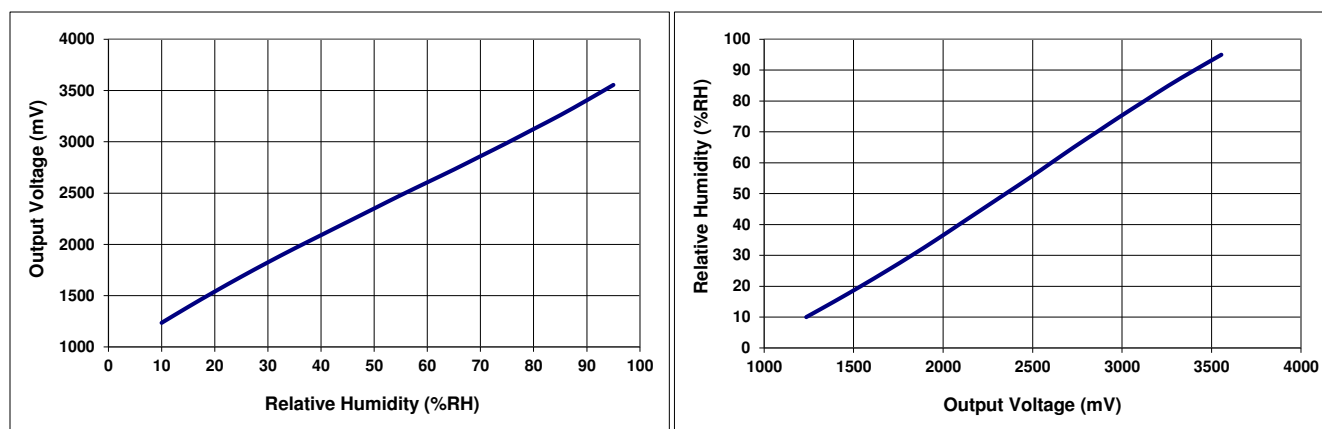
TYPICAL PERFORMANCE CURVES

HUMIDITY SENSOR

Typical response look-up table ($V_s = 5V$)

RH (%)	Vout (mV)	RH (%)	Vout (mV)
10	1235	55	2480
15	1390	60	2605
20	1540	65	2730
25	1685	70	2860
30	1825	75	2990
35	1960	80	3125
40	2090	85	3260
45	2220	90	3405
50	2350	95	3555

Modeled linear voltage output ($V_s = 5V$)



Linear Equations

$$V_{out} = 26.65 * RH + 1006$$

$$RH = 0.0375 * V_{out} - 37.7$$

with V_{out} in mV and RH in %

Polynomial Equations

$$V_{out} = 1.05E^{-3} * RH^3 - 1.76E^{-1} * RH^2 + 35.2 * RH + 898.6$$

$$RH = -1.92E^{-9} * V_{out}^3 + 1.44E^{-5} * V_{out}^2 + 3.4E^{-3} * V_{out} - 12.4$$

with V_{out} in mV and RH in %

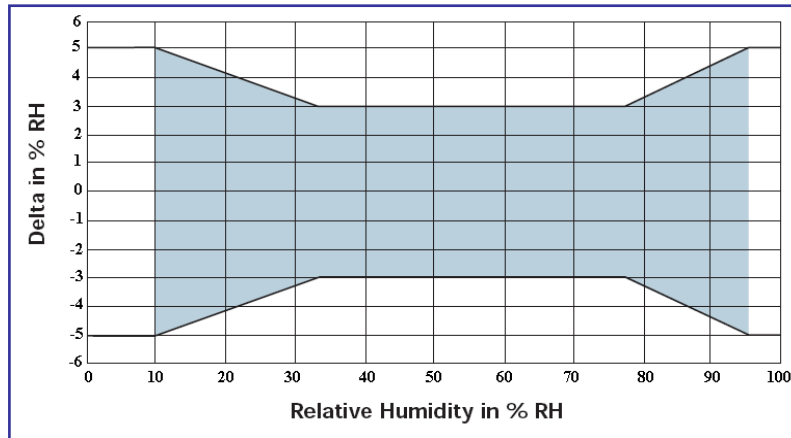
Measurement Conditions

HTM2500LF is specified for accurate measurements within 10 to 95% RH.

Excursion out of this range (<10% or >95% RH, including condensation) does not affect the reliability of HTM2500LF characteristics.

Error Budget at 23°C

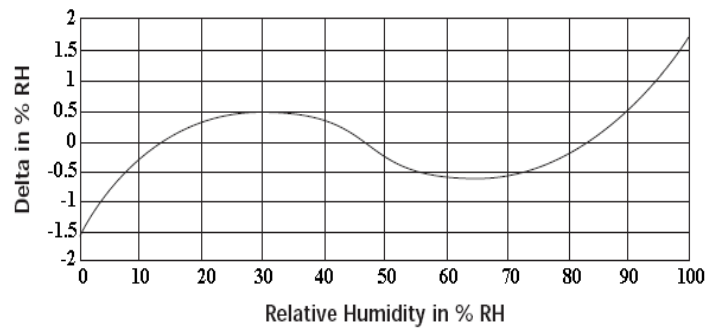
HTM2500LF Error Limits:



Temperature coefficient compensation:

$$RH_{Cor} \% = RH_{read} \% \times \left(1 - (T_a - 23) \times 2.4 E^{-3} \right)$$

HTM2500LF Linearity Error:



Non-linearity and temperature compensation:

$$RH\% = \frac{-1.9206 E^{-9} V_{out}^3 + 1.437 E^{-5} V_{out}^2 + 3.421 E^{-3} V_{out} - 12.4}{1 + (T_a - 23) \times 2.4 E^{-3}}$$

with Vout in mV, RH in % and Ta in °C