TDS- Temperature Offset Calculation

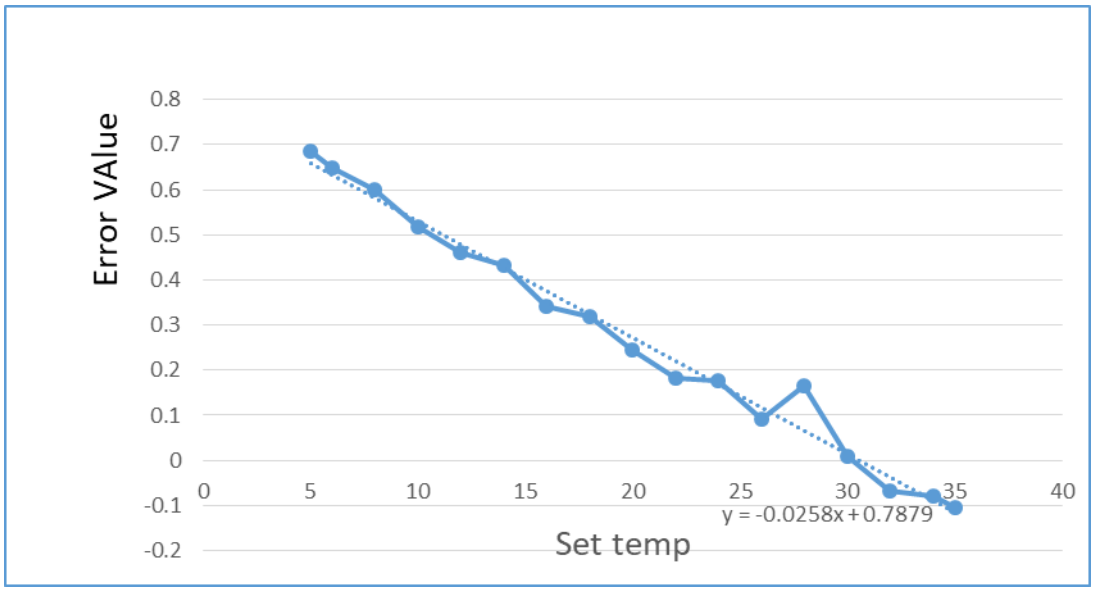
The offset value at specific temperatures has been determined based on the **Error rate versus Set temperature** (Refer file AvgErrorValue.xlsx).

With respect to Linear Equation of **Error rate (Y) Vs Set Temperature (X)**:

Y = (-0.0258(X)) + 0.7879

Y = Avg Error for Set temperature

X = Temperature measured from sensor



Offset Value:

Offset value = (-0.0258 * Raw_temperature) + 0.7879.

Raw_temperature = Temperature measured from sensor

Calculating Temperature after Calibration:

Calibrated Temperature Value = Raw _temperature – Offset value

= Raw_temperature – (-0.0258 * Raw_temperature + 0.7879)

Examples:

Raw_temperature = 1:

Calibrated Temperature Value = 1 - (-0.0258 * 1 + 0.7879)
= 1 - (-0.0258 + 0.7879)
= 1 - 0.7621
= 0.2379

Raw_temperature = 3.3:

Calibrated Temperature = 3.3 - (-0.0258 * 3.3 + 0.7879)
= 3.3 - (-0.08514 + 0.7879)
= 3.3 - 0.70276
= 2.59724

Raw_temperature = 7.5:

Calibrated Temperature = 7.5 - (-0.0258 * 7.5 + 0.7879)
= 7.5 - (-0.1935 + 0.7879)
= 7.5 - 0.5944
= 6.9056

Raw_temperature = 13.9:

Calibrated Temperature = 13.9 - (-0.0258 * 13.9 + 0.7879)
= 13.9 - (-0.35802 + 0.7879)
= 13.9 - 0.42912
= 13.47088

Raw_temperature = 18:

Calibrated Temperature = 18 - (-0.0258 * 18 + 0.7879)
= 18 - (-0.4644 + 0.7879)
= 18 - 0.3235
= 17.6765

Raw_temperature = 23.5:

Calibrated Temperature = 23.5 - (-0.0258 * 23.5 + 0.7879)
= 23.5 - (-0.6063 + 0.7879)
= 23.5 - 0.1816
= 23.3184

Raw_temperature = 33:

Calibrated Temperature = 33 - (-0.0258 * 33 + 0.7879)
= 33 - (-0.8514 + 0.7879)
= 33 - 0.0635
= 32.9365

Raw_temperature = 40:

Calibrated Temperature = 40 - (-0.0258 * 40 + 0.7879)
= 40 - (-1.032 + 0.7879)
= 40 - (-0.2441)