

# Quick Start Guide

How to build custom sensor tables from measurement modules connected to sensors with pre-calibrated data points

## Purpose

This guide will describe how to create custom tables for sensor's with calibrated data points. Many of these sensors are typically measuring temperature or very precise values.

Note: for this example, we will use a Cernox sensor with the following table with an e.bloxx A5-CR module.

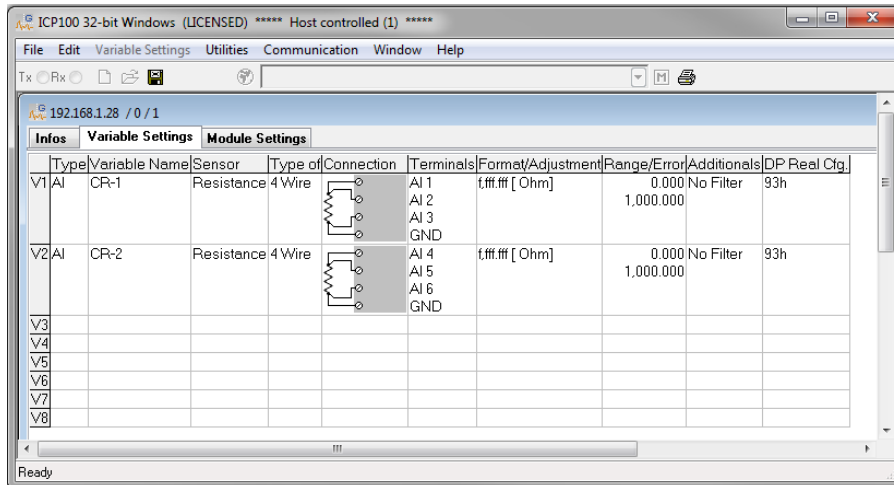
Cernox™			
T (K)	R (Ω)	dR/dT (Ω/K)	(T/R)·(dR/dT)
0.1	21389	-558110	-2.70
0.2	4401.6	-38756	-1.76
0.3	2322.4	-10788	-1.39
0.4	1604.7	-4765.9	-1.19
0.5	1248.2	-2665.2	-1.08
1	662.43	-514.88	-0.78
1.4	518.97	-251.77	-0.68
2	413.26	-124.05	-0.60
3	328.95	-58.036	-0.53
4.2	277.32	-32.209	-0.49
6	234.44	-17.816	-0.46
10	187.11	-8.063	-0.43
20	138.79	-3.057	-0.44
30	115.38	-1.819	-0.47
40	100.32	-1.252	-0.50
50	89.551	-0.929	-0.52
77.35	70.837	-0.510	-0.56
100	61.180	-0.358	-0.59
150	47.782	-0.202	-0.63
200	39.666	-0.130	-0.66
250	34.236	-0.090	-0.66
300	30.392	-0.065	-0.65

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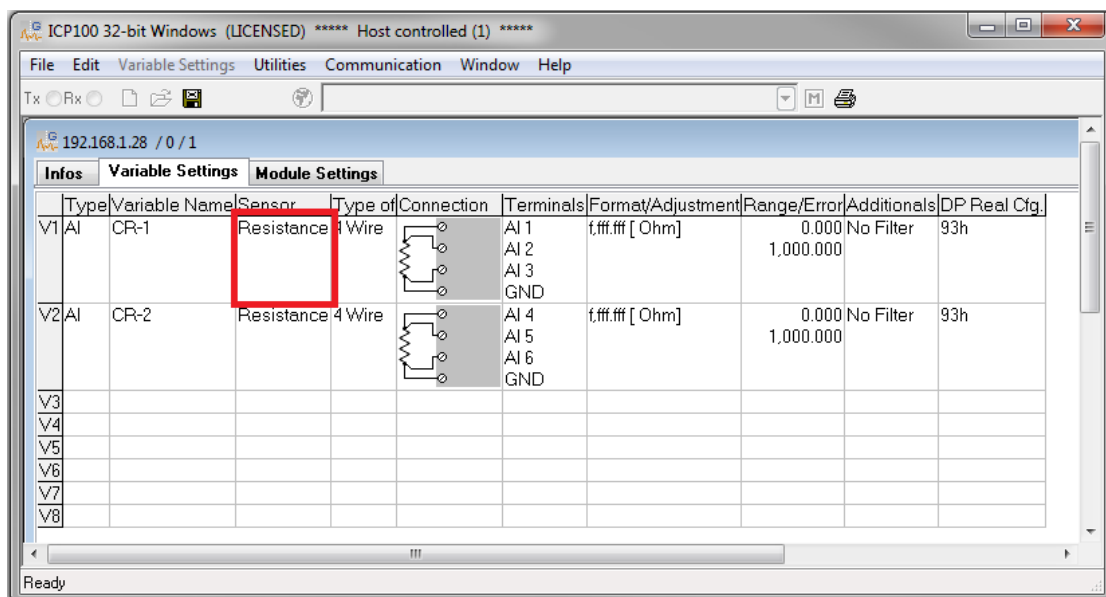
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## Procedure

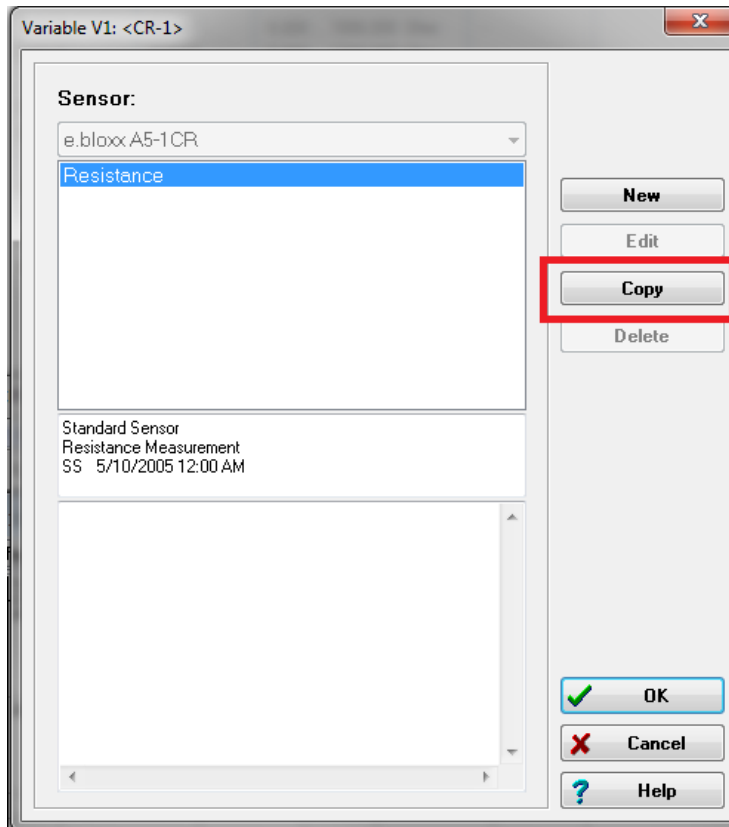
1. Open the measurement module in ICP-100:



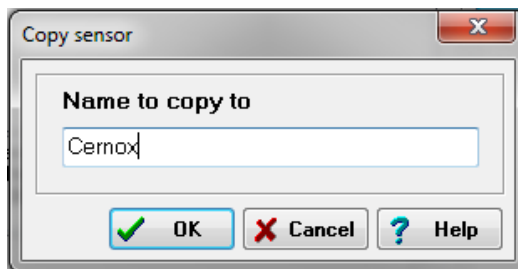
2. The e.bloxx A5CR module is a 2 x channel input module for Cryo sensors (i.e. Cernox or TVO). The measurement principle that is acquired from the sensor is resistance. As shown below in the image above, the channels are configured to measure resistance in a 4-wire configuration.
3. The non-linear characteristic of the Cryo sensor can be imported into the module as a new sensor table. Double-click under the Sensor column for the channel being modified:



- The pre-defined sensor types for the module being used will be displayed. Since we will be scaling resistance to temperature (Kelvin), we can copy the resistance sensor and modify it. It is also possible to create a new sensor by clicking on the new button.



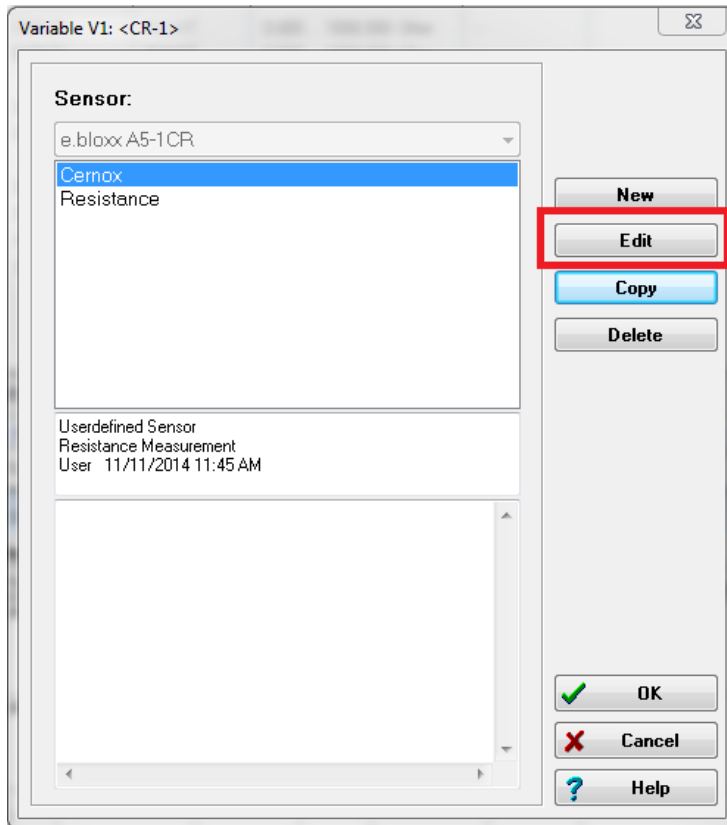
- Give the new sensor a name and click OK.



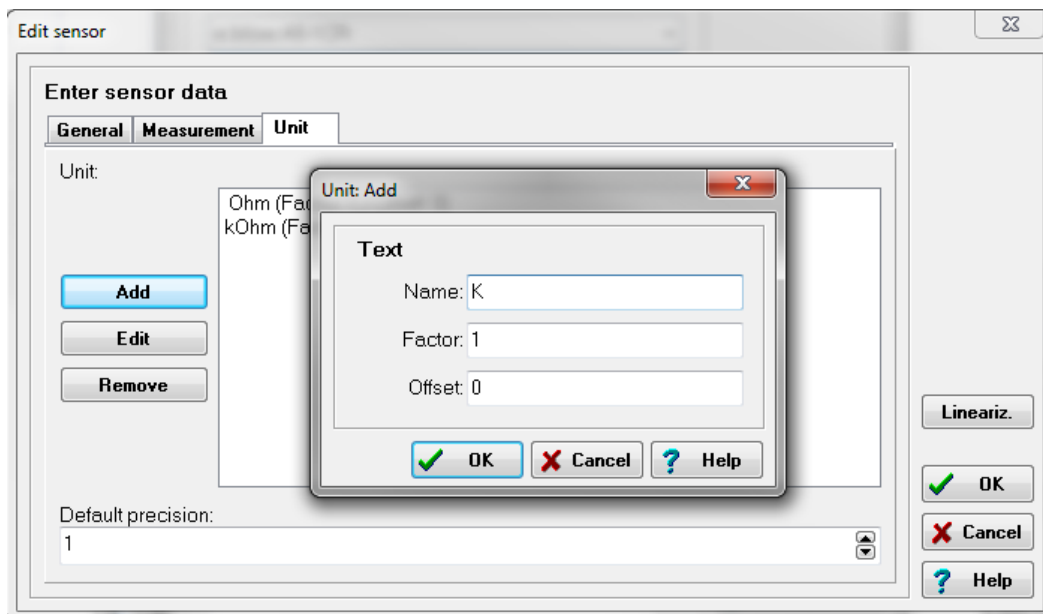
- The new sensor will be added to the list of available sensors. Highlight the new sensor and click Edit.

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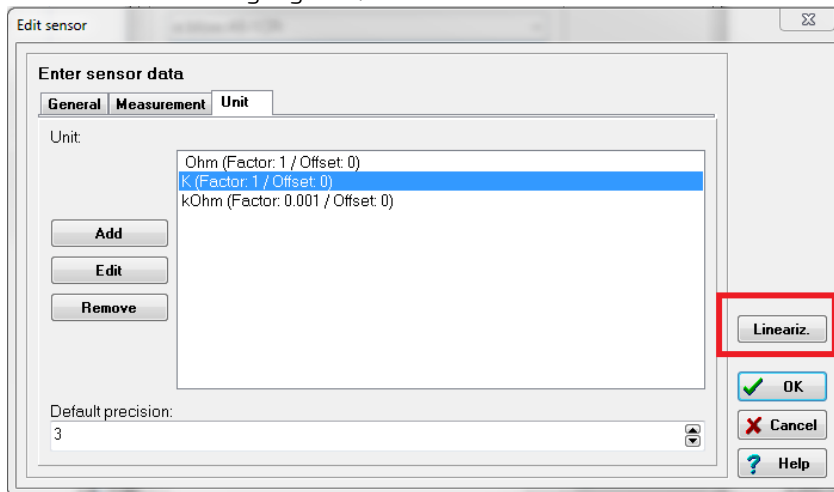
7. Under the unit tab, add or modify the desired unit. In this example we will add K for Kelvin:



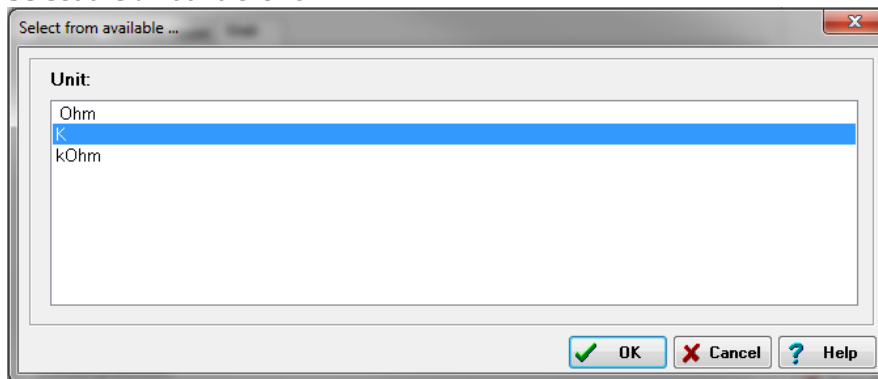
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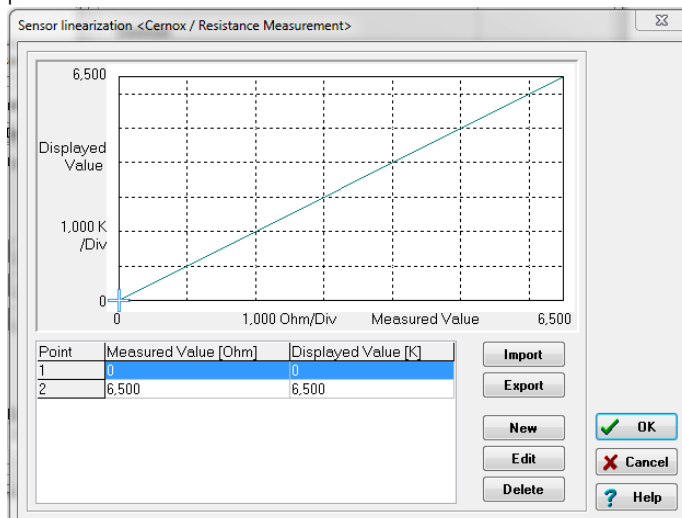
8. With the new unit highlighted, click on the **Lineariz.** button.



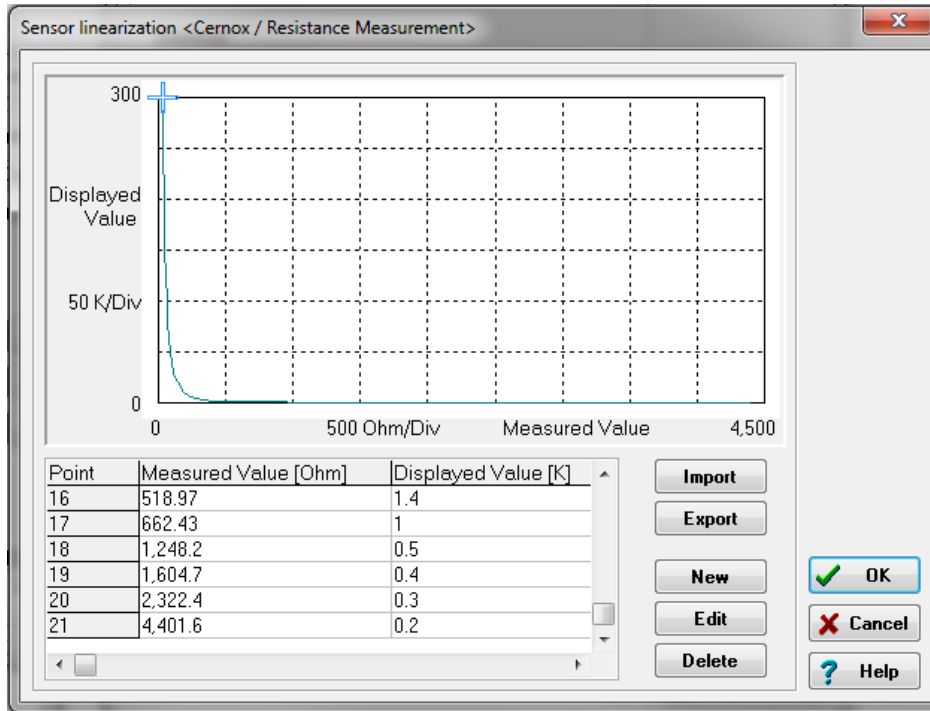
9. Select the unit and click OK.



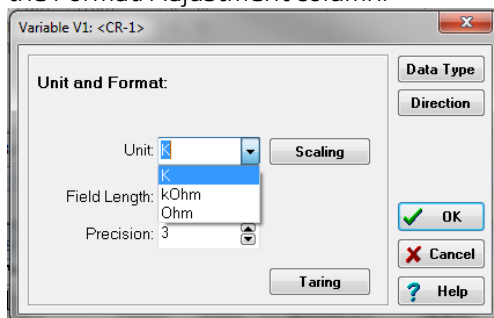
10. The sensor linearization window provides the option to import/export the table or to add/delete points.



11. Using the values in the sample table on page 1 of the Cernox sensor, a table below can be created:



12. Confirm all the settings and click OK to save. Make sure to modify the correct units to use under the Format/Adjustment column:



13. Save the settings to the module and update the project to the controller. The data will now be displayed and saved in Kelvin.

**Contact us today if you have any further questions!**