APPLICATION NOTE

APP #139

Revision History

Date	Author	Description
2-19-2020	Jeff T.	Setup

Combining T100 Low temp and T100 Temp Sensors into 1 input for -60 to 100 Temp Scale

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This is for low temp applications, so that the sensors can still read accurately during high temp instances.

1. First, you'll need to have 2 sensor inputs, a high temp input (T100), and low temp input (T100L).

M-9	...	BoxTmpHi	MCST100
M10	...	BoxTmpLow	MCST100L

2. Then, you'll need to create 2 lookup tables in Config.

Lookup Tables Setup

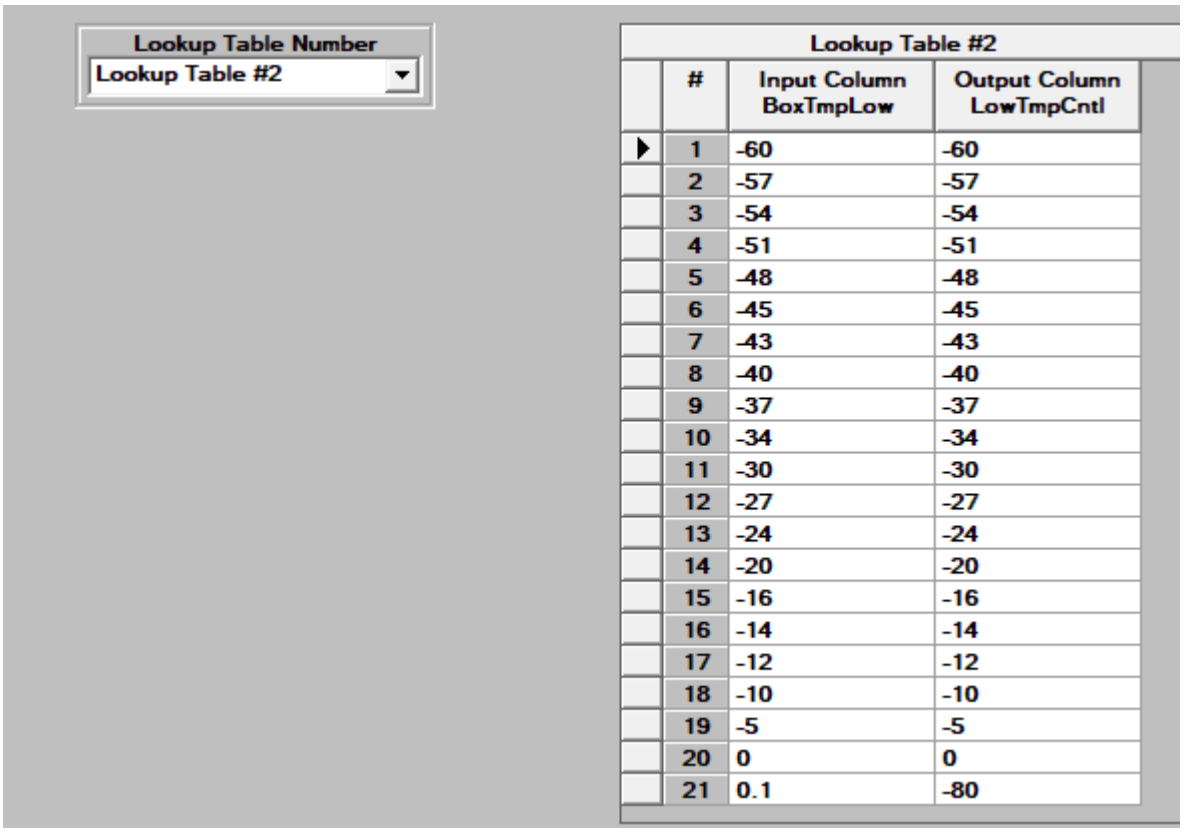
#	Number of Rows	Input Column Name	Output Column Name	Input Column Display Type	Output Column Display Type	Minimum Auth Level
1	21	BoxTmpHi	HiTmpCntl	TEMP	TEMP	View Only
2	21	BoxTmpLow	LowTmpCntl	TEMP	TEMP	View Only
3	0	Input #3	Output #3	Spare	Spare	View Only
4	0	Input #4	Output #4	Spare	Spare	View Only
5	0	Input #5	Output #5	Spare	Spare	View Only

Lookup Table Number: Lookup Table #1

Lookup Table #1

#	Input Column BoxTmpHi	Output Column HiTmpCntl
1	-0.1	-80
2	0	0
3	5	5
4	10	10
5	15	15
6	20	20
7	25	25
8	30	30
9	35	35
10	40	40
11	45	45
12	50	50
13	55	55
14	60	60
15	65	65
16	70	70
17	75	75
18	80	80
19	85	85
20	90	90
21	100	100

Note the negative value for the high temp sensor, this will set the value of the sensor to -80 whenever the temp drops below 0.

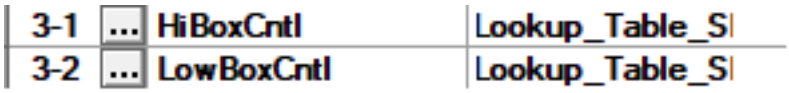


Lookup Table #2

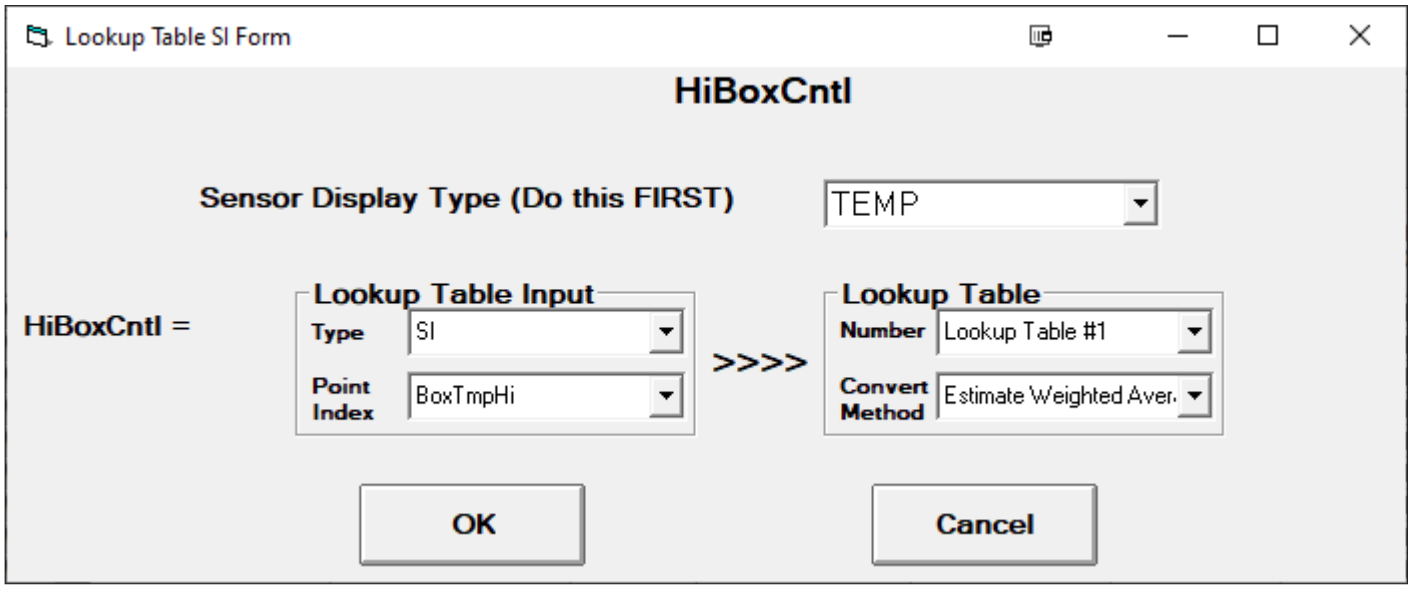
#	Input Column BoxTmpLow	Output Column LowTmpCntl
1	-60	-60
2	-57	-57
3	-54	-54
4	-51	-51
5	-48	-48
6	-45	-45
7	-43	-43
8	-40	-40
9	-37	-37
10	-34	-34
11	-30	-30
12	-27	-27
13	-24	-24
14	-20	-20
15	-16	-16
16	-14	-14
17	-12	-12
18	-10	-10
19	-5	-5
20	0	0
21	0.1	-80

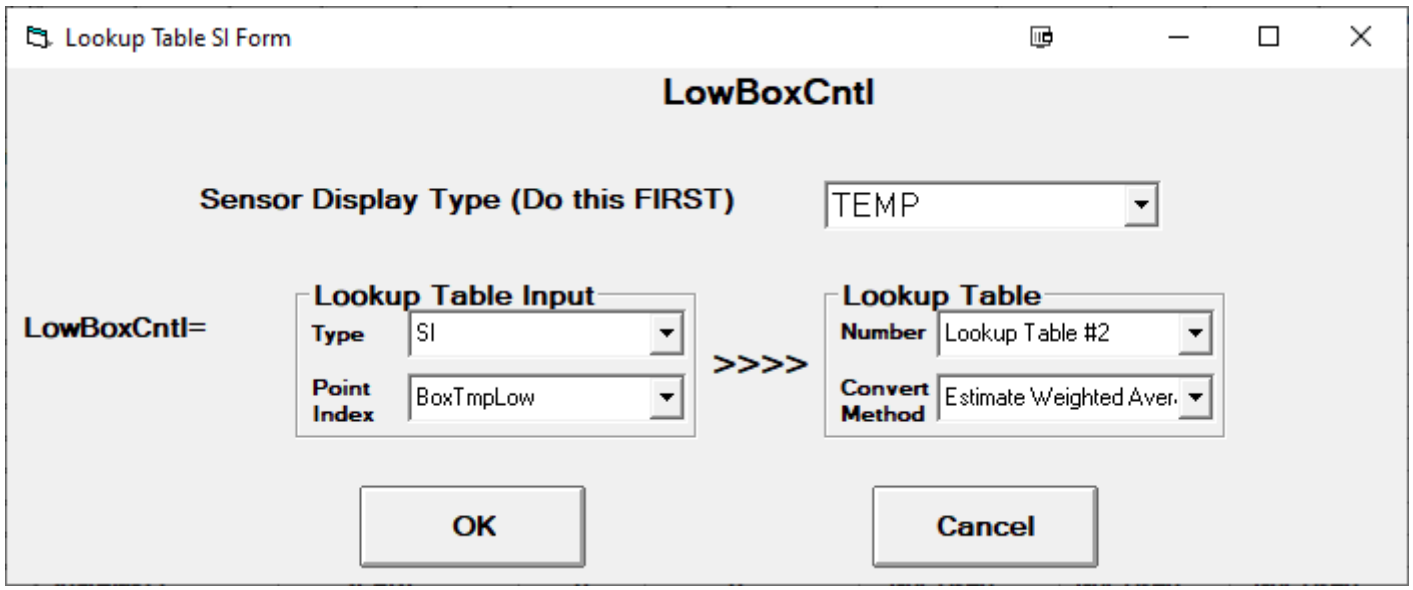
Note the negative values for the low temp sensor. This table will set the low temp sensor to a value of -80, whenever the sensor goes above 0.

3. Next is to create 2 virtual sensors, that will reference the lookup table values.

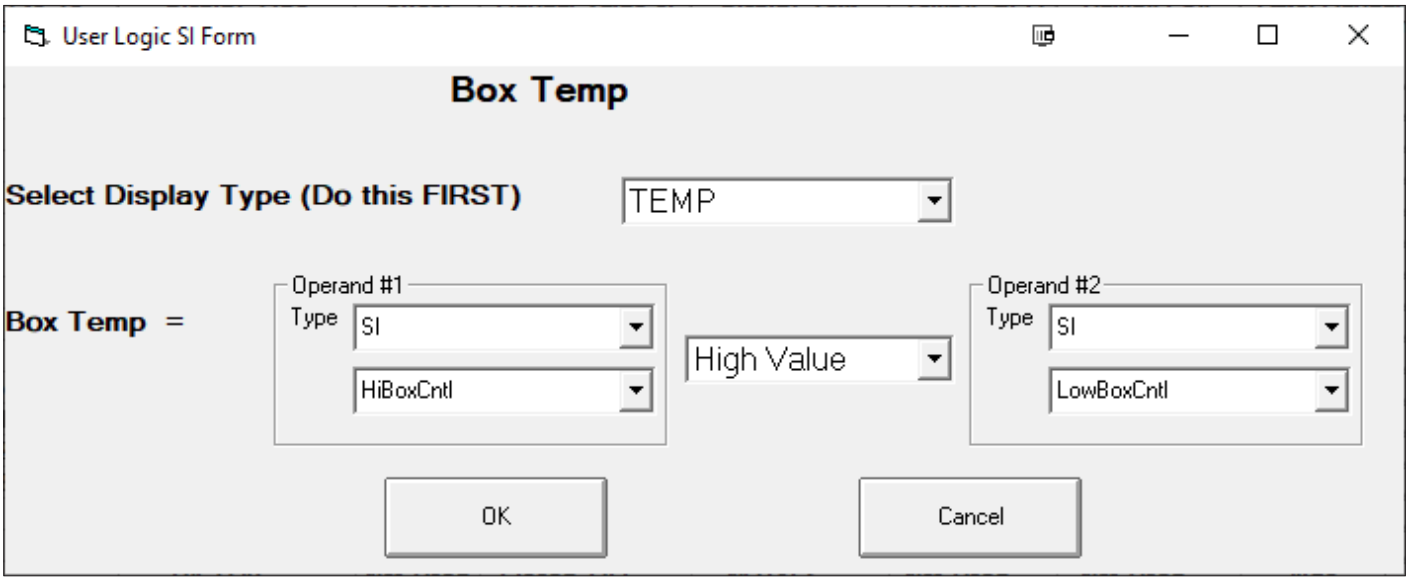


- You'll set up the lookup table to point to the sensor and reference the scale like shown below.





4. With that done, you just need to create a user logic sensor input that will be the High Value of either of the lookup table sensors.



The box temp sensor input will now look at the low temp sensor whenever the temp is below 0, and the high temp sensor whenever the temp is above 0. You can adjust the scaling of the high temp sensor to go over 100, by adjusting the values in the high lookup table as needed.