T° Sᴇɴᴛʀʏ Mᴏᴅᴇʟ 140
Digital Alarm Module

Iᴀ - Oᴘᴛɪᴏɴ
Aᴅᴅᴇɴᴅᴜᴍ
4 - 20 mA

T°Sentry 140 - I Option

Calibrate/Setup Parameters

The button sequence to access the I Option Parameters is as follows:
    (rhythm is: *press, press, press, release, wait*)
    Press and hold **LO**, and then also **HI**, and then also **PROGRAM**
    Release only **LO**, the display should say "CAL", <u>wait for 'blip'</u>
    Now release **HI** and **PROGRAM**.

The set of 4-20mA calibration/setup parameters is as follows:

dAO   Test parameter, simulated probe temperature
t4   Defines the low temperature, at which 4mA is output (t4 < t20)
t20   Defines the high temperature, at which 20mA is output
c4   4mA D/A converter calibration – please don't change
c20   20mA D/A converter calibration – please don't change
OFF   Offset – should be set to zero while adjusting other parameters
dEF   Factory set parameter – please don't change

dAO is a TEST PARAMETER ONLY. You may set it to a *simulated temperature value*. While this parameter is shown on the display the output of the 4-20mA current loop will vary as you change the dAO value based on the following equation (I_{out} value in mA):

$$I_{out} = 20 - \frac{16 \cdot (t20 - dAO)}{t20 - t4} \quad \text{where} \quad t4 \le dAO \le t20$$

t4 and **t20** are set to factory defaults, but may be tailored to your application. These two values set the low and high value of the temperature range for the 4-20mA output, where t4=4mA and t20=20mA. While these values are on the screen a fixed 4mA or 20mA will be on the output. The t4 value must always be less than the t20 value.

c4 and **c20** are factory calibrated hexadecimal values, and **usually should not be adjusted**. While the values are shown on display, 4mA and 20mA respectively are available on the 4-20mA output. Adjustment of these values requires a precision ammeter. As the value is changed, the output current will change. If needed, make small adjustments to calibrate the output to exactly 4mA and 20mA. The c4 value must always be less than the c20 value. Do not adjust c4 below 3mA or c20 above 21mA.

Offset (**OFF**) adds or subtracts a constant value from all temperature readings. You may use it as a coarse calibration adjustment. Be certain you understand the ramifications of adjusting this value before you change it from the default of zero.