**COMPASS for Flow Calibration Software**

Global macro to specify Reference uncertainty by range in sccm@0C

Macro code to ignore the uncertainty values that you have entered for your references (support devices) in COMPASS for Flow software. This macro allows you to specify your reference uncertainty (in % Reading and/or % Span) according to ranges of flow. This can be used with “Measurement Uncertainty in COMPASS for Flow - Test Macro” and would be inserted after the degrees of freedom check, before the ExpUnc calculation.

Copy and Paste all of the following text into a new Global Macro.

*'Alternate Reference Uncertainty Calculation/Determination - by Flow Range*

*'converting RefF to sccm@0C for range check*

**Function** **UncRefByRange**(RefF, RefFunit, RefFunitTxt)

i=1 *'use For -> Next loop for multiple DUTs*

dUnit = cCOMPASS.cConfig.DUTPrs(i).RangeMain.UnitFinal *'use DUTPrs*

 cDebug.LogStatus "DUT Units = " & dUnit

RefF\_sccm = cCOMPASS.UnitConversion(**CDbl**(RefF), 10, **CInt**(dUnit), 0) *'10 is integer ID for sccm@0C*

 cDebug.LogStatus "RefF\_sccm = " & RefF\_sccm

*'range specific coefs for calculation of reference uncertainty*

Delta = 0 *'Only use %Rdg for uncertainty unless flow is below threshold value*

**If** RefF\_sccm >= 5000 **Then** *'3E4-L*

 PctRdg = 0.2/100

**ElseIf** RefF\_sccm >= 2000 **Then** *'1E4-L*

 PctRdg = 0.2/100

**ElseIf** RefF\_sccm >= 200 **Then** *'1E3-L*

 PctRdg = 0.2/100

**ElseIf** RefF\_sccm >= 20 **Then** *'1E2-L*

 PctRdg = 0.2/100

**ElseIf** RefF\_sccm >= 2 **Then** *'1E1-L %Rdg*

 PctRdg = 0.01/100

**Else**

 PctRdg = 0.0 *'1E1-L*

 Delta = 0.2 *'Threshold Unc. of 0.2 sccm@0C*

**End If**

 cDebug.LogStatus "PctRdg = " & PctRdg

 cDebug.LogStatus "Delta = " & Delta & " " & "sccm@0C"

*'converting Delta to test unit*

Delta = cCOMPASS.UnitConversion(**CDbl**(Delta), **CInt**(dUnit),1, 0)

 cDebug.LogStatus "Delta = " & Delta & " " & dUnit

URef = (RefF\*PctRdg) + Delta

 cDebug.LogStatus "Reference Tolerance (alt) = " & Uref

**End Function**