3689A DUT Setup in COMPASS for Pressure calibration software.

100 psig range shown. Other ranges are the same with exception of range and resolution (commands are the same). 100 psia range use a different initialization command for absolute mode that is 01U for psi abs, 03U for inHg abs. See the 3689A manual for more details.

Updates:

8-November-2021 to include ReplyParser macro text as Appendix A

- 1. Menu path to create a new DUT is: Setup \rightarrow DUT
- 2. The 'Header' tab is shown by default.
- 3. Create a new DUT by clicking the white piece of paper icon at the top right of the window.
- 4. Enter the "Record Label" at the top as something like '3689A 100 psig'
- 5. The 'DUT Type' should be 'Simple Pressure DUT'. There is no reason for these devices to be setup as 'Advanced DUT'
- 6. The 'Record Type' should be 'Profile w/Range' so the Serial Number and/or Identification and/or Customer ID can be changed when starting a test.

DUT Editor			×
Record Label 3689A 10	10 psig	2/10 ∢	D
Header Calibration Communications	Output Comment		Ð
DUT Type		•	
Record Type	Profile w/Range	•	KO.
Manufacturer	King Nutronics	- MA	
Model 3683A		•	\mathbf{X}
Serial Number SN			
Identification	CAGE xxxxx		A
Customer ID			
			\bigcirc
			_
	1		
	Close		

- 7. Select the 'Communications' tab
- 8. Ensure that the settings match those shown below
- 9. Click the [Edit Commands] button

DUT Editor	×
Record Label 3689A 100 psig	<mark>2/10</mark>
	B
_ Interface	
Data Acquisition Type IEEE-488 💌	10
IEEE-488 Address 4	
	X
Send EOS with EOI on write	
Terminate Read on EOS 🔽	- 1
Command Timeout(s) 8	
Command Terminator	
EOS Byte 10	dit Commands

- 10. Ensure that the settings for each of the two initialization commands, and one read command, match those shown below.
- 11. If changes are made to a command, then press the save icon that is a black disk **to** save the changes before moving to the next command.

12. First initialization command 00U (set psi gauge mode)

100 psig Commands INIT 1)00U	Command Global Settings	Ľ
INIT 2)1D Read *1)1C	Command Type Initialize	J 🗎
	Command Number 1	U D
	Command 00U	-
	Delay After Command (s) 1 Read Response	⊮ `
	Process Response	\sim
	Manipulate Response	J ^
,		_ 🤶
	OK	

'Global Settings' tab

🚱 :100 psig		×
Commands INIT 1)00U INIT 2)1D Read *1)1C	Command Global Settings	
	Use Multiplexer Never Poll Frequency (ms)	
		×
	<u>0</u> K	

13. Second initialization command 1D (no delay)

🚱 :100 psig			×
Commands INIT 1)00U INIT 2)1D	Command Global Settings	1	
Read *1)1C	Command Type Command Number		
	Delay After Command (s) Read Response		K)
	Process Response Manipulate Response		$ \mathbf{x} $
1			()
	<u></u> K		

'Global Settings' tab

🚱 :100 psig		×
Commands INIT 1)00U INIT 2)1D Read "1)1C	Command [Global Settings]	
	Use Multiplexer Never	10 X
	<u></u> K	0

14. Read command 1C (Not a closed system. Compensate for barometric pressure changes.)

🚱 :100 psig	×
Commands [NIT 1)00U [NIT 2]ID [Command]] Global Settings	
Read *1)1C Command Type Read	
Command Number 1 💌	
Command 1C	
Delay After Command (s) 0 Read Response 🕱	K)
Process Response 🕱 Manipulate Response Parse368	9Pressure 🔽 🗙
<u></u> K	

See Appendix A for "Parse3689Pressure" ReplyParser macro text

🔊 :100 psig		×
Commands INIT 1)00U Read *1)1C	Command Global Settings	
	<u><u>D</u>K</u>	

- 15. If changes are made, then press the save icon that is a black disk 🖬 to save the changes
- 16. Press the [OK] button to return to the prior window
- 17. Press the save icon that is a black disk to save the changes

Repeat the above steps for each range 3689A DUT in the same manner. Each range is a different DUT in COMPASS.

The below images show the 'Output' tab for each 3689A Range. Verify that the 'Output' tab matches those shown below. 100 psig range has 4 digits of resolution.

DUT Editor	×
Record Label 3689A 100 psig	2/10
	Pressure
	Assurement Mode Gauge
Tolerance Const in Final Unit (Greater Of) %Readi Final Unit	

100 psia range (optional, not formally calibrated by these systems but can be done as a check of the PG7601-500 System in absolute mode and/or a verification of the TI in absolute mode, 100 psi range.

DUT Editor		\times
Record Label 3689A 100 psig	2/10	D
Header Calibration Communications Output Co	→ →	6
Raw Output Output Type Pressure	DUT Pressure Final Output Label 100 psig Measurement Mode Gauge Unit psi Min 0.0000	10 X
Resolution 0.0001	Max 100.0000 Resolution 0.0001	B
Tolerance Const in Final Unit (Greater Of) %Readi ▼	Final Unit 0.001 %Reading 0.025	0

2000 psig range

DUT Editor		×
Record Label 3689A 2000 psig	3/10	D
Header Calibration Communications Output Co	▶	6
Raw Output Output Type Pressure Source IEEE-488 Output Unit psi Min 0.000 Max 2000.000 Resolution 0.001	DUT Pressure Final Output Label 2000 psig Measurement Mode Gauge Unit psi Min 0.000 Max 2000.000	
Tolerance Const in Final Unit (Greater Of) %Readi	Resolution 0.001 Final Unit 0.001 %Reading 0.025	2 2 2

10,000 psig range

DUT Editor				×
Record La	bel 3689A 10000 psig		4/10	D
Header Calibration Co	ommunications Output Co	mment	•	Þ
Raw Output Output Type Source Output Unit Min Max Resolution	Pressure ▼ IEEE-488	Мах	Gauge psi 0.00 10000.00	
Tolerance Const in Final Unit (G		Final Unit 0.001	0.01	2
		<u>C</u> lose		

35 inHg absolute range

DUT Editor		×
Record Label 3689A 35 in Hg	abs 5 / 10	D
Header Calibration Communications Out	tput Comment	Þ
Raw Output Output Type Pressure Source IEEE-488 Output Unit inHg Min 0.000000 Max 35.00000 Resolution 0.00001	■ ■	
Resolution 0.000001 Tolerance		?

18. Appendix A. "Parse3689Pressure" ReplyParser macro text

'Reply :Raw unmanipulated response of a device. 'ParamID :Parameter ID of the device 'cRange :Range class that the output applies to.

```
'The value is returned by setting the function name = 'to the calculated value..
```

Function Parse3689Pressure(Reply, ParamID, cRange)

On Error Resume Next

```
temp1 = trim(reply) 'remove any leading or trailing spaces
' cDebug.LogStatus "Raw reply = " & reply & ", Trimmed reply = " & temp
```

```
temp = Replace(temp1,"•","") 'remove •, ASCII undefined character, ASCII code 127
' cDebug.LogStatus "Raw reply = " & reply & ", trimmed reply without spaces or ASCII 127 character • = " & temp
```

```
p = Instr(temp,Chr(0))
```

If P > 0 Then

```
' cDebug.LogStatus "Null Found:" & P
    prs= Mid(temp,p+1)
```

Else

```
' cDebug.LogStatus "Null Found:" & temp
prs = temp
```

End If

```
L=0
fText = geytract(prs 0.1
```

fText = **qextract**(prs,0,1," ")

L = len (fText) rtv= "" If L =1 Then

rtv = GetVal(qextract(reply,1,0," "))

Else

```
rtv = GetVal(reply)
```

End If

cDebug.LogStatus "End value = " & rtv

Parse3689Pressure = rtv

End Function

19. End of instructions