Crystal Pressure 30 Series (IS33)

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<u>Overview</u>

- Compatible with COMPASS for Pressure v5
- micro-USB connection, direct to the computer
- Requires driver dated 2017 or newer
- ReplyParser macro required
- Response Terminator = ">" / "<"
- COM port settings = 4800,N,8,1

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1. Introduction

Ametek's Crystal Pressure 30 Series is also known as the model IS33. The serial port outputs data in a method where it continuously streams data. Most terminal communications tools are designed for a query and listen method where the return string is terminated with an end of string character. The IS33 is not like this. Therefore, a ReplyParser macro is required to extract the pressure sensor data from the stream. The IS33 requires unique Command and Response Terminators.

This tutorial shows show to setup a Basic DUT definition for each channel. A summary of an Advanced DUT definition is provided to show how both outputs can be combined. Automated adjustments of the IS33 are not supported with COMPASS for Pressure.

2. Basic DUT Definition



DUT Editor			×
Record Label 30 Series, L	o Sensor	4/156	Ľ
Header Calibration Communications	Output Comment		Đ
DUT Type	Simple Pressure DUT	-	
Record Type	Individual	•	KO.
Manufacturer	Crystal Engineering	- M	
Model	IS33	•	X
Serial Number	2925-908007		
Identification			, produce and the second se
Customer ID			
			$(\ref{eq: constraint})$
			\sim
	<u>C</u> lose		

The is33 has hard-coded RS232 settings of 4800, N, 8, 1 and must be configured the same in COMPASS.

The Command and Response Terminator fields must be as shown. The is33 uses the ">" and "<" characters to indicate battery strength, and these are the last ASCII characters in the data string. Therefore, COMPASS uses these to interpret when the string is complete.

DUT Editor		×
Record Label 30 Series, Lo Sensor	4/156	D
	▲	
Header Calibration Communications Output Comment		Ð
Interface		
Data Acquisition Type RS232 💌		IC).
RS232 Port COM9 Ports		-
RS232 Settings 4800,N,8,1		X
Handshaking None		
Binary Command Set		E.
Command Timeout(s) 2		
Command Terminator		$(\mathbf{?})$
Response Terminator > / <	Edit Commands	\mathbf{r}
Close		

[Edit Commands] Button: The Initialize command must be a capital "C".

😵 Output Command Editor:Lo Sens	or	×
Commands INIT 1)C Read *1)*	Command Global Settings	
	<u>U</u> K	

The Read command uses the asteriks character and the ReplyParser macro "Series30_LoP" is used to extract the pressure value from the data string. This macro must be created before it can be assigned for use with the DUT. If it does not yet exist in your database, then scroll to the bottom of the drop down list and select the [Add/Edit Macro] option. This will open the COMPASS Macro Editor tool where you can create the macro.

😵 Output Command Editor:Lo Sen	sor		×
Commands INIT 1)C Read *1)*	Command Global Settings	1	Ľ
	Command Type Read	•	43
	Command Number 1		
	Command ×	-	
	Delay After Command (s)		K○
	Read Response X		
	Manipulate Response Series30_LoP	•	X
			?
	<u> </u>		

The is33 is available in various pressure ranges. Define the Min and Max values to match your hardware.

DUT Editor		×
Record Label 30 Series, Lo Sensor	4/156	D
Header Calibration Communications Output Co	mment	Đ
Raw Output Output Type Source RS232 Output Unit Min 0.00 Max 300.00 Resolution 0.01	DUT Pressure Final Output Label Lo Sensor Measurement Mode Gauge Unit psi Min 0.00 Max 300.00	
Tolerance %Span + %Reading	%Span 0.005 %Reading 0.050	2
	<u>C</u> lose	

The Comment Tab is optional.

DUT Editor		×
Record Label 30 Series, Lo Sensor	4 / 156	D
Header Calibration Communications Output Comment		Ð
Device Comment		
COM settings are hard coded at 4800,N,8,1 Command Terminator = blank Response Terminator = the greater and less than symbols, "> / <"	^	⊮⊃ ×
	~	
Setup Info		2

3. Advanced DUT Definition (optional)

The advanced definition combines the Hi and Lo sensor outputs into a single DUT definition. Configuring the DUT as two Basic definitions or a single Advanced definition is user preference. This example is shown as a Profile type and without a serial number. A profile type can be advantageous when there are multiple devices in one's inventory. When a COMPASS Test is initialized, the operator is then prompted for inputting the specific serial number and pressure range information.

DUT	Editor			×
	Record Label 30 Series H	i and Lo	2 / 156	D
	,		•	
Hea	der Calibration Communications	Output Set Comment		Ð
	DUT Type	Advanced DUT {>1 Output}	<u> </u>	
	Record Type	Profile	<u> </u>	KO.
	Manufacturer	Crystal Engineering	✓ ▲	
	Model	1533	▼	X
	Serial Number			
	Identification			F
	Customer ID			Ĩ
				Ø
DUT	Editor			×
	Record Label 30 Series H	iand lo	2 / 156	D)
	100 00100 11		•	
				Ba
Hea	der Calibration Communications	Output Set Comment		
⊢In	terface—	ace.	M	
	Dat	a Acquisition Type RS232 🔹		2
		RS232 Port COM9 Ports		
		RS232 Settings 4800,N,8,1		X
		Handshaking None 💌		
	Bi	nary Command Set		
	Co	ommand Timeout(s) 2		
	Cor	nmand Terminator 📃 🚽		(2)

Response Terminator > / <

<u>C</u>lose

•

DUT Editor				×
Record I	_abel 30 Series Hi ar	id Lo	2 / 156	
Header Calibration	Communications Ou	itput Set Comment		벽비
Final Output Labels				H
1)Hi Sensor 2)Lo Sensor		Output #1		$\mathbb{K} \cap$
2,00 36130	Raw Output	Pressure 0.0 - 3000.0 psi		• •
	Final Output	DUT Pressure: 0.0 / 3000.0 psi		X
I		<u>E</u> dit Output		18
Add		<u>E</u> dit Commands		
Copy <u>R</u> emove				0
		Close		

[Edit Output] button: When defining an Advanced Device of the Profile type, the output fields must be prepopulated with a value. These values can be over written when initializing a test

Output Relationship	×		
Raw Output Final Output Tolerance			
Required Raw Outputs to determine Final Output			
Output Type Pressure	psi 🔹		
Output Source RS232			
Minimum 0.0	Output Relationship	×	
Maximum 3000.0	Raw Output Final Output Tolerance		
Resolution 0.1	Label Hi Sens	n	
	Output Type Pressure	e Output Relationship	×
Raw Output to Final Output Relationship	Final Output DUT Pr	essure Raw Output Final Output Tolerance	
Same {Raw Output = Final Output}	Pressure Measurement Mode Gauge	Number of Tolerance Segments 1	
	Unit psi	Segment Tolerance	tea al
QK <u>Cancel</u>	Minimum 0.0	%Span 0.005	
	Maximum 3000.0	*Beading 0.000	- +
	Resolution 0.1	Tolerance Segment Definition	
		All Final Outputs	
		Cancel	Min Max
		<u> </u>	Cancel

The [Edit Commands] button has the same configuration as used with the Basic DUT setup.

[Set] Tab: Because the is33 is a measure-only device, there are no "Set" selections to be applied.

4. ReplyParser Macros

Two macros are required – one for the Hi Sensor and one for the Lo Sensor. To add a new macro, click on the file folder named "ReplyParser" on the left side tree of the COMPASS Macro Editor tool. Next, click on the New Macro button on the tool bar. Insert the text as shown below.

"Series30HiP" Macro:

Note, when naming a macro function name, it can't begin with a number. This is why the Function names are "Series30" instead of "30 Series" name of the Ametek product.



5. USB Driver

The revision D or later model 30 Series product communicates with the computer using a micro USB interface and an Ametek driver. The driver creates a virtual COM port within Windows. The driver must be dated 2017 or newer. If there is a problem with the driver or it is missing, then COMPASS for Pressure will be unable to communicate with the 30 Series.

Note: Revision A, B, or C models use a flat cable connector to RS232 adaptor. These units connect to a 9-pin Dsub RS232 port. They do not require drivers to communicate.

Communication Port: Revision Identification



Use the Windows Device Manager to view the driver status. The "Crystal Engineering" device must be listed in both the **Ports** and the **Universal Serial Bus Controllers** sections. If they are missing or have a message status indicator next to the line, then the drivers need to be installed or updated.



Crystal USB drivers are available here:

https://www.ametekcalibration.com/products/pressure/pressure-calibrators/30-seriespressure-calibrator

When the drivers have been downloaded, then update them from the Windows Device Manager tool. Start with the **Universal Serial Bus Controller** listing:

- a. Right click, update driver.
- b. Choose *Browse my computer for driver software* at the *How do you want to search for driver software*? Prompt.
- c. Navigate to the location where you saved the driver download.
- d. Be sure to enable the checkbox *Include Subfolders*. Install.

If needed, repeat steps a – d for installing drivers for the **Ports** – *Crystal Engineering Serial Port*. A computer restart may be required.

<end of tutorial>

P.S. --

This tutorial addresses only the data collection aspect of a calibration. Span adjustments, also known as slope adjustments are applied using Ametek's "ConfigM30" software.