

Crystal Pressure 30 Series (IS33)

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Overview

- 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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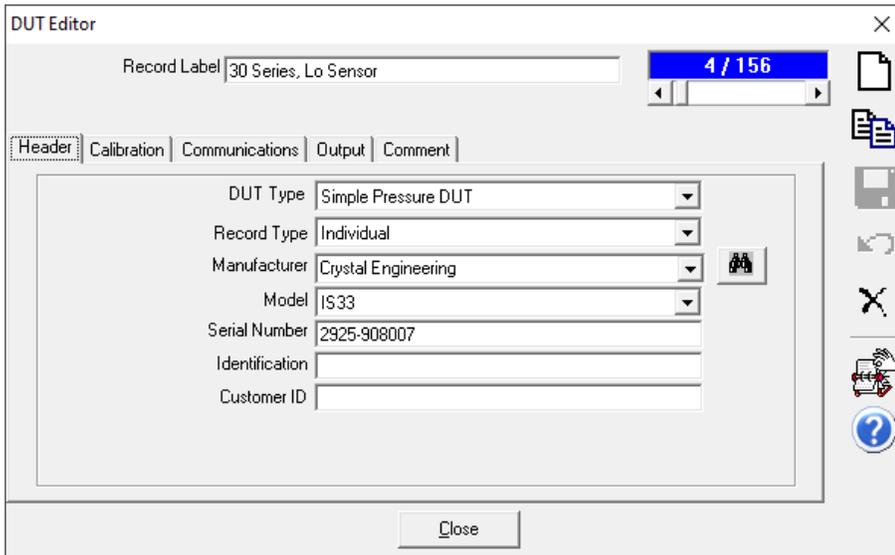


1. Introduction

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.

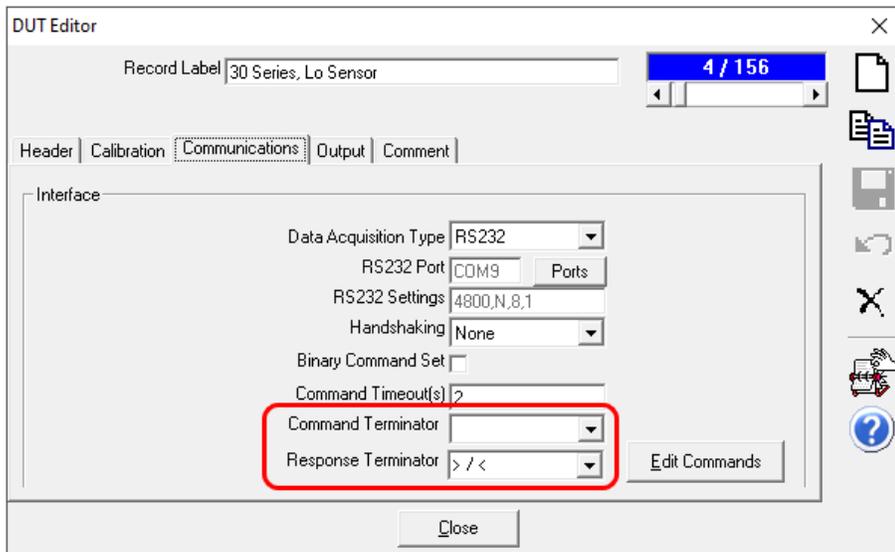
This tutorial shows how to setup a Basic DUT definition for each channel. A summary of an Advanced DUT definition is provided to show how both outputs can be combined. Automated adjustments of the IS33 are not supported with COMPASS for Pressure.

2. Basic DUT Definition

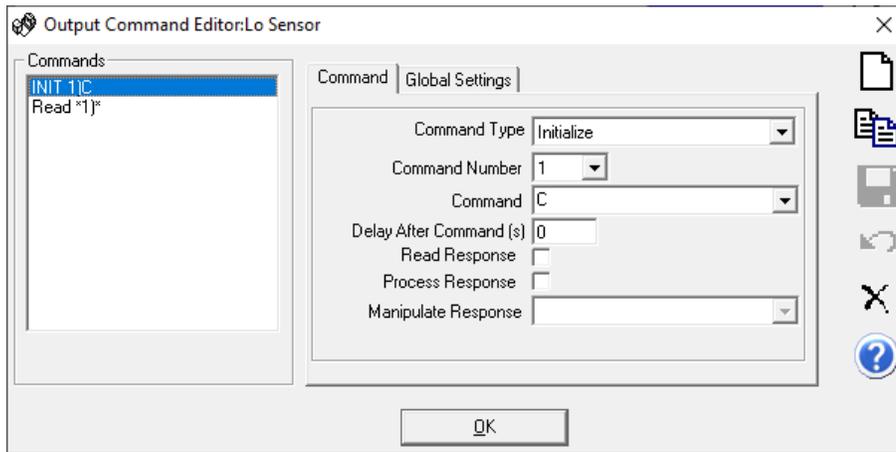


The is33 has hard-coded RS232 settings of 4800, N, 8, 1 and must be configured the same in COMPASS.

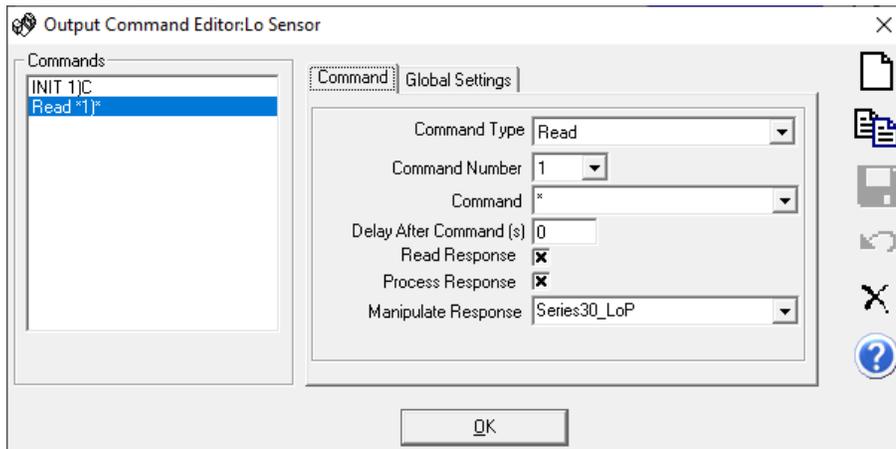
The Command and Response Terminator fields must be as shown. The is33 uses the ">" and "<" characters to indicate battery strength, and these are the last ASCII characters in the data string. Therefore, COMPASS uses these to interpret when the string is complete.



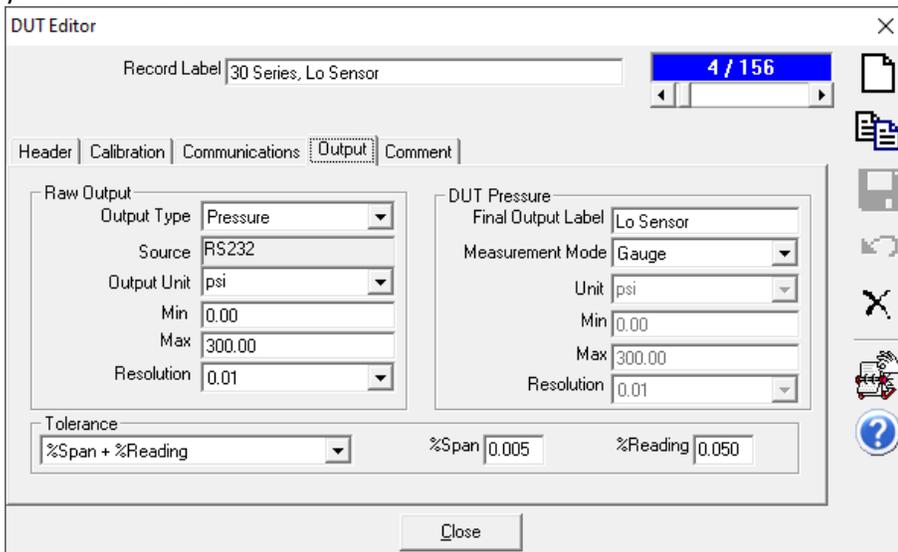
[Edit Commands] Button: The Initialize command must be a capital "C".



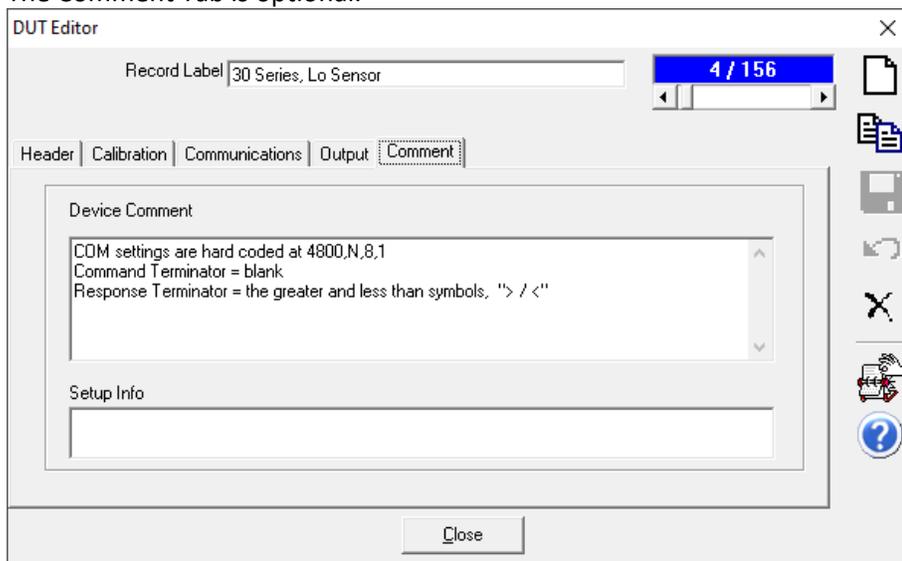
The Read command uses the asteriks character and the ReplyParser macro "Series30_LoP" is used to extract the pressure value from the data string. This macro must be created before it can be assigned for use with the DUT. If it does not yet exist in your database, then scroll to the bottom of the drop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



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

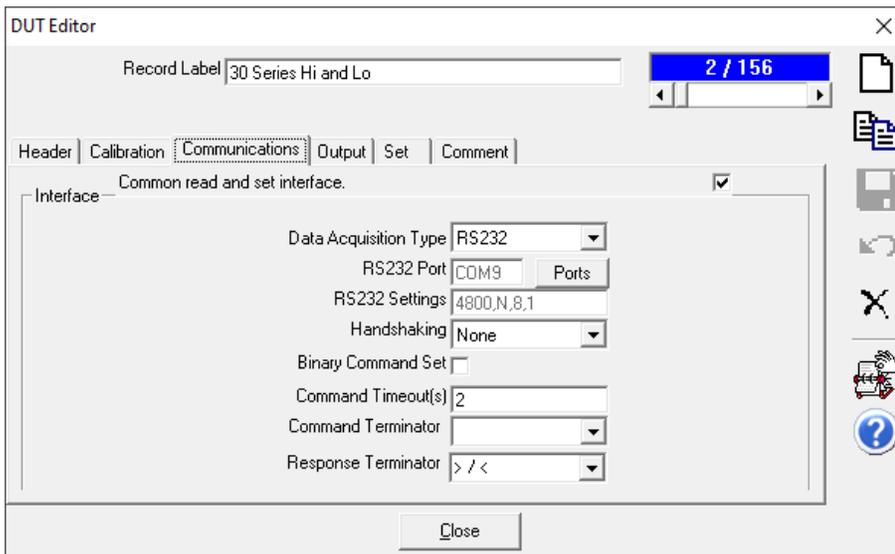
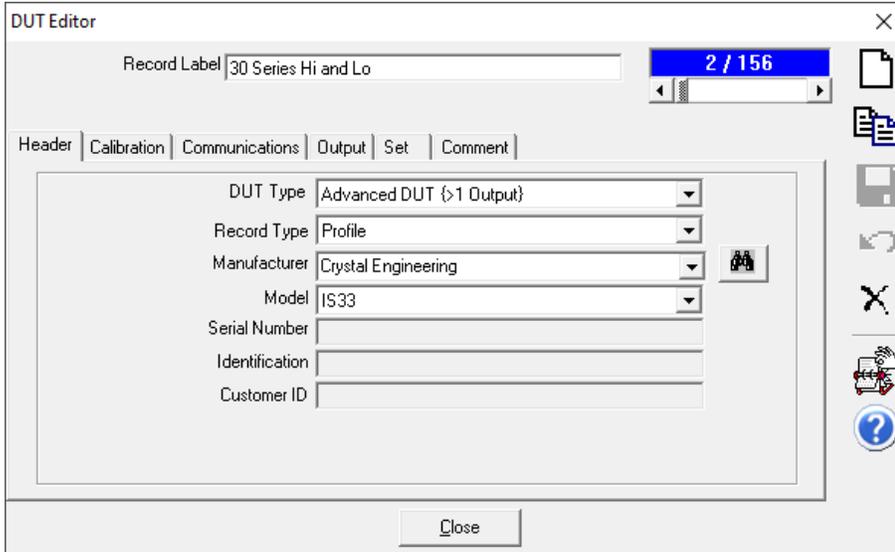


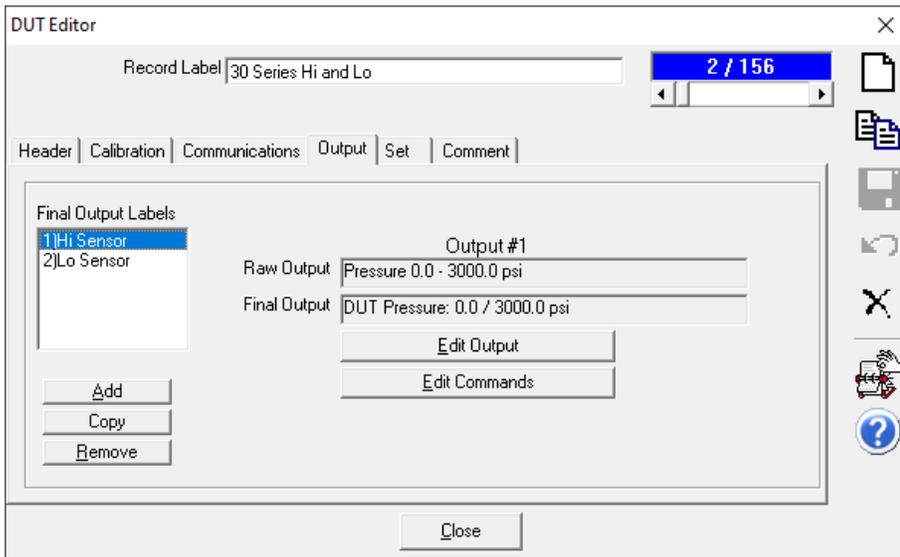
The Comment Tab is optional.



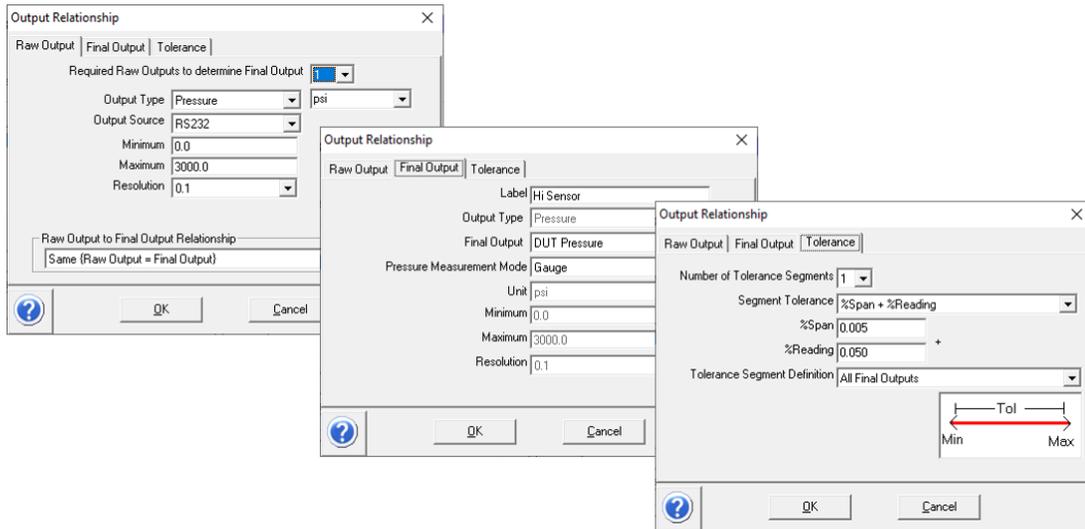
3. Advanced DUT Definition (optional)

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.





[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.



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.

“Series30LoP” Macro:

```
Function Series30LoP(Reply, ParamID, cRange)

'Evaluate the start of the return string for a "P1" to identify
'the low pressure sensor measurement.
'Filter out any strings which contain "T" as this is an ADC value.

If Left(Reply,2) = "P1" And Mid(Reply,3,1) <> "T" Then
    Prs = qextract(Reply,2,3,"")
End If

Series30LoP = Prs

End Function
```

“Series30HiP” Macro:

```
Function Series30HiP(Reply, ParamID, cRange)

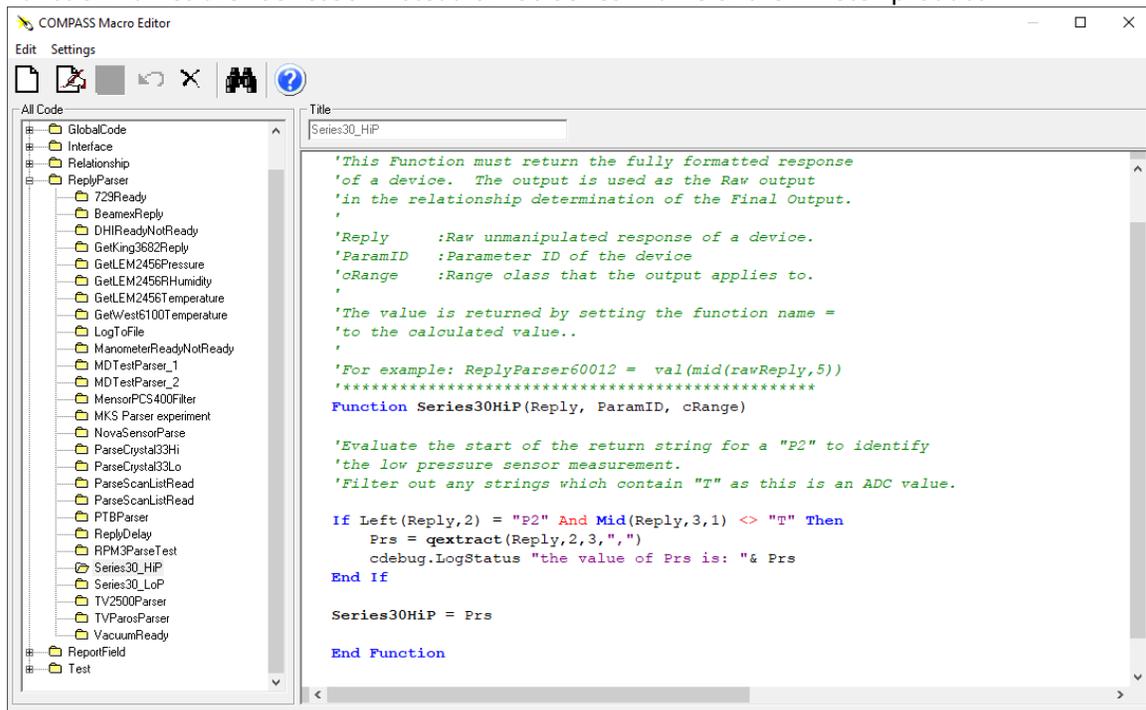
'Evaluate the start of the return string for a "P2" to identify
'the low pressure sensor measurement.
'Filter out any strings which contain "T" as this is an ADC value.

If Left(Reply,2) = "P2" And Mid(Reply,3,1) <> "T" Then
    Prs = qextract(Reply,2,3,"")
End If

Series30HiP = Prs

End Function
```

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.

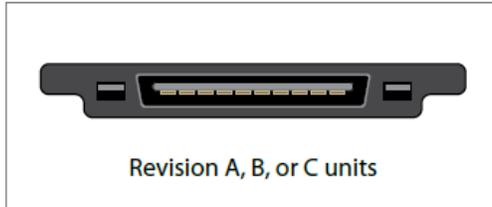


5. USB Driver

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

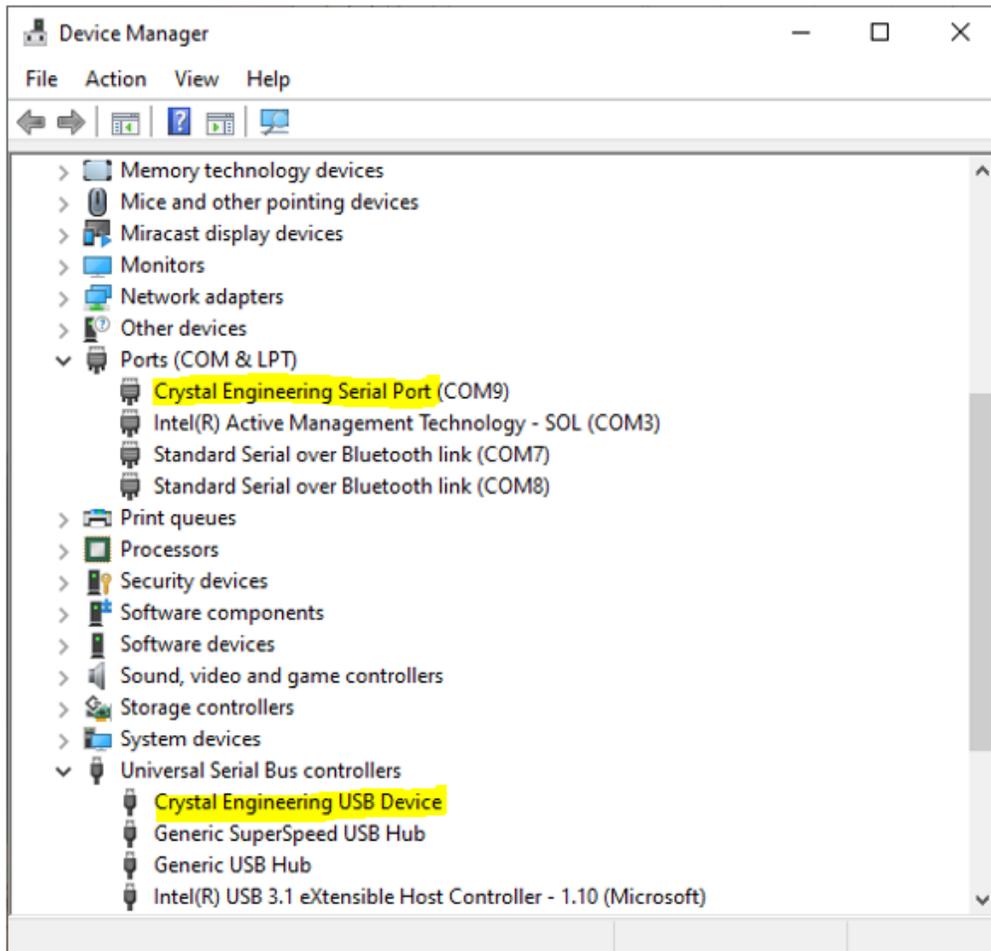


30 Series Serial port



30 Series Micro-USB port

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-series-pressure-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.