

Setup Guide

CRD34 Actuator



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• Getting Connected

Note! Before attempting to connect to the CRD34, please ensure you have the latest Software and Firmware installed on your laptop.

1. Go to website: www.cla-val.ch
2. Click on 'Download' located down the left-hand side (Fig 1.)
3. Click on 'E-Line' on the taskbar across the top right-hand side of the screen (Fig 2.)
4. Download 'Cla-Val Driver USB' Software and Firmware to your PC (Fig 3.)
5. Download 'e-CPC-34/e-Drive-34' Software and Firmware to your PC (Fig 4.)

****It is important that you do not allow Windows to install the USB Driver as the cable will not function correctly when connected. If you have Windows 10 on your PC, please follow the instructions on pages 3, 4 & 5 on this document****

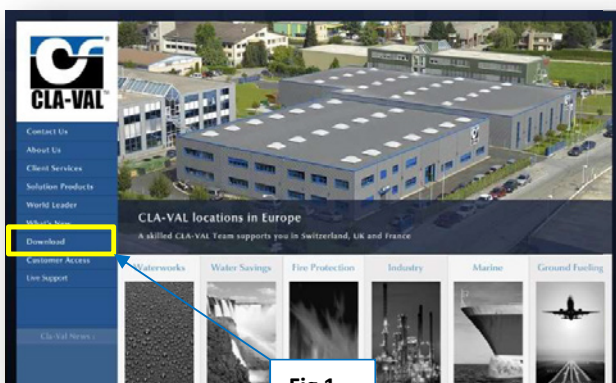


Fig 1.



Fig 2.

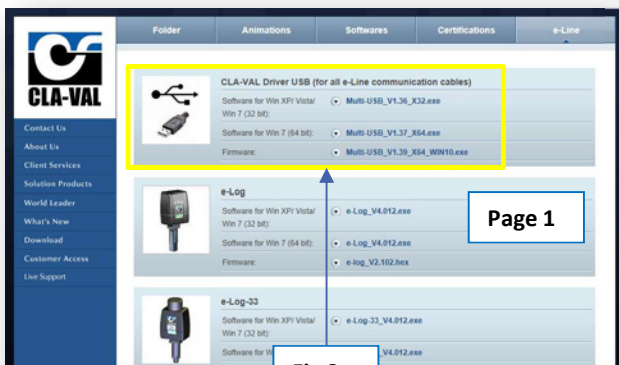


Fig 3.

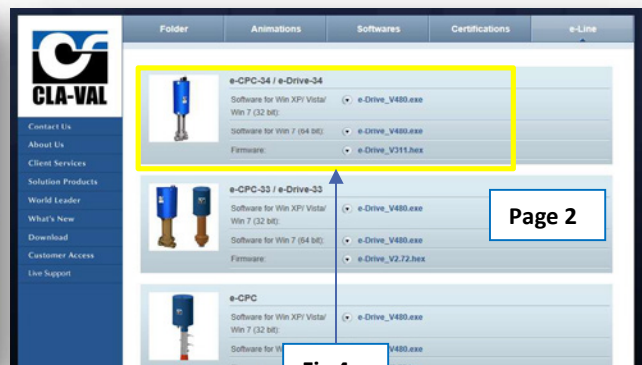
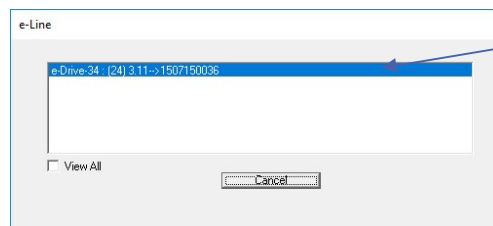


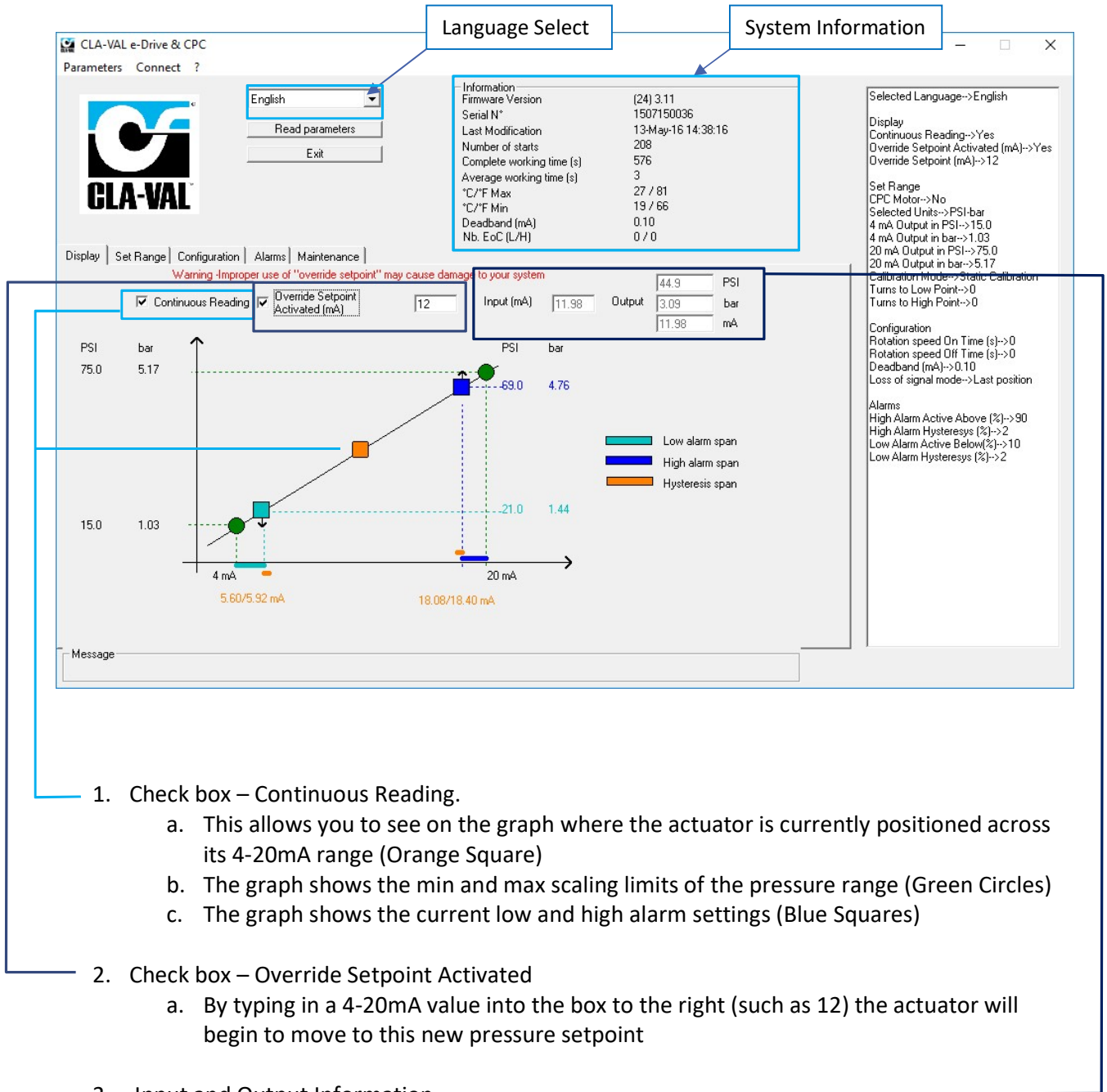
Fig 4.

The e-CPC-34/e-Drive-34 icon will appear on your PC desktop.

6. With the USB lead installed and connected to the PC and CRD34 click on the icon to open the software
7. When the software opens it will display the detail of the unit you are connected to. Click on this detail.



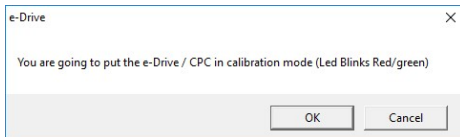
- **Important Information on the Display Screen**



- **Statically Calibrating the CRD34 Actuator 4-20mA Pressure Range**

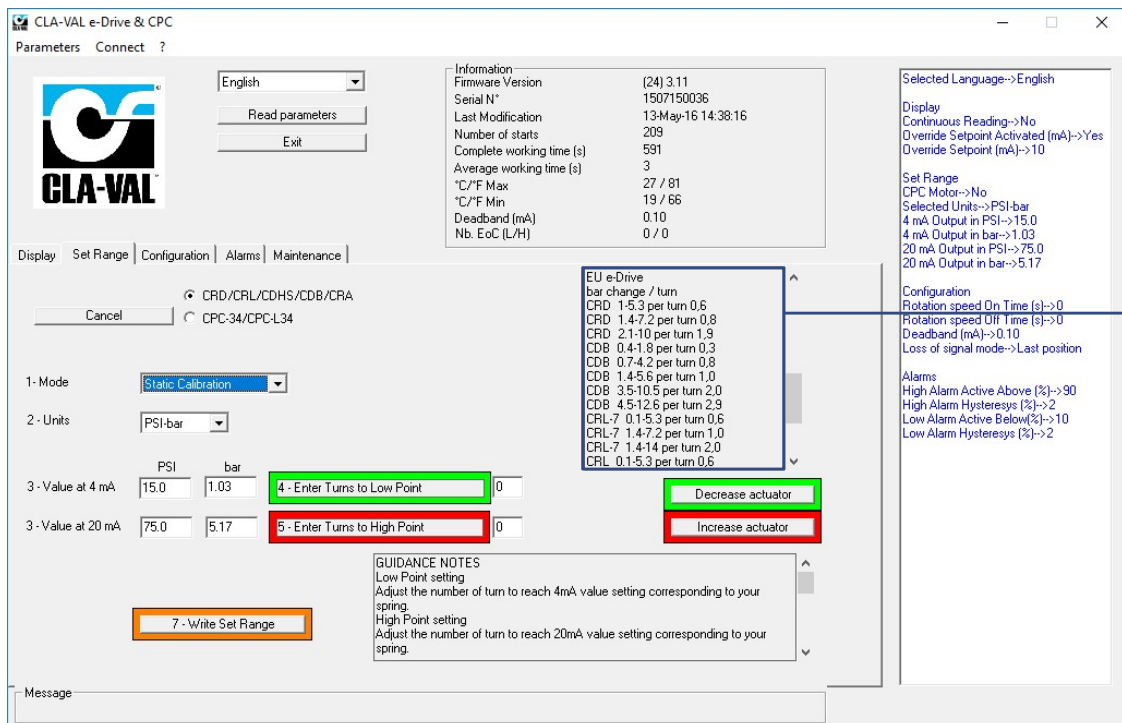
NOTE! In order to perform a Static Calibration, the current downstream pressure value must be known plus the spring rating inside the pilot!!

1. Firstly, click 'Set Range' on the taskbar to open the calibration screen. A message will appear warning you that you are going into the calibration mode, click OK.



****LED on actuator begins to blink RED & GREEN****

2. Check the box named; CRD/CRL/CDHS/CDB/CRA
3. Select 'Static Calibration' from the drop-down menu and select the pressure units (if required)



4. There is a list of spring pressure ratings denoting the pressure change per each 360 Degree adjustment of the CRD pilot. Please ensure you know what spring rating is inside the pilot.
5. To work out the number of turns to achieve both high and low pressure from current pressure value, please see example below.

Using a 1.4 to 7.2 bar spring = 0.8 bar pressure change for every 360-degree turn.

The current downstream pressure is 3 bar and you wish to set the low pressure at 2 bar and high pressure at 4.2 bar

Formula for low pressure: -

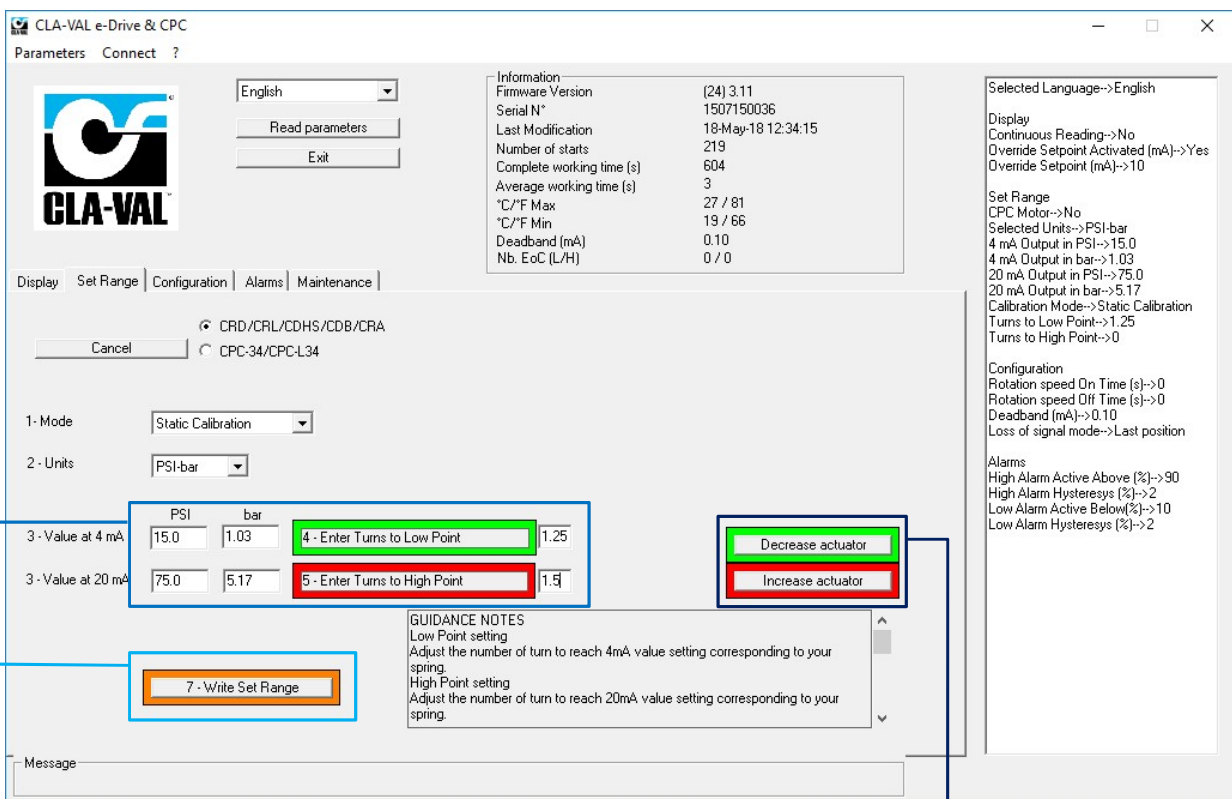
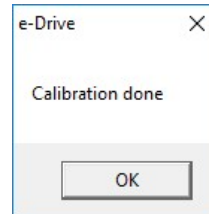
$$3 \text{ bar} - 2 \text{ bar} = \frac{1.0 \text{ bar}}{0.8 \text{ bar}} = \underline{1.25 \text{ turns to low}}$$

Formula for high pressure: -

$$4.2 \text{ bar} - 3 \text{ bar} = \frac{1.2 \text{ bar}}{0.8 \text{ bar}} = \underline{1.5 \text{ turns to high}}$$

Continued...

6. Once the high and low values have been established, they need to be entered in the boxes immediately to the right of **4 - Enter Turns to Low Point** & **5 - Enter Turns to High Point**
7. You can also type in your new pressure range in the boxes to the left.
8. Click on **7 - Write Set Range** to write these values to the actuator. Done!
9. A message will appear – Calibration Done! Click OK.



Note! If you need to adjust the actuator in order to commission the PRV you can do so by clicking on the **Increase actuator** & **Decrease actuator** tabs to set the downstream pressure.

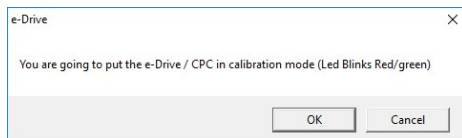
****PLEASE DO THIS BEFORE ATTEMPTING TO STATICALLY CALIBRATE****

- **Dynamically Calibrating the CRD34 Actuator Pressure Range – High and Low**

Note! This method of calibration can only be performed if the PRV is able to be operated fully between the new high and low pressure set points.

Preparation:-

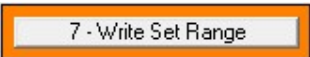
- Ensure there is a pressure gauge installed downstream of the valve
1. Firstly, click 'Set Range' on the taskbar to open the calibration screen. A message will appear warning you that you are going into the calibration mode, click OK.

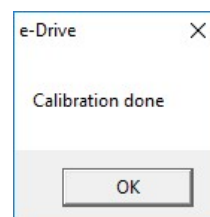


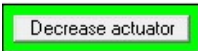
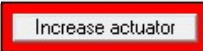
****LED on actuator begins to blink RED & GREEN****

2. Check the box named; CRD/CRL/CDHS/CDB/CRA
3. Select 'Dynamic Calibration' from the drop-down menu and select the pressure units (if required)
4. Using the **Decrease actuator** **Increase actuator** begin to drive the motor to adjust the outlet pressure on the PRV. When the **minimum** pressure setting is reached click on **Stop actuator**
5. Then click on **Low point setting** to calibrate the low pressure 4mA.
The 4. Adjust valve to 4mA value is highlighted in green.
6. Using the **Increase actuator** begin to drive the outlet pressure up until the desired **maximum** pressure setting is reached, click on **Stop actuator**
7. Then click on **High point setting** to calibrate the high pressure 20mA.
The 5. Adjust valve to 20mA value is highlighted in red.
8. Type the high and low pressure values in the boxes underneath 'bar'.


Continued...

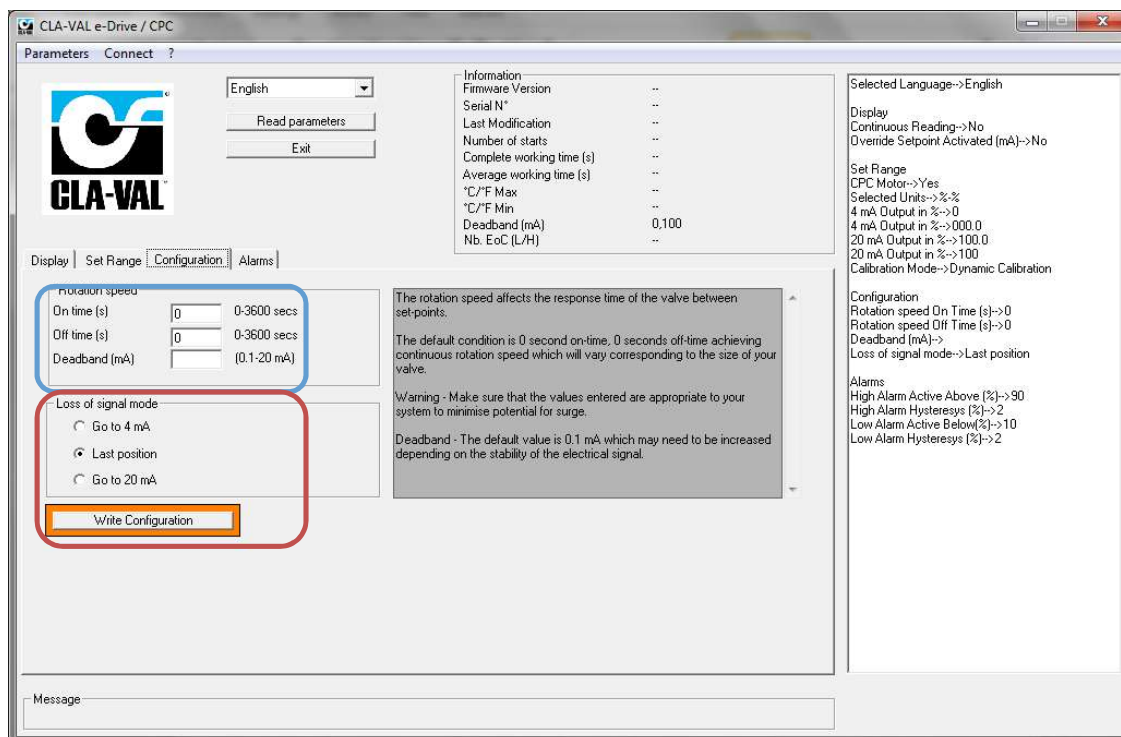
9. Click on 
10. A message will appear Calibration Done! Click OK.



Note! If you overshoot the pressure you can use the   to fine tune the outlet pressure

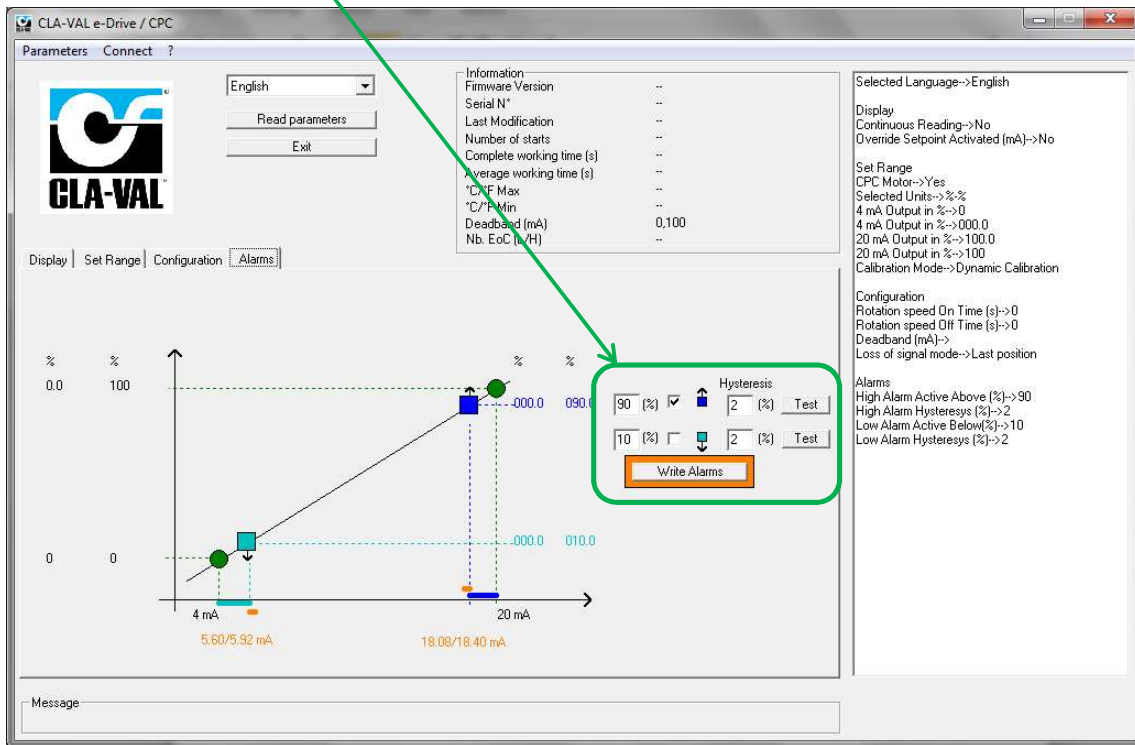
• Configuring the Actuator Speed and Loss of Signal

1. Click on 'Configuration' on the task bar
2. To set the Actuator rotation speed enter (if not controlled via SCADA) enter a time in seconds in each of the windows for time on and time off – (a good actuation speed is 1 second on 5 seconds off – if 0 and 0 are selected the actuator runs continuously)
3. To set the default position of the actuator if the 4-20mA input signal is lost, click one of the boxes for preference.
4. In either case – click on  to upload this information to the actuator



- **Setting the Low and High Level Alarms**

1. Click on 'Alarms' on the taskbar
2. Enter a % value in box highlighted for upper and lower limits for an alarm relay output
3. Click on 'Write Alarms' to upload to the actuator



- **Diagnostic for the LED**

- At start-up, the LED remains red for 5 seconds, then switches to blinking green.
- Solid Green - Status OK, USB cable connected on the maintenance port.
- Blinking Green - Status OK, normal operation
- No light - Check 24VDC power supply.
- Red – 1. Exceed high torque limit - Power down and power up again.
 - 2. Excess voltage (above 32 Volts).
 - 3. Update firmware (please wait until update is finished).
- Blinking Red/Green – 1. Actuator in calibration mode
 - 2. Calibration was not completed correctly - recalibrate.

- **Wiring Diagram**



Code	Function	Colour
0V-	Connect to ground (negative)	Black
24V +	Power supply (positive)	Red
+ 4-20mA	Actuator Pressure Feedback	Green
Common	4-20mA loop and push button	Pink
+ 4-20mA	Command Signal (set-point)	Yellow
- 4-20mA	Command Signal (set-point)	Grey
Alarm 1	Actuator LOW relay - input	Brown
Alarm 1	Actuator LOW relay - output	Blue
Alarm 2	Actuator HIGH relay - input	Orange
Alarm 2	Actuator HIGH relay - output	White
Manual 1	*Decrease actuator – push button	Turquoise
Manual 2	*Increase actuator – push button	Purple

***Actuator can only be manually overridden when the milliamp supply is removed from the command signal (yellow & grey)**

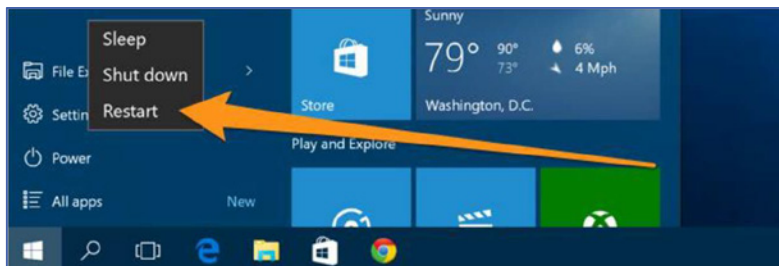
- **Installing Cla-Val USB (Windows 10)**

To install the Cla-Val USB cable if you have Windows 8.1 or 10 you must first 'Disable the Driver Signature Verification'.

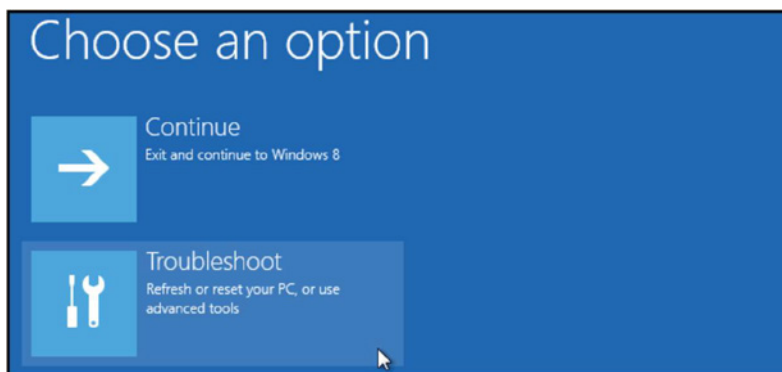
To do this you need to get into the Troubleshooting options from the boot manager.

Simply select Restart from the power options menu (on Windows 8 that's under Charms or on the login screen, and in Windows 10 it's on the Start Menu).

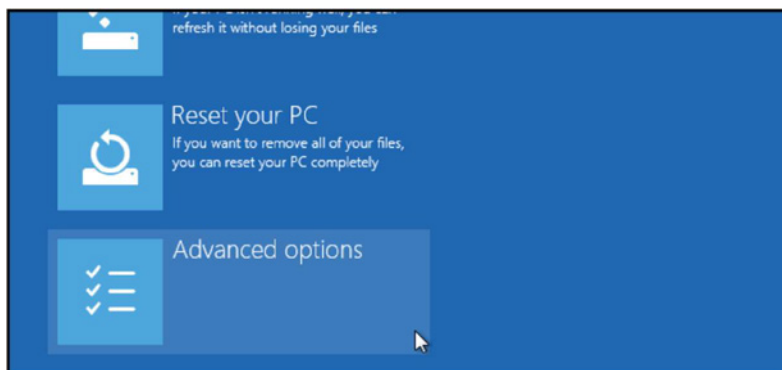
Hold down the SHIFT key while you click Restart.



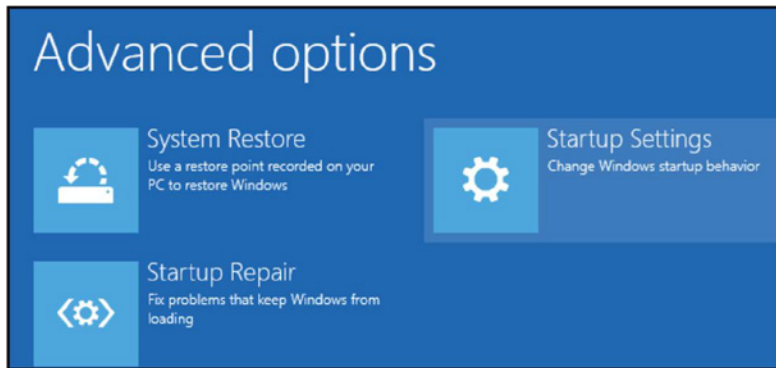
Once your computer has rebooted you will be able to choose the **Troubleshoot** option.



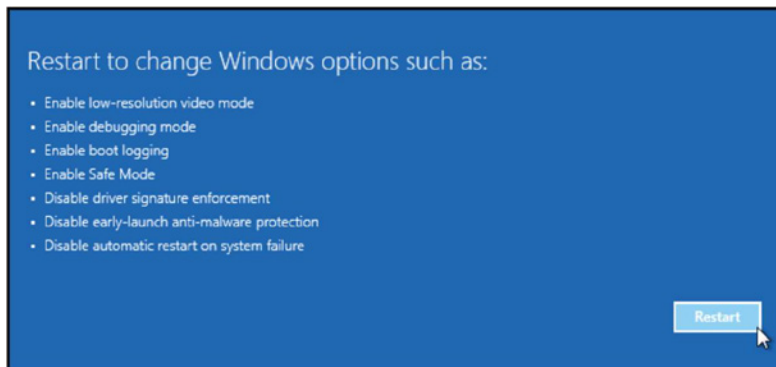
Then click on **Advanced options**.



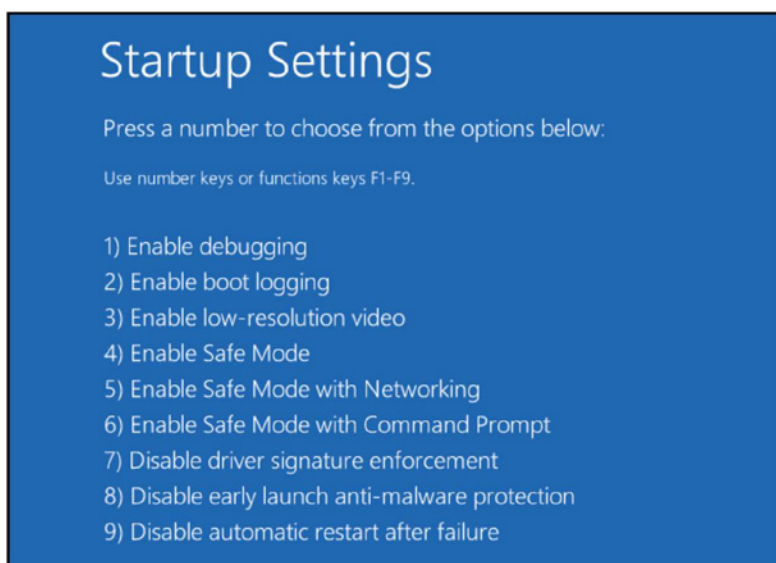
Then **Startup Settings**.



Since we are modifying boot time configuration settings, you will need to restart your Computer one last time. Click Restart.

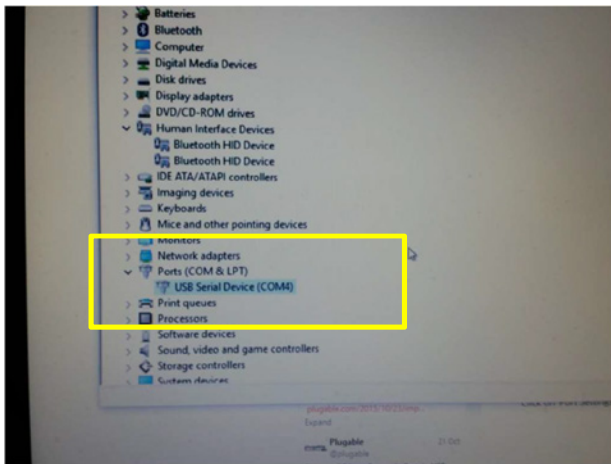


Finally, you will be given a list of startup settings that you can change. The one we are looking for is **“Disable driver signature enforcement”**. To choose the setting, you will need to press the **F7 key**.

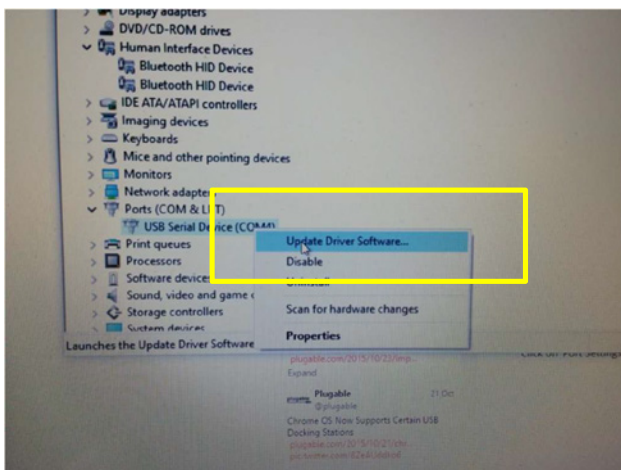


Your PC will then reboot and you will be able to install unsigned drivers without any error message

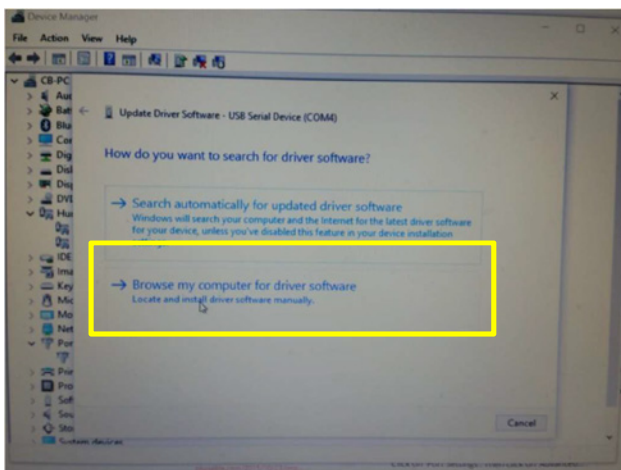
Open your 'Device Manager' then plug the Cla-Val USB cable in to your laptop and look under 'Ports(COM & LPT)' to see which USB Serial Device comes up. (This case it's COM4)



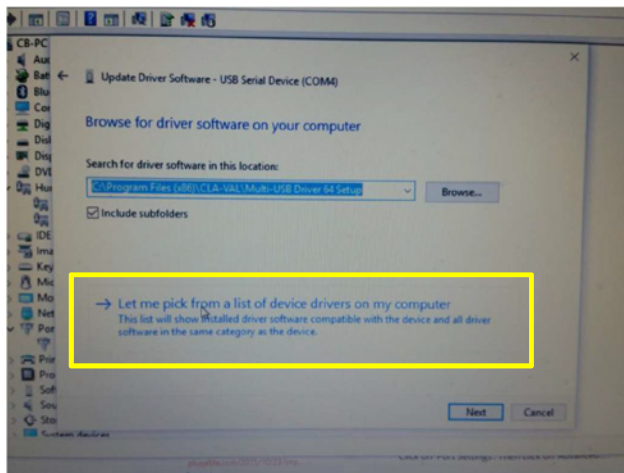
Right click on it and select Update driver software.



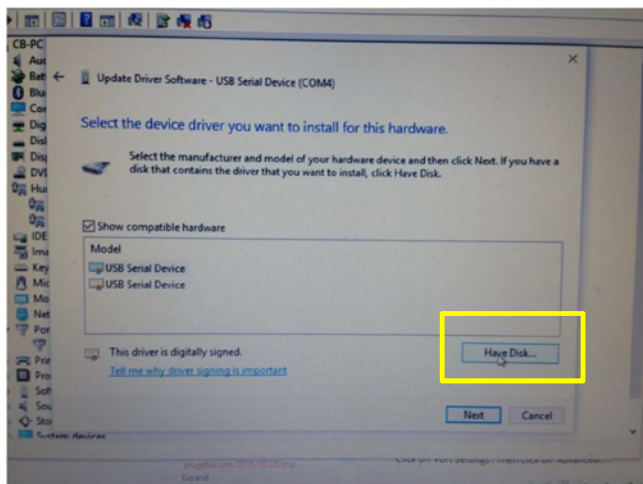
Select – 'Browse my computer for driver software' option



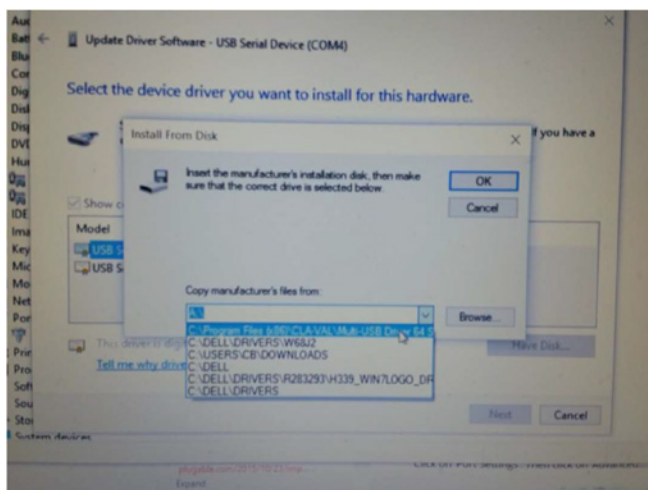
Select – ‘Let me pick from a list...’ option



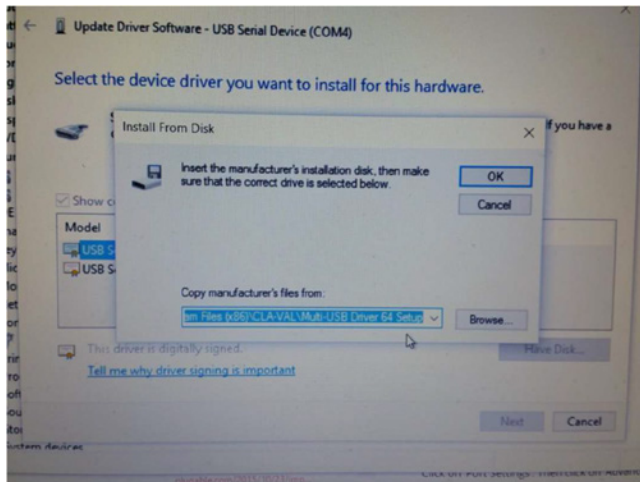
Select – Have Disk



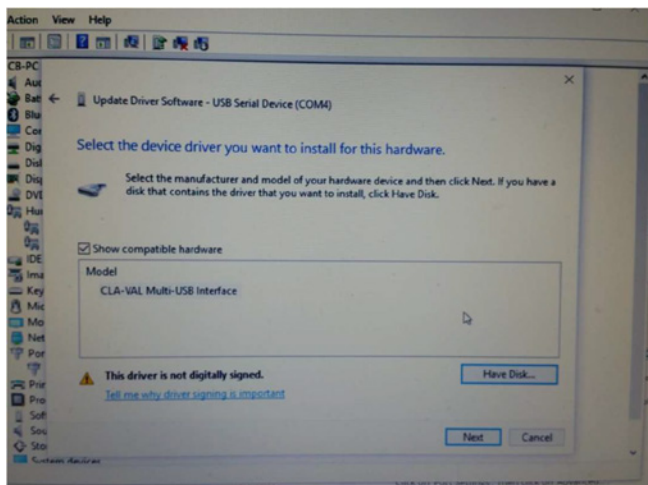
Select 'C:\Program Files(x86)\CLA-VAL\Multi-USB Driver 64 Setup' from the drop down menu. Or wherever you saved the file on software installation. Click on it.



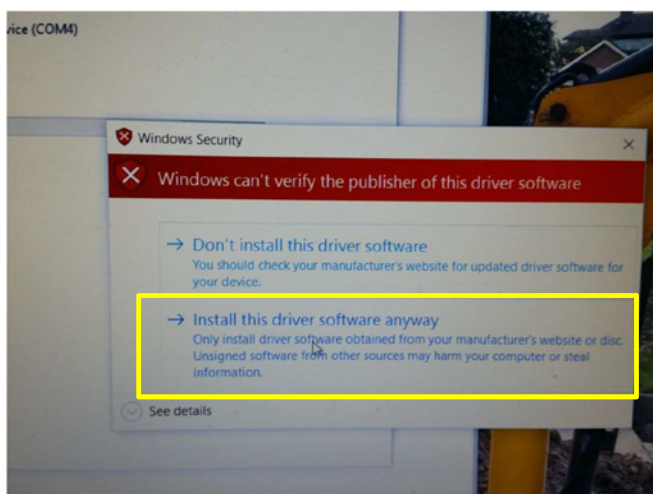
'C:\Program Files(x86)\CLA-VAL\Multi-USB Driver 64 Setup' should now be displaying as below. Click OK.



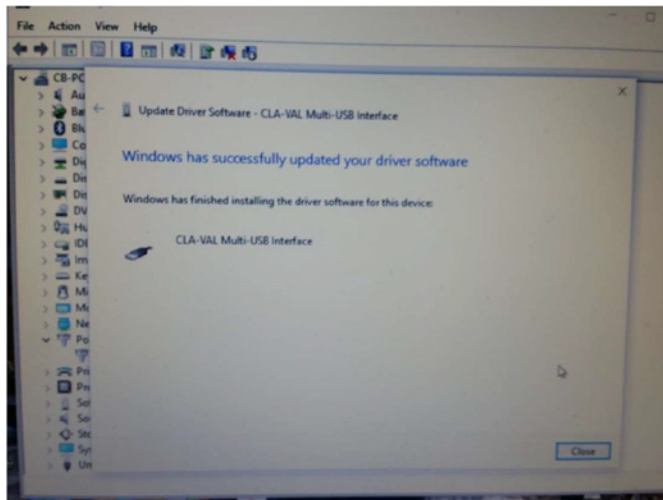
It should now display as below. Click Next.



This Security Warning will pop up. Click 'Install this driver software anyway'.



This screen will now pop up. Click 'Close'



In 'Device Manager' you should now see 'CLA-VAL Multi-USB Interface' shown under 'Universal Serial Bus Controllers' each time you connect the 'Cla-Val USB lead'

