Setup Guide CRD34 Actuator





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<u>Getting Connected</u>

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 <u>do not</u> 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



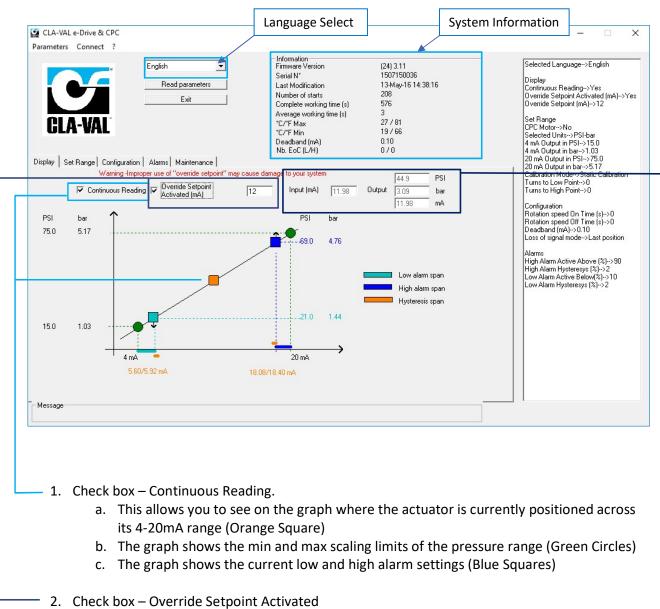


The e-CPC-34/e-Drive-34 icon will appear on your PC desktop.

- 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.

e-Drive-34 : (24) 3.11	1507150036	
		_
🗌 View All	Cancel	

Important Information on the Display Screen



- a. By typing in a 4-20mA value into the box to the right (such as 12) the actuator will begin to move to this new pressure setpoint
- 3. Input and Output Information ·
 - a. displays the current milliamp input signal from your manual override setpoint
 - b. displays the current milliamp feedback signal from the CRD34 actuator
 - c. displays the current pressure values in bar and PSI

• 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.

e-Drive	
You are going to put the e-Drive /	calibration mode (Led Blinks Red/green)

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)

CLA-VAL e-Drive & CPC		– 🗆 X
English Read parameters Exit Display Set Range Configuration Alarms Maintenance CRD/CRL/CDHS/CDB/CRA	Information (24) 3.11 Firmware Version 1507150036 Last Modification 13/4 ay-16 14.38:16 Number of stats 209 Complete working time (s) 591 Average working time (s) 3 "C/"F Max 27 / 81 "C/"F Min 19 / 66 Deadband (mA) 0.10 Nb. EoC (L/H) 0 / 0 EU e-Drive A Darchange / turn CH3 - S3 per turn 0.6	Selected Language>English Display Continuous Reading>No Override Setpoint Activated (mA)>Yes Override Setpoint (mA)>10 Set Range CPC Motor->No Selected Units>PSI-bar 4 mA Dutput in PSI->75.0 4 mA Dutput in PSI->75.0 20 mA Dutput in bar->5.17 Configuration Rotation speed On Time (s)->0
Cancel CPC-34/CPC-L34	CRD 1.4-7.2 per turn 0.8 CRD 21-10 per turn 0.8 CDB 0.4-1.8 per turn 0.3 CDB 0.4-2 per turn 0.8 CDB 1.4-56 per turn 0.8 CDB 1.4-56 per turn 2.0 CDB 4.5-105 per turn 0.6 CRL-7 1.4-72 per turn 0.6 CRL-7 1.4-14 per turn 2.0 CRL 0.15.3 per turn 0.6 CRL 0.15.3 per turn 0.6	Rotation speed 0ff Time is->0 Deadband (m4)->0.10 Loss of signal mode->Last position Alarms High Alarm Active Above (%)->90 High Alarm Hysteresys (%)->2 Low Alarm Active Below(%)->10 Low Alarm Hysteresys (%)->2
3 - Value at 4 mA 15.0 1.03 4 - Enter Turns to 3 - Value at 20 mA 75.0 5.17 5 - Enter Turns to	o High Point 0 Increase actuator	
7 - Write Set Range	GUIDANCE NOTES Low Point setting Adjust the number of turn to reach 4mA value setting corresponding to your spring. High Point setting Adjust the number of turn to reach 20mA value setting corresponding to your spring.	
Message		,

- 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: -	Formula for high pressure: -
3 bar – 2 bar = <u>1.0 bar</u> = 1.25 turns to low	4.2 bar – 3 bar = <u>1.2 bar</u> = <u>1.5 turns to high</u>
0.8 bar	0.8 bar

Continued...

immediately to the right of 7. You can also type in your new	have been established, they need to b Enter Turns to Low Point pressure range in the boxes to the left write these values to the actuator. Don ration Done! Click OK. e-Drive Calibration done	ligh Point t. e! ×
CLA-VAL e-Drive & CPC Parameters Connect ?		 – – – × Selected Language->English Display Continuous Reading->No Override Setpoint Activated (mA)->Yes Override Setpoint Activate Below(%)->10 Low Alarm Activate Below(%)->10 Low Alarm Hysteresys (%)->2
GUIDA Low Po Adjust ti spring. T - Write Set Banne	NCE NOTES int setting he number of turn to reach 4mA value setting corresponding to your init setting he number of turn to reach 20mA value setting corresponding to your	

Note! If you need to adjust the actuator in order to commission the PRV you can do so by clicking on the the sectuator & 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.

	e-Drive X	
	You are going to put the e-Drive / CPC in calibration mode (Led Blinks Red/green)	**LED on actuator begins to blink RED & GREEN**
	OK Cancel	
2.	Check the box named; CRD/CRL/CDHS/	CDB/CRA
3.	Select 'Dynamic Calibration' from the d	rop-down menu and select the pressure units (if required)
4.	Using the Decrease actuator I Increase actua	begin to drive the motor to adjust the outlet
	pressure on the PRV. When the minimu	um pressure setting is reached click on
5.	Then click on <u>Low point setting</u> to cal	ibrate the low pressure 4mA.
	The 4. Adjust valve to 4mA value is high	hlighted 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

- 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'.

😭 CLA-VAL e-Drive & CPC			– 🗆 🗙
Parameters Connect ?			
English Read parameters Exit Exit	Firmware Version Serial N* Last Modification Number of starts Complete working time (s) Average working time (s) "C/"F Max "C/"F Max Deadband (mA) Nb. EoC [L/H]	(24) 3.11 1507150036 184May-18 13:17:45 255 559 3 27 / 81 19 / 66 0.55 0 / 0	Selected Language->English Display Continuous Reading->No Ovenide Setpoint Activated (mA)->Yes Ovenide Setpoint (mA)->10 Set Range CPC Motor->No Selected Units->PSI-bar 4 mA Output in PSI->15.0 4 mA Output in PSI->15.0
Display Set Range Configuration Alarms Maintenance			20 mA Output in PSI->75.0 20 mA Output in bar->5.17
C CRD/CRL/CDH5/CDB/CRA Cancel C CPC-34/CPC-L34			Configuration Rotation speed 0n Time (s)->0 Rotation speed 0ff Time (s)->0 Deadband (mA)->0.55 Loss of signal mode->Last position Alarms High Alarm Active Above (%)->90
2 - Units PSI-bar			High Alarm Hysteresys (%)->2 Low Alarm Active Below(%)->10 Low Alarm Hysteresys (%)->2
PSI bar 3 - Value at 4 mA 15.0 1.03 4 - Adjust valve to 4 mA 3 - Value at 20 mA 75.0 5.17 5 - Adjust valve to 20 mA		Decrease actuator	1
75.0 5.17 Low Decr High	ANCE NOTES Point setting : Adjust the valve to 4mA va sear/Increase Actuator buttons then sel Point setting : Adjust the valve to 20mA va base/Increase Actuator then select 'High	ect 'Low point setting' value setting using	
Message			

Continued...

9. Click on 7 - Write Set Range 10. A message will appear Calibration Done! Click	OK.	e-Drive	×
		Calibration done	
		ОК	
Note! If you overshoot the pressure you can use the the outlet pressure	Decrease actuator	Increase act	to fine tune

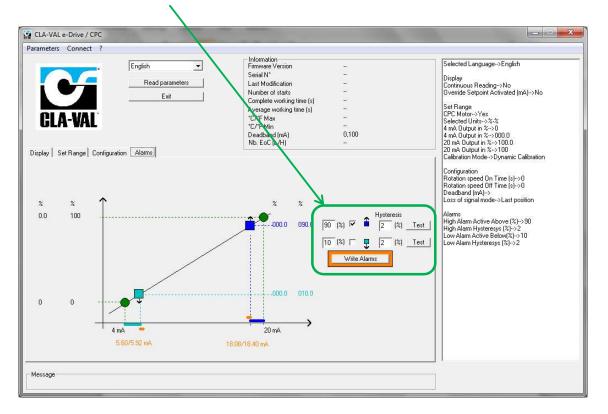
• Configuring the Actuator Speed and Loss of Signal

- 1. Click on 'Configuration' on the task bar
- 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 Write Configuration to upload this information to the actuator

CLA-VAL e-Drive / CPC			
Parameters Connect ?	0.3600 secs 0.3600 secs (0.1-20 mA)	Information Firmware Version Serial N* Last Modification Number of starts Complete working time (s)	Selected Language->English Display Continuous Reading->No Overlied Setpoint Activated (mA)->No Set Range CPC Motor->Yes Selected Units->%% 4 mA Output in %->000 20 mA Output in %->100 Calibration Mode->Dynamic Calibration Calibration Mode->Dynamic Calibration Configuration Rotation speed Off Time (s)->0 Deadband (mA)-> Loss of signal mode->Last position Alarms High Alarm Active Above (%)->90 High Alarm Active Above (%)->90 High Alarm Active Betwe(%)->10 Low Alarm Hysteresys (%)->2
- Message			

• 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'.

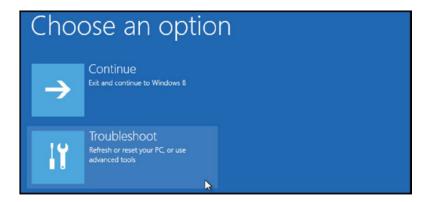
To do this you need to get into the Troubleshooting options from the boot manager.

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.



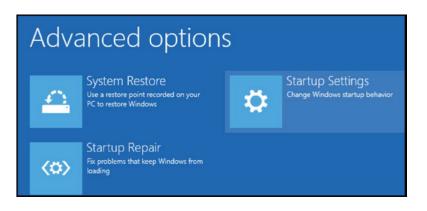
Once your computer has rebooted you will be able to choose the **Troubleshoot option**.



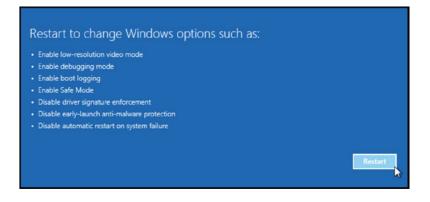
Then click on **Advanced options**.

	refresh it without losing your files
Q	Reset your PC If you want to remove all of your files, you can reset your PC completely
) E	Advanced options

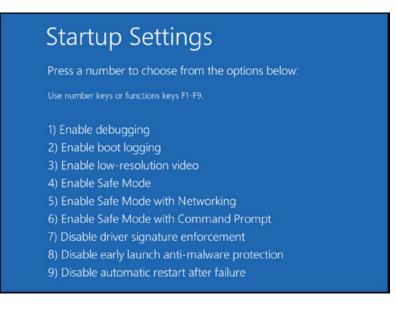
Then Startup Settings.



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

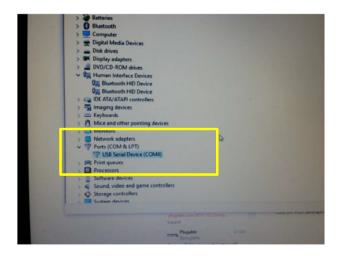


Finally, you will be given a list of startup settings that you can change. The one we are looking for is **"Disable driver signature enforcement".** To choose the setting, you will need to press the **F7 key**.

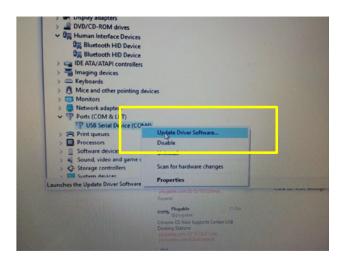


Your PC will then reboot and you will be able to install unsigned drivers without any error message

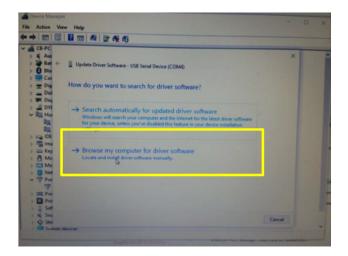
Open your 'Device Manager' then plug the Cla-Val USB cable in to your laptop and look under 'Ports(COM & LPT) to see which USB Serial Device comes up. (This case it's COM4)



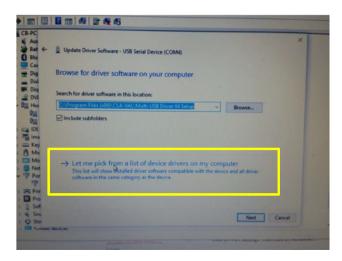
Right click on it and select Update driver software.



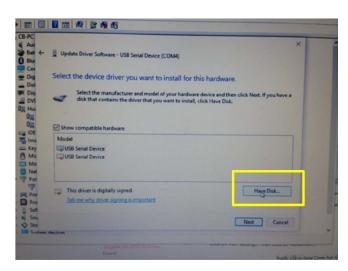
Select – 'Browse my computer for driver software' option



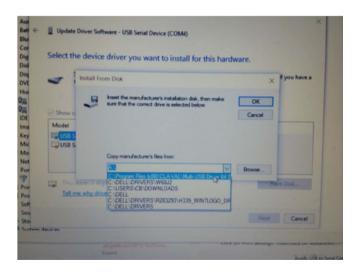
Select – 'Let me pick from a list...' option



Select – Have Disk



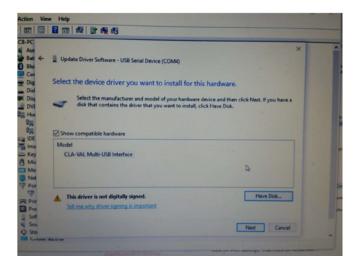
Select 'C\Program Files(x86)\CLA-VAL\Multi-USB Driver 64 Setup' from the drop down menu. Or wherever you saved the file on software installation. Click on it.



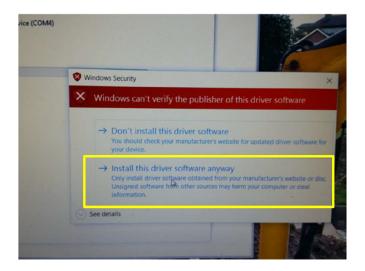
'C\Program Files(x86)\CLA-VAL\Multi-USB Driver 64 Setup' should now be displaying as below. Click OK.



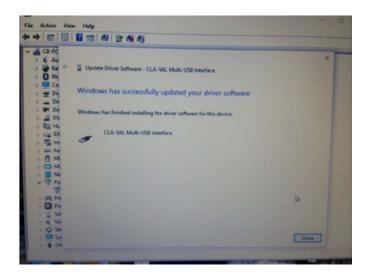
It should now display as below. Click Next.



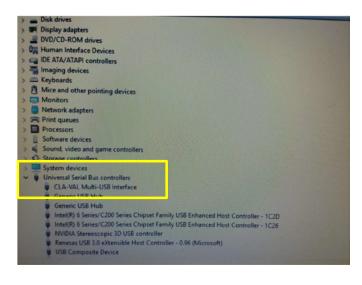
This Security Warning will pop up. Click 'Install this driver software anyway'.



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'





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