

User Manual



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Electronic Valve Controller

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1 INTRODUCTION

1.1 PRECAUTIONS BEFORE STARTING

: Before usage, make sure that the latest software version is installed on your device. You can download the latest software from: <u>www.cla-val.ch</u>.

: This equipment must be handled with precaution. CLA-VAL electronic products are robust and designed to work under field environmental conditions, but high shocks and strong mechanical constraints can damage the equipment and/or alter its functionality.

1.2 TROUBLESHOOTING

1.2.1 NOTHING ON THE OLED DISPLAY

- A) Check if there is a proper battery connection in the Electronic Valve Controller. A low voltage (below 3.3V) could imply having no information on the OLED display.
- B) Check that the device is not in standby mode by holding the magnetic stick over the 😨 button for 5 seconds.

1.2.2 AN INPUT OR VARIABLE IS DISPLAYED IN RED, ORANGE OR BLUE

See the colour coding convention used on the Electronic Valve Controller for the inputs, outputs and variables in chapter 3.1.

1.2.3 ISSUE WITH THE BEHAVIOUR OF THE VALVAPPS™

Refer to the technical datasheet related to your *ValvApps*™, and especially the block diagram and the logic scheme explaining its behaviour.

For any remaining issue, please contact CLA-VAL.

1.3 GENERAL DISCLAIMER

In accordance with our policy of continuous development and improvement, CLA-VAL reserves the right to modify or improve its products at any time without prior notice. CLA-VAL assumes no liability or responsibility for any errors or omissions in the content of this document.

1.4 ENVIRONMENTAL PROTECTION

Help to preserve and protect the environment. Recycle used equipment and accessories.

1.5 **TYPOGRAPHY**

Throughout this manual, the following typographical conventions and symbols have been adopted to help readability:

- a. "Bold": Menu, command, tab and button.
- b. BOLD ITALIC: Important information.
- c. (1): Number of the reference marks on image.
- d. www.cla-val.ch: Internet address.



e. • • · · Some tips.

f. **(**Warning!







Electronic Valve Controller

2 ELECTRICAL & MECHANICAL DETAILS

2.1 TECHNICAL CHARACTERISTICS

Enclosure							
Material	Flame retardant PC/ABS plastic						
Connections	8 (eight) SOURIAU™ UTS circular sockets to connect external sensors						
	1 (one) USB A connector (for external USB key)						
Dimensions	Dimensions 174 mm H x 115 mm W x 85 mm D						
Protection	IP68 (1 month under 2 meters)						
Mounting Bracket	Stainless steel						
	Power Requirements						
Voltage Input	6 VDC to 24 VDC (compatible with CLA-VAL e-Power MP / 2 MP turbines)						
Power Consumption	10 mA in stand-by, 30 mA nominal when regulating (up to 2000 mA peak consumptions)						
Protection	32 VDC over-voltage protection						
	Reverse voltage protection						
	Inputs (SOURIAU Circular sockets)						
Analog (AI1 to AI4)	2 (two) 0-5V (pressure sensor) & 2 (two) 4-20 mA inputs (max. voltage = 32 VDC)						
Digital (DI1 to DI4)	4 (four) dry contacts inputs (max. voltage = 5 VDC @ 0.1 A, max. frequency = 100 Hz)						
Units	Configurable						
Decimal point	1 ("0") to 4 ("0.000") significant digits						
Signal filter Cumulative filter configurable 1% to 99%, or disabled							
Totalizer	Configurable input and units						
	Outputs (SOURIAU Circular sockets)						
Solenoid (SO1 to SO4)	4 (four) latching or digital output (6 VDC @ 0.5 A - binary or proportional)						
	PID Control Parameters						
Proportional Band	0% to 100% (adjustable in 1% increments - independently for opening and closing)						
Dead Band	Adjustable from 0 to full-scale of set-point signal						
Cycle Time	10 s to 60 s (adjustable in increments of 1 s)						
Integral Band	0 s to 60 s (adjustable in increments of 1 s)						
Derivative Band	0 s to 60 s (adjustable in increments of 1 s)						
Loop Zoning	Up to 4 zones						
PID Loops	Up to 4						
	Display & Navigation						
Display	1.5" OLED display (128 x 64)						
Navigation	5 (five) ILS (magnetic) contacts and magnetic stick for navigation						
	Communication						
Interfaces	GPRS, Wifi, USB						
Protocols	VNC, FTP, HTTPS						
Logging							
Process	Manual and Automatic						
Memory	Internal memory, SD card (4 GB default), Export to USB, Export to FTP server						
Logging speed	1 minute						
Format	CSV file (proprietary format)						
	Temperature Range						
Working Temperature	-10°C to +60°C						
Storage Temperature	-30°C to +60°C						

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3 NAVIGATION

3.1 COLOUR CONVENTION

Values are usually displayed in black; however input values can sometimes be displayed in different colour's, depending on the status of the associated input:

- Black: normal status. The value displayed is what is measured on the input
- Red: loss of signal. The associated input has no signal arriving
- Orange: loss of signal, and the system overrides the value
- Blue: local override. The value has been manually overridden locally and the signal at the input is not taken into account
- Grey: remote signal

3.2 BASIC VNC SOFTWARE INTERFACE BUTTON FUNCTIONALITY

3.2.1 BUTTON DESCRIPTION



- Right/Output
- Up/Valve Configuration
- Down/Settings

Other Icons in this manual

- Short Click
- Long Click (click on button "Long")

3.2.2 SHORT CLICK

- . Is "Ok" or "Select" when used as a (short click)
- When used as a th, the cursor moves to the left
- When used as a \mathcal{H} , the cursor moves to the right

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3.2.3 "LONG" BUTTON - OK CLICK ("HOME/OK" BUTTON ONLY)

To activate the long click, click on the "Long" button, which will then be displayed in red. Clicking a second time on

will deactivate the long click and the text will be displayed in black.

From the home screen, a "Long" button activation and click on "Home/OK" will put the Electronic Valve Controller into sleep mode.



From any other location, a "Long" button activation and click on the "Home/OK" button returns to the "Home Screen".





3.3 BUTTON DESTINATIONS

3.3.1 "UP/VALVE CONFIGURATION"

A) "Short Click": View Valve Information (from Home Screen).

From the "Home Screen", ¹⁰ on the **A** button navigates to the "Valve Information" screen.



B) "Long button": Enter Valve Configuration Menu (from Home Screen).

From the **"Home Screen**", a button activation and click on the **Article Screen**, a screen.





3.3.2 "LEFT/INPUT"

A) "Short Click": View Input Information (from Home Screen).

From the "Home Screen", a the avigates to the "Inputs" screen.



B) "Long button" activated - Enter Input Configuration Menu (from Home Screen).

ong Anavigates to the "Configure Inputs" screen. From the "Home Screen", a button activation and click on the Mode CVM CM ñ Target Pre P1 0.50 V 10.0 Mhc 5.0 Mhc [AI2] 0.01 V 5.0 Mh [DI1_F] 7.0 l/s 3.87 Volt 10.0 10.0



3.3.3 "RIGHT/OUTPUT"

A) "Short Click": View Output Information (from Home Screen).

From the **"Home Screen**", a on the **P** navigates to the **"Outputs"** screen.



B) "Long Button" activated: Enter Output Configuration Menu (from Home Screen).

From the "Home Screen", a Long activation and click on the P navigates to the "Configure Outputs" screen.



Menu Locations

3.3.4 INFORMATION SCREENS



[4]2]	
CRD FB	4.0 bar
[AI3]	
Q FB 4-20 mA	50.2 l/s
[DI3_F]	
Q FB Pulses	0.00 l/s
2-test-labo	D22-POUT-DRV.01D.r



	Panel	08/21/15 05:28 PM	
Flow Mode	4-20mA -		
D22-test-labo		D22-POUT-DBV 01D rdy	



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A) "Inputs": The Inputs menu displays all of the activated inputs in current use by the selected ValveApps™.

	Inputs	08/21/15 05:28 PM
CRD FB	4.0 bar	
Q FB 4-20 mA	50.2 l/s	,
Q FB Pulses	0.00 l/s	;
D22-test-labo	D2	2-POUT-DRV.01D.rdx

B) "Outputs": The outputs menu displays all of the activated outputs in current use by the selected ValveApps™.

n	08/2	1/15 05:28 PM
	CRD cmd [bar]	
	4	
D22-test-labo	D22-POUT	F-DRV.01D.rdx

C) "Schematics": The Schematics menu displays the simplified valve schematics for a given ValveApps[™] and the connected inputs and outputs.



A) "Display Panel": The Display Panel displays all of the activated variables in current use by the selected ValveApps™.

	Panel	08/21/15 05:28 PM
Flow Mode	4-20mA	
D22-test-labo		D22-POUT-DRV.01D.rdx

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3.3.5 CONFIGURATION MENUS

Image: construction of the state of the				Co	nfiguration	08/21/15 05:30 PM			
Image: configure logic Image: configure logic Image: configure log				Pressure vs Flow IAction		ion			
Configure inputs 08/21/25 05:29 PM (k12) 00 mA 0 bar (k12) 00 bar 0 bar (k12) 0 bar <th></th> <th></th> <th></th> <th>D22-test-labo</th> <th>D</th> <th>\$ 22-POUT-DRV.01D.rdx</th> <th></th> <th></th> <th></th>				D22-test-labo	D	\$ 22-POUT-DRV.01D.rdx			
Image: CRD FB 0 0 mA 4.0 bar 0 FB Image: CRD FB 0 0 0 /s 0.00 /s 0.00 /s 0.00 /s D22-test-labo D22-P0UFDRV01D.rdv D22-P0UFDRV01D.rdv D22-P0UFDRV01D.rdv Image: CRD FB 0.00 /s 0.00 /s D22-P0UFDRV01D.rdv D22-P0UFDRV01D.rdv Image: CRD FB D22-P0UFDRV01D.rdv D22-P0UFDRV01D.rdv D22-P0UFDRV01D.rdv D22-P0UFDRV01D.rdv		Configure Inputs	08/21/15 05:29 PM	🖬 MOD (y)		08/21/15 05:27 PM	- [404]	Configure Outputs	08/21/15 0
Image: CRD FB 90 mA 4.0 bar Image: CRD FB 0.0 l/s Image:	c [AI2]						CRD cmd	4 bar	7.84 mA
Image: Configuration and the second secon	CRD FB	7.90 mA	4.0 bar		CRD FB	CRD cmd	L		
Image: Set of the set of	[AI3]	B 02 m A	50.21/2		4.0 bar	4 bar			
0 FB Puttes: 0.00 //s D22-test-labo D22-POUT-DRV01D.rdx D22-test-labo D22-test-labo D22-test-labo D22-test-labo D22-test-labo D22-test-labo D22-test-labo D22-test-labo D22-test-labo D22-test-labo D2-test-labo D22-test-labo D2-test-labo D2-test-labo D2-test-labo D2-test-labo D2-test-labo D2-test-labo D2-test-labo<	(DI3 E)	BJU2 MA	50.2 l/s	0 FB	. 1 7				
D22-test-labo D2-POUT-DRV01D.rdx D2-test-labo D2-test-labo D2-POUT-DRV Image: Configuration in the intervention in the intervention in the intervention in the intervention in the intervention. D2-test-labo D2-test-labo D2-POUT-DRV	Q FB Pulses		0.00 l/s	50.20 l/s	aNA				
The "Configuration" screens are accessed with a "long button"	D22-test-labo		D22-POUT-DRV.01D.rdx	D22-test-labo	D	22-POUT-DRV.01D.rdx	D22-test-labo		D22-POUT-DRV
The " Configuration " screens are accessed with a " long button "				Co	nfiguration				
The "Configuration" screens are accessed with a "long button" from the "Home Screen".				Information Applica Manager	ion Date/Time	٥			
The "Configuration" screens are accessed with a "long button" from the "Home Screen".				Logging Displa	y Networking	•			
The "Configuration" screens are accessed with a "long button" from the "Home Screen".						90-41.rdx			
	The "Con	figuration"	screens are a	ccessed with a " I o	ong butto	Long	from the "H	lome Scree	en".
		-			•				

3.3.5.1 "Configure Inputs" Menu

A "short click" on "Left/Input" from the "Configure Inputs" screen enters the configuration of the selected input.



Input Field Descriptions:

- "Display Name": Use this field to choose a unique name for each input.
- "Units": Choose from the following available units:
 - o (gpm) Gallon per minute [flow];
 - o (mgd) Mega Gallons per day [flow];
 - (cfm) Cubic Feet per minute [flow];
 - o (cfs) Cubic feet per second [flow];
 - (I/min) Litres per minute [flow];
 - (I/s) Litres per second [flow];
 - (m3/h) Cubic meters per hour [flow];
 - (MI/d) Mega litres per day [flow];
 - o (Imp gpm) Imperial Gallons per minute [flow];
 - o (bar) Bar [pressure];

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- (kPa) Kilopascals [pressure];
- (Mld) Mega Litres per day [flow];
- o (psi) Pounds per square inch [pressure];
- o (m) Meters of water [pressure];
- (in) Inches of water [pressure];
- (ft) Feet of water [pressure];
- o (%) Percentage [unit-less];
- o (h) Hours [time];
- o (min) Minutes [time];
- o (s) Seconds [time];
- o (gal) Gallons [volume];
- o (mg) Mega gallons [volume];
- (cf) Cubic feet [volume];
- (I) Litres [volume];
- o (m3) Cubic meters [volume];
- o (MI) Mega liters [volume];
- (mA) Milliamps [electrical flow];
- (Volt) Volts [electrical potential];
- "Decimal": Select from available decimal places:
 - o 0
 - o.0
 - o 0.00
- "Signal Type": Select from available signal types:
 - o 4-20 mA
 - 0-5 V (pressure sensor)
- "4mA =": Set the value of the input at 4 mA; usually this will correspond to a value of 0.
- "20mA =": Set the value of the input at 20 mA; this should correspond to the maximum measured value.
- "OV =": Set the value of the input at 0 V; usually this will correspond to a value of 0.
- "5V =": Set the value of the input at 5 V; this should correspond to the maximum measured value.
- "Signal Filter": Select a filter length between 1% and 99%. This is a cumulative filter, where the value corresponds to the weight of the previous sample. The higher the value, the higher the filtering effect. A 0% value will inactivate the filter.
- "Lost Signal (< 3.6 mA)": This menu designates which action the controller will take in the event that a signal falls below 3.6 mA, usually when there is a power outage or when the 4-20 mA loop has been broken.
 - **"Default Value":** This option allows the user to input a value to be inserted when the 4-20mA input signal has been lost.
 - **"Keep Value":** This option allows the user to specify that the last input value received by the controller will be the value that is used once the signal is lost.
 - **"Do nothing":**This option will specify that no action is taken by the controller when an input signal is lost.
- "Use as RSP/LSP": When this box is checked, the input is treated as an RSP/LSP Remote Set Point / Local Set

Point. This allows the input to be seen in the Display Panel (short click down - + + + +) and allows Actions to be taken when the Remote Set Point is changed or overridden.

- "Display on home page": When this box is checked, the input is shown on Display panel.
 - "Menu tools

ols ": Click on this button to calibrate the pressure sensor.

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. To calibrate the pressure sensor properly, it must be disconnected from the valve in order to read atmosphere pressure.

3.3.5.2 "Configure Outputs" Menu

A "short click" on "Right/output" From the "Configure Outputs" screen enters the configuration of the selected output.

	Configure Output	s	08/07/16	7:07
c [SO1]				
CVM CMD	0.0 %		0.00 %	
[\$02]				
CVM PS	1			
				Long
				[AI2] P2
				Mhd
autor manage tort		01	DOUT OVM ON	5.0



Solenoid Output (SO) Field Descriptions:

- "Display Name": Use this field to choose a unique name for each output.
- "Type":
 - **"CVM/CVP":** its PWM output (Pulse Width Modulation): this is the industry trade name for the management of pulses sent to the opening/closing CVM/CVP pilots.
 - "Latching Output 1/0": Provide a pulse for 200 ms by default open (1) or close (0) the bistable solenoid.
 - "Digital 1/0": Specifies that the output is either open or closed for the time specified in the boxes below.

Its use to provide power supply on CVM/CVP pilots (6VDC).

- "Cycle Time": The amount of time for one complete cycle of action for the opening/closing CVM/CVP pilots.
- "Default Value": The default active time of the CVM/CVP pilots during the cycle.
- "Display on home page": When this box is checked, the input is shown on Display panel.

3.3.5.3 "Valve Configuration" Menu



The "Valve Configuration" screen includes the regulation blocks related to the loaded ValvApps™. Regulation blocks can be of the following types:









!Action!

Power Management

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• PID (Proportional-Integral-Derivative):

The "**PID**" regulation maintains the valve at a configured set-point. Up to four (4) "**PID**" regulation loops can be programmed, each of them offering local or remote set-point capability. Real-time chart view helps to visualize valve response and fine tune the Electronic Valve Controller accordingly. Perfect valve control is achieved by CLA-VAL features such as programmable set-point ramping to prevent hydraulic shocks.

Control Curve:

The "**Control Curve**" offers an easy way to create a relationship between 2 system variables. Using graphical functions the user draws the "**Control Curve**" relationship linking pressure, flow, level and/or time directly on the Electronic Valve Controller screen. Up to four (4) "**Control Curves**" can be profiled allowing specific adaptation such as seasonal adjustment.

• !ACTION!:

Used to take action (or alarms) when a programmable condition is met by forcing an output (relay, solenoid, 4-20 mA). The closing relay can be used to send an alarm to a supervision system. Up to four (4) "**!Actions!**" can be programmed including appropriate hysteresis or dead band configuration.

Power Management:

This is used to manage the unit Power and prevent excessive battery discharge. It can be used on flow or differential pressure.

The power management allows activating default values, according to user pre-programmed rules.

3.3.5.4 Valve configuration - "PID Menu"



A) General Tab



Input Field Description:

- "PID Description": Use this field to choose a unique name for each PID loop
- "PID Type": Designate what type of control is being used
 - o "Flow": Control using flow SetPoint and Feedback
 - o "Pressure": Control using pressure SetPoint and Feedback

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- o "Level": Control using level SetPoint and Feedback
- o "%": Control using percentage open (position of the valve) SetPoint and Feedback
- o "Analog": Control using flow SetPoint and Feedback
- "PID Cycle every (s)": This field designates how often the calculation will be performed to determine the appropriate action to be taken with the output, minimum value is 10 seconds
- "Signal loss": This field designates what action the controller will take when there is a loss of signal on the Remote Set Point (RSP). The options are:
 - o "No Action"
 - o "Open 100%": Open valve 100%
 - o "Close 100%": Close valve 100%
 - o "Lock Position": Maintain valve in current position
- "PID Status": The user may configure a PID loop, but not activate it until the appropriate time. The choices are:
 - o **"On"**
 - **"Off"**
 - **"Conditional":** When the **"Conditional"** option is chosen, an additional field appears and prompts the user to specify when the PID should be active. The following field is shown:

PID Status	Conditional				
Active when	Always	-		•	

The PID loop can be configured to be always active, or when one of the inputs meets a certain condition. In this case, use the pull down menu that is defaulted to "Always" to select the appropriate input, then use the pull down menu to the right to select an operator, such as the "**Greater than**" sign (>), then specify a value.

Example: The following PID loop has been set to be conditional active, only when the Feedback [Al2] is greater than 50.00 l/s.

PID Status	Conditional	•			
Active when	[AI2] Feedback	•	>	-	50.00

B) Input Tab

		PI	D 1	10/02/	15 08:59 A
General	Input	Output	Adjustment	Zoning	Back
- Setpoint		Source [VAR] Target_F	ow	•
	Curre	nt Value 0	l/s	0	verride
	Ramping	(l/s/min))FF		
Feedback					
🗌 is inlet	P.	Source [AI3] Q		-
	Curre	nt Value	l/s	0	verride
22-test-lab	D			D22-RES-C	PC.02D.r

Input Field Description:

- Setpoint Section:
 - o "Source": Designates which compatible input or variable is to be used as the SetPoint for the PID loop
 - o "Current Value": Shows the *live* current value of that input
 - **"Override":** Allows the user to input an override value from this menu rather than having to go back to the input information or input configuration screens this can be helpful when commissioning a system for the first time

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- "Ramping (I/s/min)": Increases or decreases the set point over period x when a new set point is entered to help prevent overshoot or undershoot of the target value. [either by "Remote Set Point" Changes or "Local Set Point" (override) changes]
- Feedback Section:
 - o "Source": Designates which input is to be used as the feedback for the PID loop
 - o "Current Value": Shows the *live* current value of that input
 - **"Override":** Allows the user to input an override value from this menu rather than having to go back to the input information or input configuration screens this can be helpful when commissioning a system for the first time

C) Output Tab

		PI	01	12	/07/16 08:43	A .
General	Input	Output	Adjustment	Zoning	Back	
Out	put Type	CVM / CVP			*	
	CVM/CVP	[SO1] CVM	CMD		-	OK
Cycle	Time (s)	2	Output	Limit (%)	100.0	1
					in the	V
						Long
						[OII_F] OI 1 Sensu
						2.0

Input Field Description:

- "Output Type": Designates what type of output is used.
 - o "CVM/CVP": Uses solenoid output (1 or 2) to control the pilot, according to the PID regulation
- "Cycle Time (s)": Designates the total cycle of action for the "CVM/CVP" command
 - "Output limit (%)": Designates valve opening/closing limit

D) Adjustment Tab



Input Field Description:

- "Zone Number": Designates which PID loop is being adjusted; at any time, up to 4 PID loops may be used
- "Closing Speed (%)": Designates how quickly the valve will be able to close. 1% is the slowest possible, 99% is the fastest possible



<u>NOTE</u>: The actual time to close will depend on the hydraulic conditions.

"Opening Speed (%)": Designates how quickly the valve will be able to open. 1% is the slowest possible, 99% is the fastest possible

CL	A \//		imit	ad
	-v/	~L U		eu



Electronic Valve Controller



 $\stackrel{\scriptstyle{<}}{\leftarrow}$ NOTE: Actual time to open will depend on the hydraulic conditions.

- "Deadband (I/s)": Designates where the controller will take no action because it is close to the SetPoint.
 <u>Example</u>: If the setpoint is 50 I/s and the deadband is set at 2 I/s, then the controller will take no action on the feedback value from 48 I/s to 52 I/s
- "Integral (s)": This value is used for fine tuning of very sensitive systems

It is not recommended that this be used without contacting CLA-VAL Technical Support! "Derivative (s)": This value is used for fine tuning of very sensitive systems

It is not recommended that this be used without contacting CLA-VAL Technical Support!

E) Zoning Tab

	s	PI	01	05/16/	14 11:33 AN
General	Input	Output	Adjustment	Zoning	Back
	Number	of of zor	nes: 1 🔻		
	Eagd	back 0.00	1000.00		
	reeu	DACK U.U	- 1000.00	gpm	
	Zone 1:	0.00	to 1000.	.00	
				131-	01-V0.1.rd

Input Field Description:

• "Number of zones": Designates how many PID zones are to be created



NOTE: When multiple PID loops are created, the active region for each is designated by an equal division of the total feedback range, see example below:

		PID	1		05/3	19/14 03:39 PM
General	Input	Output	Adjus	tment	Zoning	Back
	Number Feed	of of zon back 0.00	es:	3 - 00.00	gpm	
	Zone 1:	0.00	to	333.3	33	
	Zone 2:	333.33	to	666.6	67	
	Zone 3:	666.67	to	1000.	00	
					1	31-01-V0.2.rdx

The active region for zones 1, 2 and 3 are each one third of the total feedback range. These values can be specified by changing the values in each zone, according to the needs of the user.

- Zone 1: designates the top of the range for zone 1 (bottom range is bounded by the low level of the feedback scale).
- Zone 2: designates the bottom and top range for zone 2.
- Zone 3: designates the bottom range for zone 3 (top of the range is bounded by the high level of the feedback scale).

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3.3.5.5 Valve configuration - "Control Curve Menu"



A) General Tab

		Control	Curve 1		2/07	/16 09:17	\wedge
General	Activation	In/Out	Adjustment	R/T View		Back	
c	C Description	flow vs	Pre				
	CC Status	Condit	ional		-		OK .
	Active when	[VAR] N	Aode .	- =	- 0		127
							Long
							(DII_F) DI I Sen
		N					l/s

Input Field Description:

- "CC Description": Designate a name for the custom control curve
- "CC Status": Designate whether the control curve is active
 - o "On": The control curve is active
 - o "Off": The control curve is inactive
 - o "Calendar": The control curve is activated according to calendar rules, which are defined in the "Activation" tab
 - o "Conditional": Condition based on an input or variable, as defined in the "Active when" field
- "Active when": Designate the rule for the conditional activation
- B) Activation Tab (only for calendar activation)

		Control	Curve 1	12/	07/16 09:23	A
General	Activation	In/Out	Adjustment	R/T View	Back	
Day of t Monda Saturda	he week — y 🗌 Tuesda y 🗌 Sunda	y 🗌 Wed	nesday 🗌 Th	nursday 🗌 I	Friday 🗌	
Month o	of the year — Jary 🗌	April 🗌	July	Oct	ober 🗌	
Febru	Jary 🗌	May 🗌	August	Noven	nber 🗌	Long
Ma	arch 🗌	June 🗌	September	Decen	nber 🗌	(DII_F) DI 1 Sensus l/s
wer test	k			D12-POUT-C	M.02B.rdx	2.0

Input Field Description:

- "Day of the week": Designates which day(s) of the week the custom control curve is active
- "Month of the year": Designates which months the selected days are active



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C) In/Out Tab



Input Field Description:

"Input" Section:

• "Source": Designate the input flow signal location

"Output" Section:

- "Destination": Designate the analog output location for the motorized control
- "Override": Override the output in "Designation" with a custom value

D) R/T view Tab

This screen describes the relationship between 2 system variables in relation to the X and Y axis.

The arrow located at the bottom-left corner shows the user which way to read the graph:

1. Standard: the input is on the X-axis (in this case, flow) and the output on the Y-axis (in this case, actuated pilot command for a targeted downstream pressure).



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This screen illustrates that as the flow increases, the motorized control pilot will increase the output pressure according to the graph.

2. Reverse: the input is on the Y-axis (in this case, Reservoir/Tank Level) and the output on the X-axis (in this case, Target Flow)



This screen describes that as the reservoir level decreases, the targeted flow (to fill the reservoir) increases, and the motorized control will act accordingly.



: The light on the bottom right of the screen indicates whether the control curve is active (green light) or inactive (red light).

E) Adjustment Tab



The control curve can be completely customised by inserting the required values in the table of the "Adjustment" tab.

Using and (standard), or and and (reversed), navigate between each of the points on the table. The currently selected point is filled in red, while other points are not filled.



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While on a point, click to

• to change the value.

See below for a detailed explanation of how to use each of the tools to make changes to the standard curve.

• "Edit this point": Edit the currently selected point. When the cell is highlighted in red, the point is in edit mode. Enter

the adequate values using the arrow keys, and then click to validate the value.

			Control	Curve 1		_	13/07	16 0	7:56		
G	Seneral	Activation	In/Out	Adjustn	nent	R/T	View	Bac	k		
	Mode	Slope 🔻	🜱 Optimiz	zer	FI	low	Pressure	0	P		E
Pq	150					0.0	27.0)			
Υ	175					0.1	27.0) 🏛			
g	123				5.0	D	25.0) 🗇			
E.	100				_	10.0	35.0) 🏛			
2	75					13.0	40.0) 🏛			7
M	50					20.0	40.0)		Long	
utput	25	•	•								
0 N	0	3 6 9	12 15	18						Mhd	
'\		Input [DI1_F]	DI 1 Sensus I/s							11 Q	
p٥١	ver_te	st				D12-P	OUT-CVM	.028	.rdx	11.0	

"Add one point": Click on to add a point on the control curve then edit point

Control Curve 1	13/07/16 08:09	\wedge	Control Curve 1	13/07/16 08:10	
General Activation In/Out Adjustme	ent R/T View Back		General Activation In/Out Adjustr	nent R/T View Back	
Mode Slope - Y Optimizer	Flow Pressure		Mode Slope 🔻 🌱 Optimizer	Flow Pressure	
P 150	0.0 27.0		P 150	0.0 27.0	
a 125 7 100	0.1 27.0 📺	N		5.0 25.0 👘	
4 75	5.0 25.0		4 75	8.0 25.0	×
¥ 50	13.0 40.0	Long	50 50 L	13.0 40.0	Long
tig 25	20.0 40.0		1 25	20.0 40.0	
		[AI2] P2			[AIZ] PZ
Input [DI1_F] DI 1 Sensus I/s			Input [DI1_F] DI 1 Sensus I/s		11 0
power test	D12-POUT-CVM.02B.rdx	11.8	power test	D12-POUT-CVM.02B.rdx	11.0

Delete this point": Click on to delete the selected point

			Control (Curve 1		13/07	/16 08	:12	\land
G	eneral	Activation	In/Out	Adjustme	nt R/T	View	Back		
,	Mode	Slope 🔻	🌱 Optimi:	zer	Flow 0.0	Pressure 27.			
jet Mh	150				0.1	27.	0		
P_Targ	100				8.0	25.	a 💼	8	
[VAR]	50		_		10.0 13.0	35. 40.	0 📷		Long
output	25				20.0	40.	0		[AI2] P2
R	0	3 6 9 Input [DI1_F]	12 15 DI 1 Sensus I/s	18				-	Mhd
now	or to	*			D12.P	OUTCVN	1 02B	r hr	11.0

			Control C	Curve 1		13/	07/1	6 0	B:17		\wedge	
G	Seneral	Activation	In/Out	Adjustment	R/T	View	E	Back				
	Mode	Slope 🔻	🜱 Optimiz	zer	low	Pressu	Jre	0				
P	150 E				0.0	2	7.0			\sim	ок /	2
W	E				0.1	2	7.0	Û				
ge	125				5.0	2	5.0	Û			\ ~ \/	
E.	100				10.0	3	5.0	Ť			\checkmark	
RJP	75				13.0	4	0.0	Û		`		
M	50				20.0	4	0.0				Long	
đ	25		0-0-									
đ	0										[AIZ] PZ	
	0	3 6 9	12 15	18					-		Mhd	
. \		input [DI1_F]	DI I Sensus I/s								11 Q	
nos	ver te	c+			D12-P	OUTO	VM (12B	rdy		II. 0	

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• "Mode Slope": A direct line is made between each point, as shown below:



• "Mode Step": A split step line is made between each point, as shown below:

		Control (Curve 1		13	/07/1	6 0	8:22		\land	
General	Activation	In/Out	Adjustment	R/T	View		Back	¢			
Mode	Step 🔻	🔫 Optimi	zer	Flow	Press	ure	0				
E 150 F			:	0.0	2	27.0		1	F	ÖK /	5
N I				0.1	(50.0	Û				
125 L				5.0	2	25.0	Û			\�\/	
P 100				10.0	3	34.9	Ŵ			\checkmark	
75				13.0	4	10.0	Ŵ				
E 50										Long	
1 25		2-3									
T .										[AIZ] PZ	
N	3 6 9	12 15	18					÷		Mhd	
1	Input [DI1_F]	DI 1 Sensus I/s								11 O	
power tes	t			D12-P	OUT-C	VM.	02B	.rdx		11.0	

"Optimiser":



This function is only available in pressure control mode.

		Con	trol Curve 1		13/07/16 08:52	
Qnight	2.0	l/s				
Qday	18.0	l/s	150			
Pday	40.0	Mhd	125			< 🕒 (🏦) 🕞
Pipe dia	250	mm	100			OK
Pipe len	4000	m	75			
Pipe cond	Moderate	d				I ▶ 💙
Pnight	36.78	Mhd	50		€)€	
Qvmax	0.37	m/s	25			Long
		_	0	6 9 12	15 18	
0	~			Flow		[AIZ] PZ
\sim		5				Pind
power_test				D12-POL	JT-CVM.02B.rdx	11.8



Valve configuration - "Totalizer Menu" 3.3.5.6

6	Edit Totaliser 1	05/16/14 11:36 AM
Source	[VAR] SP	•
Output	[VAR] VOLUME	•
Active when	ALWAYS -	
Current Value	0 gal 05/09/14 02:37 PM	
Last reset	Reset	
		131-01-V0.1.rax

Input Field Description:

- "Source": Designates which input should be used as the source for the totalizer count
- "Output": Designates where the total should be sent after it is calculated
- "Active when": Designates when the totalizer should be active
 - 0 "Always": The totalizer will always be on
 - "[AI1]": Conditional based on input; 0

Example below:



This totalizer is set to be active when the [Al1] Setpoint is greater than 10.00

- "Reset": This toggle button resets the totalizer to zero.
- 3.3.5.7 Valve configuration - "Actions Menu"



Click

on the "**Condition**" to configure the condition.

		!Actions!	10/25	/15 06:02 P
!A! 1	!A! 2	!A! 3	!A! 4	Back
Descriptio	n			
Condition 1-				
Condition is	not configure	d		
C Output				
Output	t configured			
Output	t configured			
Output — Output is no barq	t configured		D22-POUT	DRV.04A.rd
Output	t configured		D22-POUT	DRV.04A.r





In the condition menu, configure the condition to apply the action.

	Condition 1	10/25/15 06:04 PM
Condition		
!A! ON when [Al1] P	ressure SP (@CP) 🔻 >	• 0.0
C1 OFF when <= 0.0 bar	r Hysteresis	0.0 bar
arq	D2:	2-POUT-DRV.04A.rdx

Input Field Description:

- "Description": Use this field to choose a unique name for each input.
- "!A! Enabled": Designates that this action is enabled or disabled.
- "!A! ON when": Conditional field that designates when this action is active, according to the value and operator used.
- "Hysteresis": Set up a hysteresis band.

		!Actions!	10/25/	15 06:12 PM
!A! 1	!A! 2	IA! 3	!A! 4	Back
Descriptio	on			
ON: [AI1] Pr OFF: [AI1] P	essure SP (@Cl ressure SP (@C	P) > 4.0 bar (P) <= 4.0 bar	×	1
-Condition 2-	Add Cond	ition		
Output is no	ot configured			*
barg	gureu		D22-POUT-I	DRV.04A.rdx

Up to two conditions can be set for an action, and the user can configure a condition "AND" or "OR" on the two conditions to apply an action, as per the following example.

		!Actions!	10/25/3	15 07:56 PM
!A! 1	!A! 2	!A! 3	!A! 4	Back
Descriptio	on 🗌			
Condition 1-				
ON: [AI1] Pr OFF: [AI1] P	essure SP (@Cl ressure SP (@C	P) > 4.0 bar P) <= 4.0 bar	×	
Condition 2-				
ON: [AI1] Pr OFF: [AI1] P	essure SP (@Cl ressure SP (@C	P) < 6.0 bar P) >= 6.0 bar	AN	
Output				*
Output is no	ot configured			
barq			D22-POUT-E	DRV.04A.rdx

The \checkmark icon is displayed when a condition is filled, and the imes when it is not filled.

Once the conditions are configured, the user shall designate which output to take the action on

	!Actions!	10/25/15 09:17 PM		Action	10/25/15 09:19 PM
IA! 1 IA! 2	IAI 3	IAI 4 Back	Value to apply]
Description		!A! Disabled	Output [RO1] RO1	-	
Condition 1 ON: [Al1] Pressure SP (@ OFF: [Al1] Pressure SP (⊚CP) > 4.0 bar @CP) <= 4.0 bar	*	Value ON 1	Default 0	
ON: [Al1] Pressure SP ((OFF: [Al1] Pressure SP (@CP) < 6.0 bar @CP) >= 6.0 bar				
Output ON: [RO1] RO1 = 1 OFF: [RO1] RO1 = 0 (det	fault)	*			
barq		D22-POUT-DRV.04A.rdx	barq	D22	-POUT-DRV.04A.rdx
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Input Field Description:

- "Output": Designates which of the outputs to take action on. •
- "Value ON": Designates the value to apply to the selected output.
- "Default": Designates the default value of that action which will be applied while the action is in the "OFF" state.

"SETTINGS" MENU 3.3.6



"Information" Page 3.3.6.1

"Identification Tab" A)

		Information	10/2	5/15 09:44 PM
Identification	Version	System Info	Libraries	
S/N (IMEI)	3569170500	02422	Ľ	crease
SIM (ICCID)	8946204604	1000002309	- 6	67 E -
HostName	D22-35691	7050002422		122 I
Contact				226.15
Location				
Order ID			=	
			USB Ex	port
barq			D22-POU	T-DRV.04A.rdx

Device identification information with "S/N (IMEI)" the serial number of the device, and "SIM (ICCID)" the SIM card identification number.

Input Field Description:

- "HostName": Use this field to assign a host name to the device. The default host name of the device is of the form D12-serial number
- "Contact": Use this field to enter an email valid email address for the use of the Link2Valves™ data visualisation web . interface
- "Location": Use this field to enter the location of the device
- "Order ID": Use this field to enter the Order ID
- "Version Tab"



This page shows information regarding the low-level software loaded in the Electronic Controller.

Reduce your waste - Sort your rubbish



B) "System Info Tab"



This page shows information concerning various system settings, such as Uptime or RAM usage.

C) "Libraries Tab"

		Information	10/2	5/15 10:04 PM
Identification	Version	System Info	Libraries	
TPL				
. EMEA				
🥼 . North A	merica			
barq			D22-POU	F-DRV.04A.rdx

From this page, the user can access the libraries of standard *ValvApps*™.

3.3.6.2 "Application Management" Page Application Management 10/28/15 07:05 PM Image: Backup Application Application Management 10/28/15 07:05 PM Image: Backup Application When the "Backup Application" icon is selected, the following dialog box appear

the "Backup Application" 🔎	icon is selected, the following	g dialog box appears:
	ValvApp Backup	10/28/15 07:09 PM
	Create and save a backup of the current	ValvApp
	Backup Now	
	X Automatically back up locally every da	y at 23:45
	 Automatically back up to FTP server at ValvApp has been changed. NOTE: can generate up to 250 KB per t 	t 23:45 if the transfer.
	barq	D22-POUT-DRV.04A.rdx

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- "Backup Now": Click on this button to manually back up the application
- "Automatically back up locally every day at 23:45": Check (resp. un-check) the box to activate (resp. deactivate) an automatic backup of the current *ValvApps*[™] stored locally in the machine daily
- "Automatically back up to FTP server at 23:45 if the ValvApps has been changed": Check (resp. un-check) the box to activate (resp. deactivate) an automatic backup of the current ValvApps™ stored to the configured FTP server. This back up will happen only if the ValvApps™ has been modified.

This function can generate important data transfer (up to 250 kB) depending on the application.

B) "Restore Application"

When the "**Restore Application**" ⁽¹⁾ icon is selected, the following screen appears, showing the available backup files that can be restored:

Restore Backup

07/03/01 10:15 AM

	2001-05-13 0248 [FACT] D22-RES-CPC	.01A.rdx		
	2001-05-13 0248 [FACT] D22-RE	S-CPC.01A.rdx UT-DRV.01A.rdx D22-POUT-DRV.01A.rdx		
Select the appropriate file to restor	the button to enter a for	lder, and the button to wing dialog box will appear t	navigate to the parer o confirm your choica	nt directory.
	Qt Restore this	backup?		
Select "Yes" to restore to the chose	sen backup file. Select " No " f	to cancel the backup.		
From the "Restore Backup" Scre	en, click the 🗣 button to re	turn to the previous menu.		
: A click on then cli	ck on button returns to	the main menu and cancel o	out of the menu.	
C) "Export Application"				
In order to use the functiona into the USB-A Slot	ality of the "Export Applicati of the D12 Electronic Control	on " function, ensure that eith ler, and/or an FTP server is	າer a USB flash drive setup in the device.	is inserted
When the "Export Application" inserted into the D12.	icon is selected, the fol	lowing screen appears to sh	ow the directory of th	าe USB drive
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	Export ValvApp	10/29/15 11:23 PM
1		
USB		
😪 My FTP		
D22-356917050016612	2	D22-PIN-SOL.03.rdx

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When exporting the application to the server, the *.*rdx* file will be pushed to the FTP server configured in the Electronic Controller in the "**SYNC****UP**" folder.

E In the directory screen, click the button to enter a folder, and the button to navigate to the parent directory.
Click the button to export the application to the current location. The following dialog box will appear to confirm the selection:
Qt ×
usb:/131-01-V0.1.rdx
Yes No
Select "Yes" to export to the chosen .rdx file
Select "No" to cancel the export
From the "Export to USB " screen, click the v button to return to the previous menu.
E A click on button then on button returns to the main menu and cancel out of the menu.
D) "Import Application"
In order to use the functionality of the "Import Application " function, ensure that a USB Flash drive or is inserted into
the USD-A slot of the Electronic Controller, and/or all FTF server is setup in the device.
When the "Import Application"
inserted into the Electronic Controller.
Import ValvApp 10/30/15 11:32 AM
/ Synchronise
MUSB Signature My FTP

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D22-POUT-DRV.04A.rdx

info@cla-val.co.uk



• **Remote update**: The pplication can be updated remotely via the FTP server configured in the device. To use this functionality, the *.*rdx* file needs to be put on the server "SYNC\DOWN" folder.



"Time Zone" tab: select to use UTC on this system (if flag on) or set the region and time zone (if flag is off)



You can enable (if flag on) or disable (if flag off) automatically daylight saving time.

N CI	A \/AI		im to d	
	.A-VAL	. UN 1	Limitea	



"Date/Time" tab : select to set manually the date / time or automatic by NTP server (if applicable & communication available).



"Language" tab: select to set the language and date/time format

		- Time & Pealer	12/	07/16 00:55	
	Time Zone Date/Time	e Language	13/	0.710 05.35	
	Date/Time Format	UK & Europe	•		
		DD/MM/YY 24hr			
	UI Language	English	•		
					Long
			<u> </u>		(SD2) CVM PS
					1
	power_test	N	D12-P001-C	VM.02B.rax	-
3.3.6.4 "Logging"	Page				
	-		Log Options	07	/03/01 11:02 AM
		10 ¹⁰			
	L	Configuration Even	art		
			JIL .		
					-
	roma-	res-01		D22-P0	UT-DRV.01A.rdx
A) "Configuration"					
		e . ,.			
Select the con t	o enter the log co	onfiguration menu.	•		
	Gen	Log Se	rver Configura	tion 10	/29/15 11:29 PM
		Longing enabled			
		Log interval	1 min		
		FTP Transfer interval	60 min		
		Log format	V 1.0	•	
					-
•	D22-3	56917050016612		D22-	-PIN-SOL.03.rdx
It is recommen	ded to not chance	the logging par	ameters with	nout assis	tance of an of
		, io iogging part		.54. 40010	

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- "Logging enabled": Check (resp. un-check) the box to activate (resp. deactivate) the logging of data
- "Log interval": Defines the frequency at which data is saved in the internal memory of the device

Interval of less than a minute can result in a rapid overload of the memory.

• "FTP Transfer interval": Defines the frequency at which saved data is transferred to the FTP server that has been configured in the device.



- "Log format": Designate which format to use for the log files.
 - o "V1.0": Complete log format for devices with an R-Engine software version 1.7 or higher
 - "Legacy": Allows the user to generate log files compatible with log files of devices with R-Engine software version lower than 1.7

B) "Export"

Select the vicon to export log files to a USB drive or FTP server.



Choose from one of the options & select to export.

Select to export log files

✓ and navigate to the place where to export the files.

3.3.6.5 "Display" Page



"Brightness": Select to set the screen brightness %. 100% is maximum, 1% is minimum.

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"Shutdown": Select to set the shutdown time. 10 minutes is the default value which keeps the system on for a maximum of 10 minutes (Bluetooth and OLED display).

"Connectivity" 3.3.6.6 Page Connectivity 13/07/16 09:5 (((•))) Remote Recopy Long (SOZ) CVM PS 1 D12-POUT-CVM 02B rd "GSM/GPRS" (((· ·)))

A)

When the "GSM/GPRS" icon is selected, the following screen appears: 13/07/16 10:02 **GPRS/GSM** Connectivity × GPRS GSM GPRS Setup Monitor [OFF Advanced Operator GPRS Status GPRS active IP address 100.98.4.7 GPRS Gateway 192.168.202.0 GPRS DNS 130.244.127.161 Long (SOZ) CVM PS 1 ower test D12-POUT-CVM.02B.rd

"GPRS" Tab: Provides general information about the GPRS connectivity



"GPRS Setup" Tab:

(9) 😼	G	PRS/GSM Co	nnectivity	13	/07/16 10:03	\land
GPRS	GPRS Setup	Monitor [OFF]	GSM	Advanced	Operator	
	Setup	Cla-Val Clo	ıd			
						\mathbf{N}
						Long
(<u>w</u>) Con	nected: IP add	dress 100.98.	4.7	Q	-	(SO2) CVM PS
power_tes	st (D12-POUT-C	VM.02B.rdx	1

"Setup": Allows the user to choose between the CLA-VAL cloud servers (default) or a custom FTP server 0 When the "Custom" field is chosen, the following screen appears:



(u) 😽 👘	G	SPRS/GSM Cor	nectivity	13/	07/16 10:10	
GPRS	GPRS Setup	Monitor [OFF]	GSM	Advanced	Operator /	\mathbf{N}
	Setup	Custom		-		
	APN				ОК	
	User name					7
	Password					
	SMS Centre				Lon	a
(W) Conr	ected: IP add	dress 100.98.4	4.7	Q	(SO2) C	M PS
ower ter					VM 028 rdx	

The input fields must be filled to set up the connection to the custom FTP server.

• When the "**Refresh**" is hit, the following screen appears:



🔀 : A click on button 🛄 then on 🧰 button returns to the main menu IP and cancels out the operation.

• "GSM": This screen provides information regarding the GSM signal quality

(u) 😵	G	PRS/GSM Cor	nectivity	13/	/07/16 10:29	
GPRS	GPRS Setup	Monitor [OFF]	GSM	Advanced	Operator	
Connecto	ed to: Sunrise			10	0%	
RSSI: 27 Neighbo	uring cells: 6			Signal streng 81 %	th	\mathbf{X}
					0%	Long
						(502) CVM PS
power_tes	;t			D12-POUT-C	VM.02B.rdx	1

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"Advanced": This screen provides advance information regarding the GSM connectivity

()	() [@] %		GPRS/GSM	Connectiv	ity	13/	07/16 10:30	\land
	GPRS	GPRS Setup	Monitor [OF	F GSM	Advar	ced	Operator	
	LAC	BSIC	СІ	Arfcn	RxLvl	С1	C2	
	1770	14	7A5B	1009	-55dbm	50	50	< 🕒 (🛄) 🖃
	1770	51	7A59	9	-75dbm	30	30	
	4268	57	6A7F	7	-78dbm	27	21	
	1770	53	7A5A	1007	-83dbm	22	22	
	1770	10	627D	13	-93dbm	12	12	
	4268	50	6A7E	1004	-95dbm	10	4	Long
								(SD2) CVM PS
								1
p	ower_test				D12-P0	DUT-C	VM.02B.rdx	±

• "Operator": This screen displays available network operators in the area.

(u) 😪	GPRS/GSM Cor	nectivity	13	/07/16 10:34	\land
GPRS	GPRS Setup Monitor [OFF]	Operator			
Preferree	d operator is:				
** Auton	natic ** Swisson - 22 (signal				
22801: 3	Drange CH - rssi = 29 (signa	N9/)			
22802: 5	sunrise - connected, rssi =	28 (signal	strength 90	J%o)	
					Long
$\overline{\mathbf{O}}$		($\mathbf{r} \ll$		[502] CVM PS
					1

B)

S: By default the device selects the best operator in area. A manual selection is possible, select the operator on the list

The operator selected should be activate at the next connection.

then click on the button



• "Configure" Tab:

(u) 😵		Cloud Storage	13/	07/16 10:42	\land
Configure	Test				
	Setup	Cla-Val Link2Valves	•		
Ser	ver name	ftp.link2valves.com			OK
Pogistrati	on o mail		Pagistor	7	Long
Registrati	on e-mail		Register	6	
Sync	: enabled	×			(302) CVM PS
power test			D12-POUT-C	/M.02B.rdx	1

Select whether to connect to a private FTP server ("**Custom**"), to the CLA-VAL servers ("**CLA-VAL Link2Valves**") or switch off. Then configure all the setting necessary to access an FTP server.





(g) °z		Cloud Storage	13/07/16 10:43	\land
Configure	Test			
	Setup	Custom	-	
Serv	ver name	ftp.l2v.ch		E OK
Us	ser name	1		
F	assword) ¹ /3	\checkmark
Targe	et Folder	power_test		Long
Sync	enabled	×	•	(502) CVM PS
power_test			D12-POUT-CVM.02B.rdx	1

• "Test" Tab:

Go to the "**Test**" tab to check the connection to the FTP server. Click on the **I** icon to run the test again.

3.3.6.7 "Security" Page



This page allows the user to setup a password to access the Electronic Controller.

4	Access Code				19/01/16 00:09
Password:	0 *	*	*	*	*
	_				
D22 256017050016612				22.6	ES CDC 054 rdv



3.3.6.8 "Reboot"

Use this button to reboot the Electronic Controller whenever necessary.



Once the system reboots, it will take approximately 45-120 seconds to restart.

3.3.6.9 "Advanced" Pages



A) "Engine Update"



• USB: Click the F button to update from a USB Flash drive. If a USB Flash drive is inserted into the USB slot, then

the Electronic Controller will show the contents of that drive. Navigate to the selected *.*tar* file and click . My FTP: If a server has been setup for connectivity, the update can be made from that server. Navigate to the selected *.*tar*



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The Engine needs to be located on the FTP server configured in the Electronic Controller in the "SYNC\DOWN" folder

356917050002422
🖃 🌗 barq
- ? CFG
SYNC
DOWN
2 UP

Engine update requires a *.*tar* file.

When navigating, click the sutton to return to the previous level.

B) "Diag -> USB"

Allows the user to export the diagnostic file of the Electronic Controller. The diagnostic file cannot be used directly by the user, and is usually requested by CLA-VAL for support purposes.

	Advan	ced	29/06/16 22:45			Export Diagnostics	29/06/16 22:46
Ó	Y				│ ↓ USB ♀ My FTP		
Engine Update	Diag -> USB	Factory Reset					
				ÖK	1		
			-				
Kernel Update							
D22-steeve		D22-F	OUT-DRV.01G.rdx		D22-steeve		D22-POUT-DRV.01G.rdx

- USB: Click the button to export the diagnostic file to a USB Flash drive. Navigate to the selected *. *tar* file and click
- My FTP: If a server has been setup for connectivity, the file can be exported to that server.

When navigating, click the sutton to return to the previous level.

C) "Factory Reset"



When clicking on the second section, the following dialog box will appear to confirm the factory reset:

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•

Press

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to enter the numeral selection field.

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131-01-V0.1.rd

Override from Display View with pwd

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- Short click or to accept the selection.
- Long click will escape to Home Screen and cancel any selections.

4 SPECIFIC FEATURES

4.1 ADD INPUTS ON-THE-FLY

It is possible to add inputs on-the-fly in the Electronic Controller, even if these inputs are not originally included in the loaded *ValvApps*[™], which is helpful if you need to add a sensor to the system for instance.

To add an input on-the-fly, you must go to the Inputs Configuration screen (button Long then click left):

	Configure Inputs	10/01/16 22:57		Ac	tivate Input	05/15/12 03:14
• *			Select an in	put to activate		
[AI1]	0.00 m 0		Input		Preconfigured Name	2
Remote CPC chia	0.90 MA	-19 %	AI3	AI3		
412]		_	AI6	AI6		
PC FB	0.91 mA	-19 %	DI1	DI1		
1			DI1_C	DI1_C		
	0.91 mA	0.91 mA	DI1_F	DI1_F		
		0.51	DI2	DI2		
]		_	DI2_C	DI2_C		
ervoir Level	0.91 mA	20.00 m	DI2_F	DI2_F		
				_		
56917050017081		D22-RES-CPC.01C.rdx	D22-3569170	50017081	D2	22-RES-CPC.01

By clicking the "+" button, the input to be activated can be chosen from the list. The input added will then show up in the list of inputs on the configuration screen.

To display the added input in the home screen, go in the configuration of the added input:

n	Input AI4			10/01/16 23:03
Display Name	AI4			
Units	mA		•]	
Decimal	0.00		•	
Signal Type	4-20 mA		-	
4 mA = min	4.00	mA		1
20 mA = max	20.00	mA		8
Signal filter	70.00	%		
Lost Signal (< 3.6mA)	Do nothing		•	
Use as RSP/LSP		_		
Display on home page	×	<u> </u>		
		<u> </u>		
D22-356917050017081			D2	2-RES-CPC.01C.rdx

An added input can be deleted by clicking on the trash icon of the same screen.

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4.2 INPUT REMAP (INPUT TYPE SELECTION)

This feature remaps an input to another, allowing for instance to add a pulse flowmeter even if the ValvApps™ is not designed for it, without having to reconfigure the input.

ong This feature is available from the Inputs Configuration screen (button

nis feature is availa	ble from the Inputs Co	nfiguration scree	n (button	ther	n click left):			
	Configure Inputs	11/01/16 01:07			lı lı	nput Recopy	11	/01/16 01:08
				Recopy 1	Recopy 2	Recopy 3	Recopy 4	Back
	0.01 m.t			6	F	ecopy Disabled		
[AI2] CPC FB	0.91 mA	-19 %] Remote CP	C cmd		•
[AI4] AI4	0.90 mA	0.90 mA		Destinat [Al2	ion] CPC FB			
[AI5] Reservoir Level	0.91 mA	20.00 m						
D22-356917050017081	1 [22-RES-CPC.01C.rdx		D22-3569170500	017081		D22-RES-	CPC.01C.rdx

Note that only compatible inputs can be remapped, so the "Destination" will only show compatible inputs with the "Source".

4.3 CUSTOM SCALING

Long

This feature is useful to re-scale signals of 4-20 mA sensors when the practical application range is reduced (say for instance 6-16 mA).

To custom scale an input, go to the Inputs Configuration screen:

Button Linen cli	ick left > L	.eft on	input to be custom	n scaled			
d	Input AI4		10/01/16 23:03		6	Custom Scaling	11/01/16 00:28
Display Name	AI4				AI4		
Units	mA		~				
Decimal	0.00		•				
Signal Type	4-20 mA		-		20.00 mA	20.00 mA Acquire H	11
4 mA = min	4.00	mA	1		_		(
20 mA = max	20.00	mA				0.91 mA	
Signal filter	70.00	%					
Lost Signal (< 3.6mA)	Do nothing		•		4.00 mA	4.00 mA Acquire L	0
Use as RSP/LSP		-					
Display on home page	×	n					Ⅲ _ < //
		u					ш 🗸
D22-356917050017081			D22-RES-CPC.01C.rd>		D22-356917050017	081	D22-RES-CPC.01C.rdx

Push "Acquire Lo" to set the minimum value and "Acquire HI" to set the maximum value, and validate with the check mark. Note that the sensor can also have a reversed range, i.e. minimum physical value for 20 mA and maximum physical value for 4 mA.

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4.4 INPUT FILTERING

Signal filtering has been added to the analogue inputs of the Electronic Controller to attenuate noise coming from the sensors, and stabilize the signal. The filter ratio can be set in the Inputs Configuration screen:

Button Long then click left> Le	eft on the selected inpu	ıt		
	n in the second	Input AI4		10/01/16 23:03
	Display Name	AI4		
	Units	mA	-	
	Decimal	0.00	-	
	Signal Type	4-20 mA	-	
	4 mA = min	4.00 mA		1
	2 <u>0 mA = max</u>	20.00 mA		<i>I</i>
	Signal filter	70.00 %		
	Lost Signal (< 3.6mA)	Do nothing	-	
	Use as RSP/LSP			(((o)))
	Display on home page	×	Ш	
			m	
	D22-356917050017081		D2	2-RES-CPC.01C.rdx

The value can be set from 1% (light) to 99% (strong) or disabled. The default value is set at 70%, which is usually a good level of filtering for most applications.

Unless required and understood, this value should not be changed.

4.5 REMOTE CONFIGURATION

It is possible to edit and change: control curves, set-points, and values remotely from the configuration screen (short click down) via the CLA-VAL *Link2Valves* web platform. This feature sets a high value when needing to change the mode of operation or characteristics of the regulation profile, without having to send a technician in the field.

For instance, the mode of operation can be changed from a fixed pressure regulation to an automatic pressure vs. flow regulation profile, and/or could slowly adjust PRV outlet pressure set-point until the optimal point of the network is reached.

To use this functionality, the Electronic Controller needs to be connected to the internet (either via GPRS/GSM or via Ethernet), and registered in the CLA-VAL *Link2Valves* platform for a <u>user with Administrator rights</u> (contact CLA-VAL for more details).

4.5.1 REGISTER THE ELECTRONIC CONTROLLER ON LINK2VALVES



Ensure that the communication is set to "Cla-Val Cloud" (requires a CLA-VAL SIM card) in *button* > "Connectivity" > "GPRS/GSM" > "GPRS Setup"

then click down

- a) Enter "Cla-Val Link2Valves" in "Setup"
- b) Enter email address in "Registration e-mail"
- c) Click on "Register" and wait for process to complete

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Electronic Valve Controller



4.5.2 CONNECT TO LINK2VALVES

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If already registered in *Link2Valves*, connect to <u>www.link2valves.com</u> and log in.

If not registered, click on the automatic email received from *no-reply@link2valves.com* (check your spam box if not in your inbox) and enter a password in the website. Ask CLA-VAL to get administrator rights.

CLA-VAL		Cla-Val - Leading the Innovation
	Use a account to log in	
	Email	
	Password	
	Log in	
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See the Link2Valves User Guide for more details on how to use the functionality of Link2Valves.

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