

## **User Manual**







# CLA-VAL D35

Reduce your waste - Sort your rubbish

**Communicating Valve Controller** 

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# CLA-VAL D35



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## **1** INTRODUCTION

## 1.1 PRECAUTIONS BEFORE STARTING

Installation and electrical connection should be carried out in accordance with local regulations and only by qualified technicians!

The protection level is guaranteed only if D35 has been installed by technicians instructed by CLA-VAL personnel and thereafter correctly maintained. During installation and maintenance, the inside of D35 must remain completely dry. Humidity may drastically shorten the life of the battery and electronics.

## 1.2 BATTERY

Do not connect or disconnect the battery connector in hazardous locations. Always manipulate the battery connector in a safe location.

Using batteries other than those provided by CLA-VAL Europe risk danger of explosion, as well as implies the warranty on the product becoming void.

The battery provided with the product is not rechargeable and must be disposed properly at end of life.

## 1.3 GENERAL DISCLAIMER

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

## 1.4 ENVIRONMENTAL PROTECTION

The product is delivered with batteries marked with this symbol  $\lambda_{-}$ 



Help to preserve and protect the environment. Recycle used batteries and accessories; this means that according to local laws and regulations, they should be disposed of separately from household waste.

## 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) or (A): Circled numbers and letters in the text refer to the parts described in Figure 1 and 2 respectively (example: Figure 1 page 5)



d.

Note: Indicates useful information and advice

e. Indicates safety advice that must be strictly followed

## 1.6 ACRONYMS

CSQ: Cell Signal Quality

LED: Light Emitting Diode

**PIN:** Personal Identification Number

NCR: Notification Claim Return

SMS: Short Messages Service

GPRS: General Packet Radio Service

USB OTG: USB On-The-Go

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## 2 D35 CHARACTERISTICS

- (1) Body with or without internal battery (according to version)
- (2) D35 Head (main board + front panel)
- (3) Antenna



Figure 1 D35 parts

- (A) SIM Card connector
- (B) SD Card connector
- (C) Battery connector
- (D) Micro USB Connector
- (E) Tag connect (8 pin)
- (F) Memory battery coin holder coin



Figure 2 D35 interfaces

## **3 WIRING CHARACTERISTICS**

Refer to the D3500 wiring diagram for connection details.

Refer to the latest wiring diagram for the correct wiring!





## **4 SENSOR MOUNTING**

### 4.1 PRESSURE SENSORS

The pressure sensors can be mounted either vertically or horizontally.

The pressure sensors are available in a choice of ranges. It is therefore important to choose the correct sensor range for the best precision.



## 4.2 METER WITH PULSE EMITTER

Any pulse emitter may be connected to the D35 counter input if its electrical system has either a "Normally Open" or "Normally Closed" contact. For setting up the pulse emitter, refer to the meter manufacturer's instructions and the D35 instructions located in the *D3500* wiring diagram.



Always connect meter last to avoid arbitrary pulse counts.

In any case you can reset the counter from the user interface.

## 5 D35 MOUNTING

When mounting a D35 with sensors other than those provided by CLA-VAL, be careful not to damage or deform the housing in any way (warranty will become void).

## 5.1 CELLULAR NETWORK QUALITY

Check the cellular network quality at the installation location prior to installing the product.

Network strength indication from a cell phone gives initial information about reception quality on a potential installation site. For a more detailed analysis, use the D35 configuration mode to get the exact reception quality. Refer to chapter 9.10 « Checking the quality of the network » for more details.

### Do not install: dBm < -95

The D35 configuration mode will indicate (amongst others) in dBm units, the network reception quality as seen by the D35. Installation is not recommended below a value of -95 dBm. As the cellular network quality may fluctuate strongly across the site, it is recommended to test at different locations.

If network quality at the installed location is not sufficient, it may be necessary to relocate the D35 or deport its antenna with adequate CLA-VAL extension cables.

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#### **ORIENTATION IN SPACE** 5.2

The D35 should be mounted in an upright position (antenna side up, cable gland down) to guarantee a good cellular connectivity.

D35 may have difficulties transmitting when submerged (e.g. in a manhole after rainfall). To guarantee reliable transmission it is recommended to install it as high as possible.





D35 can be fixed on walls using the wall mounted installation.

Drill the holes at the correct distance (72 mm) or use the lower housing as a drilling gauge.

#### 5.3.1 **DIN RACK MOUNTED INSTALLATION**



An alternative optional bracket is available for electrical box installation.



#### 5.3.2 **ORIENTABLE BRACKET MOUNTED INSTALLATION**



An alternative optional orientable wall-mounted or valve bracket for D35.



#### 5.3.3 **RECOMMENDED INSTALLATION**

Depending on the cellular network signal strength, the D35 installation might need to be adapted. The network signal quality values mentioned below are indicative and correspond to a signal acquired with a High-Performance Cellular Signal and Network Analyzer, reference: Siretta® «SNYPER-LTE».

#### 5.3.4 STRANDARD INSTALLATION



The standard installation of the D35 on the wall should be, as close as possible to the well opening, but not further than 1.5 m from the pressure sensor(s) connection(s) on the valve.

The minimum signal strength is - 80 dBm for optimum data communication at the valve level.

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### 5.3.5 NETWORK QUALITY BETWEEN -80 dBm and -95 dBm

If the signal quality at the valve level is between -80 dBm and -95 dBm, check if the D35 can be installed closer to the well opening, while maintaining a maximum distance of 1.5 m to the pressure sensors. If this is not possible, an antenna extension with optional CLA-VAL antenna extension cables might be necessary.

### 5.3.6 NETWORK QUALITY LESS THAN -95 dBm

If the signal quality at the valve level is lower than -95 dBm, it is required to deport the antenna outside of the well. Please contact CLA-VAL for more information.

## **6** CONNECTION

The cable glands are designed for cables between 4 mm and 6 mm diameter. Water intrusion may occur if sensors with cable diameters outside of this range are used.

## 6.1 PULSE COUNTING



Refer to the meter manufacturer's product information for complete information about functionality and connectivity information.

The counter contact ("Normally Open" or "Normally Closed") must be connected between Tx/Cnt and GND (refer to D3500 wiring diagram).

## 7 SIM CARD

## 7.1 PREPARING THE SIM CARD

A 3FF/Micro-SIM format SIM card is necessary for data communication compatible with LTE cat-M1, NB-IoT, or GPRS. CLA-VAL can optionally provide SIM card. If another SIM card than the one supplied by CLA-VAL is used refer to chapter 9.9 « Custom SIM Card » for configuration.

## 7.2 INSERTING THE SIM CARD

Insert the SIM card with the golden contacts downwards into the card holder. Refer to Figure 2 - Chapter 2  $_{\rm \%}$  D35 Characteristics » and the symbol printed on the D35 for correct SIM card orientation. The SIM card must be completely inserted into the card holder. If the card is overlapping the card holder after insertion, remove it and check the card's orientation.

## 8 STARTING OPERATION

If the D35 model implements an internal battery, ensure it is connected to the battery connector on the electronic card (Figure 2 - Chapter 2 « D35 Characteristics »).



# CLA-VAL D35

## **Communicating Valve Controller**

## 8.1 D35 ASSEMBLY

Before re-assembly, ensure the inside of the housings and seal are clean and dry. Presence of dust or humidity when installing may damage the product.

- 1. Connect the antenna (3) to the product (if present) (1).
- 2. Connect the battery connector (C).
- 3. Close the body (1) by rotating the head (2), see Figure 3 below. Do not force closure! If the two parts of the housing cannot be fit together properly, make sure there is no pinched cable or dust.





Figure 3 Body (1) and head (2) assembly

## 8.2 OPERATING MODE

The D35 has 3 modes of operation:

- "Standby" mode
- "Acquisition" mode
- "Configuration" mode

In "Standby" mode you can remove the SIM card or SD card, as well as connect or disconnect physical inputs.

The "Acquisition" mode is the operating mode of the D35. In this mode, the device acquires the signals from the connected sensors and inputs and saves them to the internal memory. If the data communication option is enabled, the recorded data is sent across the cellular network at the set interval time.

The "Configuration" mode is used to activate the WiFi local network generated by the device, to configure the D35.



Figure 4 Logical diagram of switching from one mode of operation to another



## 8.3 INSTALLATION VALIDATION

The simplest and fastest way to verify the successful start of the product is to use the D35 LED. The LED flashes green every 10 seconds when in "Acquisition" mode.

## 8.4 ACTIVATING D35

Once the following actions are performed

- □ Connected the battery & installed the sensor
- □ Inserted the SIM card (if not using the default CLA-VAL SIM card)
- Closed the housing

Switch to Acquisition mode on your D35 as indicated in Figure 4 (from "Standby" mode, press the button for 5 seconds)

## 9 TOOL & CONFIGURATION

## 9.1 INSTALLATION CHECKUP

The D35 user interface in "Configuration" mode provides complete product parameters information such as sensor readings and cellular reception quality:

- 1. Activate "Configuration" mode on your D35 as indicated in the previous section (from "Acquisition" mode, press the button for 5 seconds).
- 2. Connect your smartphone, tablet, or computer to the WiFi network generated by the D35.

The network has the default name: D35-< serial number>

The default password is: D35\_< last 4 digits of the series serial number >

We strongly recommend to change the default password at first installation.

<u>Note</u>: The network generated by the D35 has no Internet access. Any error messages about this can be ignored without any problem.

3. Enter the address <u>http://192.168.4.1</u> in your usual internet browser, or scan the following QR code using a QR code reading application:



- 4. After a few seconds, the configuration interface of your D35 will be displayed.
- 5. The home page allows to see the measured values in real time. It also contains the web browsing menu as well as other useful information of your D35.

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#### SIMPLIFIED / ADVANCED MODE 9.2

The advanced mode allows access to parameters requiring specific knowledge.

To access the **"ADVANCED MODE**", click on the icon at the top right of the interface. 1.

≡ D35_21042	5001			
C	Input list     Click on any input for more details and options	Output list Click on any output for more details and options	Your D35	
CLA-VA	MI (0-5V) All 0.01 bar	Outputs Show disabled ports		
<ul><li>✦ Home</li><li>→ Inputs</li></ul>				
[→ Outputs	DIIC reset 71.00 l	0		
► ValvApps <sup>™</sup> Solution Solution	DITF 3.79 l/s		99.93% (~3,345 days)	
LEVENTS	BATV 3.79 Volts		IMEI: 359206105130355	
Connectivity	BATSOC 99.93 %	ADVANCED MOD	E	
System		You are about to enter Advance	ed mode, where you will have access that require specific k	nowledge and are normally hidden. Do you want to proceed?
신 Log off			•.	

- A pop-up will open to confirm your choice. 2.
- 3. Click on the "OK" button. You now have access to the advanced settings.
- Click the icon again to exit the advanced mode. 4.

At the end of your session, you will automatically exit the advanced mode.

তা Some parameters require to switch to "ADVANCED MODE". These settings are indicated by the following icon:

#### **ANALOGUE INPUT SETTINGS** 9.3

The inputs identified by Al1, Al2, Al3 and Al4 are analogue inputs.

Click on " $\rightarrow$  **Inputs**" to display the input configuration page. 1.

	≡ D35_210426001			
	Events     Connectivity     Cogging & export     Cogging & export     Cogging & export     System     Cog off     Log off     Log off     Log off     Log off     Log off     Log off	Input list Cick on any input for more inputs Int (050) DITC DITC DITC DITF DITF BATV BATV BATSOC BATSOC	details and options Show disabled ports 0.01 bar 1 0 1 1 0 1 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1	
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2. To activate an input that is not displayed on the list, select "Show disabled ports". The list will show disabled inputs with a *gray* background.

≡ D35_210426001				
	Input list Click on any input for more details and options		Your D35	
CLA-VAL <sup>®</sup>	Inputs Show disabled ports	2.		1g
A Home	Al1 0.001 bar		8.	
→] Inputs	Al2 No value	3.	0	
E→ Outputs	AI3 0.000 V. No value		2410	2.0
► ValvApps <sup>™</sup>	Al4 (0-10V) Al4 0.000 V No value		99.9	3% (~3,345 days)
			Serial Number:	210426001
LEVENTS	DI1 1		IMEI:	359206105130355
Connectivity	DI2		MAC:	34:ab:95:5c:8f:44
Logging & export			Firmware:	dev-1.0.0
System	DI1C rosot 572.00 I			
し Log off	DI2C reset 270,236.00 I			
§ 13/04/2022 12:42:08				

3. Click on an input to reach its configuration page.

	Configuring Al1	Custom scaling	
		Scale min (V) * D	▲ ACQUIRE LO
CLA-VAL <sup>®</sup>	Name * All	Scale max (V) * 5	▲ACQUIRE HI
Home	Decimal digits * 2		
) Inputs	units * bar	-	
→ Outputs	Measurement min (bar) * 0		
<b>∂</b> ValvApps™	Measurement max (bar) * 16	4.	
∀alveFlow <sup>™</sup>	Sensor type * 0-5V	•	
Events	Sensor warm-up (ms) * 25		
Connectivity	Filter coefficient (%) * 70		
Logging & export	Lost signal * No Value	- 5.	
🗘 System 6	SAVE CANCEL		
り Log off	UNIT CONTRACT		
© 13/04/2022 12:48:29			

- 4. On the configuration page of the desired input, you can change the name and configure the sensor settings.
- 5. **Solution**, "Lost Signal" drop-down menu allows to configure an action when the sensor signal is lost. For example, when the ratiometric sensor voltage is less than 0.5 V.

You have the choice between:

- No Value
- A default Value
- The last Value
- 6. When done, click "SAVE" to apply your changes.

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## 9.4 SETTING UP A FLOWMETER

Pulse meters must be connected to digital inputs (*DI1* or *DI2*). The configuration of these inputs *DI...* is broken down into two sub-inputs:

The input  $\pmb{\textit{DI...C}}$  controls the display of the volume measurement.

- 1. Select the "**pulse weight**" for the flow meter and its units.
- 2. Click **"SAVE**" to apply the changes.

≡	D35_210426001		
		Configuring DI1C	
C	LA-VAL <sup>®</sup>	Enabled Name * DITC	
A	Home	Decimal digits * 2	
→	Inputs	Units*	
[→	Outputs	Pulse weight * 1	
R	ValvApps™	index * O	1.
*	ValveFlow™	Pulse units *	
۰	Events 2.	SAVE CANCEL	_
(;	Connectivity		
Ŀ	Logging & export		
۵	System		
ሳ	Log off		
©	13/04/2022 12:50:14		

The input **DI...F** controls the flow rate display

- 1. Choose the pulse weight and its units. These options must match the connected flowmeter.
- 2. Choose the units in which the flow rate is displayed.
- 3. Click "SAVE" to apply the changes.

≡ D35_210426	101	
	Configuring DI1F	
CLA-VAL	Enabled	
A Home	DITF Decimal digits * 2	_
→] Inputs	Units * 1/S	2.
[→ Outputs	Pulse weight * 1	
NalvApps <sup>™</sup>	Pulse units * 1/S	<u> </u>
<b>≋</b> ValveFlow™	SAVE	
Events		
Connectivity		
Logging & expo	t	
System		
U Log off		
© 13/04/2022 12:50:28		



## 9.5 SETTING THE PARAMETERS OF A SOLENOID VALVE

The outputs identified by SO1 and SO2 are solenoid outputs.

- 1. Click on the " $\rightarrow$  **Outputs**" menu to display the output configuration page.
- 2. To activate an output that is not displayed in the list, click on "Show disabled ports". The list will show the deactivated outputs with a *grey* background.

≡ D35_21042600 <sup>-</sup>			
	Output list Click on any output	for more details and options	
CLA-VAL	Outputs	Show disabled ports	2.
ft Home	S01	1 0	
→] Inputs	DO	1	
[→ Outputs	1.		
▶ ValvApps™			
₩ ValveFlow™			
Levents			
Connectivity			
Logging & export			
System			
し Log off			
© 13/04/2022 12:42:18			

≡ D35_210426001	
C	Output list Click on any output for more details and options
CLA-VAL <sup>®</sup>	Outputs Show disabled ports
Home	S01 1 0
Inputs	so2 1 0 2.
→ Outputs	
ValvApps™	DO 1
₩ ValveFlow	M35 0.00 %
Events	
Connectivity	
Logging & export	
System	
し Log off	
③ 13/04/2022 12:42:34	

- 3. Click on an output to access its configuration page.
- 4. On the configuration page of the desired output, you have the possibility to change the name, the activation label, the deactivation label and the default value.

## 9.5.1 OUTPUT TEST

To test the correct functioning of a solenoid valve, you can force the state of the valve:

- 1. After selecting the desired state, click on "APPLY", the forced state has priority over the output.
- 2. To cancel the forcing of an output, click on "CANCEL".

When you exit the "Configuration" mode all outputs that have been forced are automatically released.

	Configuring SO1	Test output S01	
	Enabled	S01	1
A-VAL"	Name * S01	State *	
Home	Label for value '1'* 1		
Inputs	Label for value '0' * O	1. APPLY CANCEL 2	·
Outputs	Default state * 0	Ŧ	
ValvApps~	Pulse duration (ms) * 120		
ValveFlow~	011/07		
Events	SAVE CANCEL		
Connectivity			
.ogging & export			
System			
Log off			
4/2022 12:48:10			



# CLA-VAL D35

## **Communicating Valve Controller**

## 9.6 EVENT SETTING

Events are used to set alarms.

You can set two types of alarms:

- The high alarm is used to detect values above a threshold.
- The low alarm is used to detect values below a threshold.

Alarms can be used to force data to be sent before the transmission period.

- 1. Click on " Events"
- 2. Click on the input you want to configure.
- 3. Select the threshold and the return to normal value. The return to normal allows to define a dead band, to avoid oscillations between the active and inactive state.
- 4. Click "SAVE" to apply the changes.

≡ D35_210426001		≡ D35_210426001	
Events     Show disabled ports       Image: Cla-Val     Image: Cla-Val	<sup>1)</sup> 2.	Too High Alert - Al1 (Al1)           □ Enabled           Unit (bar) *           0           Refure to normal (bar) *	3.
↑ Home		↑ Home	1
-J Inputs O Alert - Change of state		-) Inputs 4. CANCEL	
[→ Outputs		[→ Outputs	
Note: Section 2017     Note: Section 2017       Note: Section 2017     Note: Section 2017		► ValvApps~	
ValveFlow <sup>™</sup> O Alert ▲ - Too high: <del>0.00 l/s ( off at 0.00 l/</del>	·	₩ ValveFlow <sup>™</sup>	
		Levents	
중 Connectivity		중 Connectivity	
Logging & export		Logging & export	
🌣 System		🗘 System	
لٰ Log off		(U) Log off	
© 13/04/2022 12:44:45		© 13/04/2022 12:44:53	

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## 9.7 VALVEFLOW™ SETTING (OPTION)

The ValveFlow<sup>TM</sup> allows calculating the flow througt the valve, thanks to inlet pressure, outlet pressure, and valve opening.

- 1. Configure the ValveFlow by clicking on " *ValveFlow™* menu.
- 2. Select the inputs corresponding to the inlet/outlet pressure, as well as the opening.
- 3. Select the type of valve installed.
- 4. Click "SAVE" to apply the changes.

	Configuring Flow Calculation	Advanced
	Enabled	Flow Calculation data file *
CLA-VAL <sup>®</sup>	Name * VFLO	Choose a file 👔
A Home	Decimal digits * 2	UPLOAD NEW FLOW CALCULATION FILE
→] Inputs	Units * I/s	<u> </u>
[→ Outputs	Inlet pressure 🔻	
▶ ValvApps™	Outlet pressur 💌	2.
<b>≋</b> ValveFlow™	Opening input * 👻	
🜲 Events	Size *	<u>*</u>
Connectivity	Body style *	- J.
Logging & export	Seat type *	-
System	SAVE <b>4.</b>	
し Log off		
© 13/04/2022 12:42:47		

## 9.8 VALVAPPS™

## 9.8.1 VALVAPPS™ INSIDE

ValvApps<sup>™</sup> Inside provides a catalogue of predefined hydraulic applications.

- 1. Select the **"Type of application**" and the **"Subtype of application**" that corresponds to your need.
- 2. Once selected, click on "LOAD". Now you can customize the predefined settings.
- 3. To activate the operation of the ValvApps, check the **"Enabled"** box.
- 4. Click on "SAVE".

	ValvApps™ Inside	ValvApps <sup>™</sup> Import/Export
1.	Type of application * Custom	EXPORT CURRENT VALVAPPS*
A-VAL"	Subtype of application * -	Choose a file
Home 3.	Enabled	IMPORT VALVAPPS" FILE
Inputs 4.	SAVE LOAD 2.	
Outputs		
ValvApps™	Actions (0/4)	
ValveFlow™	+	
Events		
Connectivity		
Logging & export		
System		
.og off		



## 9.8.2 IMPORT/EXPORT

Exporting a ValvApps<sup>™</sup> allows you to export the ValvApps<sup>™</sup> you have configured, as well as the different inputs/outputs impacted by this ValvApps.

1. To export a ValvApps, click on the "EXPORT CURRENT VALVAPPS™".

Importing allows you to load a ValvApps that you have previously exported.

- 1. Select the JSON file (.json)
- 2. Click on "IMPORT VALVAPPS™ FILE".

≡ D35_210426001			
	ValvApps <sup>™</sup> Inside	ValvApps <sup>™</sup> Import/E	cport
	Type of application * Custom	EXPORT CURRENT VALVAR	PS" 1.
CLA-VAL <sup>®</sup>	Subtype of application * -	← Choose a file 👔	2.
Home	Enabled	IMPORT VALVAPPS" FILE	3.
Inputs	SAVE LOAD		
→ Outputs			
ValvApps <sup>™</sup>	Actions (0/4)		
₩ ValveFlow	+		
Events			
Connectivity			
Logging & export			
System			
し Log off			
© 13/04/2022 12:46:46			

## 9.8.3 ACTIONS

An action allows you to activate or deactivate a solenoid valve according to its configuration and conditions. You can create up to 4 actions.

≡ D35_210426001		
	ValvApps <sup>™</sup> Inside	ValvApps <sup>™</sup> Import/Export
	Type of application * Custom	EXPORT CURRENT VALVAPPS*
<b>CLA-VAL</b> <sup>®</sup>	Subtype of application *	Choose a file 🔋
A Home	Enabled	IMPORT VALVAPPS" FILE
→] Inputs	SAVE LOAD	
[→ Outputs		
► ValvApps™	Actions (0/4)	
	+	
🛕 Events		
Connectivity		
Logging & export		
System		
ப் Log off		
© 13/04/2022 12:46:46		





### 9.8.4 « ACTION » CONFIGURATION

- Name: The action name.
- Output: The solenoid valve output which is controlled by this action.
- Activation state: The state of the solenoid valve when the action is active.
- Activation delay [s]: The activation delay allows you to add a delay before the action is activated when these

different conditions are met. Only available in advanced mode

• Deactivation delay [s]: The deactivation delay allows you to add a delay before the action is deactivated even if its

conditions are no longer met. Only available in advanced mode

• Max. duration of an activation [s]: The maximum time during which the action can be active, if it exceeds this time the solenoid valve will deactivate and can reactivate only when the action deactivates and reactivates again. A

value of 0 disables this option. Only available in advanced mode

• **Priority (1 : High):** When several actions control the same output, the priority defines which action will have control over the output. The action with the value closest to 1 has priority, in case of a tie the order of the actions prevails.

### 9.8.5 CONDITIONS

Conditions determine when an action is active or inactive. You can set up to a maximum of three conditions per action. You can choose to join the conditions with "or logic" or "and logic".

The conditions available are:

- Threshold
- Calendar
- Volume + Calendar

≡ D35_210426001		
CLA-VAL	Action configuration                Enabled            Name           Action 1           Opper*         Activation state*           SD1 (SD1)         1           Promy (1: steps *	Chapter 9.8.4
→] Inputs	Send data immediately upon condition	
<ul> <li>NalvApps<sup>™</sup></li> <li>WalveFlow<sup>™</sup></li> </ul>	Conditions (0/3): +	Chapter 9.8.5
🌲 Events	SAVE CANCEL	
Connectivity		
System		
U Log off		





## 9.8.5.1 Threshold

A condition that will be triggered by a condition applied to an analogue or digital input.

- Input: The value of the input used for the comparison.
- Operator: The operator used for comparison (larger, smaller, equal).
- Threshold [bar]: The constant used for comparison.
- Hysteresis [bar]: Allows you to define a dead band.
- Minimum duration [s]: The maximum time the condition can be true. Set the value to 0 to disable this feature. Only

## available in advanced mode

≡ D35_210426001		
	Action configuration	Condition configuration
CLA-VAL <sup>®</sup>		Type*         *           Input*
A Home → Inputs	S01 (S01)         •         1         •           Activation delay (s) *         Deactivation delay (s) *         0           0         0         0	Dparator *
C→ Outputs ValvApps <sup>™</sup>	Max. schwe duston (s) * Priorby (1.High) * 0 <u>1</u> Send data immediately upon condition	0 Hysteresis(bar) * 0
≈ ValveFlow~	Conditions (1/3):	Minimum duration (x) * D
Connectivity	+	
Logging & export	SAVE CANCEL	
U Log off © 13/04/2022 12:47:51		

## 9.8.5.2 Calendar

Condition that will trigger between a start time and an end time. Depending on the days of the week, as well as the months.

- From: The time when the condition was triggered.
- To: The end time of the condition.
- When?: The list of days and months where the condition is valid.

	Action configuration	Condition config	guration		
	Enabled	Type* Calendar			
CLA-VAL	Name Action 1	From			
	Output * Activation state * SOT (SOT) • 1 •	Hour* N	Minutes *	Seconds	
Home	Priority (1: High) *	Ter			
Inputs	1	Hour* N	tinutes *	Seconds 59 *	
→ Outputs	Send data immediately upon condition				
o ValvApps™	Conditions (2/3):	When?:	Janua	rv.	
ValveFlow <sup>™</sup>	From: 00:00:00 To: 23:59:59 7/7 day(s), 12/12 month(s)	Tuesday	Februa	ary	
Events	AND +	Wednesday	March		
Connectivity	Al1 (Al1) > 0 bar	Thursday	April		
Logging & export	+	Friday	May June		
System	SAVE CANCEL	Sunday	July		
ل Log off			Augus	at .	
© 01/01/2000 05:17:30			Septer	mber	
			Octob	er	





## 9.8.5.3 Volume + Calendar

Condition that will be triggered according to a time of day and a month. And stop when a certain volume is reached.

- From: The time when the condition was triggered.
- **Until:** Allows you to define an end condition in relation to a volume.
- Input: Allows to select the counter.
- Operator: The operator used for comparison (greater, greater equal).
- Threshold: The constant used for comparison.
- When?: The list of days and months where the condition is valid.

≡ D35_210426001		
	Action configuration	Condition configuration
	Enabled	Type* Volume + Calendar
CLA-VAL	Action 1	From:
Home	Output*         Activation state*           S01 (S01)         •           1         •	00 * 00 * 00 *
Inputs	Priority (1: High) * 1	Until:
Outputs	Send data immediately upon condition	No Input Active Operator*
ValvApps™	Conditions (3/3):	Treatent *
S ValveFlow **	No preview available	
Events	AND -	wnen:: ☑ Monday ☑ January
Connectivity	Al1 (Al1) > 0 bar	🖬 Tuesday 🛃 February
Logging & export	AND -	🗹 Wednesday 🗹 March
System	Al1 (Al1) > 0 bar	✓ Thursday ✓ April
) Log off	+	Friday May
© 01/01/2000 05:24:37	SAVE CANCEL	Sunday Sully
		Z August
		September
		✓ October
		November



## 9.9 CUSTOM SIM CARD (COMMUNICATION OPTION)

- 1. Click on " **Connectivity**" menu.
- 2. Enter the information corresponding to the APN of your SIM card (provided by your operator).
- 3. Choose whether you want to communicate in 4G / 2G (Fallback in 2G in case of unavailability of 4G), 4G only, or 2G only and the 4G technology (CAT-M1 or NB-IoT)

35_210426001		
WiFi access point	Data transfer	Modem status Offline 🗙
Duration of WiFi activation (minutes) * 60	◯ None	Latest refresh: 1 Jan 2000, 03:29:19 Connected to: Sunrise (2G GSM)
₩Fi network name (SSID) * D35_210426001	○ FTP	IMEI: 359206100938422 ICCID: 89462038047000072663
me Password *		TEST CONNECTION
uts Confirm password *	Transfer interval (min) *	
Passwords must match	ou hanse orde per day	SIM card settings
SAVE	Hour* Mindex* 00 00 -	Use Cla-Val SIM card
	Transformer and a set of the	● 4G/2G ○ 4G ○ 2G
l/veFlow™	julien.rochat@cla-val.ch REGISTER NOW	CAT-M1 O NB-IOT
ents	SAVE SEND DATA	Data communication region * Europe
onnectivity 1.		APN* internetm2m.air.com
ogging & export		APN username
vstem		APN password
g off		
/2000 05:56:04		SAVE

4. Click the "SAVE" button in the "SIM Card Settings" section to apply the configuration.

SIM card settings
Use Cla-Val SIM card
● 4G/2G ○ 4G ○ 2G
● CAT-M1 ○ NB-IoT
Data communication region *
Europe
APN *
internetm2m.air.com
APN username
APN password
SAVE 4.

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## 9.10 CHECKING THE QUALITY OF THE NETWORK (COMMUNICATION OPTION)

- 1. Click on " **Connectivity**" menu.
- 2. Click on the button "TEST CONNECTION".

≡ D35_210426001		
	Data transfer	Modem status Offline 🗙
	O None	Latest refresh: 25 Jul 2061, 08:47:59 Connected to: Swisscom (4G CAT M1)
	○ FTP	IMEI: 359206105130355 ICCID: 89410120280709623217
Home	● @Link2Valves-	TEST CONNECTION 2.
→] Inputs	Transfer interval (min) 1.440 <b>V</b> Transfer once per day	SIM card settings
[→ Outputs	Starting at: Minutes *	Use cia-vai Sim card
ValvApps <sup>™</sup>	00 • 00 •	SAVE
₩ ValveFlow	Link2Valves user e-mail * REGISTER NOW	
🌲 Events		
중 Connectivity	SAVE FORCE SEND DATA	
Logging & export		
System		
し Log off		
© 13/04/2022 12:45:12		

- 3. Wait until the mode is online and refresh the page (F5).
- 4. Check the dBm value by hovering over the network quality icon.

Modem status	3.	Online	al
Latest refresh: 23 Mar 2022, 09:23:47 Connected to: Swisscom (4G CAT MI) II IMEI: 359206105100226 ICCID: 89410120280709623456 TEST CONNECTION	4. -55	dbm	

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## 9.11 REGISTER ON LINK2VALVES (COMMUNICATION OPTION)

Link2Valves<sup>TM</sup> is the CLA-VAL web platform (<u>https://cla-val.ch</u>) that allows the remote management of your D35 as well as the visualization of its data history.

To use it, you need a Link2Valves account. Please contact CLA-VAL to get one for free.

- 1. Click on " **Connectivity**" menu.
- 2. Under « Data Transfer », choose the "Link2Valves" option.

0	Data transfer	Modem status	Offline M
	O None	Latest refresh: 25 Jul 2061, 08:47:59 Connected to: Swisscom (4G CAT M1)	Utiline 📉
LA-VAL <sup>®</sup>	⊖ FTP	IMEI: 359206105130355 ICCID: 89410120280709623217	
Home	● ≌Link2Valves <sup>-</sup> 2.	TEST CONNECTION	
Inputs	Transfer interval (min) 1440 Transfer once per day	SIM card settings	
Outputs	Starting at: Hour*		
ValvApps™		SAVE	
ValveFlow™	Link2Valves user e-mail * REGISTER NOW		
Events	SAVE FORCE SEND DATA		
Connectivity			
Logging & export			
Log off			
13/04/2022 12:45:12			

3. Choose the transfer interval and the time from which the interval will start. This interval will determine the frequency of communications of the D35 and Link2Valves. Please note that a faster interval will have a negative impact on the battery life of the unit and generate potential additional costs.

○ FTP	
Image: Second	3
Transfer interval (min) 1440	✓ Transfer once per day
Starting at:	Y Minutes *
14	• 00



 Associate the D35 unit with your Link2Valves user account. First, enter the email address of your Link2Valves account. If you do not have one, please contact CLA-VAL to get one for free. Then click on "REGISTER NOW" and wait for the message "Success!".

● @Link2Valves <sup>-</sup>
Transfer interval (min)
1440 Transfer once per day
Hour * Minutes *

5. Don't forget to click "SAVE" for your changes to take effect.

## 9.12 LOGGING SETTING

- 1. Click on " **Logging & export**" menu to access the corresponding configuration page.
- 2. Choose a recording interval. This interval manages the periodic recording of all activated inputs.
- 3. Click "Save" to apply the changes.

≡ D35_210426001		
	Logging interval	Export
	Interval (seconds) * Interval (minutes) * 60 1	Choose the log files to export
CLA-VAL <sup>®</sup>	Save 3.	Log files for the last 7 days
A Home		C Log files for the last 30 days
→] Inputs		Export
[→ Outputs		
<b>№</b> ValvApps™		
WalveFlow <sup>™</sup>		
Levents		
중 Connectivity		
Logging & export	1.	
System		
<ul> <li>Log off</li> <li>13/04/2022 12:45:37</li> </ul>		

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## 9.13 BASIC SYSTEM SETTINGS

- 1. Click on the " System" menu.
- 2. Give your D35 a name.
- 3. Select the language.
- 4. Select your time zone using the "DETECT" button. If the time zone is not detected correctly, you can choose it manually with the "Time Zone" drop-down menu.

≡ D35_210426001			🗢 🛇 🎽
	System Settings	Battery information	5.
2.	Name for this 035 * D35_210426001	99.85% (~3.343 days)	
CLA-VAL <sup>~3.</sup>	Language * English (GB)	Charge: % Voltage: V	
A Home 4.	UTC TELECT	Current: A	
→ Inputs	Use an external power supply	Days left: ~ days	
[→ Outputs	SAVE SETTINGS		
► ValvApps <sup>™</sup>			
₩ ValveFlow	Configuration Import/Export		
Events	EXPORT CURRENT CONFIGURATION		
Connectivity	Choose a file		
Logging & export	IMPORT CONFIGURATION FILE		
🕸 System	1.		
し Log off			
© 13/04/2022 12:45:50			

- 5.
- Optional: Set the automatic synchronization of the unit's internal clock.
- a. Choose a time synchronization server (NTP server). The address pool.ntp.org, corresponding to a publicly accessible server, can be used if you do not know an alternative.
- b. Periodic synchronization is recommended.

This operation can only be performed if the D35 is connected to the cellular network (option). If not, go directly to step 8.

6. Click on "SAVE NTP INFORMATION" to apply the changes.

System	Settings	Advanced	Battery information
Name for this D35_2104	Das* 26001	Manually set date and time Date ' Pour' Minutes ' Becords 13/4/2022  12  51  00	99.81% (~3,341 days)
LA-VAL <sup>®</sup> English (G	B)	SET DATE AND TIME	Charge: 99.83 % Voltoge: 3.79 V
Home		NTD Symphropization	Current: 0.01 A Temperature: 33 °C
Inputs	external power supply	5. pool.ntp.org	Days left: ~3,342 days
Outputs SAVE S	ETTINGS	Synchronize periodically with NTP server	Refresh battery information Eathery capacity * 38 Ah
ValveFlow <sup>™</sup>	uration Import/Export		This button resets battery lifetime statistics and should
Events Export	CURRENT CONFIGURATION	SAVE NTP INFORMATION	RESET BATTERY
Connectivity Choose a	file 🔋	Upload firmware Choose a file B or	
Logging & export	CONFIGURATION FILE	Enter a download address *	
System		UPLOAD FIRMWARE	
Log off			
5 13/04/2022 12:50:49		Factory reset All configuration settings will be reverted to their factory values	

# CLA-VAL D35



## **Communicating Valve Controller**

7. Click on "SYNCHRONIZE NOW" to update your unit's clock immediately.

This operation can only be performed if the D35 is connected to the cellular network (option). If not, go directly to step 8.

8. Check that the time displayed on the clock below the navigation menu is correct. If not, you can set the time manually in "Manually set date and time". Click on "SET DATE AND TIME" to have the change applied.

≡ D35_210426001			
CLA-VAL	System Settings  box 5 (10.01)  box	Advanced           Maxwelly set date and time cr4/42022         Stort         Montrat         Bostorn           SET DATE AND TIME         Stort Max         Montrat         Bostorn         Montrat	Battery information 99873(-134) (app) Charge: 99.83 % Votage: 3.79 V Curret: 001 A
→ Inputs	Use an external power supply SAVE SETTINGS	NTP Synchronization	Temperature: 33 °C Days left: -3,342 days Refresh battery information
►     ValvApps <sup>∞</sup> Image: Second	Configuration Import/Export Include Vah/App* EXPORT CURRENT CONFIGURATION	Bandwardson proc (N 18 GAVE NTP INFORMATION STINCHRONIZE NOW Upload firmware	O This button resets battery lifetime statistics and should only be used after a battery is replaced. RESET BATTERY
<ul> <li>Connectivity</li> <li>Logging &amp; export</li> <li>System</li> </ul>	Choose a file 0 IMPORT CONFIGURATION FILE	Choose a life B or Enter a download address * UPLOAD FIRMWARE	
U Log off	8.	Factory reset All configuration settings will be reverted to their factory values	

## 9.14 BATTERY CONTROL

The battery display allows to estimate the remaining life of the product.

- 1. During battery replacement.
- 2. Click on the "RESET BATTERY" button to reset the battery display.

## This button resets the battery life statistics and should only be used after a battery has been replaced.

 If you are not using a battery, you can disable the battery display by clicking on the "Use an external power supply" button.

≡ D35_210426001			
	System Settings	Advanced	Battery information
	Name for this D35 * D35_210426001	Manually set date and time	99.81% (~3,341 days)
CLA-VAL <sup>®</sup>	Language * English (GB)		Charge: 99.83 % Voltage: 3.79 V
ft Home	Time Zone * UTC TETECT		Current: 0.01 A Temperature: 33 *C
→] Inputs	Use an external power supply	NTP Synchronization	Days left: ~3,342 days
[→ Outputs	SAVE SETTINGS	Synchronize periodically with NTP server	Refresh battery information Battery capacity *
► ValvApps <sup>™</sup>	Configuration Import/Export	Synchronization period (h) 168	38 Ah •
∀alveFlow <sup>™</sup>	Include ValvApps*	SAVE NTP INFORMATION SYNCHRONIZE NOW	U This button resets battery lifetime statistics and should only be used after a battery is replaced.
Events	EXPORT CURRENT CONFIGURATION	Upload firmware	RESET BATTERY
Logging & export	Choose a file	Choose a file B or	
System		Enter a download address *	
U Log off		UPLOAD FIRMWARE	
© 13/04/2022 12:50:49		Factory reset	



## 9.15 FIRMWARE UPDATE

- 1. This chapter must be in advanced mode, click on
- 2. Click on the " System" menu.

≡ D35_210426001				🛓 🕥 💽
	System Settings	Advanced	Battery information	1.
	Name for this D35 * D35_210426001	Manually set date and time	99.81% (~3,341 days)	
CLA-VAL <sup>®</sup>	Language " English (GB)	SET DATE AND TIME	Charge: 99.83 % Voltage: 3.79 V	
A Home	UTC DETECT		Current: 0.01 A Temperature: 33 °C	
→] Inputs	Use an external power supply	NTP Synchronization	Days left: ~3,342 days	
[→ Outputs	SAVE SETTINGS	Synchronize periodically with NTP server	Refresh battery information	
▶ ValvApps™	Configuration Import/Export	Synchronization period (h) 168	38 Ah 👻	
	☐ Include ValvApps™	SAVE NTP INFORMATION SYNCHRONIZE NOW	O This button resets battery lifetime statistics and should only be used after a battery is replaced.	
Levents	EXPORT CURRENT CONFIGURATION	Upload firmware	RESET BATTERY	
Connectivity	Choose a file 🔋	Choose a file		
Logging & export	IMPORT CONFIGURATION FILE	Enter a download address *		
System	<b>_</b> <sup>2.</sup>	UPLOAD FIRMWARE 4.		
© 13/04/2022 12:50:49		Factory reset		

3. In the «Upload firmware» submenu, locate and select the distribution ZIP file for example "CVLOG35\_1.0.2.zip".

→ ^ ↑	his PC > Local Disk (C:) > Git > D3	5 > build >	~	ن 🔎 Sea	rch build	
ganize 🔻 New fold	der					
📙 Fiches_Maint 🖈 🔨	Name	Date modified	Туре	Size		
CV-Log-35 🖈	D35_1.0.0	03.02.2022 16:09	File folder			
FR	D35_1.0.0.zip	07.03.2022 11:52	Compressed (zipp	7.410 KB		
lnc	D35_1.1.0.tar	26.04.2022 14:39	TAR File	26.880 KB		
M35_Software	D35_1.1.0.tar.zip	26.04.2022 14:39	Compressed (zipp	7.548 KB		
Src						
This PC 3D Objects Desktop						
Downloads						
Music						
Pictures						
Videos						
Local Disk (C:)						
NODE 1 42200 // Y						

- 4. Click on the "UPLOAD FIRMWARE" button and wait a few minutes.
- 5. Completely power off the D35 to apply the update. To do so, press the product button for 5 seconds to turn off the WiFi.
- 6. Make sure the LED flashes green every 10 seconds, indicating that the product is in "Acquisition" mode Then press the main button for 10 seconds to completely switch off the D35 (a red flash appears after 10 seconds)

Reduce your waste - Sort your rubbish



7. Once this step is complete you can restart the device and go back to configuration mode. D35 will flash purple for a few minutes. Do not disconnect the power during this time!



Before upgrading firmware on a D35, please check on the CLA-VAL website (<u>https://cla-val.ch</u>) for the latest version of the software & firmware.

## **10 SUPPORT**

## **10.1 MAINTENANCE AND RETROFIT**

The D35 is maintenance-free over the entire battery lifetime, which depends on the measurement and transmission frequencies settings (which are remotely configurable). However, environmental conditions may shorten battery lifetime and the presence of humidity inside the housing lead to corrosion. Prevent these situations with clean and robust installations.

When the battery reaches its end-of-life, ask CLA-VAL, or an authorized reseller for maintenance assistance to change the battery, update the device to the most current Firmware, and test the system.

## 10.2 NON-CONFORMITY RETURN (NCR)

Only return D35 under warranty after attribution of an Equipment Return Authorization provided by CLA-VAL Europe. The returned D35 must be clearly marked with the Non-Conformity (NCR) number.

## **11 ACCESSORIES**

Warranty may be void if accessories other than those recommended by CLA-VAL Europe are used.

Parts	Order Code	Description
	MEXE-B11-02	Internal battery replacement
-	MEXE-B11-01	External High-Capacity battery replacement

► CLA-VAL Europe