xFlow

User Installation & Programming Guide

LeakSafe

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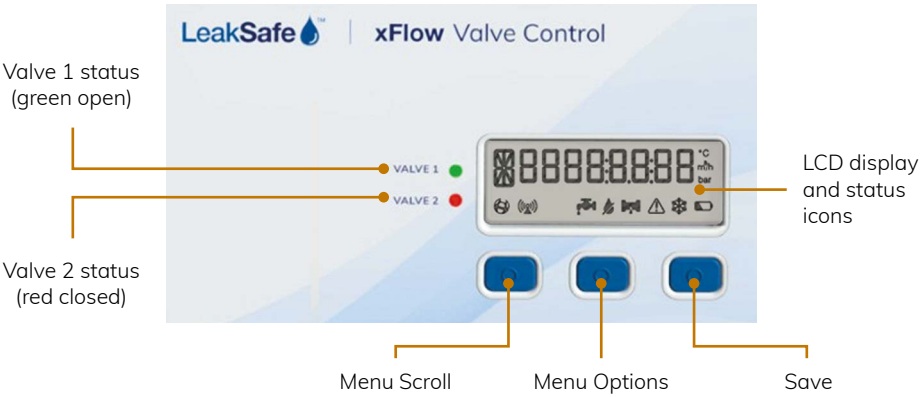
A. USER GUIDE

User Display Overview



- Menu Scroll (LH) button scrolls through the menu.
- Menu Options (middle) button rotates the choices.
- Save (RH) button saves the option choice.

User Display & Menu

The default xFlow display shows the Valve 1 Status & current Run mode:

Valve 1 is open, and the system is in HI use mode

TO OPEN OR CLOSE A VALVE

To OPEN a valve:
Scroll to Valve 1 or Valve 2 as required using the Menu Scroll (LH) button, press the Menu Options (middle) button until it shows OPEN then press the Save (RH) button to confirm – valve will open.
PLEASE NOTE: If the valve(s) have closed because directly connected tape has got wet (see display icons below), you can't open the valve until you have disconnected the wet tape. Unplug the tape at the red connector, then open the valve.

To CLOSE a valve:
Scroll to the valve you wish to close, press Menu Options (middle) button to show CLOSE, then press the Save (RH) button to confirm – valve will close.

Meter total:

M1 = meter 1, M2 – meter 2 (if no meter is connected or no water has ever been run, this line of the display will not appear).

M1 0.563 - meter has seen 563L

Run mode options:

R ON-OFF

Valve opens & closes at timed intervals. Time options move in 30-minute segments.

NB. If you open a valve when it has turned OFF on a timed program, the system will allow use of water for the OVERRIDE period and then turn the valve off again.

R HI-LO (default)

HI use or LO use. Valve stays open all the time (unless a leak is detected) but the volume thresholds may vary according to the mode.

R -HI-

Keeps the valve open (unless a leak is detected) and the Hi use volume threshold as set for that mode.

R -LO-

Keeps the valve open (unless a leak is detected) and the LO use volume threshold as set for that mode.

R -OVER-

Override. Overrides the programmed volume threshold for the period specified in the Configure menu.

Flow rate (information only):

F1 = flow rate on M1

F2 = flow rate on M2

Pipe Temperature.

T1 & T2 (if no temperature sensors are installed this line will not appear)

Battery Level:

B Current battery level. 22+ = fully charged

Date:

DD:MM:YY. If system is using NBIoT for notifications, the system will pick up the date and time from the Vodafone NBIoT network. If NBIoT is not enabled the date can be set in the Configure menu.

Time:

HH:MM:SS. As above – the time can be set in the Configure menu.

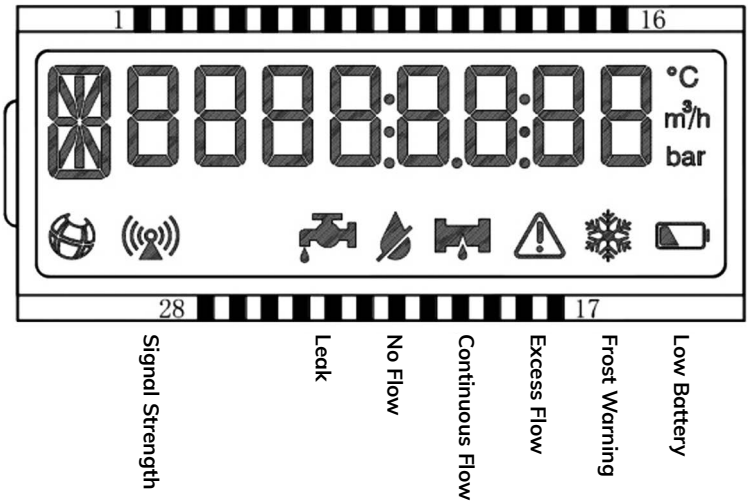
Serial number:

S The system serial number is 51020807

Firmware version:

Vr The system's firmware version.

Display Icons:



	**NBIoT SIGNAL STRENGTH**	NBIoT Signal Strength (if the system is connected to the Vodafone NBIoT network.

	**LEAK**	**The directly connected tape is wet (tape optional)**
	Action	Disconnect the wet tape from the xFlow control panel. If the leak can be safely contained, open the valve. Repair the leak, dry the tape and once completely dry, reconnect to the xFlow panel.

	**NO FLOW**	**The valve shut for NO flow because the meter recoded no water flow for the period specified in the configure menu.**
	Action	Open the valve from the xFlow control panel

CONTINUOUS FLOW	Valve shut because the meter recorded continuous flow for the period specified in the configure menu.
Action	If you know why the continuous flow period has been exceeded and it is safe to do so, open the valve. Otherwise, check the property for taps and appliances that may have been left on or are running continuously due to a stuck valve or similar eg, storage tanks, WC cisterns. If you turn the valve on and something is still running, then the system will shut the valve again after another continuous flow period has elapsed.

EXCESS FLOW	Valve Shut because the meter recorded more than the specified volume of water allowed over a rolling 1 hour period as selected in the configure menu.
Action	If you know why the volume threshold has been exceeded and it is safe to do so, open the valve. Otherwise, check the property for leaks. If you turn the valve on and something is still running, then the system will shut the valve again if the volume threshold is exceeded.

PIPE FROST WARNING	The temperature of the pipe is less than 4°C (temperature sensor optional).
Action	The system does not shut the valve if the temperature drops below 4°C but you should take action to ensure that the pipe doesn't freeze.

LOW BATTERY	The rechargeable battery is low - less than value 22.
Action	Make sure the xFlow is connected to the mains supply so that the battery can recharge.

Battery Backup

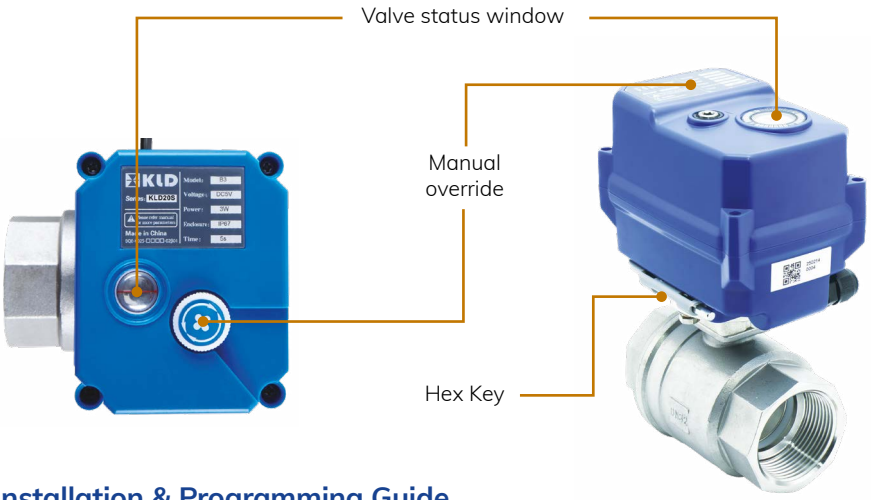
The system has a rechargeable battery that will keep the system running in the event of a mains failure for between 3-5 days depending on the environment. If the battery is getting low and the system is connected to a NBIoT network you will receive a LOW BATTERY warning message. The User display will show a LOW BATTERY icon whether it is connected to a NBIoT network or not.

Manual Override – Valve

PLEASE NOTE: There is a system override feature with periods from 30 – 120 minutes that should be used if a temporary override for additional water use is required, and an Out Of Service mode in the Configure menu if the system is to be disabled for a longer period of time – see Installation & programming Guide.

MANUAL OVERRIDE SHOULD ONLY BE USED IN INSTANCES OF XFLOW CONTROL PANEL FAILURE.

The valves are supplied with emergency manual override. To open the valve either lift and turn the manual override button until the valve status line is parallel with the pipework on which it is installed. If the valve override is actioned using an Allen (Hex) key, insert the Allen key and move the valve until it is in the "open" position. To close the valve turn the valve until the valve status line is at right angles to the pipe or in the "closed" position.



B. Installation & Programming Guide

xFlow Connections Overview

Up to 3 x 24V valves – any size.

Up to 3 x meters – any size – with pulse output K=1, K=10, or K=100.

1 x directly connected leak detection tape (optional).

1 x incoming BMS connection.

1 x outgoing volt free relay that can be connected to an external alarm, BMS, burglar alarm etc.

2 x temperature sensors – clamp on to valve pipe (optional).

1 x factory connected mains power lead.

NBIoT modem for transmitting leak alarms (optional and dependant on NBIoT network coverage).

Inbuilt audible alarm.

C. Installation

Valve and Meter

Install valve and meter, ensuring that the meter is installed with flow as indicated on the meter barrel, and the valve actuator is positioned so that the valve position indicator and manual override is visible and accessible.

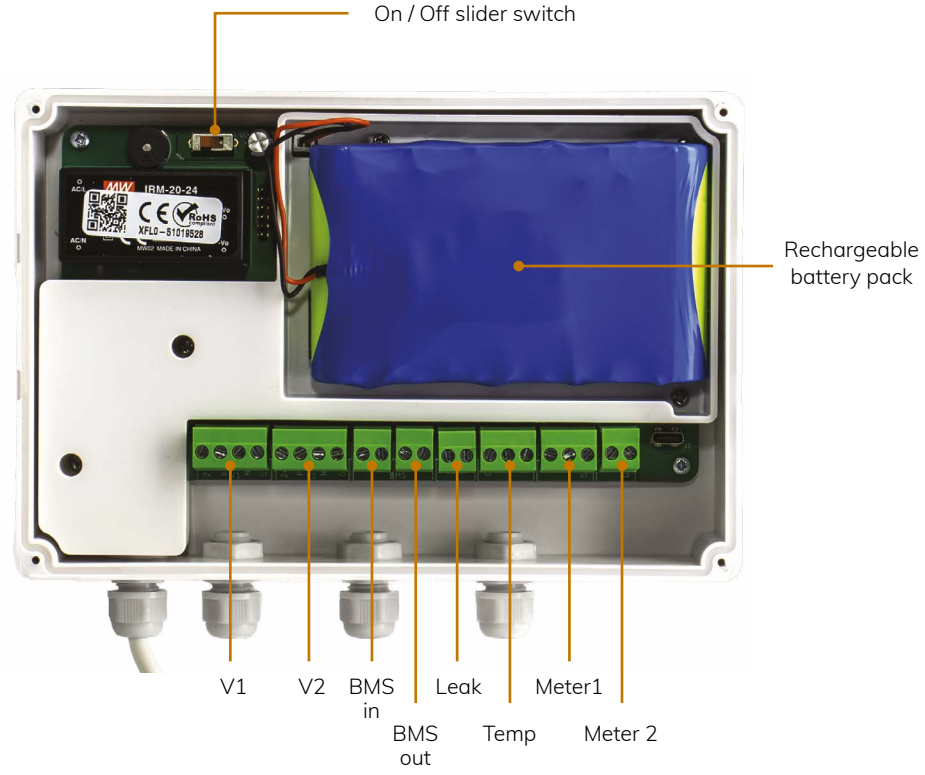
If the meter is supplied with a clip-on pulse module, ensure that the pulse module is correctly engaged and fixed using the screw supplied – please follow the instructions provided with the meter.

xFlow Control Panel

The wall bracket clips off the back of the enclosure. Insert a small flat head screwdriver in the recesses on the side of the enclosure to release the bracket and fix the bracket to the wall.

Unscrew the enclosure and wire the valve(s), meter(s) and any optional items as indicated below.

Reassemble and clip into wall bracket.



Wiring

Valve connection (up to 3 valves in terminals V1 & V2. 2 valves can be doubled up in V1 and 1 valve connected to V2)) – 3 wires: Green = POS Red = NEG Black = GND

- If you are installing 1 x valve, install in V1.
- If you are installing 2 valves and they are to operate independently, install in V1 & V2.
- If you are installing 3 valves, you must double up 2 valves in V1 that will operate in tandem and the 3rd valve in V2.

BMS volt free relay out connection (one connection). 2 wire – no polarity

BMS in connection (one connection). 2 wire – no polarity

Leak detection tape – (one connection). 2 wire – no polarity

Temperature sensor (up to 2 sensors). 2 wires

- Sensor 1 - COM and T1
- Sensor 2 - COM and T2

Meter connection (up to 3 meters) 2 wires

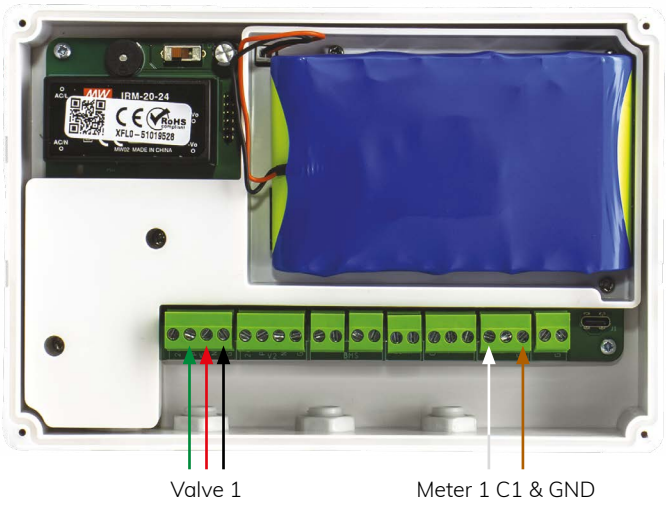
- Meter 1(A) - White to C1, Brown to GND
- Meter 1(B) - White to C2, Brown to GND. **Meter 1A & meter 1B operate in tandem and are used where 2 x valves are doubled up in the V1 terminal. If meters are doubled up they must have the same pulse setting e.g., K = 01**
- Meter 2 - White to C3, Brown to GND – This terminal is used where 2 valves working independently are required.

If you are installing 1 x valve & 1 meter connect valve to V1 & meter to C1 & GND.

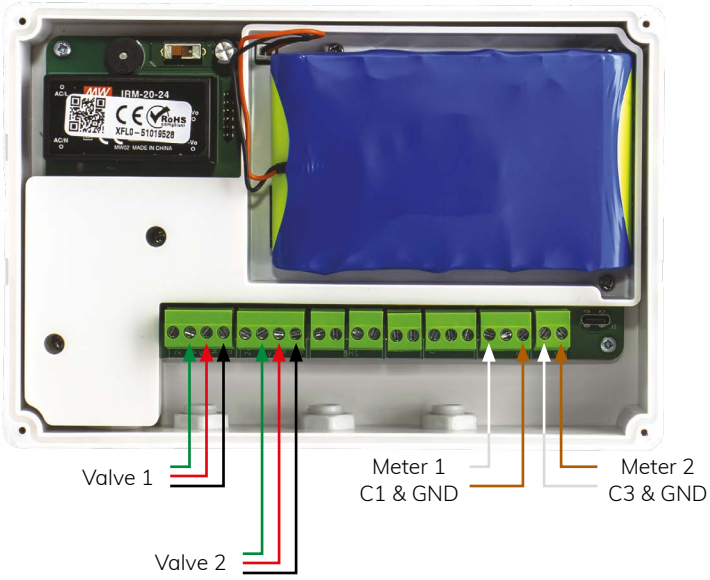
If you are installing 2 x valves & 2 meters that you want to be able to open/close independently connect Valve 1 to V1 & meter 1 to C1 and GND and the 2nd valve to V2 and the meter to C3 and GND.

If you are installing 3 x valves & meters, meter connections C1 & GND and C2 & GND correspond to the 2 valves doubled up in the V1 terminal and C3 & GND corresponds to the valve in the V2 terminal.

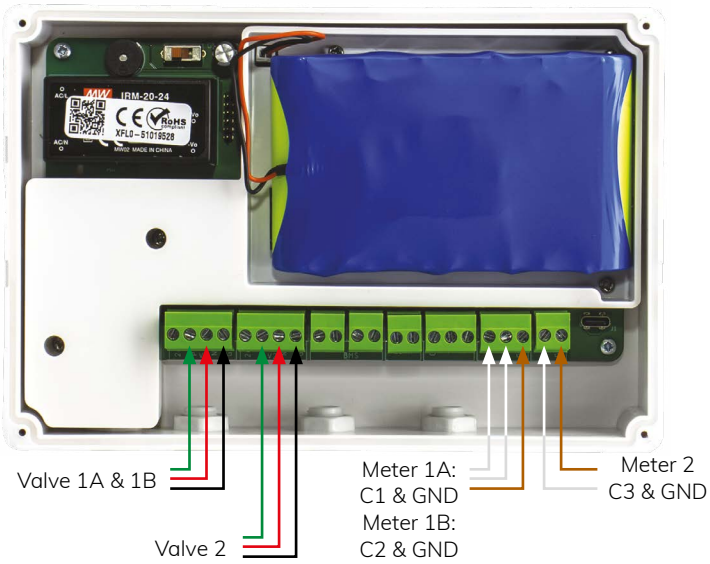
Wiring for 1 KLD valve & 1 meter



Wiring for 2 KLD valves & 2 meters that will manually open & close independently



Wiring for 3 KLD valves & 3 meters



D. Programming (Configure) Menu

To ENTER the Configure (CONF) menu press and hold the Scroll (LH) button until the display reads – CONF – then release button.

Scroll (LH) button scrolls through the menu.

Menu Options (Middle) button scrolls through the options.

Save (RH) button Saves the chosen option. -SAVE-

To EXIT the Configure menu and save all choices press and hold Scroll (LH) button until the display reads SAVE – then release the button.

N.B: If you do not press any buttons for a few minutes whilst in CONF, the system will time-out to USER display and only settings SAVED to that point will be retained.

K value of meters

Set K value of meters – the number of Litres to be recorded on the system for every pulse from the meter.

Display shows:	**K1 01** (meter 1A & 1B (default = 01)
Display shows:	**K2 OFF** (meter 2 default = OFF)
Options:	K = 01, 10, 100 or OFF
Meter sizes:	DN20 – DN40: K = 01
Meter sizes:	DN50 – DN90: K = 10
Meter size:	DN100+: K = 100

Set number of valves

Display shows:	**V1** (default EN = enabled)
Display shows:	**V2** (default EN)
Options:	**EN** = enabled, **DIS** = disabled

Set type of valves

Display shows:	**FO-FC** (default FO-FC = force open, force close). KLD valves are FO-FC
Options:	NC = normally closed,
	NO = normally open,
	FO-FC = force open, force close (push pull)
	BVAL = bespoke valves

Set Run Modes

RUN: Normal use (default)

ENG: Engineer test mode – allows you to test No Flow, Continuous Flow and Excess Flow.

- No Flow: Make sure no water is used for 15 minutes and the valve will close.
- Continuous Flow: Open valve and test continuous flow by running a small amount of water – only enough to activate the meter. The valve will close after 5 minutes.
- Excess Flow: Open valve and fully open a tap(s). The valve will close when 10L of water has been used,

OOS: Out of Service mode – disables ALL monitoring and is a way of overriding the system without the need to disconnect cabling or isolating the mains and disconnecting the battery.

AUD: Audit mode – measures maximum amount of water used in a rolling hour (Volume HI and Volume LO if User Mode "HI-LO" is selected on the user menu) and after either 7 days or when manually taken out of AUD mode, automatically saves threshold in HI and LO use to the value above the maximum measured amount e.g., if the maximum use was 250L in a rolling hour, the system would set the threshold at 300L. See below.

NB. During audit mode the system will still shut the valve if leak detection tape gets wet, or it sees Continuous Flow through the meter for more than the programmed time – see Continuous Flow section below.

Volume thresholds

To manually set the volume of water you will allow during HI USE periods

Volume HI:

Display shows:	**VH** (default 100L)
Options:	10, 20, 30, 40, 50, 60, 70, 80, 90 100, 200, 300, 400, 500 750, 1000, 1250, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, OFF (volume monitoring is OFF)

To manually set the volume of water you will allow during LO USE periods.

Volume LO:

Display shows:	**VL** (default 10L)
Options:	(same choices as VH)

No Flow & Continuous Flow

No Flow: The system will shut the valve if no water is measured going through the meter for the period chosen.

No Flow Setting (all modes):

Display shows:	**NFO** (default 24 hours)
Options:	OFF, 6, 12, 18, 24, 30, 36, 42, 48 hours

Continuous Flow

The system will shut the valve if water is measured going through the meter continuously for the period chosen.

Continuous Flow Setting (all modes):

Display shows:	**CFO** (default 30 Minutes)
Options:	OFF, 0.30 (minutes), 1:00, 1:30 (1 hour 30 mins), 2:00, 4:00, 6:00 hours

Override

Choosing “OVER” from the User Menu will allow an unlimited amount of water to be used for the override period chosen.

Display shows: X 60 (default 60 minutes)

Options: 30, 60, 90, 120 (minutes)

Timed Programs

This menu is ONLY used if you want to change the system mode from HI use to LO use or turn the valve(s) ON and OFF at specific times of day. There are three timed program menus.

All Day Start / All Day Finish

If you want the system to change mode at the same time every day, you only need to set the All Day Start / All Day Finish times that are the first two options in this menu block.

All day start

Display shows: **ADS** (default 06:00) - Moves in 30 minute segments

All day finish

Display shows: **ADF** (default 18:00) - Moves in 30 minute segments

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Weekday Start / Weekday Finish & Weekend Start / Weekend Finish

If you want one set of times for weekdays and another set for weekends, ignore the All Day start / All day Finish menu and scroll down to the Weekday Start / Weekday Finish and Weekend Start / Weekend Finish time

Weekday start

Display shows: **WDS** (default 06:00) - Moves in 30 minute segments

Weekday finish

Display shows: **WDF** (default 18:00) - Moves in 30 minute segments

Weekend start

Display shows: **WES** (default 06:00) - Moves in 30 minute segments

Weekend finish

Display shows: **WEF** (default 18:00) - Moves in 30 minute segments

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Different times for different days

Use this section if the times vary from day to day e.g.,

0600 – 1800 Monday & Tuesday

0600 – 1300 on Wednesday

0600 – 1800 Thursday & Friday

1000 – 1200 Saturday & Sunday

Day 1 is NOT the first day the system is programmed, it is ALWAYS Monday. In the example above the programming would be:

Day 1 Start (Monday)

Display shows day 1 start: D1S (default 06:00)

Display shows day 1 finish: D1F (default 18:00)

Day 2 Start (Tuesday)

Display shows Day 2 start: D2S (default 06:00)

Display shows Day 2 finish D2F (default 18:00)

Day 3 Start (Wednesday)

Display shows day 3 start: D3S (default 06:00)

Display shows day 3 finish: D3F (default 18:00) use Menu Options button to scroll to 1300 and press Save (RH) button – SAVE

Day 4 Start (Thursday)

Display shows Day 4 start: D4S (default 06:00)

Display shows Day 4 finish D4F (default 18:00)

Day 5 Start (Friday)

Display shows Day 5 start: D5S (default 06:00)

Display shows Day 5 finish D5F (default 18:00)

Day 6 Start (Saturday)

Display shows Day 6 start: D6S (default 06:00) use Menu Options button to scroll to 1000 and press Save (RH) button – SAVE

Display shows Day 6 finish D6F (default 18:00) scroll to 1200 and press Save button – SAVE

Day 7 Start (Sunday)

Display shows Day 7 start: D7S (default 06:00) use Menu Options button to scroll to 1000 and press Save (RH) button – SAVE

Display shows Day 7 finish D7F (default 18:00) scroll to 1200 and press Save button – SAVE

Factory Reset

Display shows **F-RESET**

Press RH button to start factory reset - resets all values to default settings.

Default settings:

Parameter	Default
Meter 1 value	K1
Meter 2 value	OFF
Valve(s)	ENABLED
Type of valve	FO-FC
Run mode	RUN
Volume threshold HI use	100L
Volume threshold LO use	10L
No flow threshold use	24 hours
Continuous flow threshold	30 minutes
Override period	60 minutes
All Day start	0600
All Day finish	1800
Weekday start	0600
Weekday finish	1800
Day 1-7 start	0600
Day 1-7 finish	1800

E. Set the Date and Time

Setting the date and time must be initiated from the User display.

With the user display showing the incorrect date, press and hold the Scroll (LH) button until the display changes to show -CONF-. Release the button - the display will show:

YE 2025: use Menu Options button to select correct year, press Save button. Scroll down.

MO 01: use Menu Options button to select correct month, press Save button. Scroll down.

DA 01: use Menu Options button to select correct day, press Save button. Scroll down.

HO xx: use Menu Options button to select correct hour, press Save button. Scroll down.

MI xx: use Menu Options button to select correct minute, press Save button.

Press Save (LH) button to -SAVE- and exit the date & time menu.

Notes

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