

xFlow  
Installation & User Guide

**LeakSafe** 

# XFLOW INSTALLATION & PROGRAMMING GUIDE

Version 8 – Firmware version 1.57+

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## CONNECTIONS

Up to 3 x valves – any size – must be 24V.

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

1 x directly connected tape (optional).

1 x incoming BMS connection.

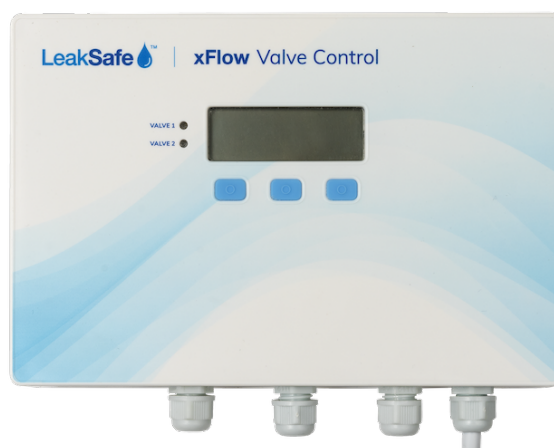
1 x outgoing volt free relay that can be connected to an external alarm, BMS, burglar alarm etc.

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

1 x factory connected mains power lead.

NBloT modem for transmitting leak alarms (dependant on NBloT network coverage).

Inbuilt audible alarm.



## VALVE AND METER

Install valve and meter, ensuring that the meter is installed with flow as indicated on the meter barrel.

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.

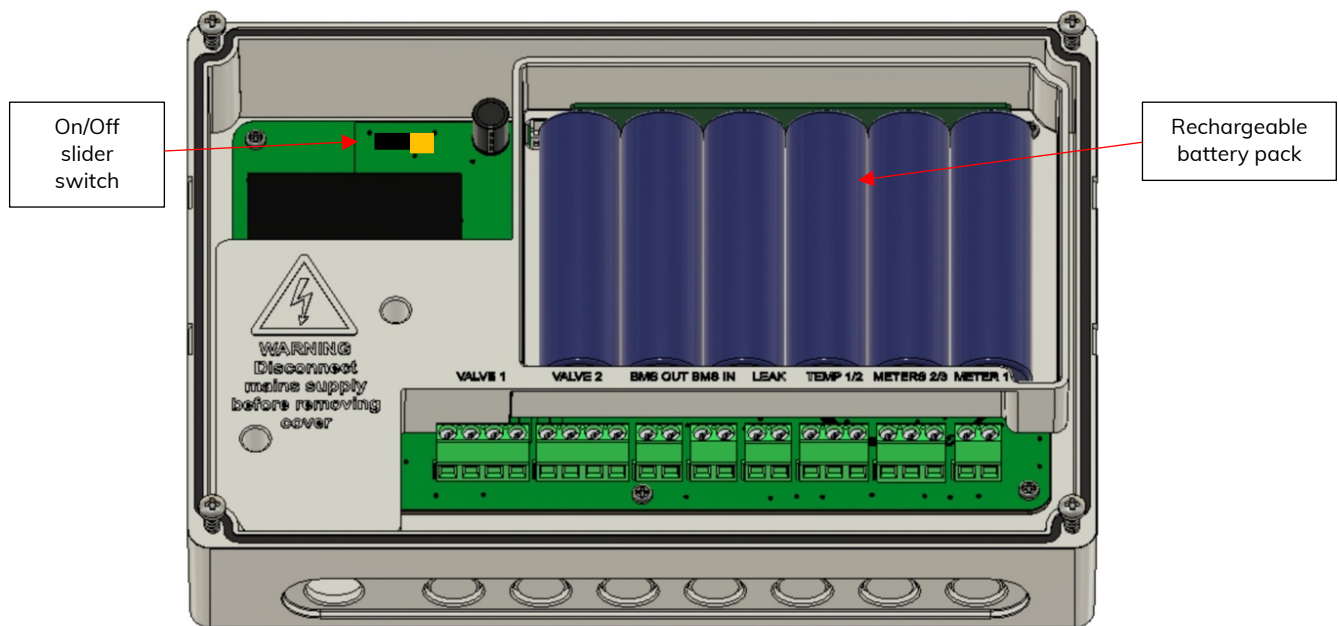
## xFLOW CONTROL PANEL

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 3<sup>rd</sup> 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

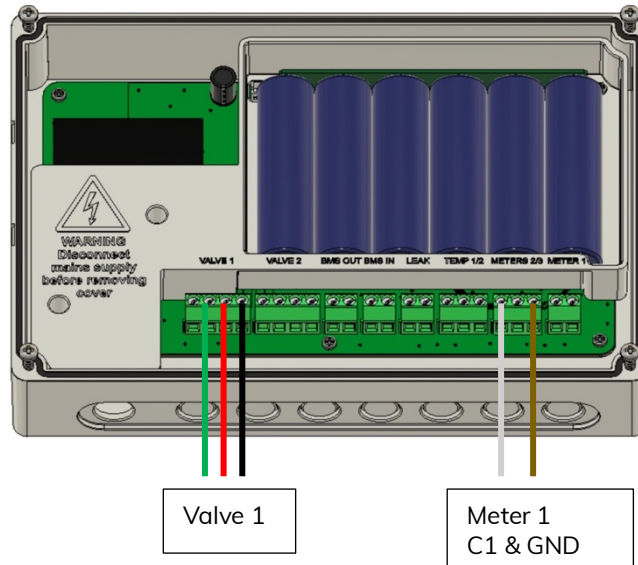
- Meter 1(A) - White to C1, Brown to GND )
- Meter 1(B) - White to C2, Brown to GND ). **Meter 1A & meter 1B operate in tandem and are used where 2 x valves are doubled up in the V1 terminal**
- Meter 2 - White to C3, Brown to GND – This terminal is used where 2 valves working independently are required.

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

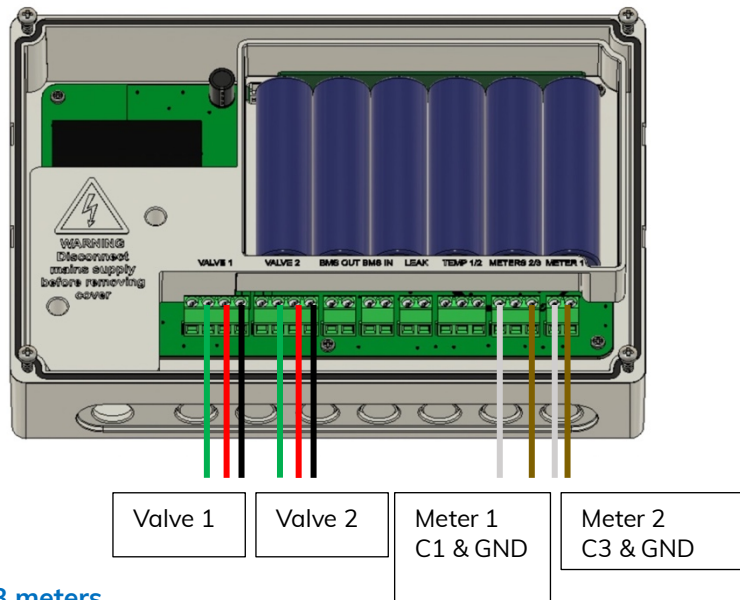
If you are installing 2 x valves & 2 meters that you want to be able to open/close independently connect Valve 1 to V1 & meter 1 to C1 and GND and the 2<sup>nd</sup> valve to V2 and the meter to C3 and GND.

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.

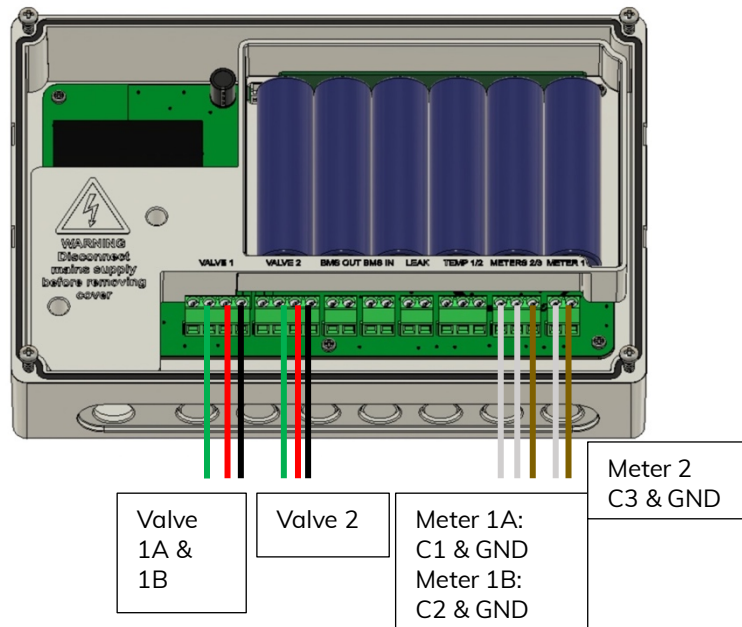
Wiring for 1 KLD valve & 1 meter



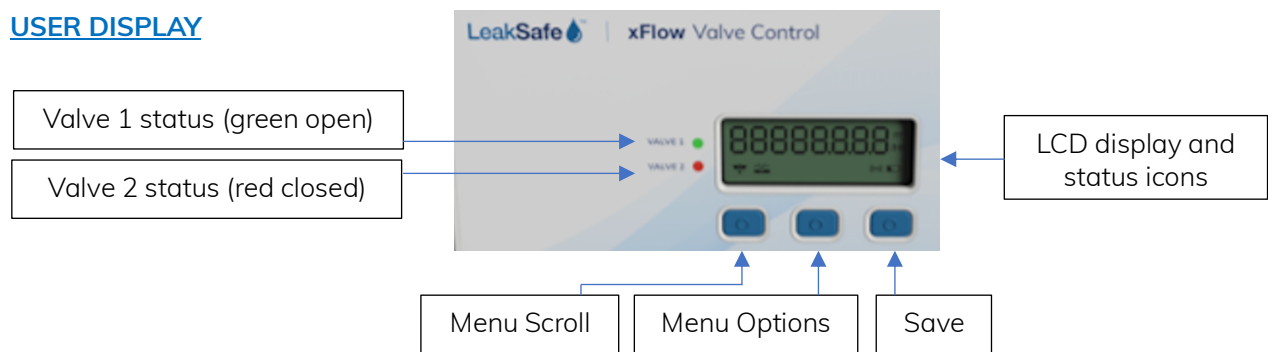
Wiring for 2 KLD valves & 2 meters that will manually open & close independently



Wiring for 3 valves & 3 meters



## USER DISPLAY



Left hand (LH) button scrolls down the options.  
 Middle button rotates the choices.  
 Right hand (RH) button Saves.

## USER DISPLAY & MENU

### Valve status & Current Run mode:

 1 = valve 1     2 = valve 2

Display shows:            E.g:  1 OPEN HI    (Valve 1 is open and the system is in HI use mode)

### Manually Opening & Closing a valve

To CLOSE a valve, navigate to Valve 1 or Valve 2 as required, press middle button to show CLOSE, then press RH button to confirm – valve will close.

To OPEN a valve use middle button to show OPEN then press RH button to confirm – valve will open.

### 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).

Display shows:            E.g: M1 0.160 (meter 1 has seen 160L (.160M<sup>3</sup>))

### Run modes:

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.

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

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

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

OVER: Override. Overrides the volume threshold set in the parameter menu for the period specified in the Override section of the parameter menu.

### Flow rate (information only):

F1 = flow rate on M1.        F2 = flow rate on M2



Pipe Temperature.

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

Battery Level:

Current battery level 20+ = fully charged

Date:

If system is using NBloT for notifications, the system will pick up the date and time from the Vodafone NBloT network. If NBloT is not enabled the date can be set in the engineering menu.

Time:

As above – the time can be set in the engineering menu.

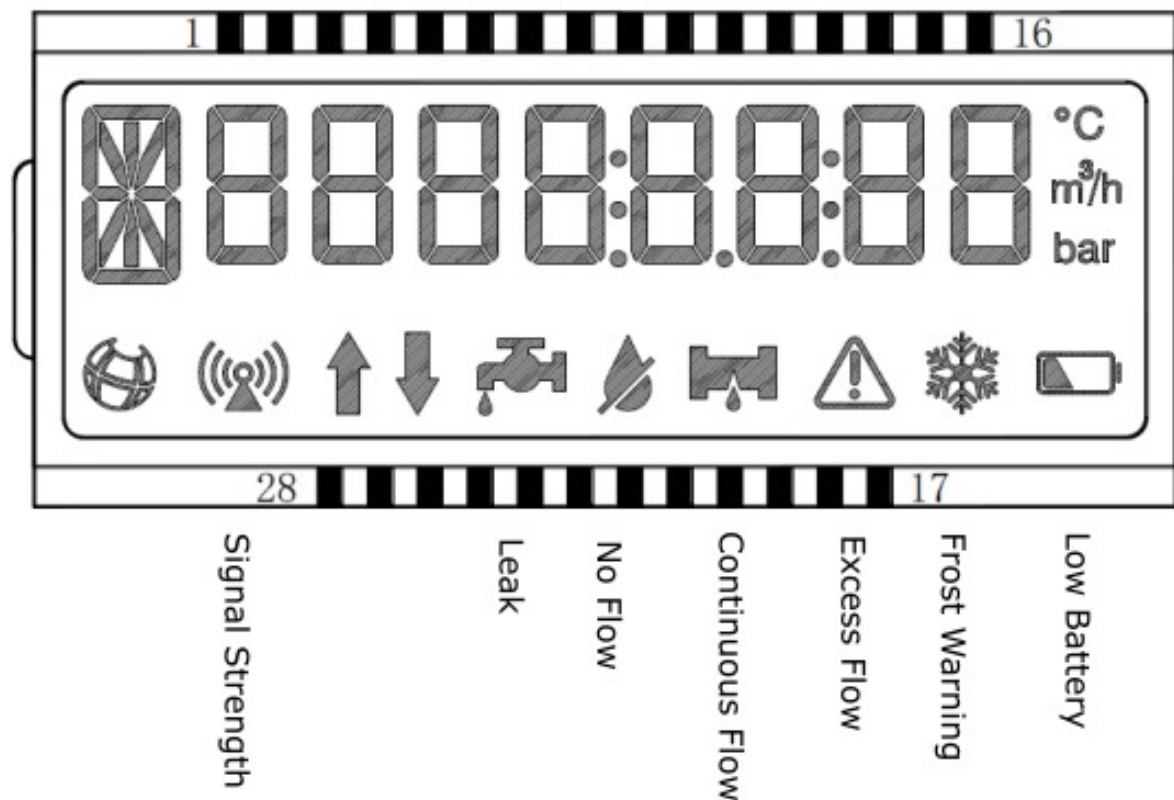
Serial number:

The system's serial number.

Firmware version:

The firmware version

Display Icons:



**Signal Strength:** NBloT signal strength.

**Leak:** the directly connected tape is wet (tape optional).

**No flow:** The valve shut for No flow because the meter recorded no water flow for the period specified in the Engineer menu.

**Continuous Flow:** Valve shut because the meter recorded continuous flow for the period specified in the Engineer menu.

**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 Engineer menu.

**Pipe frost warning:** The temperature of the pipe is less than 4° C (temperature sensor optional).

**Low battery:** The rechargeable battery is low less than value 16.

## CONFIGURE MENU

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

Left hand (LH) button scrolls down the options.

Middle button rotates the choices.

Right hand (RH) button Saves the chosen option. -SAVE-

**PRESS AND HOLD LH BUTTON TO SAVE ALL CHOICES AND EXIT CONFIGURE MENU – SAVE-**  
**N.B: If you do not press any buttons for a few minutes whilst in CONF, the system will timeout 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 set as 01 default)

Display shows: **K2 OFF** (meter 2 set as OFF default)

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

### 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.

### Volume thresholds

Set the Volume HI for 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)

Set the Volume LO for the volume of water you will allow during LOW 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. Different periods can be chosen for both Hi mode and LO mode.

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

## Timings

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 menus for timings.

### 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 timings for weekdays and another set for weekends, ignore the All Day start / All day Finish menu but edit the Weekday Start / Weekday Finish and Weekend Start / weekend finish times.

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)

Continued overleaf..

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) toggle to 1300 and press 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) toggle to 1000 and press RH button – SAVE

Display shows Day 6 finish **D6F** (default 18:00) toggle to 1200 and press RH button – SAVE

Day 7 Start (Sunday))

Display shows Day 7 start: **D7S** (default 06:00) toggle to 1000 and press RH button – SAVE

Display shows Day 7 finish **D7F** (default 18:00) toggle to 1200 and press RH button – SAVE

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[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	NC
Run mode	RUN
Volume threshold Hi Use	100L
Volume threshold LO use	10L
No flow threshold Hi use	24 hours
No flow threshold Lo use	24 hours
Continuous flow threshold HI use	30 minutes
Continuous flow threshold LO use	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

## Setting the date and time

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

With the user display showing the incorrect date (default starts at 01.01.2024), press and hold the LH button until the display changes to show -CONF-. Release the button - the display will show:

YE 2024: use middle button to select correct year, then RH button to save. Scroll down.

MO 01: use middle button to select correct month, RH button to save. Scroll down.

DA 01: use middle button to select correct day, then RH button to save. Scroll down.

HO xx: use middle button to select correct hour, then RH button to save. Scroll down.

MI xx: use middle button to select correct minute, then RH button to save.

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

## **BATTERY BACK UP**

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 NBloT network you will receive a LOW BATTERY warning message. The User display will show a LOW BATTERY icon whether it is connected to a NBloT network or not.

## **MANUAL OVERRIDE – VALVE**

**NB: 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 User Guide. MANUAL OVERRIDE SHOULD ONLY BE USED IN INSTANCES OF SYSTEM FAILURE.**

The valves are supplied with emergency manual override. Either lift and turn the manual override button until the valve status line is parallel with the pipework on which it is installed. Keep the button pulled out all the time you want to manually override. Push the button back in to return to normal use. 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.