



saving more than just water

AutoLitre

AUTOMATIC WATER DISPENSING / DOSING CONTROL INSTALLATION & COMMISSIONING

DESCRIPTION: A control used to dispense or dose a known measured volume of water (or other liquid). Typical applications include tank filling or adding a precise number of litres in chemical, food, brewing, agriculture and mining processes.

Used in conjunction with a pulse meter (water meter with pulse output proportional to flow rate) and a solenoid valve to shut off the supply, the control monitors the flow, shutting off the supply when the measured Current volume = the Preset volume.

This versatile control enables accurate and repeated dispensing volumes from just 1 litre to hundreds of cubic metres at the touch of a button.

The AutoLitre-LC has a user friendly, easy to navigate LCD display and keypad. It boasts many advanced features including Manual Start, Delayed Start, AutoStart and is designed for interfacing with existing controls and equipment.

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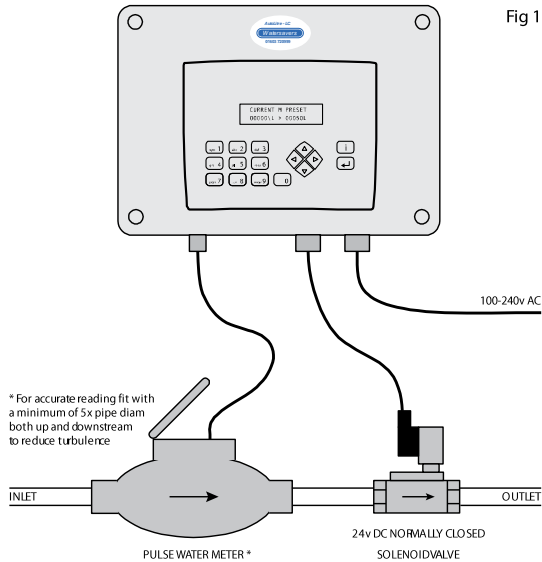
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1-INSTALLATION INSTRUCTIONS



MECHANICAL

Plumb in pulse water meter followed by a Normally Closed 24v DC solenoid valve according to the manufacturer's instructions. See Fig 1 above

ELECTRICAL

Fix the enclosure in a suitable position as close to the pulse meter and valve as is practicable. A 100 - 240v 50/60 Hz supply (5A spur) with means of disconnecting the power will be required. The LCD display and keypad should be easily accessible

Connect supply cable Brown, Blue & Green/Yellow to L, N & E - see Fig 1 above

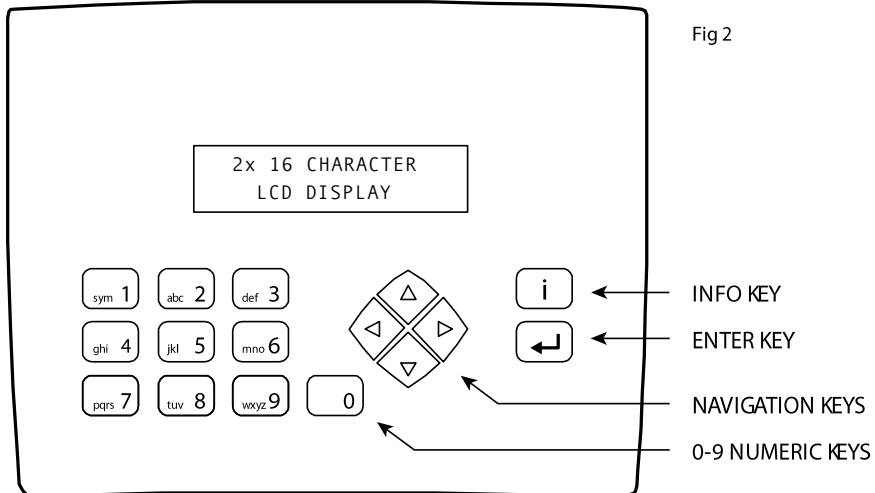
Connect Pulse Meter using its 2 core cable to terminals 1 & 2 - see wiring diagram - Fig 1. Note if a long cable run is required (>10m) it is important to use screened or armoured cable of at least 0.75mm² with screen or sheath earthed at panel end

Connect 24v DC Normally Closed Solenoid Valve to DIN connector on pre-wired valve cable

Further wiring information - please see the internal wiring diagram on Section 7

When the above steps have been completed turn on the electricity supply. After a brief welcome screen showing 'Watersavers AutoLitre' the HOME screen will show

2-LCD DISPLAY & KEYPAD



SOME USEFUL FUNCTIONS:

Start – press 1 (sym) key and release. Press again to **Stop**

To reset CURRENT Litres – in HOME screen press 0 key for 4 seconds

To reset NUMBER of COMPLETED CYCLES – in this screen press 0 key for 4 seconds

To reset TOTAL THROUGHPUT – in this screen press 0 key for 4 seconds

MASTER RESET – in this screen press 0 key for 4 seconds (resets above 3 parameters)

Manual valve test – press 6 (mno) key to open, release to close

Synchronise pulse meter press and hold 7 (pqrs) key for 4 seconds

Serial Number - press 4 (ghi) and INFO (i) keys together. The HOME screen will return after 3 seconds.

2-LCD SCREENS

LCD DISPLAY & KEYPAD

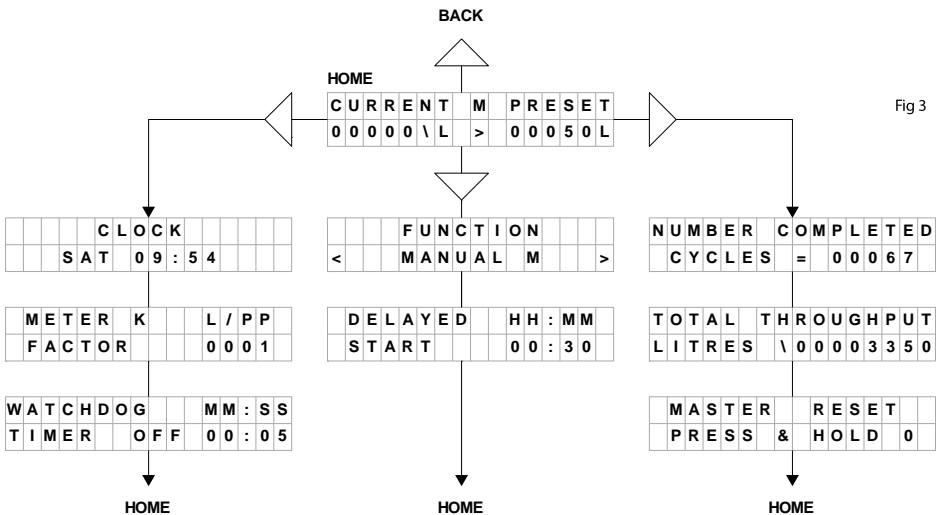
This incorporates a 2 line 16 character LCD display with LED backlighting. The keypad and display enable the user to enter parameters and monitor flow and use.

Press the ◀ key to scroll through the Clock, K factor and Watchdog screens.

Press the ▶ key to scroll through the NUMBER COMPLETED CYCLES, TOTAL THROUGHPUT and MASTER RESET screens.

Press the ▼ key to view FUNCTION and DELAYED START screens.

To return to the HOME screen press the ▲ key.



AUTOLITRE LCD SCREENS NAVIGATION MAP

3-ENTERING AND CHANGING PARAMETERS

SETTING PRESET LITRES

C	U	R	R	E	N	T		M		P	R	E	S	E	T
0	0	0	0	0	\	L	>	0	0	0	5	0	L		

Home screen - example only

Press ENTER (Return). You will then see a flashing cursor to prompt you to enter the PRESET number of litres from 1 to 32,767 using the keypad. Press ENTER again to confirm. Press ENTER again and repeat to make further changes.

SETTING PULSE METER K FACTOR (LITRES PER PULSE)

	M	E	T	E	R	K			L	/	P	P			
	F	A	C	T	O	R			0	0	0	1			

Example only (default setting is 1)

The default (factory) setting for the K factor is 1 litre per pulse - although the K factor may be set from 1 to 1000 litres per pulse.

To change the K factor press the ◀ key twice from the HOME screen. Press ENTER to get the flashing cursor prompt. Enter the new K factor required then press ENTER again to confirm.

PLEASE BE AWARE THAT THE OVERALL ACCURACY WILL BE LIMITED TO THE K FACTOR OF THE PULSE METERS USED eg 1, 10, 100 or 1000 LITRES!

SETTING THE DAY AND TIME

				C	L	O	C	K							
		S	A	T		0	9	:	5	4					

These are installed for possible future upgrades only and are not linked to any control function. If you need to change them please proceed as follows:

Press and hold the 'INFO' key for approximately 5 seconds. Use ▶ key to scroll through INPUTS / OUTPUTS, MB/MI/SB/SI, TIMERS, SYSTEM. Press ENTER key at SYSTEM, press ENTER key to select TIME & DATE, press ENTER key again to select TIME: press ENTER key again to enable flashing cursor prompt, enter correct time (in 24Hr clock format) using 0 – 9 keypad. When correct press ▶ to show flashing cursor on Day. Enter correct day of the month 1-31, cursor then flashes on Month. Enter correct month of year 1-12, cursor then flashes on Year. Enter correct year YYYY then press INFO key 3 times to revert back to HOME screen.

4-CONTROL FUNCTIONS

AUTOLITRE START FUNCTIONS

			F	U	N	C	T	I	O	N				
<			M	A	N	A	L		M					>

Your AutoLitre has a choice of 3 Start functions: Manual, Delayed & AutoStart

TO CHANGE THE CURRENT FUNCTION

In the FUNCTION screen (above) use the ◀ and ▶ keys to toggle through functions

MANUAL START (denoted by 'M' on the Home screen)

This is the default function for simple manual control using the '1' key to Start.

The External inputs can also be used in this function. See Sections 6 & 7

DELAYED START (denoted by 'D' on the Home screen)

After selecting this function press the ▼ key to show the DELAYED START screen:

D	E	L	A	Y	E	D		H	H	:	M	M		
S	T	A	R	T				0	0	:	3	0		

example only

This function enables the Start to be delayed from just 1 minute to 45 hours - for example to fill a tank during the night or out of normal working hours. Press ENTER, use the keypad to enter the required time, press ENTER again to confirm.

Press the '1' key to start the timing sequence which is denoted by a flashing 'D' in the HOME screen.

AUTOSTART (denoted by 'A' on the HOME screen)

If this function is selected the AutoLitre will Start a cycle as soon as power is applied.

This enables control by an external timer or equipment. The External inputs and Manual Start can also be used in this function.

4-CONTROL FUNCTIONS CONTINUED

STARTING A DOSING OR DISPENSING CYCLE

Press and release '1' key. The solenoid valve will open allowing water to pass through to the outlet. The CURRENT litres display will increment by 1 or whatever K factor is set – see Section 3

You may halt the cycle at any time by pressing and releasing key '1' again. This key toggles between START and STOP.

When the CURRENT litres = PRESET litres the valve will close and the CURRENT litres will be reset, briefly showing the following screen:

	P	R	E	S	E	T		R	E	A	C	H	E	D	
				-	R	E	S	E	T	T	I	N	G		

Simply press and release key '1' again to execute another cycle!

WATCHDOG TIMER – SETTING AND USING

W	A	T	C	H	D	O	G			M	M	:	S	S
T	I	M	E	R			O	F	F	0	0	:	0	5

The WATCHDOG TIMER if enabled will close a relay contact should the AutoLitre not receive a pulse from the meter within a preset period of time. This can be used to raise an alarm should there be a problem with the water supply, pulse meter or the solenoid valve. The relay contact is located on the lower green terminal block numbers 12 & 13 – see Sections 6 & 7

TURNING THE WATCHDOG TIMER ON & OFF

The WATCHDOG TIMER may be toggled ON and OFF by pressing the '0' key whilst in the above screen. The ON or OFF status will appear in the WATCHDOG TIMER screen. The default (factory) setting is OFF

SETTING THE WATCHDOG TIMER

The WATCHDOG TIMER may be set from 1 second (00:01) to 59:59 minutes, the default (factory) setting is 5 seconds. To change this time, press the ENTER key to enable the flashing cursor prompt and enter the time required, confirm by pressing the ENTER key again.

5-MONITORING & RESET SCREENS

NUMBER OF COMPLETED CYCLES

N	U	M	B	E	R		C	O	M	P	L	E	T	E	D
	C						=		0	0	0	6	7		

This screen shows the NUMBER of COMPLETED CYCLES eg as a batch counter.
To reset this number, press and hold the '0' key for 4 seconds whilst in this screen.

TOTAL THROUGHPUT LITRES

T	O	T	A	L		T	H	R	O	U	G	H	P	U	T
L	I	T	R	E	S		\	0	0	0	0	3	3	5	0

This screen shows the TOTAL THROUGHPUT in litres which is the product of the NUMBER of COMPLETED CYCLES and the PRESET litres.
Eg 67 cycles of 50 litres = 3,350 litres.
To reset this number, press and hold the '0' key for 4 seconds whilst in this screen

MASTER RESET

	M	A	S	T	E	R		R	E	S	E	T			
	P	R	E	S	S		&	H	O	L	D		0		

This function will simultaneously reset the PRESET litres, NUMBER of COMPLETED CYCLES and the TOTAL THROUGHPUT values.
For a Master Reset, press and hold the '0' key for 4 seconds whilst in this screen

6-MISCELLANEOUS FEATURES

VALVE TEST

To test the operation of the solenoid valve (and pulse meter) installation, press the '6' key (**mno**). This will open the valve regardless of the control status, allowing water to pass through the pulse meter to the outlet. Release the key to close the valve.

TIP: Watch the symbol \ change to / as water flows through the pulse meter. This confirms operation of the pulse meter (HOME or TOTAL THROUGHPUT screens)

SYNCHRONIZE PULSE METER

When priming or first commissioning a system, the pulse meter could be 'between pulses' ie the initial volume of water flowing through it before the first pulse is sent could be anything from 0 to k (litres). Pressing the 7 key (**pqrs**) for 4 seconds before starting a cycle will open the valve passing this indeterminate volume of water which can be discarded if required.

TIP: Repeat this operation to pass just 1x K factor (litres) of water

EXTERNAL INPUTS

These are located on the upper green (input) terminal block at the rear of the controller. See Section 7, Fig 4

They are active high - when connected to +24v DC as follows:

Terminal 15 – pulse meter (factory wired to user terminal block)

Terminal 14 – Stop / Start this may be wired to a remote pushbutton switch

Terminal 13 – Pause this input momentarily halts the cycle eg by a float switch

Terminal 12 – Stop / Reset stops and resets the current cycle if required

EXTERNAL RELAY OUTPUTS

Normally Open relay contact outputs are provided to control the solenoid valve (and optionally for ancillary circuits). These are located on the lower green (output) terminal block at the rear of the controller. See Section 7, Fig 4

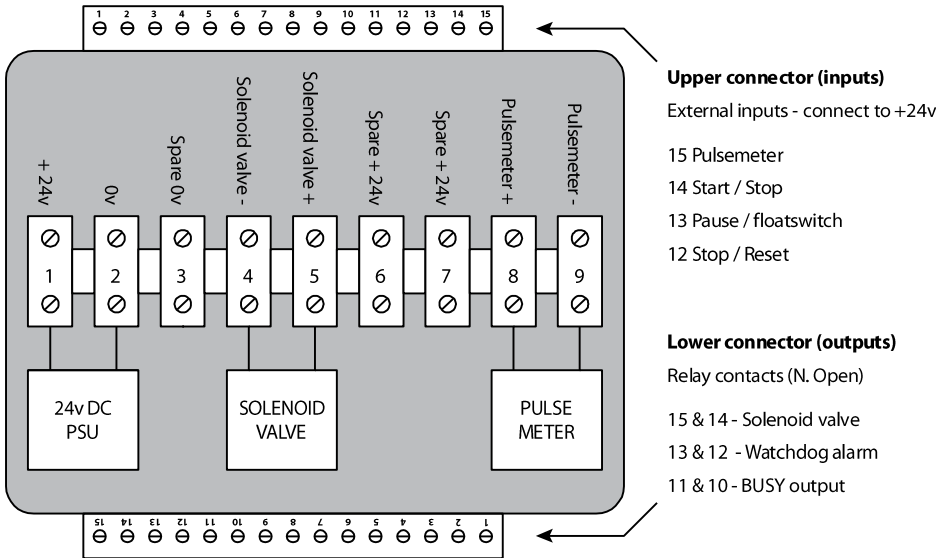
Terminal 15 & 14 – solenoid valve (factory wired to user terminal block)

Terminal 13 & 12 – watchdog timer for external alarm if required

Terminal 11 & 10 – BUSY output to operate indicator lamp or other control. The contact is made once a Start cycle has been initiated

7-WIRING DIAGRAM

Fig 4



Using External Inputs

Use 0.75mm Tri rated cable ideally terminated with bootlace ferrules.
Do not over tighten terminals

Using External Outputs

Use 0.75mm Tri rated cable ideally terminated with bootlace ferrules.
Do not over tighten terminals

Cable glands

If additional cables are required from the Autolitre, carefully drill a hole/holes in the enclosure and fit a suitable cable gland

Spare +24v & 0v terminals

There is 1 spare 0v and 2 spare +24v terminals on the user terminal block, please see Fig 4 above

8-SPECIFICATION

LCD display: 2x 16 ASCII character with LED backlight

Keypad: with tactile feedback, 0-9 numeric keys plus navigation keys for parameter setting and monitoring

Real Time clock: displaying time (24Hr format) with automatic GMT/BST changeover Battery backed (10 year life). Currently for cosmetic use only

Pulse Meter input: 24v DC 5mA maximum for reed switch type pulse meter, suitable for meters with a K factor of 1 to 1000 litres per pulse output

External inputs: Start/Stop, Pause (floatswitch), Stop/Reset – see Sections 6 & 7

Valve output: Normally Open free relay contact rated at 5A resistive load 250v AC / 30V DC wired to operate Normally Closed 24v DC solenoid valve

BUSY output: Normally Open free relay contact rated at 5A resistive load 250v AC / 30V DC

Watchdog Timer output: Normally Open free relay contact rated at 5A resistive load 250v AC / 30V DC

24v DC PSU: 50W capacity with approximately 2 amps available powering valve, alarms etc

Parameters: Preset litres: input range 1 – 32,767, Current litres range 1 – 32,767, Number Completed Cycles (batch) 1 – 32,767, Total Throughput 0 – 99999999, Watchdog Timer 1 sec to 59 mins 59 secs, Functions: Manual Start / Delayed Start / AutoStart, individual reset of all counters plus Master Reset

Power requirements: Universal input 100-240v AC 50/60Hz, 0.95A max

Connections: cable entries for pulse meter, power and valve via glands in enclosure base

Enclosure: ABS wall mounting overall dimensions 240 x 191 x 107mm (W x H x D)

Protection: to IP65 overall weight 2kg

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