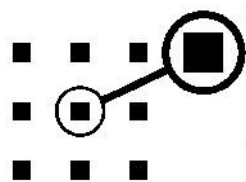


tank Batchmeter 1500

# 1500 – TANK BATCHMETER



## INSTALLATION AND OPERATION INSTRUCTIONS

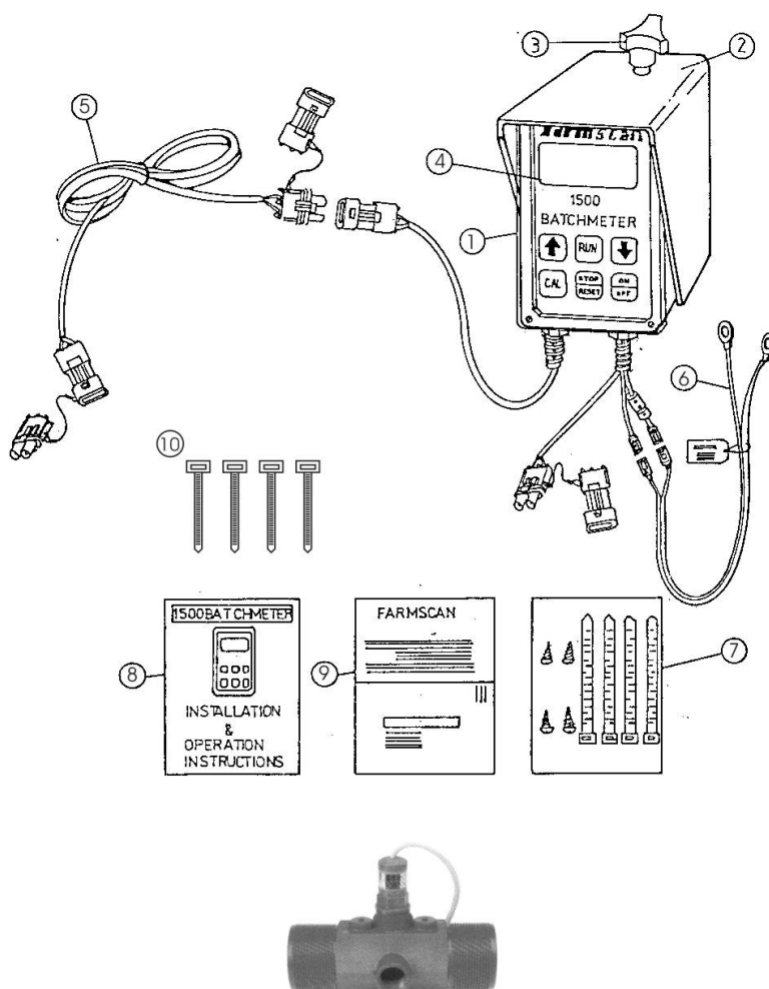


FARMSCAN

PART No: AM – 1500

# PARTS LIST - 1500 TANK BATCHMETER KIT

REF	PART No.	DESCRIPTION	QTY
1	A-1500 / 2	TANK BATCHMETER UNIT	1
2	AH-500	WEATHER COVER	1
3	AH-861	SECURING KNOBS	2
4	AH-480	KEYPAD MEMBRANE (1000 SERIES)	1
5	AC-205	2WAY 5m EXTENSION CABLE	1
6	AC-101	8m POWER CABLE	1
7	AH-408	UNIVERSAL HARDWARE PACK	1
8	AM-1500 / 2	1500 BAZOOKA TANK BATCHMETER MANUAL	1
9	AM-200	WARRANTY REGISTRATION CARD	1
10	HG-706	CABLE TIES 290 x 5mm	10
11	AA-231	2" 75-750 L/Min FLOW METER	1



## 11. VF 'compact' flow sensor

Pipe fitting: 2" BSP male  
 Meter length: 170mm  
 Flow range: 75 – 750 L/min  
 Accuracy: +/- 1%  
 Max pressure: 2000kPa

## GENERAL INFORMATION

The *1500 TANK BATCHMETER* is designed to measure bulk water into a spray tank via either, a bottom or a top fill system.

The Minimum flowrate for effective operation is 75 L/min to a Maximum of 750 L/min using the standard 2" flow sensor supplied.

Water may be pumped or gravity fed through the flow sensor, which will give accurate readings providing no air enters the system. The Flow sensor can be installed on either the suction or pressure side of the water delivery system, and the readout will **count up** to display the total litres delivered.

Alternatively, the TANK BATCHMETER may be automated by installing either the SOLENOID SHUTOFF or ENGINE SHUTDOWN option which will automatically stop the flow after the readout **counts down to zero** from a preset batch total.

**OPTIONAL:**            1501 SOLENOID SHUT OFF KIT  
                             1502 ENGINE SHUTDOWN KIT

If water quality is doubtful, water intake should be filtered via an 80 mesh filter before the flow sensor, to avoid foreign matter clogging / jamming the turbine.

Chemicals may be introduced into the water stream without causing damage to the flow sensor, but some chemicals may damage or reduce the solenoid diaphragm life, particularly if undiluted.

**NOTE:** In very cold conditions, the display digits may appear to change slowly, but this will not affect the accuracy of the meter.

# TANK BATCHMETER INSTALLATION

Mount the 1500 TANK BATCHMETER readout in a convenient location, inside the weather cover in a **SHELTERED POSITION**.

Connect the FLOW SENSOR and TANK BATCHMETER using the extension cable provided. Keep this cable well clear of engine shutdown wiring (if used) to avoid the risk of electrical interference.

Roll up excess cable and use cable ties to neatly secure cables away from risk of damage.

## POWER CONNECTION

Do not connect power until all other installation is complete.

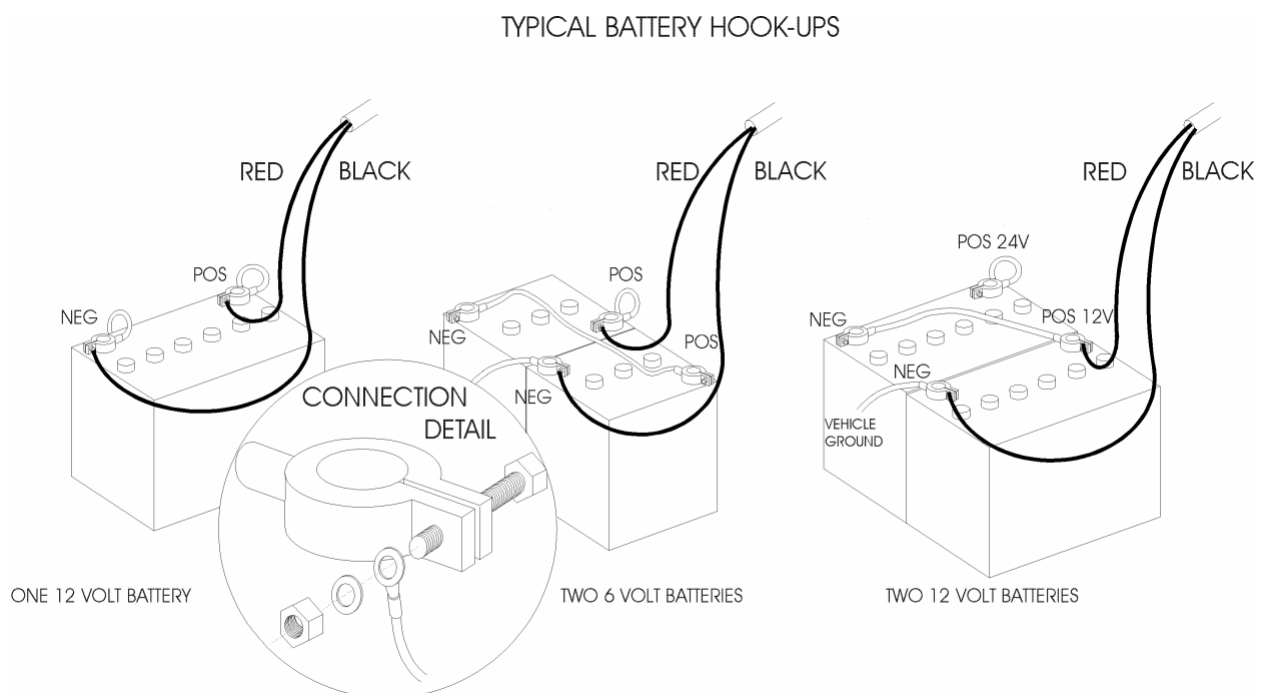
The 8 metre POWER CABLE must be connected **DIRECT** to 12 volt DC vehicle battery terminals.

**DO NOT** join power cable with any other electrical equipment or the vehicle chassis, this may cause interference.

**USE** cable ties supplied to secure power cable away from risk of damage.

Connection to battery terminals must be clean and tight.

**WARNING** - Disconnect power cable from battery when arc welding on machinery as damage to the unit may result.



## FLOWSENSOR INSTALLATION

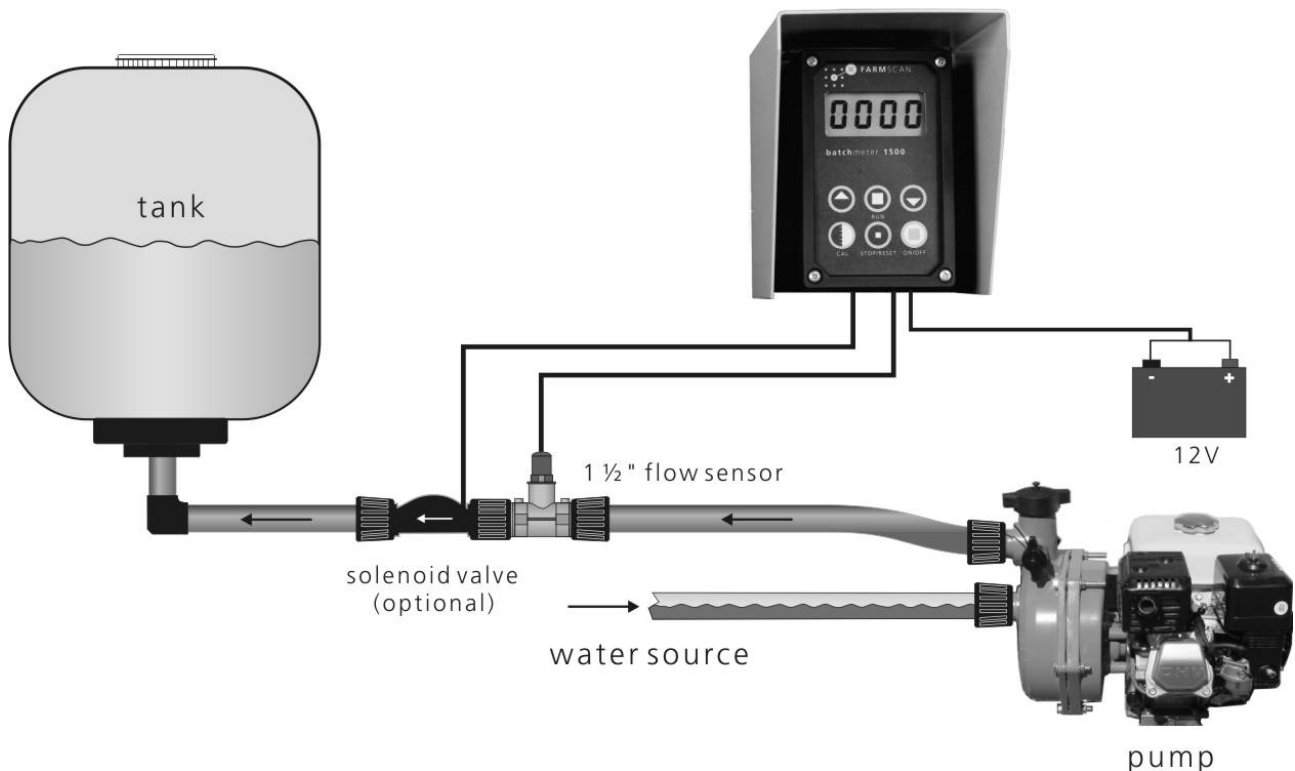
For **manual** operation, the FLOW SENSOR can be installed either on the suction or pressure side of the pump. Make sure to observe flow direction indicated via the arrow on the side of the flow sensor.

The flow sensor should be mounted in a fixed position.

If using the "SOLENOID SHUTDOWN" option, install the flow sensor on either side of the pump, and the solenoid valve on the pressure side of the pump. The solenoid will not allow water to flow backwards.

If using the "ENGINE SHUTDOWN" option, install the flow sensor on either side of the pump and make sure the spray tank can not empty by syphoning back through the flow sensor after the engine stops.

## SUGGESTED INSTALLATION



## CALIBRATION

Before operating the TANK BATCHMETER, it must first be calibrated to count the correct number of pulses per litre (PL) produced by the flow sensor. The PL Factor will vary with different installations.

A factory tested calibration (PL) factor marked on the flow sensor can be used, but should be checked by following the flow calibration procedure on page 8.

2" 75-750L/Min Flow sensor approx 101 pulses per litre.

To check the PL factor, involves pumping an exact quantity of liquid through the flow sensor. The accuracy of your measuring will determine the accuracy of the TANK BATCHMETER.

A ball valve or optional SOLENOID SHUT OFF VALVE is ideal to start / stop the flow.

The test must be run with the flow sensor fully installed and at the **normal** flowrate for best accuracy.

Calibration factors are permanently stored in memory each time the calibration routine is completed.

If the calibration factors are corrupted or erased due to outside interference the readout will display "HELP" to indicate the calibration factors must be checked.

If using either a **Solenoid** or **Engine** Shutdown option, the TANK BATCHMETER must be set to accept either option **BEFORE** proceeding to the Flow Calibration Procedure. With **Manual** operation, proceed directly to the Flow Calibration Procedure.

### SOLENOID / ENGINE SHUTDOWN SELECTION PROCEDURE

For Automatic operation, the TANK BATCHMETER must be set for either Engine shutdown mode or Solenoid shutdown mode. When "SOL" is displayed the TANK BATCHMETER is set for Solenoid shutoff mode. When "ESH" is displayed the TANK BATCHMETER is set for Engine shutdown mode.

1. Press the "ON/OFF" key to switch the TANK BATCHMETER on.

2. Press the "CAL" key to display existing flow calibration factor.

eg.   
 Pulses Per Litre

3. Press the "CAL" key again to display "SOL / ESH" toggle.

eg.

4. Use "UP" or "DOWN" keys to change between the two settings "SOL / ESH".

eg.  denotes Engine shutdown mode.  
 denotes Solenoid shutoff mode.

5. Press the "RUN" key to exit "CAL" routine.

# CALIBRATION CONTINUED

## FLOW CALIBRATION PROCEDURE

1. Fully prime flow sensor ready to pump or suck water into or from a container of known volume.
2. Switch TANK BATCHMETER "ON" and press "CAL" key to display the existing flow calibration factor in memory (P - L).

Eg.

3. Press "STOP / RESET" key to display the standard flow calibration test quantity of 200 litres.

Eg.

4. Use the "UP" and "DOWN" keys to change the quantity, then press "STOP/RESET" to accept the required amount. The readout will display zeros, ready to count the pulses.

Eg.

5. Start the test batch by opening the ball valve or press "RUN" if "SOLENOID" option is used. The readout will start counting the pulses.
6. Press "STOP" when the exact amount is pumped, and the new Flow Calibration Factor will be displayed.

Eg.

7. Press "RUN" key to store new flow calibration factor.

NOTE: Record Calibration Factor for future reference.

## TO RE ENTER THE FLOW CALIBRATION FACTOR

The correct Flow Calibration Factor can be re entered at any time if necessary.

1. Press "CAL" key to display existing flow calibration factor.
2. Use "UP" and "DOWN" keys to re-enter the correct calibration factor.
3. Press "RUN" key to store new flow calibration factor.





# TANK BATCHMETER - MANUAL OPERATION

1. Press "ON/OFF" key to switch TANK BATCHMETER on. The PL Calibration Factor is momentarily displayed for you to check, then all Zeros should be displayed.

Eg.   
  
 Litres

2. IF Zero's do not appear, use the "DOWN" arrow key to change display to zero.

Eg.

3. Start pump to begin measuring water the Readout will **count up**, then you must shut off water flow manually when required amount is delivered.

Eg.  Litres

4. Press and hold "STOP/RESET" key to re zero display total, ready for next batch.

Eg.  Litres

**NOTE:** "UP" , "DOWN" & "RUN" keys are **not** used for MANUAL operation.

5. Switch the unit OFF when not in use.

## TANK BATCHMETER - AUTOMATIC SOLENOID SHUTDOWN

1. Press "ON/OFF" key to switch TANK BATCHMETER on. The PL Calibration Factor is momentarily displayed for you to check, then the current proposed batch quantity should be displayed.

eg.   
  
 Litres

2. Use the "UP" and "DOWN" keys to change the proposed batch quantity as required.

eg.  Litres

3. Start pump, then press "RUN" key to open the solenoid valve and the batch will commence to **count down** to zero.
4. The "STOP/RESET" key may be pressed at any time to stop the batch during filling.
5. Press the "RUN" key again to restart the batch countdown from where it was stopped
6. The solenoid valve will automatically shut off at **ZERO**.

**NOTE:** The first batch will over run the zero point due to the delay in solenoid closing time. The TANK BATCHMETER will automatically allow for the over run quantity and stop at zero on subsequent batches.

### TO START ANOTHER BATCH:

1. Press "STOP/RESET" for a couple of seconds to restore the previous Batch quantity.

Eg.  Litres

2. Use "UP" / "DOWN" keys to change batch quantity if required or simply press "RUN" to start batching.

### TOPPING UP

Once the automatic batch is complete (at zero), Press the "RUN" key to reopen the Solenoid for additional water. The display will count up until "STOP" is pressed.

Eg.  Litres

Press and hold the "STOP/RESET" key to restore the original batch quantity, ready for a new batch.

Eg.  Litres

## TANK BATCHMETER - AUTOMATIC ENGINE SHUTDOWN

1. Press "ON/OFF" key to switch TANK BATCHMETER on. The PL Calibration Factor is momentarily displayed for you to check, then the current proposed batch quantity should be displayed.

eg.   
  
 Litres

2. Use the "UP" and "DOWN" keys to change the proposed batch quantity as required.

eg.  Litres

3. Start pump to commence batch **countdown**.
4. The pump may be stopped during a batch either by activating the pump "ON/OFF" switch or by pressing "STOP/RESET" key on TANK BATCHMETER unit.
5. The TANK BATCHMETER will automatically kill pump motor at zero point.

**NOTE:** The first batch will over run the zero point due to the delay in engine stopping time. The TANK BATCHMETER will automatically allow for the over run quantity and stop at zero on subsequent batches.

### TO RUN ANOTHER BATCH:

1. Press the "STOP/RESET" key for a couple of seconds to restore the original batch quantity to display .
2. Use "UP / DOWN" keys to change Batch Quantity if required.
3. Restart engine to commence another Batch.

### TOPPING UP

To top up once the automatic batch is complete (at zero), just start the pump and the display will **count up** to show the extra water being metered. The pump must then be stopped using the pump "ON/OFF" or press "STOP/RESET" key on TANK BATCHMETER unit to stop engine when the required volume is reached.

Eg.  Litres

Press and Hold "STOP/RESET" key to restore the original batch quantity ready for a new batch.

Eg.  Litres

## TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE / REMEDY
1. NO RESPONSE FROM ON/OFF SWITCH	a) Check that power cable connections at battery, are clean and tight. b) Check for blown fuse or corrosion of inline fuse holder. Replace with <b>2 Amp</b> 3AG fuse only. c) Measure voltage from power cable at monitor connection point, is it 12 - 13.8 V DC ? d) If voltage OK and unit fails or fuse blows again, disconnect Solenoid or Engine Shutdown cable ( if used). e) If still unable to locate fault return to your nearest Farmscan dealer or authorised service agent.
2. WON'T COUNT WHEN LIQUID FLOWING	a) Check flow calibration is set correctly. b) Check cable and connections for disconnection or damage. c) If solenoid shutdown used, activate manual over ride to make sure water is flowing. (Green lever upwards) d) Check wiring between flow sensor and TANK BATCHMETER. Check plugs. e) Blow through flow sensor and check turbine is spinning freely. f) Disconnect flow sensor wiring and use a multimeter to check the coil resistance of the green sensor. It should read around 330ohms. g) Unable to locate fault - return both TANK BATCHMETER and Bazooka to your nearest Farmscan dealer or authorised service agent.
3. ENGINE WILL NOT RUN IN AUTOMATIC OPERATION	a) The TANK BATCHMETER must be set for Engine shutdown mode (ESH) refer to calibration procedure page 7. b) Make sure Engine "ON / OFF" switch is ON.

PROBLEM	POSSIBLE CAUSE / REMEDY
4. SOLENOID VALVE WON'T OPEN / CLOSE	<ul style="list-style-type: none"> <li>a) Check that TANK BATCHMETER is set for Solenoid Shutdown ( SOL ), see page 7.</li> <li>b) Make sure Solenoid activating coil is only finger tight onto 'O' ring.</li> <li>c) Check cable and connections for disconnection or damage.</li> <li>d) Measure voltage at solenoid connection point, is it 12 - 13.8 V DC, when "RUN" is activated?</li> <li>e) Disconnect solenoid and use a multimeter to check coil resistance of solenoid, it should be 25 - 45 ? .</li> <li>f) Is the solenoid valve installed the correct way in relation to flow direction and on the <b>pressure side</b> of pump.</li> <li>g) Has the solenoid Green over-ride lever been turned, upwards? Should be down.</li> <li>h) Solenoid valve may be blocked internally.</li> <li>i) Fit filter inline if dirt is a problem.</li> </ul>
5. COUNTING INCORRECTLY	<ul style="list-style-type: none"> <li>a) Check Flow Calibration is set correctly.</li> <li>b) Run pump motor <b>without</b> water flow to see if vibration or electrical interference is causing phantom readings. Jam turbine impeller to eliminate vibration as a cause when pump is running.</li> <li>c) Is air entering the system?</li> <li>d) Ensure that sensor cable is well clear of petrol engine, interference may be caused by ignition system.</li> <li>e) Disconnect flow sensor cable at TANK BATCHMETER end. If problem stops, isolate cause of electrical interference.</li> <li>f) Make sure TANK BATCHMETER has independent power cable, wired direct to battery +/- terminals.</li> <li>g) If unit still fails, return both the TANK BATCHMETER and flow sensor to your nearest Farmscan dealer or authorised service agent.</li> </ul>
6. "CAL", "UP", "DOWN" & "RUN" KEYS WON'T WORK	<ul style="list-style-type: none"> <li>a) Press the "STOP" key and try again.</li> <li>b) Switch unit OFF and then ON again.</li> <li>c) Disconnect flowsensor, Press "STOP" and try again. If unit responds, then reconnect flow sensor. If unit fails again, then the flowsensor is picking up pulses and beginning a new batch, or interference is occurring. Follow troubleshooting section 6. to eliminate cause of interference. <b>NOTE:</b> Pressing "STOP" will reset the TANK BATCHMETER keys, until another pulse is received.</li> <li>d) If unit still fails return the TANK BATCHMETER to your nearest Farmscan dealer or authorised service agent.</li> </ul>