

WATER BATCHING SYSTEMS

ME2000-CVW interface batch safety card with RPFS Rota-Pulse or KMS Magnetic flowmeters.



Congratulations on choosing a **ManuFlo**®™ flowmetered Batch Safety Interface Control System.
You will now join many thousands of satisfied customers worldwide.

Your system comprises:



i) RPFS-P or ii) KMS flowmeters

The ME2000-CVW or DCPM-W provides a high level of pulse interface isolation and scaling from flowmeters and incorporates a high level safety batching system.

Information sheets included:

1. ME2000-CV-W (DCPM-W) Batch Safety Interface Card specification / installation / wiring datasheet.
2. Basic Plumbing Pump Installation Guide
3. Flowmeter Overview + brochure spec (chosen flowmeter type)
4. Service / Troubleshooting guide. Also: <http://www.manuelectronics.com.au/technical.html>

Prior to installation:

- A. Consider a good viewing and operating position for the ME2008 Interface Safety Batch Controller in close proximity to the PLC/Computer Control System.
- B. **i)** When using RPFS Rota-Pulse flowmeters, the ME2000-CV-W will supply +12vdc directly to the flowmeters. (Use the +12VDC rail to power all the flowmeters).
(or **DCPM-W** mounted in ME2008)

ii) When using **KMS/RMS**(other) Mag-flowmeters, these magflows draw too much current to be powered by the ME2000-CV-W. In this case only use the pulse wire and shield (o.v.) wire (2 wires) to connect to ME2000-CV-W. (Do not use the +12vdc supply rail).
- C. Install the flowmeter as per the installation guide found on the flowmeter datasheet
- D. Use shielded cable only for the pulse signal connection between flowmeters and ME2000-CV-W. or (DCPM-W mounted within a ME2008 admix unit)
- E. Make sure all flowmeter parameters have been set and calibration taken prior to using.

If unsure on any aspect of installation or operation, call ManuFlo or your local installer.

Happy batching !!!!!!!!!!!!!!!

GENERAL with Flowmeters INSTALLATION GUIDE

ManuFlo®™
Flow Measurement & Control Products

Rev: 0708/1

Page 3

MANU ELECTRONICS PTY LTD
Ph: +61 2 9938-1425, 9905-4324
Fax: + 61 2 9938-5852
Web : www.manuelectronics.com.au
Email: sales@manuelectronics.com.au

(1) Locate the most appropriate position to mount the flowmeter (refer to the flowmeters datasheet)
. Preferably:

- your site's flowmeters should be accessible for any future service.
- protect the flowmeters from the elements by using a light weight cover.

Refer to the "Installation" section in the flowmeter datasheet or ManuFlo technical guide:-
<http://www.manuelectronics.com.au/technical.html>.

(2)

If pumping from a (ground level) **recycle water ground pit** then **Magflows** are the best option. Use an adequate **positive displacement pump**, a non-return valve should be fitted to prevent backflow after the batch.

No filters are required. The flowmeter must remain full of liquid at all times.

A solenoid valve would not be required if simply pumping from a ground pit.

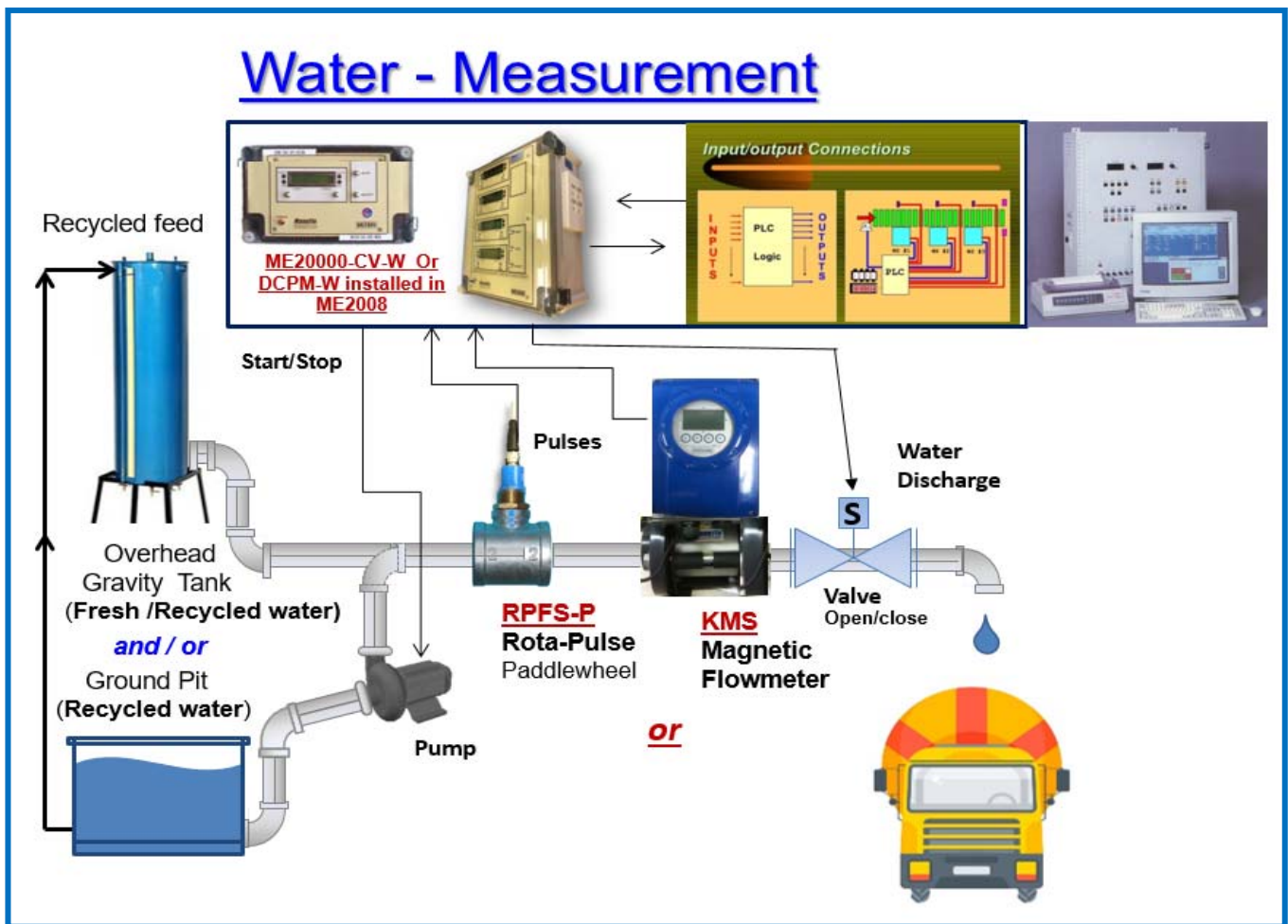
Pipe diameter of 50mm or larger is recommended.

(3)

If using a gravity drop tank, then the tank should be at least 2000 litres capacity to allow adequate pressure and velocity. Pipe diameter of 80mm or larger is recommended. **RPFS Paddlewheel Rota-Pulse** or **Magflows** can be used. The flowmeter should measure full at all times.

Use an electric actuated butterfly valve with adequate air pressure to operate the system. The valve should also have adjustable air silencers for regulating (dampening) closing time of the valve to prevent water hammer in the pipeline.

Note: The final outlet point must not be larger than the general feed pipes otherwise cavitation may occur.

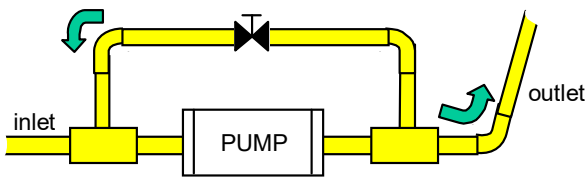


SELECTION OF PIPE LINE DIAMETERS

► Refer to the relevant flowmeter datasheet for expected flowrates performances ranges.

PUMP SELECTION (Discuss with pump specialists)

► As above but for recycle water positive displacement pumps are recommended –Mono Pumps etc.



Note: Allows ability to regulate pump speeds if required and avoids damaging the pumps.

Straight Pipe lengths required before and after mounted flowmeters.

With RPFS-P Rota Pulse generally requires straight pipe lengths of 10x before and 5x after of the pipe diameter. This eliminates turbulence and creates laminar flow to maintain accuracy. For KMS Magnetic flowmeters allow 5 x dia. on inlet side and 3 x dia. on outlet side, within this pipe sections there should be no elbows, valves or reducers.

COMMISSIONING ME2000-CVW or DCPM-W + flowmeter INTERFACE/BATCH SYSTEMS

- Determine the most appropriate position to mount the ME2000-CV-W so it will be clearly visible to the operator and within easy reach and can be easily wired to the PLC/Computer control system.
- Electricians must refer to the relevant ManuFlo wiring diagram. Ensure that there is no power to the units before connecting the flowmeter signal cable into the plugs. When wiring the flowmeter, use shielded cable (use more cores if wiring more flowmeters) - this will allow future expansion.(For 2-wire contact closure flowmeters and electromagnetic flowmeters, do not use the +12 volts rail).
- Connect the applicable power supply voltage to the ME2000-CVW and flowmeters). For pump applications, a heavy duty contactor must be wired into the system. Power up the system.

Refer to the ME2000-CVW datasheet to input all the necessary program settings, the output pulse value must match the input PULSE setting on the PLC/computer.

A volumetric calibration test should be performed when commissioning a new installation: place a calibrated vessel or load cell at the discharge point, set a batch quantity on the PLC/Computer, batch the quantity and then check that the delivered quantity is what was requested on the Computer screen and should match on the ME2000-CVW display. If not recalibrate as per guide found later in this overview and the specification datasheet.

Alternatively: Use the manual push and hold batch buttons on the ME2000-CVW, batch an amount and all displays and volume collected must correspond.

FLOWMETER OVERVIEW STATS. (Refer to flowmeters datasheets for install instructions)

i) RPFS-P Rota-Pulse insertion flowmeters with pipe adaptor fittings

- *Ideal for Fresh and Grey water applications.*
- *Slip insertion design-easy maintenance.*
- *Large range of pipe sizes 25 to 300mm dia.*
- *In PVC, Poly Saddle clamps, Galvanized steel*

Operates from +5 to 30VDC
Acc. ± 2%, Repeatability: ± 0.8%
Temp.50C, (optional 120C).
Small Impurities can pass through



RPFS-P	Rota Pulse insertion paddlewheel flowmeter	Pulses / Litre	Flowrange Litres/min
GAL50	50mm pipe diameter	20	90 to 925
PVC80	80mm	7.5	190 to 2500
PVC100	100mm	4	300 to 3500
SC150	150mm	2.7	600 to 8000

ii) KMS501W Magnetic Wafer Flowmeters

- *For Liquid (upto 30% solids).*
- *Virtually maintenance free. No moving parts.*
- *85-250vac or 17-31vdc pwr (+/-1% accuracy)*

Totaliser up to 8 digits. With Flowrate display.
Process temperature: -25 to 120 °C.



Order Code	KMS electromagnetic Flowmeter	Flowrange (Litres/min)
KMS501-50	50mm 10 pulses / litre (typical)	15 to 1050
KMS501-80	80mm 10 pulses / litre	25 to 2650
KMS501-100	100mm 10 pulses / litre	35 to 4150
KMS501-150	150mm 1 pulse / litre	85 to 10500

Full support at:

<http://www.manuelectronics.com.au/pdfs/Training Manual ManuFlo%20-2020.pdf>

FACTORY SETTINGS* DC input/output

	Channel 1 80mm Magflow	Channel 2 80mm RPFS
[Screen MENU Parameters	WATER – Manuflo -ME2000w V1.9	
Batch (l)	00000	00000
Flow (l/s)	00.000	00.000
Total (litres)	0000000	00000000
Input (p/l)	0010.00	0007.20
Output (l/p)	01.000	01.000
Min Flow (l/s)	01.000	01.000
Max Flow (l/s)	35.000	35.000
Dose Limit (l)	10000	10000
Max Backflow (l)	030.000	020.000
Difference (%)	05.0	05.0
Start Delay (s)	03.0	03.0
Stop Delay	05.0	05.0
Diff Channels	1	1
Max Out Rate (Hz)	0035	0035



ME2000-CVW or DCPM-W calibration setup guide

A **volumetric calibration test** is performed when commissioning a new installation.

- To calibrate a vessel & or load cell is placed near the sock (discharge port), a selected batch quantity is either;
 - set on computer and batched or
 - can be manually batched by push & holding the manual batch over-ride pump/solenoid drive button.
- Enter the flowmeters K-Factor, e.g. RPFS-P Rota Pulse Paddlewheels sensor fitted on 80mm pipe. Outputting 7.3 pulses/litre. Then setting on screen should be Input (p/l) = 0007.300

Now compare volume displayed on **ME2000-CVW / DCPM-W & PLC/Computer** Display and that collected. If incorrect check flowmeter specification pulse output value which must match the input Pulses per Litre (PPL). e.g. 80mm KMS MAGFLOW =10ppl so **Input p/L** K-factor must be same 0010.00 p/L (menu:4)}. Then divided output pulse value Output L/p e.g. 01.000 must match the computer input pulse value = 1p/1Ltr.

Final Calibration:

- If the liquid collected is **more** than value shown on volumetric amount on displays, then **decrease** the calibration input set value (K-factor) by the same % difference
- If the liquid collected is **less** than value shown on volumetric amount on displays, then **increase** the calibration input set value (K-factor) by the same % difference
- Note: Final calibration check can also be performed via computer software scaling.*

Take a few volumetric test volumes of say 100 Litre batches. The percentage difference should be repeatability the same. If so then make the final adjustment. Be aware of inflight)time it takes for pump to stop or valve to close. This overflow amount is finally set the computer parameter. (Inflight –overflow deduct feature).



NOTES: