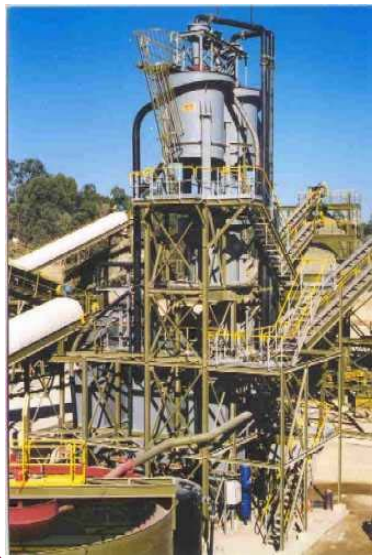
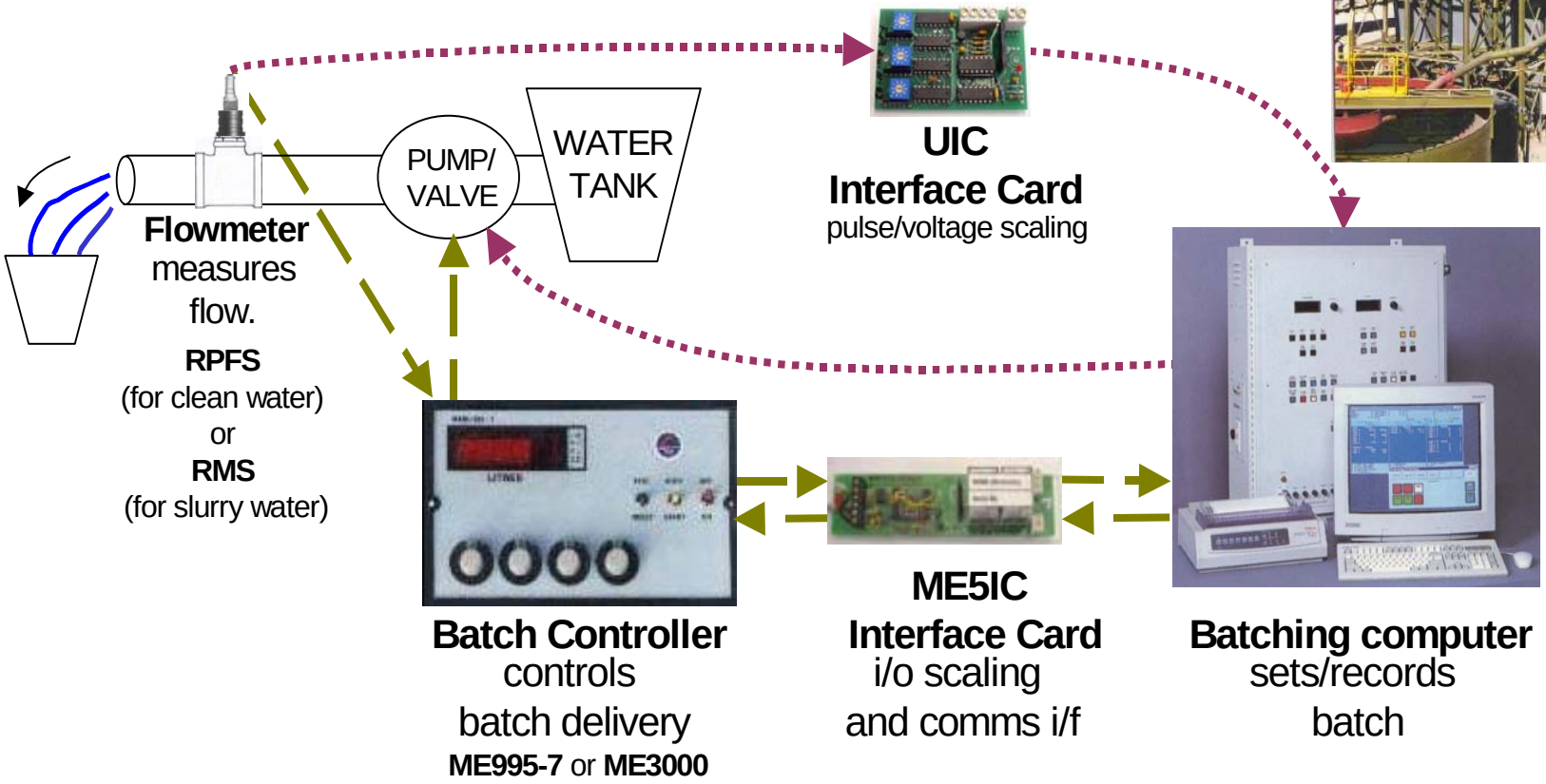
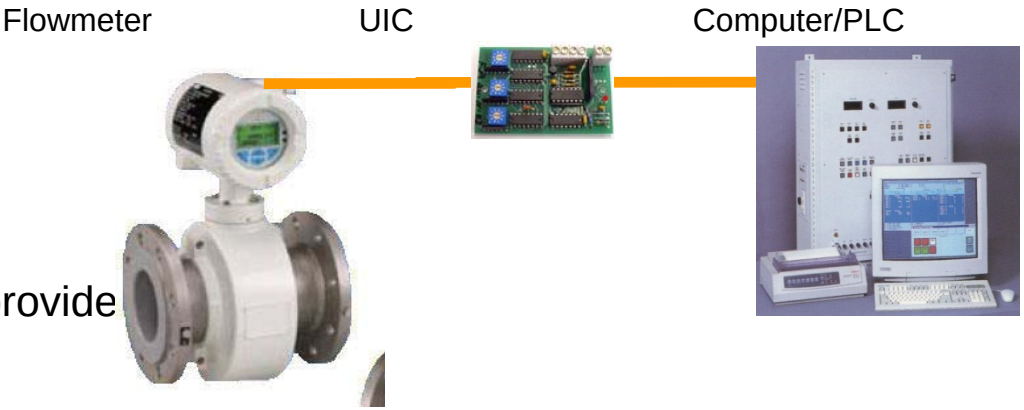
Flow Metered Water Batching via PLC/ Computer Control



1/ RPFS-P Paddlewheels for fresh water
2/ PMS or RMS Magflows for fresh and recycle / slurry water



Interface Cards – UIC for Water Batching



The UIC **Universal Interface Card** provide
- signal **scaling** and
- an **isolation interface**

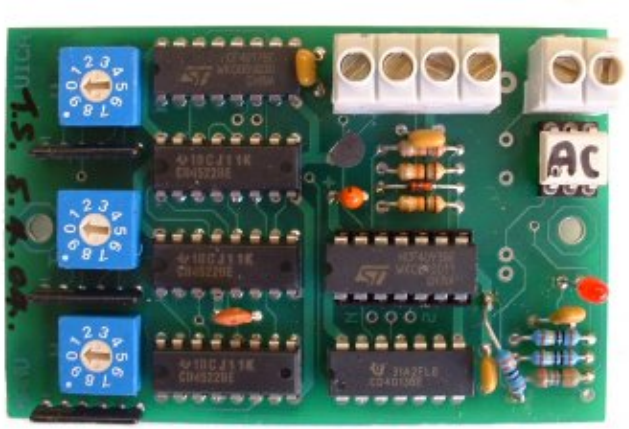
to pulse flowmeter outputs, and re-transmits to PLC/computer inputs. Models available:

1) **UIC/A1** : 110-240 **vac** pulse switching via a triac opto
2) **UIC/A2** : 24-250 **vac** pulse switching via a **heavy duty** triac opto
3) **UIC/D** : 5- 30 **VDC** NPN/PNP (sink/source) pulse switching via a 4N33 opto

UIC/A1 UIC/A2 UIC/D

ManuFlo ®™

Interface Cards - UIC – Scaling for Water Batching



- interface cards are available to scale output pulses.
- to avoid interference, use only shielded cable.
- make sure only pure regulated supply DC voltages used.
- For AC pulse inputs the 15Hz maximum pulse speed rule applies. (Most DC inputs are high speed)

For batching with water lines, the RPFS paddlewheel and Magflow flowmeters are primarily used. Scaling values (x10 input card standard) : →

Rotary decade value H T U (magflow with 10ppl)	Pulse output rate
0 5 0	1 Litre /pulse
1 0 0	**2 Litres/pulse**
2 0 0	4 Litres/pulse
2 5 0	5 Litres/pulse
5 0 0	10 Litres/pulse

Final Calibration:

- If the liquid collected is **more** than pulse value shown on computer screen, then **decrease** the rotary decade set value by the same % difference.
- If the liquid collected is **less** than pulse value shown on computer screen, then **increase** the rotary decade set value by the same % difference.
- Note: Final calibration can also be performed via computer software scaling.

Flowmeter – Installation - Wiring

- To avoid water ingress into electronics, ensure cable entry glands are secure and loop cable down.

- Interface cards are available to scale output pulses.
- To avoid interference, use only shielded cable.
- Make sure only pure regulated DC supply voltages used.

Trouble Shooting Guide for Electromagnetic Flowmeter Systems

WITH ME995-7 OR ME3000 BATCH CONTROLLER:

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
No power to batch controller or displays not on	• Blown fuse or holder not tightened • +12vdc and O.V. shorted • No main power supply	• Check fuse, tighten fuse holder (at rear of controller) • Check power supply, check wiring • Check pulse cable from DCD to RPFS meter
No or incorrect power to magflow	• DC power insufficent (DC units only) • No main power supply (AC units)	• Use voltmeter to measure or check wiring • Check power supply, check wiring
Pulse fails at start of batch (1.5 seconds after)	• Check calibration (K-factor) setting • Pump needs time to build pressure • Solenoid valve not opening • Restriction or service gate valve closed • Empty liquid tank • Pump not turning • Pump foot valve failed • Signal cable cut, bad joint at JB • Magflow not properly earthed to pipe	• 000 calibration -pulsefails. Make sure a calibration value is set, three switch shafts -H,T,U- located at rear top left of ME995-7 controller (ME300 via program) • Increase start timing capacitor (see guide T1) (ME3000 via program) • Check and service solenoid valve, check output control voltage is 240vac(N & C, pins 7&9) when pushing start button • Empty pipe, install non-return valve • Open gate valve, check liquid level, check and service pump • Check signal cable (pulse and ground) for continuity at junction box near magflow meter, If cut or oxidised- repair/replace • Check earthing straps are connected to steels pipes and or to S/S earthring(s). Then connect to a master earth in plant.
Pulse fails during batch cycle	• Flowrate too slow • Pipe buildup restricting flow	• Open restriction gate valve, or increase flowrate pulse fail timing capacitor (see ME995-7 service guide) (reprogram ME3000). • Cleanout pipelines, calcium buildup on pipewalls -recycle systems
Display digits count slowly after batch complete	• Non return valve faulty (jammed open) • Solenoid valve not properly closed • Magflow not properly earthed to pipe	• Clean, service or replace • Fix or replace damaged seal, faulty solenoid • Check earthing straps are connected to steels pipes and or to S/S earthring(s). Then connect to a master earth in plant (especially mags with no inbuilt earthprobe).
Batch target display counter counts past batch selection	• Flowrate too fast excessive overflow	• Turn down gate valve to restrict flowrate or set preact (overflow deduct, inflight) function to compensate • Reduce delivery pipe diameter near end of line
Intermittent overflow past batch select or liquid does not stop	• Faulty solenoid valve not closing properly, insufficient air pressure	• Service solenoid valve, check air pressure
Wet loads, more liquid collected than indicated	• Pulses too fast for computer input • Calibration error • Probes insulated with buildup	• Change pulse parameter on pulsedivider card and PLC input. • Check calibration value controller, interface card or PLC. • Clean magflow tube
Dry loads, less liquid collected than indicated	• Requires recalibration test	• Set new calibration figure, rear switches or interface card (see data sheet calibration guide for specific product)

At this point, if all of the above suggestions fail to rectify problem then the electromagnetic flowmeter may require replacement. Contact ManuFlo.