



ii) Batch Safety Interface with ME2000/2008

The **ManuFlo**
Advantage



ME2000

2, 4 or 6 channel



ME2008

2, 4, 6 or 8 channel

*In use in over 2000
batch plants
Globally.*



ME2000-CV

2 channel Compact

Interfacing with ME2008



Or **CMM / KMS**
Mag-flowmeter options



ME2008
Microprocessor intelligent interface batch safety unit.



Flowmeter measures flow

MES

Pump

Admix Storage Tank

Up to 8 flowmeters



Batching Computer
sets/records batch

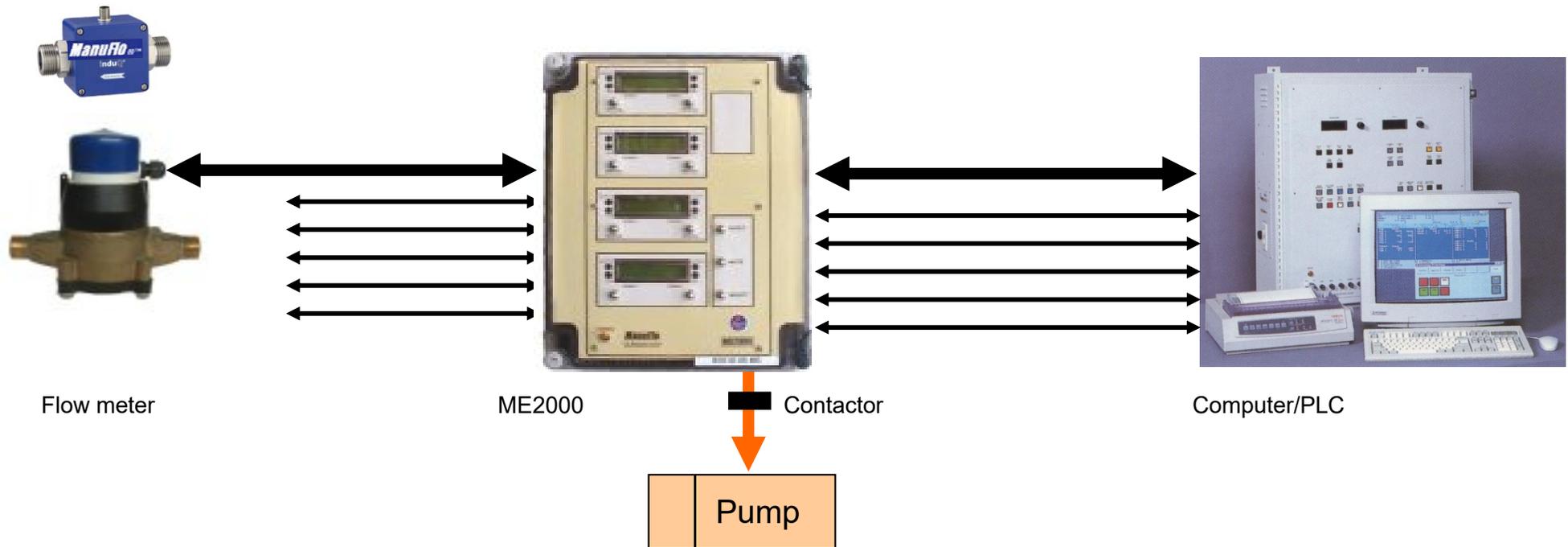
Eliminates Bottle Requirement

Quantity set by: Computer/PLC
Delivery controlled by: ME2008/Computer/PLC

In use in Australia,
NZ, HK, Nth China

Safest and cost effective method of Admix batching in computer controlled plants

Interface – ME2000/2008



- The ME2000 and ME2008 are microprocessor-based batch safety interface units for management of flowmetering admixture liquids in the concrete production industries.
- **Designed at the request and requirement of suppliers/producers/users of construction chemical products for safely dispensing chemicals replacing the need of sight bottles or load cell canisters**
- A sophisticated **safety management** watches for any malfunction in the flowmeter or batch Computer during the batch cycle. If a fault is detected, the ME2000/2008 will override and shutdown the faulty channel, and will alarm with a message on the display.

PLC - ME2008 OPERATION SEQUENCING FLOW

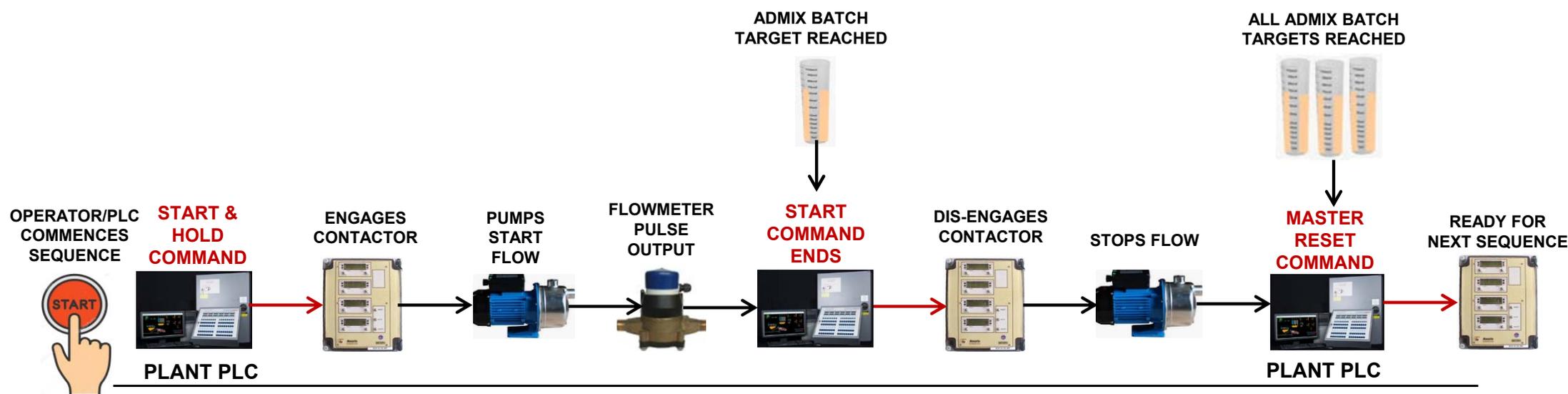
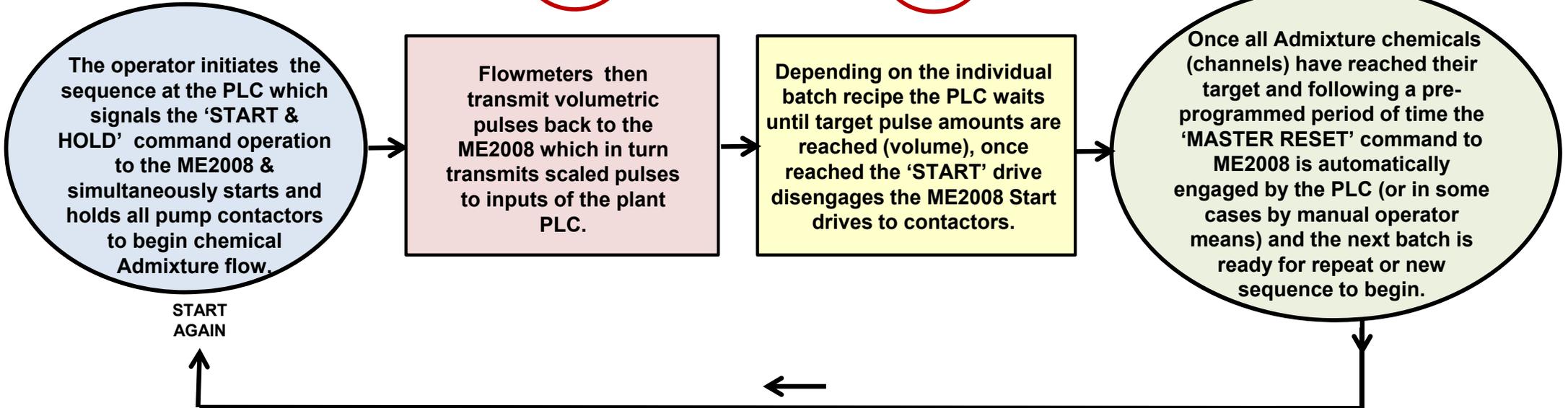
CHART

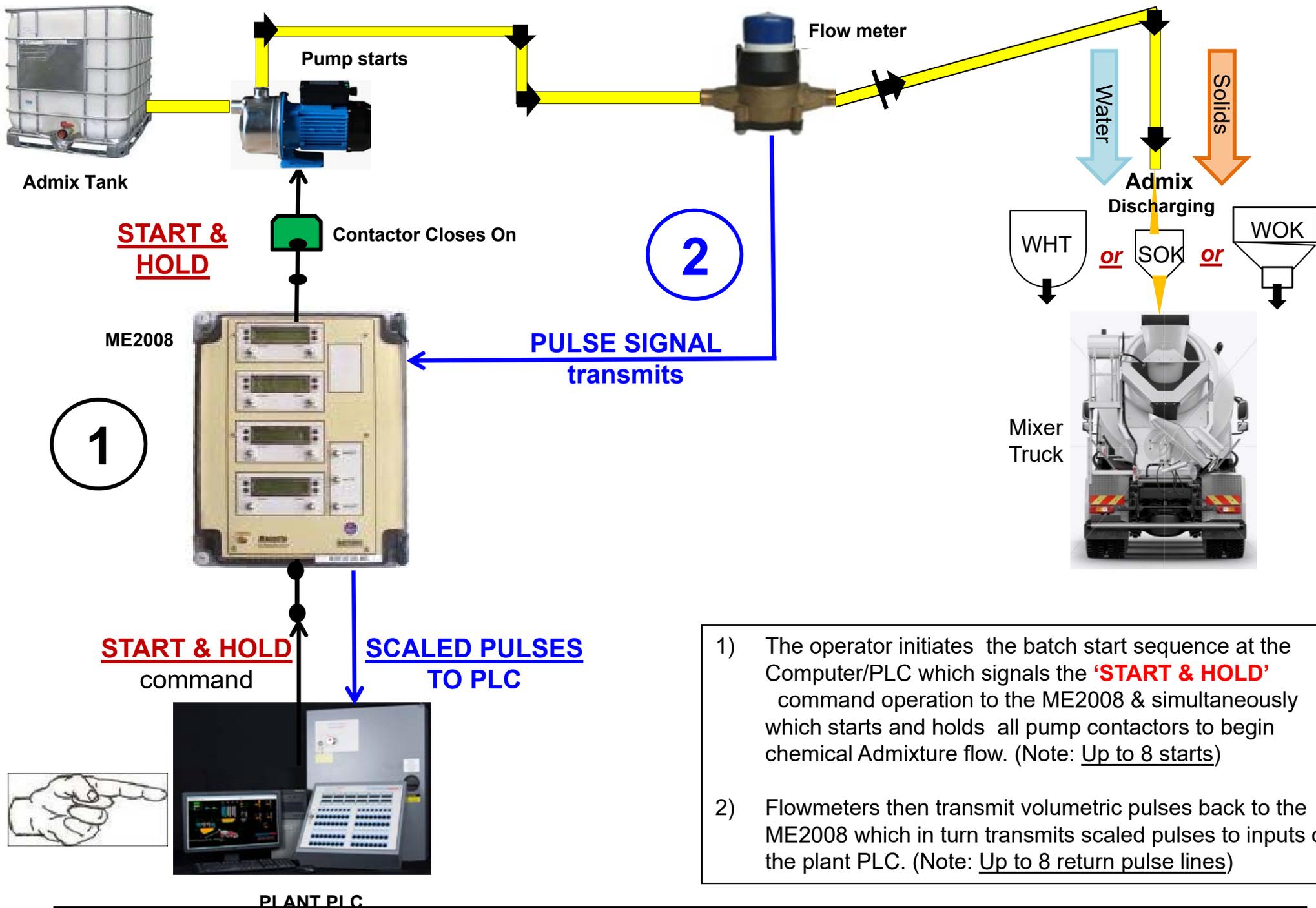
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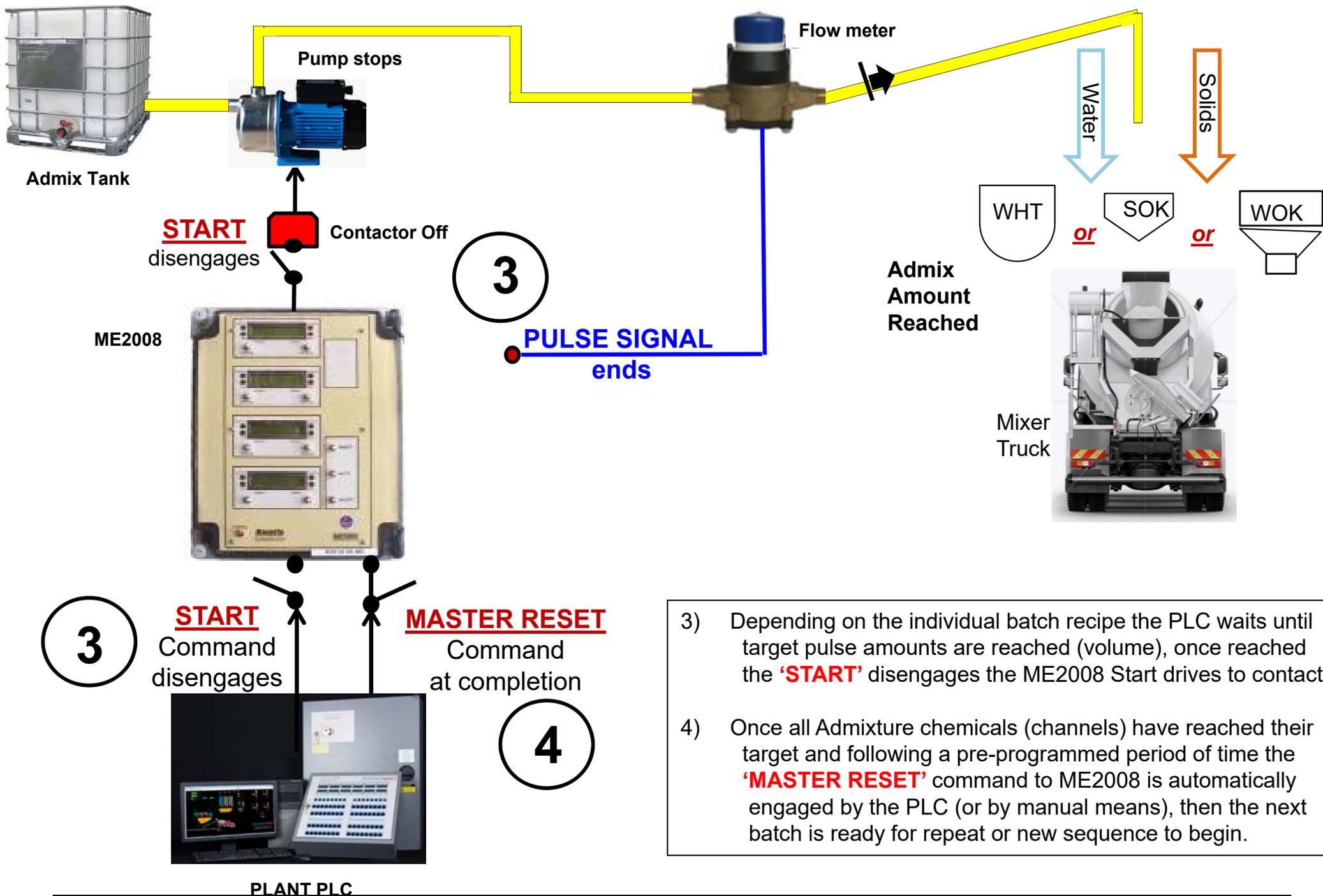
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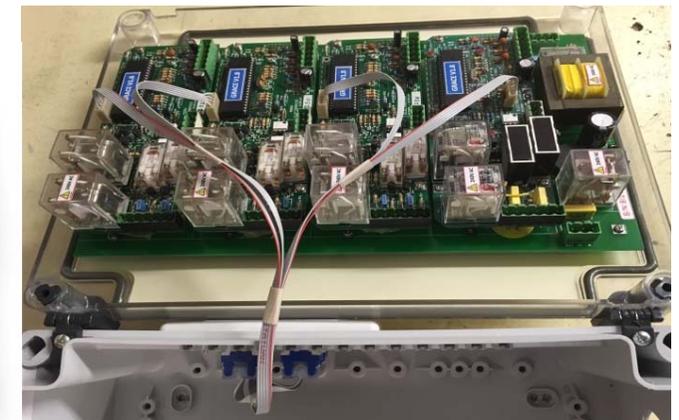
- 1) The operator initiates the batch start sequence at the Computer/PLC which signals the '**START & HOLD**' command operation to the ME2008 & simultaneously which starts and holds all pump contactors to begin chemical Admixture flow. (Note: Up to 8 starts)
- 2) Flowmeters then transmit volumetric pulses back to the ME2008 which in turn transmits scaled pulses to inputs of the plant PLC. (Note: Up to 8 return pulse lines)



- 3) Depending on the individual batch recipe the PLC waits until target pulse amounts are reached (volume), once reached the '**START**' disengages the ME2008 Start drives to contactor.
- 4) Once all Admixture chemicals (channels) have reached their target and following a pre-programmed period of time the '**MASTER RESET**' command to ME2008 is automatically engaged by the PLC (or by manual means), then the next batch is ready for repeat or new sequence to begin.

Interface – ME2000/2008

- All parameters and entries are **fully programmable** via a plug-in hand held keypad.
- **Dual-Channel Modules** (mount up to 4) on motherboard, for creation of 2, 4, 6 or 8 channel unit.
- Optional Pulse Comparator for Dual Flowmeter system.
- Optional Dual Display Counters for each channel (for Comparator function).
- **Input Pulse scalable for use with most types of Flowmeters**.
- All display readouts in **Litres to 3 decimal places**, with instantaneous **flowrate display** reading.
- Accumulated **batch totals (grand totals)** for inventory records.
- **Initial Start and Pulse-fail Safety**.
- **Low and High Flow range settings**. Pulse-fail Safety safeguards against exceeding flowmeter operating ranges.
- **Maximum pulse output frequency alarm, for PLC input safety**.
- Maximum **Batch Limit Safety**.
- **Output Pulse Division** to PLC/Computer scalable.
- **24-240 vac or 5-25 VDC pulse switching**.
- Input/Output control with optional voltages.
- **Manual Batch facility**, with Disable option.
- Master Audible **alarm** function
- Alarm condition for leaky check valves (back flow).
- Can be used for water channels e.g. RDFS-P paddlewheel.



Interface - ME2000/ME2008 - Displays

On powering up the unit allow 30 seconds for ME2000/08 to fully boot up all functionalities before use.

- Switch on power to the ME2000 interface safety unit.
- Scroll through the settings by pressing SELECT.
- Go to the desired display to change a parameter via re-programming.



⇒ Power On:

**MANU ELECTRONICS
ME2000 V1.8**

⇒ 1. Push Select:

**000.000 000.000
000.000 000.000**

**Channel 2
Flowmeter A
Flowmeter B**

Batching function display in "LITRES" to 3 decimal places. At anytime you can skip functions and return to normal by pushing RESET (You cannot reset while pumping is in progress).

**Channel 1
Flowmeter A
Flowmeter B**

⇒ 2. Push Select:

**Flow (Lt./sec)
00.000 00.000**

Flow Rate Function in Litres/second (to 3 decimal places).

Use Software ver: V1.8 or at least V1.7. Versions 1.6, 1.5, 1.4 should be upgraded

New option to enable/disable comparator function

⇒ 3. Push Select:

**Total (Litres)
000000 000000**

Grand Total accumulation.
To reset: push 2 buttons at once on 4 button programmer.

⇒ 4. Push Select:

**Input (p/l)
1000.00 1000.00**

K-factor / Calibration:
sets pulse input value per litre, according to flowmeter used e.g. MES20 1000pulses/litre, MES25 0555pulses/litre.

⇒ 5. Push Select:

**Output (l/p)
00.010 00.010**

Pulse Output Volume Value (Litres /pulse).
Sets division of output pulses to suit computer/PLC.
Resolution from 1ml. Example shows 10ml.
See also "Program Record Sheet" (page 9).

Interface - ME2000/2008 - Displays

⇒ 6. Push Select:

<p>Min. Flow (l/s)</p> <p>00.010 00.010</p>	<p>Minimum flowrate (set this according to flowmeters' recommended minimum). Pump will be stopped if the flowrate falls below this value. Previously known as <u>Pulrefill</u> in ME697, ME995/188 units.</p>
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⇒ 7. Push Select:

<p>Max. Flow (l/s)</p> <p>01.000 01.000</p>	<p>Maximum flowrate (set this according to flowmeters' recommended maximum). Pump will be stopped if the flowrate exceeds this value.</p>
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⇒ 8. Push Select:

<p>Dose Limit (l)</p> <p>010.000 010.000</p>	<p>Sets maximum acceptable limit per batch (overrides computer selection). If limit is reached, pump is stopped and "Overdose" warning will be displayed.</p>
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⇒ 9. Push Select:

<p>Max Backflow (l)</p> <p>000.100 000.100</p>	<p>The Backflow function raises an alert if the check (non-return) valves leak. Set to the desired maximum allowance of backflow.</p>
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⇒ 10. Push Select

<p>Difference (%)</p> <p>05.0 05.0</p>	<p>COMPARATOR (5% = ± 2.5%) This function is used to compare 2 flowmeters in series. If the flowmeters differ by more than the allowed percentage, the pump will be stopped and an alarm triggered. From software Version 1.5 onwards, the comparator function only operates during batching.</p>
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Interface - ME2000/2008 – Displays

⇒ 11. Push Select

Start Delay (s) 02.0 02.0	Start Delay is the time (in seconds) allowed for pump to start before the Pulse Fail safeties activate. After the Start Delay period, the safeties will shut down the pump drive if no flowmeter pulses are received.
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⇒ 12. Push Select:

Stop Delay (s) 02.0 02.0	Stop Delay is the time (in seconds) allowed for the pump to settle after stopping, before back flow detection commences.
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⇒ 13. Push Select

Max Out Rate (Hz) 0012	Max Out Rate is the maximum allowed rate of output pulses to the computer. If the maximum is exceeded, then the pump stops, then the ME2000 memory sends extra pulses to the PLC/Computer's AC Yellow Optos (under the 12 Hz max. input rate) or low scan rate systems.
AC = 15 Hz DC = 40 Hz	Extra pulses received (above the allowed rate) represent actual extra volume measured by the flowmeter and ME2000, but which would have otherwise not been fully counted by the PLC/Computer system. (This situation is different to actual "inflight overflow", where a DEDUCT value must be programmed in the computer system to stop the pump earlier).

15Hz for AC

35Hz for DC

WARNING:-
Setting should not exceed 100hz as pulse width is clipped resulting in many PLC's missing the counted pulses.

⇒ 14. Push Select

MANU ELECTRONICS ME2000 V1.8	Returns to intro display.
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⇒ 15. Push Reset:

000.000 000.000 000.000 000.000	Returns to the Batch function. Display is in "LITRES" to 3 decimal places.
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Interface – ME2000/2008 Order Codes

Refer to: ManuFlo Catalogue

Order Code	Description
ME2008-8	MICROPROCESSOR INTERFACE BATCH SAFETY UNIT. (inbuilt rate +inventory totals) <ul style="list-style-type: none"> • Accepts most flowmeter types. Interfaces with computer/PLC systems. • Dot-matrix dual LCD counters, 4x plug-in dual-channel modules. • 8 channels (8 admixtures) on motherboard, variable pulse divisions, AC triac or DC opto output pulse switching with pulse limiter. • Standard unit comes with 240vac supply and start/reset/pulse logic, 240vac pulse output (suits COMMANDbatch etc). Wall mount enclosure. • with a hand held plug-in keypad programming module.
ME2008-6	<ul style="list-style-type: none"> • as for ME2008 above, but with plug-in modules for 6 admixtures. • has 3x dual counter/processor modules (can fit 1 more dual module), in motherboard.
ME2008-4	<ul style="list-style-type: none"> • as for ME2008 above, but with plug-in modules for 4 admixtures. • has 2x dual counter/processor modules (can fit 2 more dual module), in motherboard.
ME2000-6	<ul style="list-style-type: none"> • Similar to ME2008 above, but motherboard has maximum of 6 channels. • has 3x dual counter/processor modules (can't fit more), plugged in to motherboard.
ME2000-4	<ul style="list-style-type: none"> • as for ME2000 above, but with 4 channels (2x dual module) for control of 4 admixtures.
ME2000-2	<ul style="list-style-type: none"> • as for ME2000 above, but with 2 channels (1x dual module) for control of 2 admixtures.
ME2000-2-CV	<ul style="list-style-type: none"> • as above, but ADMIX COMPACT VERSION. 2 channels only (no expansion). • Box size (mm) : 225 L x 180 W x 90 D

Options	Description
6CAT5E	For 6-channel ME2000: 3-way external panel, for programming up to 3 dual-ch modules. (Includes HP-CAT5E programmer with CAT5E plug – only when ordered with a ME2000).
8CAT5E	For 8-channel ME2008: 4-way external panel, for programming up to 4 dual ch modules. (Includes HP-CAT5E programmer with CAT5E plug – only when ordered with a ME2008).
-IR	Independent Reset, per 2-channel module in the ME2008.
-USoz	USA units (non-metric) - Display in US ounces
-V1.8	Software version IC to enable/disable the display/comparator function (replacement/upgrade).
-AO	Alarm logic output. Open contact relay.
WSC	Wima suppression capacitors, with long leads. 0.1µF, 275 volts (placed across contactor coils)
RP10	5watt 12K ceramic resistors (for possible leak voltage suppression for 240vac optos) 1 pack of 10
4N33	IC: 5-30 VDC white OPTO (for U3 & U4 sockets of ME2000/2008, for DC pulse output)
MOC3043	IC: 24-240 vac Triac OPTO (for U1 & U2 sockets of ME2000/2008, for ac pulse output)

Supply Voltage (Motherboard)

-1A	240 vac power supply
-1B	110 vac power supply
-1C	24 vac power supply
-1D	24 VDC power supply

WARNING: +24VDC powered models must be powered by a UPS with pure regulated Voltage type of 120W+

Start Input/Output Drives and Master Reset (Modules)

-2A	240 vac start/reset relay logic fitted
-2B	110 vac start/reset relay logic fitted
-2C	24 vac start/reset relay logic fitted
-2D	24 VDC start/reset relay logic fitted

Pulse output

-3A	240 vac (Moc3041) triac pulse output switching (only with -1A 240v power supply option)
-3B	Same ac voltage as for the start/reset option (i.e 24 vac or 110 vac)
-3C	5-30 VDC open collector pulse output. Suits Jonel/Compubatch/Autocon computers.



SYSTEM UPGRADE OPTIONS

✓ 1/ Are you experiencing any bug issues with your ManuFlo ME2008 admixture flowmetered-dispensing operating system ?
(E.G: random flickering of dot-matrix displays, intermittent "low flow" alarms (yet flowmeters/pumps/pipes are Ok)
If so, consider updating some of your existing ManuFlo equipment system infrastructure.



✓ 2/ The Concrete Batch Plant may have ManuFlo equipment originally installed dating back to year 2000 or earlier.
The new power regulation upgrade for ME2000/2008 provides optimal stability when multiple products are batched simultaneously (up to 8 per unit). ME2000 was introduced in the year-2000...so far a 20+ year product operation life.
Latest Software version v1.8, incorporates additional improvements to the ME2008 operating system.
There has been a global roll-out with DC pulse input conversions & the ME2000/2008 and corresponding computer input, these should be upgraded to the faster count (35-40hz) resolution which further improves the pulse resolution.
The upgrade enhances the system with all optimal improvements, with a potential 10-20mls per pulse count resolution for PLC input capture and even down to 1 milliliter per count if the Computer has a high speed PLC input card installed.



✓ We suggest offer in a staged sequence of options;

A) New ME2008 systems to swap out the old ones; this will enhance the system operation.
(send back older units for fit out with the latest upgrades and re-install).

B) Offer the new MES20-DSP-OC vibration free pulse-heads another major technological advancement.
Simple swap out of old pulse-heads for new "DSP-OC" units.

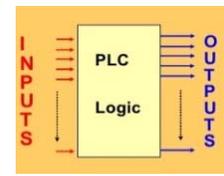
C) Install CMM25 Mini-Mag flowmeters on any troublesome products.



Premium Upgrade Option;

New KMS015/25-F 15 to 25mm flanged magnetic flowmeters –maintenance free option.
With added flowrate + inventory totals. Other logic outputs for future technology options.

✓ D) Client consider change the Computer Batch System PLC input card to a high speed type to take 2kHz>
(to accept resolution from the ManuFlo flowmeters of 1 milliliter per pulse)



ME2008 - LATEST UNIT UPGRADES



Power Supply to ME2008

The power supply must come from the PLC/Computer or dedicated power supply, which should have lightning arrestors / power surge protection already fitted to its Uninterruptable Power Supply (UPS).

Software Upgrade

Software version V1.8 should now be used (shown on Menu display start up or marked on channel IC).



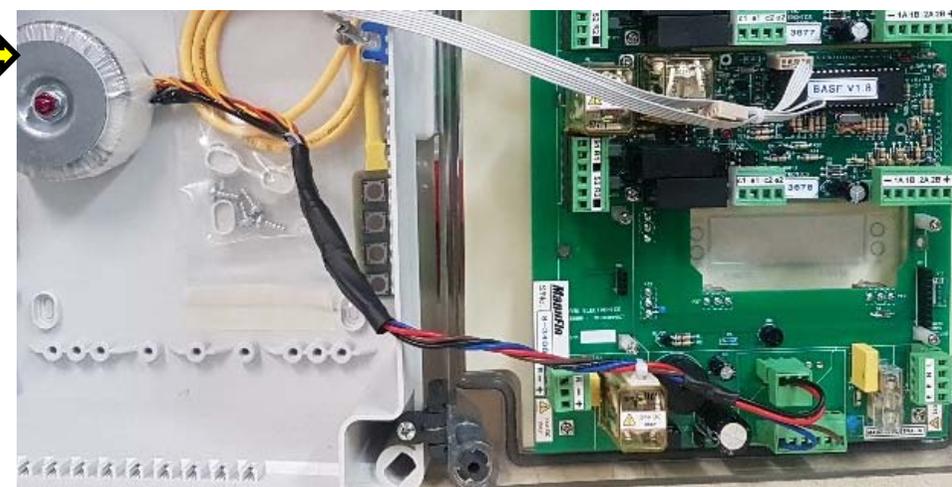
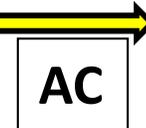
Fuses and Hardware upgrades

With the advent of **24VDC I/O + powered** units are becoming the preferred industry standard, coupled with the Increased number of admixtures simultaneously batched in a load;

- **Due to extra current drawn on the units**, Fuses should be upgraded to 2 to 2.5 amps..
- **DC powered units** should be returned for upgrade / install & modification with the latest technology high efficiency DC voltage converter now available.
- **AC powered units** should be returned for upgrade/install & Modification with an enhanced more powerful 240vac Toriod Transformer.



Fuse RHS rear of PCB)



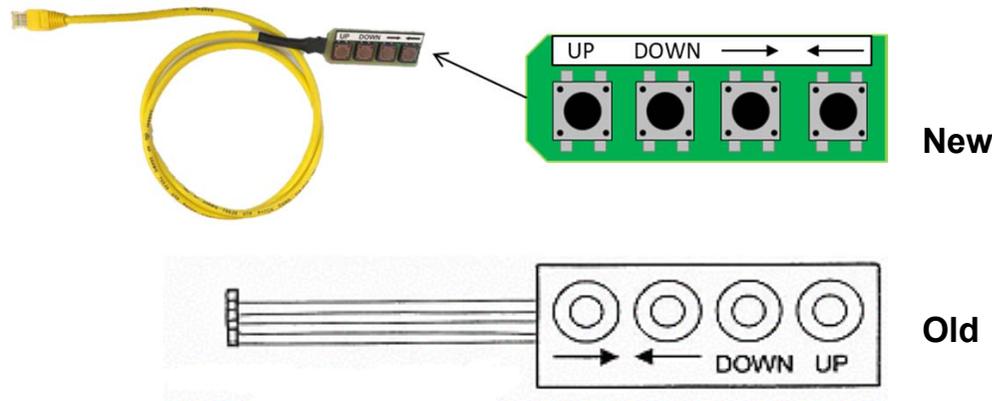
Alarm outs or non-operation due to excessive current draw

Due to higher current draw, (possible leakage/short of signal cables) or 5+ admixes batched simultaneously.

Stage the starts drives from PLC with 0.5 - 1 sec start sequential duration, **BUT return the units for upgrade with special regulator for DC units and the transformer for AC units.**

NOTE: Units built or reconditioned after 20th April 2018 have the latest enhancement pre-fitted as standard.

Interface – ME2000/2008 - Programming



4-way
8CAT5E
with
included
HP-CAT5E
programmer



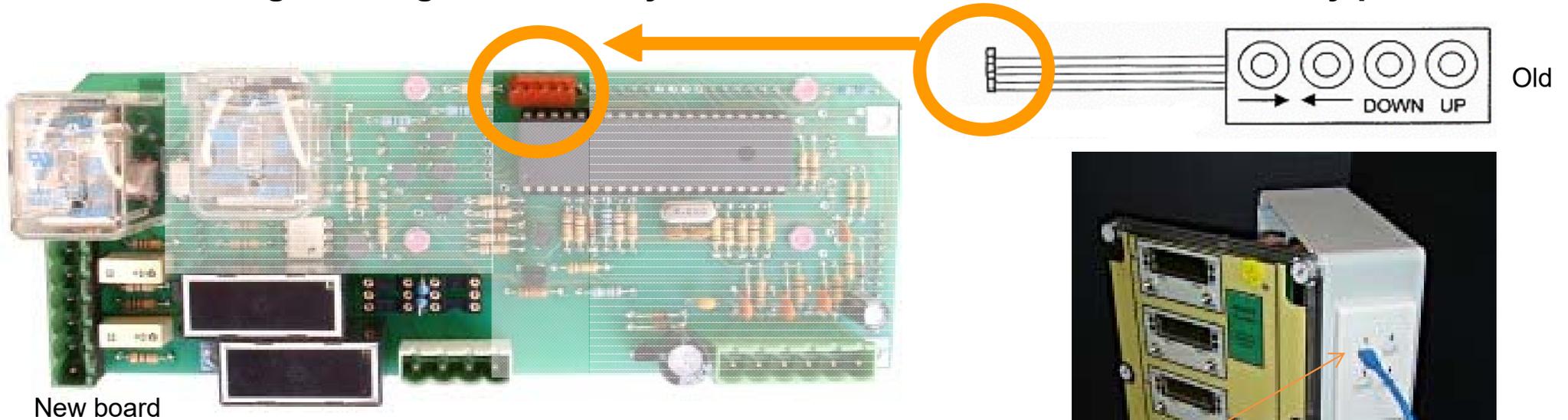
- Each 2-channel module is programmed one at a time.
- To start programming, push either arrow button (→ ←), cursor (digit) will flash.
- Push UP or DOWN to change numeric values.
- Push arrows to scroll through the individual numeric settings.
- Once programming is completed, push either arrow button (→ ←) until no digits are blinking, data is now entered into memory.
- Unplug keypad, then plug in to next module or CAT5E entry point and repeat data entry to programme another module.

When programme the unit via keypad, it does not allow any 0 value. I.E. To change 0.10 to 0.01 it needs to be 0.11 first and then back to 0.01, As 0.00 is not allowed during programming –due to safety precaution.

Interface – ME2000/2008 - Programming

Data entry is via a 4-button keypad programmer that is plugged into the 5-pin inline plug rail located on each 2-channel module.

Programming socket is keyed. Or via the later CAT5-E external entry panel



NEW
Reprogrammer access via external panel:

- 6CAT5E: 3-way panel for 6-channel ME2000.
- 8CAT5E: 4-way panel for 8-channel ME2008.
- HP-CAT5E: Programmer with Cat5E plug.



Upgrade with kit now



ME2000/2008 – Able or Disable Dual Display on Ch.

Channel 1

Flowmeter A

Flowmeter B

000.000	000.000
000.000	000.000

Channel 2

Flowmeter A

Flowmeter B

Batching function display in "LITRES" to 3 decimal places. At anytime you can skip functions and return to normal by pushing RESET (You cannot reset while pumping is in progress).

SINGLE COUNTING CHANNEL

Customer feedback is that some confusion can result due to the comparator function (which is commonly used in Asia) i.e.

- * double display of count per channel; and
- * the need to have a wire link to short Flowmeter A and B inputs for each channel.

We are now able to offer the ME2000 / ME2008 with:

- * count displayed only for Flowmeter A on each channel (Flowmeter B count is blank); and
- * no need for wire link to short Flowmeter A and B inputs.

Channel 1

Flowmeter A

Flowmeter B

000.000	000.000
---------	---------

Channel 2

Flowmeter A

Flowmeter B

With Software Version V1.8

additional
configuration
menu

Diff. channels

1 1

(available from software Version 1.8)

Difference Channels : enables/disables the comparator function, for each channel of the two-channel module.

When value is "1", the comparator is disabled, and the display for that channel shows the reading from one flowmeter.

When value is set to "2", the comparator is enabled, and the display for that channel shows the readings of two flowmeters in series.

Computer Resolution display gradients

- Resolution as fine as 1 millilitre is available when using a MES20 20mm 1000ppl flowmeter or with ManuFlo's electromagnetic flowmetering options.
- The resolution of the system is totally dependant on capability of the Computer / PLC input specifications, that is the scanning time / speed capability of the computers PLC input card.
- High speed PLC based systems can provide accuracy down to measuring 1 millilitre per 1 pulse gradients (or better) with upto 10,000 Hz counting speed capability.
- To our knowledge current Command Batch / Jonel-Archer and other USA based batching systems are using PLC solid state digital inputs with the following Opto input capability;
 - i) AC inputs capable of speeds upto 15Hz (15 counts per second).
 - ii) DC inputs capable of speeds upto 40Hz (40 counts per second).
- In some cases If Batch Systems use high speed PLC input cards there would be no need to divide or slow down the pulse resolutions from the ManuFlo flowmeters.
- *REFER to following pages with TABLES FOR CURRENT BEST SAFE MODE SETTINGS WITH CURRENT COMMAND-BATCH SOLID STATE INPUTS;*

Pulse Output Resolution Guide (DC input)

BEST OUTPUT PULSE RESOLUTION VALUES

with MES flowmeters to DC input CommandBatch Computers

Model	Size	Pulse Output value	Max Safe Flowrate not to exceed computers Current DC digital input count limit speed of 35-40Hz (& flowmeter max) (set in Max. Out Rate) ↓		
MES20	20mm	10 mls per pulse	0.4 litres/sec.	24 litres/min.	40hz
"	"	20 mls per pulse	0.8 litres/sec	48 litres/min.	40hz
"	"	25 mls per pulse	1.0 litres/sec	60 litres/min.	40hz
"	"	30 mls per pulse	1.2 litres/sec	72 litres/min	40hz
"	"	40 mls per pulse	1.40 litres/sec	84 litres/min	40hz
"	"	50 mls per pulse	1.40 litres/sec	84 litres/min	40hz
MES25	25mm	40 mls per pulse	1.60 litres/sec	96 litres/min.	40hz
"	"	50 mls per pulse	1.85 litres/sec	115 litres/min.	36hz
MES32	32mm	100 mls per pulse	3.00 litres/sec	180 litres/min.	30hz
MES40	40mm	100 mls per pulse	4.00 litres/sec	240 litres/min.	40hz

NOTE: ME2000 can emit 1mls/1 pulse if PLC computer input cards have high speed input capability
(Output overrun is set to 35 to 40Hz to safeguard the system settings).

FOR OTHER FLOWMETERED OPTIONS : CONSULT MANUFLO e.g. MAGFLOWS

Pulse Output Resolution Guide (AC input)

BEST OUTPUT PULSE RESOLUTION VALUES

with MES flowmeters to AC input CommandBatch/Eagle Computers

Model	Size	Pulse Output value	Max Safe Flowrate not to exceed computers Current AC digital input count limit speed of 14Hz (set in Max. Out Rate) ↓		
MES20	20mm	10 mls per pulse	0.14 litres/sec.	8.4 litres/min.	14hz
"	"	20 mls per pulse	0.28 litres/sec	16.8 litres/min.	14hz
"	"	25 mls per pulse	0.35 litres/sec	21.0 litres/min.	14hz
"	"	30 mls per pulse	0.42 litres/sec	25.2 litres/min	14hz
"	"	50 mls per pulse	0.70 litres/sec	42.0 litres/min.	14hz
"	"	100 mls per pulse	1.40 litres/sec	84.0 litres/min	14hz
MES25	25mm	100 mls per pulse	1.40 litres/sec	84.0 litres/min.	14hz
MES32	32mm	150 mls per pulse	2.10 litres/sec	126.0 litres/min.	14hz
MES40	40mm	200 mls per pulse	2.80 litres/sec	168.0 litres/min.	14hz

NOTE: (Output overrun is set to 14Hz to safeguard the system settings).

FOR OTHER FLOWMETERED OPTIONS : CONSULT MANUFLO e.g. MAGFLOWS

Most practical safe setting for MES20 is 50mls per pulse output for current AC inputs.
(Allows 42 litres/min. ME2000/2008 flowrate display will indicate)

ME2008 - Typical Settings – MES20



		big dose	big dose	AEA small dose	AEA small dose	AEA small dose	
		20mm	20mm	20mm	20mm	20mm	
Parameter		MES20	MES20	MES20	MES20	MES20	
Input (p/l)		1000.00	1000.00	1000.00	1000.00	1000.00	<u>Pulses per litres</u>
or	Output (l/p) to ac computer *#	00.100	00.050	00.050	00.020	00.010	<u>Millilitres / pulse</u>
	Output (l/p) to DC computer *#	00.050	00.025	00.025	00.010	00.005	<u>Millilitres / pulse</u>
	Min. Flow (l/s)	00.100	00.100	00.010	00.010	00.010	<u>Litres per sec.</u>
	Max. Flow (l/s) *#	01.250	00.750	00.750	00.300	00.150	<u>Litres per sec.</u>
	Dose Limit (l) #	050.000	050.00	010.000	010.000	010.000	<u>Litres</u>
	Max Backflow (l) #	000.500	000.500	000.100	000.100	000.100	<u>Litres</u>
	Difference (%)	05.0	05.0	05.0	05.0	05.0	
	Start Delay (s) #	02.0	02.0	02.0	02.0	02.0	<u>Seconds</u>
	Stop delay (s) #	02.0	02.0	02.0	02.0	02.0	<u>Seconds</u>
	Diff. Channels	1	1	1	1	1	
or	Max Out rate (Hz) to ac computer	0015	0015	0015	0015	0015	<u>Output Overrun</u>
	Max Out rate (Hz) to DC computer	0035	0035	0035	0035	0035	<u>(counts/second)</u>

= Adjust to whatever is suitable for your application.

$$* = \text{For ac output pulses: } \frac{\text{Max. Flow (l/s)} \leq 15}{\text{Output (l/p)}}$$

$$* = \text{For DC output pulses } \frac{\text{Max. Flow (l/s)} \leq 35}{\text{Output (l/p)}}$$

ME2008 - Typical Settings – MES (20,25,32,40mm)



Parameter		20mm	25mm	32mm	40mm	
		MES20R	MES25	MES32	MES40	
or	Input (p/l)	0061.00	555.00	0261.00	0116.00	<u>Pulses per litres</u>
	Output (l/p) to ac computer *#	00.100	00.150	00.200	00.500	<u>Millilitres / pulse</u>
	Output (l/p) to DC computer *#	00.050	00.100	00.100	00.200	<u>Millilitres / pulse</u>
	Min. Flow (l/s)	00.100	00.100	00.150	00.250	<u>Litres per sec.</u>
	Max. Flow (l/s) *#	01.100	01.800	03.000	05.500	<u>Litres per sec.</u>
	Dose Limit (l) #	050.000	100.000	100.000	150.000	<u>Litres</u>
	Max Backflow (l) #	000.500	000.500	001.000	001.000	<u>Litres</u>
	Difference (%)	05.0	05.0	05.0	05.0	
	Start Delay (s) #	02.0	02.0	02.0	02.0	<u>Seconds</u>
	Stop delay (s) #	02.0	02.0	02.0	02.0	<u>Seconds</u>
	Diff. Channels	1	1	1	1	
or	Max Out rate (Hz) to ac computer	0015	0015	0015	0015	<u>Output Overrun</u>
	Max Out rate (Hz) to DC computer	0035	0035	0035	0035	<u>(counts/second)</u>

= Adjust to whatever is suitable for your application.

* = For ac output pulses: $\frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 15$

* = For DC output pulses $\frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 35$

ME2008 – Typical Settings – AMM mags

Note:
used in HK.



Parameter	15mm	15mm	20mm	25mm	
	AMM15	AMM15	AMM20	AMM25	
Input (p/l)	1000.00	1000.00	1000.00	0500.00	<u>Pulses per litres</u>
or Output (l/p) to ac computer *#	00.100	00.050	00.125	00.250	<u>Millilitres / pulse</u>
Output (l/p) to DC computer *#	00.050	00.020	00.050	00.100	<u>Millilitres / pulse</u>
Min. Flow (l/s)	00.010	00.010	00.100	00.100	<u>Litres per sec.</u>
Max. Flow (l/s) *#	00.900	00.500	01.600	03.500	<u>Litres per sec.</u>
Dose Limit (l) #	050.000	050.000	050.000	100.000	<u>Litres</u>
Max Backflow (l) #	000.500	000.500	000.500	000.500	<u>Litres</u>
Difference (%)	05.0	05.0	05.0	05.0	
Start Delay (s) #	02.0	02.0	02.0	02.0	<u>Seconds</u>
Stop delay (s) #	02.0	02.0	02.0	02.0	<u>Seconds</u>
Diff. Channels	1	1	1	1	
or Max Out rate (Hz) to ac computer	0015	0015	0015	0015	<u>Output Overrun</u>
Max Out rate (Hz) to DC computer	0035	0035	0035	0035	<u>(counts/second)</u>

= Adjust to whatever is suitable for your application.

$$* = \text{For ac output pulses: } \frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 15$$

$$* = \text{For DC output pulses } \frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 35$$

ME2008 – Typical Settings – CMM mags



Parameter	15mm	20mm	25mm	size	
	CMM10	CMM20	CMM25	item	
Input (p/l)	1000	500	100	PPL	<u>Pulses per litres</u>
or Output (l/p) to ac computer *#	0.100	0.050	0.250	AC-out	<u>Millilitres / pulse</u>
Output (l/p) to DC computer *#	0.050	0.050	0.100	DC-out	<u>Millilitres / pulse</u>
Min. Flow (l/s)	0.010	0.010	0.100	flow-min.LPS	<u>Litres per sec.</u>
Max. Flow (l/s) *#	0.500	1.000	4.000	flow-max.LPS	<u>Litres per sec.</u>
Dose Limit (l) #	50.000	50.000	100.000	dose limit	<u>Litres</u>
Max Backflow (l) #	0.500	0.500	0.500	Max.Back.Fl	<u>Litres</u>
Difference (%)	05.0	05.0	05.0	05.0	
Start Delay (s) #	02.0	02.0	02.0	02.0	<u>Seconds</u>
Stop delay (s) #	02.0	02.0	02.0	02.0	<u>Seconds</u>
Diff. Channels	1	1	1	1	
or Max Out rate (Hz) to ac computer	0015	0015	0015	0015	<u>Output Overrun</u>
Max Out rate (Hz) to DC computer	0035	0035	0035	0035	<u>(counts/ second)</u>

= Adjust to whatever is suitable for your application.

$$* = \text{For ac output pulses: } \frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 15$$

$$* = \text{For DC output pulses } \frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 35$$

ME2008 - Typical Settings - **KMS/RMS mags**



Parameter	25mm	40mm	40mm	50mm	50mm	
	PMS/RMS25	PMS/RMS40	PMS/RMS40	PMS/RMS50	PMS/RMS50	
Input (p/l)	0100.00	0010.00	0010.00	0010.00	0010.00	<u>Pulses per litres</u>
or Output (l/p) to ac computer *#	00.500	00.750	00.500	01.000	01.000	<u>Millilitres / pulse</u>
Output (l/p) to DC computer *#	00.200	00.500	00.200	00.500	00.500	<u>Millilitres / pulse</u>
Min. Flow (l/s)	00.100	00.250	00.250	00.250	00.250	<u>Litres per sec.</u>
Max. Flow (l/s) *#	05.000	10.000	06.000	15.000	10.000	<u>Litres per sec.</u>
Dose Limit (l) #	150.000	250.000	250.000	250.000	250.000	<u>Litres</u>
Max Backflow (l) #	001.000	002.000	002.000	003.000	003.000	<u>Litres</u>
Difference (%)	05.0	05.0	05.0	05.0	05.0	
Start Delay (s) #	02.0	02.0	02.0	03.0	03.0	<u>Seconds</u>
Stop delay (s) #	02.0	02.0	02.0	03.0	03.0	<u>Seconds</u>
Diff. Channels	1	1	1	1	1	
or Max Out rate (Hz) to ac computer	0015	0015	0015	0015	0015	<u>Output Overrun</u>
Max Out rate (Hz) to DC computer	0035	0035	0035	0035	0035	<u>(counts/second)</u>

= Adjust to whatever is suitable for your application.

* = For ac output pulses: $\frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 15$

* = For DC output pulses $\frac{\text{Max. Flow (l/s)}}{\text{Output (l/p)}} \leq 35$

Interface - ME2000/2008 – Default settings

DEFAULT –Software settings

Display Functions	
Operation	via plug-in 4-button hand-held programmer.
Volume displayed	In Litres, to 3 decimal places (smallest increment is 1 millilitre).
Flowrate display	In Litres per Minute, to 3 decimal places.
Grand Total	In total Litres.
Input calibration	Pulses per Litre, to 9999.99 (Default: 1000.00 = MES20)
Output pulse value	From 1 ml to 99.999 Litres per pulse (Default: 00.010 = 10mls) *
Min flowrate safety	Min. from 1 mls to 99.999 Litres per second (Default: 00.010, 10 mls for MES20)
Max flowrate safety	Max. 99.999 Litres per second (Default: 01.000, 1 Litre for MES20)
Dose Limit	Max. 999.999 Litres per batch cycle (Default: 010.000)
Max Backflow	From 1 mls to 999.999 Litres (Default: 000.100)
Comparator difference	0.1 to 99.9% (Default: 5.0% i.e. +/-2.5%)
Start Delay	0.1 to 99.9 seconds (Default: 2.0)
Stop Delay	0.1 to 99.9 seconds (Default: 2.0)
Max Output pulse rate	0001 to 9999 Hz (Default: 12)
Pulse fail	Is the function of Min/Max flowrate safety functions.

* Change to higher value, except for AEA

Note: default values, you must change onsite to match app./flowmeter.

ME2008 - Program Record Sheet		Channel							
		1	2	3	4	5	6	7	8
Flowmeter Model (part no.)									
K-FACTOR (CALIBRATION)									
If not known: Set input parameter to 1, then run liquid, divide volume by count = pulses per unit.									
Input Pulses	• per Litre								
PULSE OUTPUT VOLUME VALUE TO PLC									
Output Pulses	• Litres/pulse								
MINIMUM FLOWRATE CUTOFF									
Min. flow	• Litres/sec								
MAXIMUM FLOWRATE CUTOFF									
Max. flow	• Litres/sec								
MAXIMUM BATCH LIMIT									
Dose Limit	• total Litres								
MAXIMUM BACKFLOW									
	• Litres								
Comparator difference %									
Start Delay (seconds)									
Stop Delay (seconds)									
Max Output Rate (Hz)									
Date Programmed	:							Date Commissioned:	
By	:							By:	
Comments	:								
Serial Number	:			Date	:				
ME2008 Part	:			Software	:				
No. Config	:			Version	:				
Voltages	:				:				



**Sample :-
 final software
 setting parameters
 Record sheet.
 Place a sheet inside
 The ME2008 box for future
 reference.
 Label each channel of t
 ME2008 panel with any
 flowmeter other than MES20
 e.g. MES25 =555ppl**

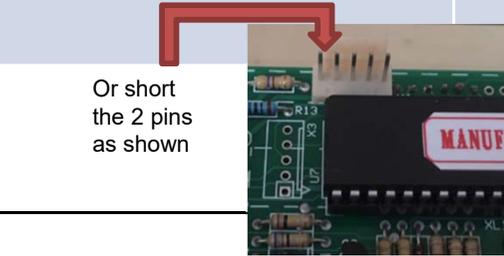
ME2008 - Troubleshooting Guide -Summary

Text on the LCD display/Alarm	Possible Cause	Remedy
“Low Flow”	-Flow Rate below setting -Pulse Fail due to flowmeter failure -Airlock in flowline	-Check “Min. flow” value -Check flowmeter, & pulse cable wiring -Check delivery line for line restriction -All Ok then return to ManuFlo for upgrade to v1.8 software +new Power upgrade
“High Flow”	-Flow Rate above Max.-Flow setting	-Check “Max. flow” value, has been exceeded -Check gate valve, restrict if necessary
“Output Overrun”	-Higher pulse rate than pulse out Hz (frequency) maximum setting (AC=15Hz, DC=35Hz).	-Check “Max Out Rate” value -Adjust pulse output value resolution -Check Flow Rate, restrict the gate valve.
“Over Dose”	-Dose Limit exceeded during batch	-Check “Dose Limit” (batch limit) value -Check PLC/Computer Settings
“Back Flow”	-Backflow of liquid after batch complete -Or excessive vibration at flowmeter install -Stuck external contactor/pump.	-Check Non-return valve, clean or replace. -Eliminate vibration source or swap with MES-DSP vibration free smart pulse-heads *see also Troubleshooting-Backflow on next page -rare case continuous backflow is external stuck contactor/pump running. kill power, replace contactor/pump or ME2000 drive relay stuck. (if the flow runs substantially backwards after batches this will result in short under batches of liquid volumes)
“Diff Flow” (where used)	-Flowmeter Percent difference 5% exceeded (when comparator function is used with 2 flowmeters per 1 line)	-Check flowmeters (see comparator function explained)
“Setting Lost”	-Power Surge or major power loss to systems	-Check power supply/source -Use handheld programmer to reset the system and re-enter the parameters.

Flowrate lower than normal speeds.
Pipes hoses are clogged. Clogged near SOK -- pump has a lot of rubbish in the centrifuge rotor -- clean out pump -- gate valve seized -- rubbish jammed in non return valve -- suction side of pump issues -- piping blockages etc. change to PD pump -- close bypass valve if installed to increase pressure of flowrate.

WARNING:-
On powering up the unit allow 30 seconds for ME2000/08 to fully boot up all functionalities before use.

WARNING: +24VDC powered models must be powered by a UPS with pure regulated Voltage type of 120W+



To re-enable the module showing “settings lost”, proceed as follows:

- Plug the hand-held Programmer into the Dual Channel Module;
- To restore the default settings (which are input calibration 1000 pulses/Litre, divided pulse output 10mls/pulse), push 2 buttons simultaneously on the Programmer, being either the 2 arrow buttons or the DOWN and UP buttons;
- Re-enter parameters (via the Programmer) and refer to program sheet settings.

ME2008 – “Settings Lost” -Detail

Text on the LCD display/Alarm

Possible Cause

Remedy

Definition: ‘Settings Lost’.

Explanation: This message may occur if an external power surge, dirty external power supply or major external power loss to system or extreme electrical spikes may have affected the ME2008’s vital microprocessor operations. NOTE: It is a vary rare occurrence/phenomenon. Lightning strikes that have damaged other equipment in the vicinity may also trigger the unit.

Reasons/Operation:

‘Settings Lost’ will trigger on a respective module ‘DCPM’ if the internal circuit software diagnostics of the ME2008 detects a distortion in the external power supply that supplied power to the unit which may have corrupted its internal software settings which perform the critical operation of monitoring the pulses of the flowmeters that are delivered to the batching computer/PLC inputs.

As a safety precaution the unit will then trigger the ‘Settings Lost’ condition. This condition is to safeguard against any overdoses due to any possible corruption of the internal set Software settings for the respective designated flowmeter measuring a particular chemical. As a safety precaution the module unit cannot be used until the issue is attended to.

When the ‘Settings Lost’ has triggered the DCPM channel: to use the channel the handheld programmer must be used to wake the unit to re-engage operation and re-enter previous recorded parameter settings. As a safety feature the module’s software parameter settings will automatically reset back to the “default program settings.”

The operator must then re-enter all parameters to match the flowmeter input pulses, match the output pulse values to the computer input.

Then take a calibration check to see all values correspond. **Volume collected and ME2008 display and Computer screen must all match.**

WARNING: Default is for MES20 20mm size flowmeters 1000 pulses / litre. Always check the flowmeter type (refer to label)

e.g. for MES32 32mm 267 pulses / litre... input = 267ppl, CMM25 25mm 100ppl to be entered into K-Factor.

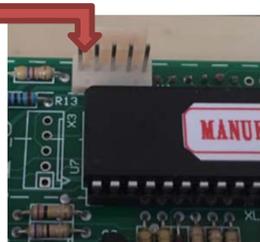


Comment:

The ME2000 / 2008 is batch safety management interface card that provides a high level of safety features to monitor the incoming pulse signals of the admixture chemical flowmeters that feed the respective batch plant PLC/computer systems. There are over 1900+ units in daily operation around the world, the ‘Settings Lost’ event is a very rare occurrence.

Findings / Repair: We suggest if the event occurs again that a dedicated regulated +24VDC power supply Module of regulated Voltage type of 120W+ be fitted to power the unit. (Details supplied on request). Also, then consider the external contactors have snubbers fitted to further prevent this issues at this plant. This action only to be suggested if a the settings lost re-appears.

Or short
the 2 pins
as shown



To re-enable the module showing “settings lost”, proceed as follows:

- Plug the hand-held Programmer into the Dual Channel Module;
- To restore the default settings (which are input calibration 1000 pulses/Litre, divided pulse output 10mls/pulse), push 2 buttons simultaneously on the Programmer, being either the 2 arrow buttons or the DOWN and UP buttons;
- Re-enter parameters (via the Programmer) and refer to program sheet settings.

ME2008 – “missing/failed OPTO” -Detail



Question: “What if the pulse output OPTO on ME2000/08 is missing or not working ?

Result : The ME2008’s output pulse visual red LED will not light (flash) or not work. When operating, each flash of the LED represents the divided pulse output transmitting to the PLC/Computers respective input channel for the chemical product.



The Computer Screen will then not be receiving pulses and the screen will not be counting for that particular channel. Therefore the batch recipe cannot complete for that designated load.



As a consequence the Computer/PLC output RUN drive to the ME2008 will stay on, hence the ME2008’s drive to the contactor will stay on until the following:-

- A) The PLC receives its desired number of pulses to reach batch target. **or**
- B) The computer’s internal fail safe system for missing pulses triggers (if there is one, but reported as 5 seconds after no pulses)).
- C) The ME2008 reaches its internal selectable set Maximum Dose batch safety limit –where it then override the drive from the PLC and shuts drive to Contactor/pump regardless of any external command. (this function will override points A or B).

Awareness:

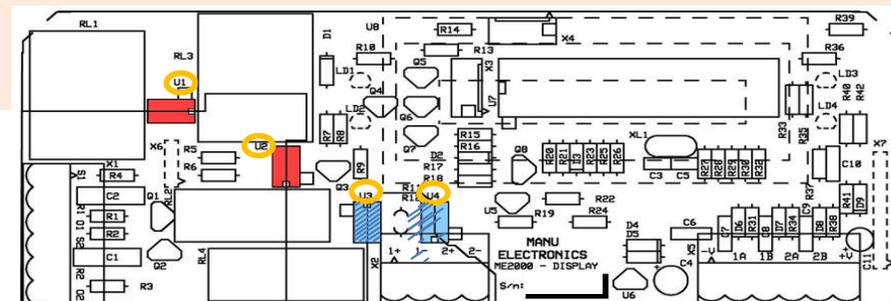
The regular batch operator or site service personnel would quickly notice the issue within the first few attempted batches.

Comment:

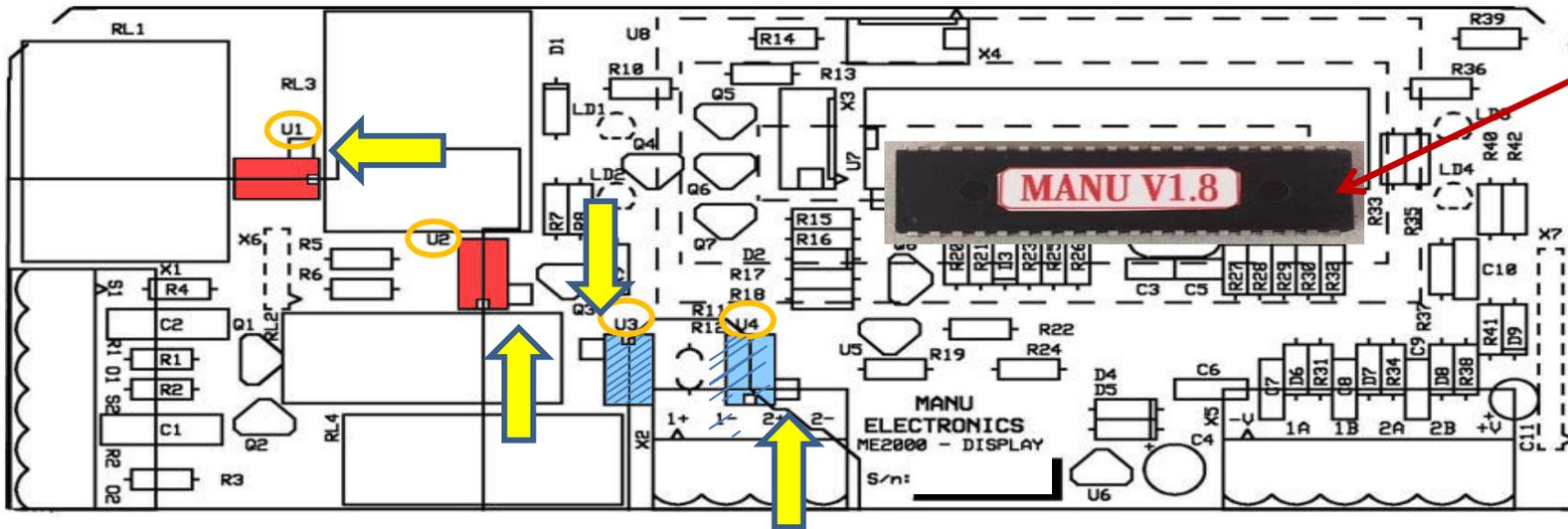
The ME2000 / 2008 is batch safety management interface card that provides a high level of safety features to monitor the incoming signals of the admixture chemical flowmeters which then monitors and transmits the out going pulse signals that feed the batch plant PLC/computer system inputs.

QA:

All ME2000/08 new or reconditioned units that leave the ManuFlo production facility at Brookvale are fully QA tested with a procedure and testing sheet with serial numbers recorded.

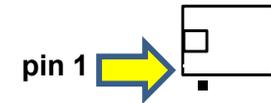


ME2008 – replacing/converting Pulse output from AC to DC



DCPM software chip
 Can be upgraded by removing from IC socket.
 Gently with a flat blade pry out slightly each end repeatedly until it comes away from the socket –Note: polarity

Note polarity on ICs



- For 24-240 VAC pulse output: insert MOC3043 ICs into U1 and U2 (remove U3,U4 IC's) (white color only)
- For 5-30 VDC pulse output: insert 4N33 ICs into U3 and U4 (remove U1,U2 IC's) (careful as white or black color)

ME2008 – Disabling manual push button pumps starts

Warning:
 Turn off power.
 Live 240vac at rear where applicable.



To disable the front manual batch push buttons, remove (with pliers) link (jumper) LK1 located on motherboard near the Alarm buzzer & Capacitor rear bottom of PCB. This will avoid misuse of manual starts. Plug-in LK1 to re-activate manual batch functions.

ME2008 Troubleshooting - Backflow



In some installations with MES flowmeters, the ME2008 may count without batching being in progress, causing a “Back Flow” alarm.

- 1 Usually, this is due to the Non-Return Valve or Solenoid not closing, thus allowing backflow which results in counts as the liquid runs back thru the flowmeter. Ensure that the Non-Return Valve is clean (spring or flap type) and operating correctly or replace with pneumatic controlled type. The counts will be at a slow rate due to liquid tricking backwards.
- 2 If Non-Return Valve is OK, then ensure that shielded cable is used. If cable is not shielded, then interference may be picked up and transmitted to the ME2008 which will interpret it as backflow.
- 3 If shielding is OK, then possible cause is vibration in plant near MES meters. Install flowmeters away from vibration causes, or anchor meters with rubber mounts. Or tap the grip wings on the flowmeter body to better secure the pulsehead –see page 40.
- 4 If after batch complete and the shut off solenoid valve fails to close, then “backflow” alarm will engage. (lower loading points or syphoning)
- 5 If vibration is still prevalent, then using new **MES-DSP-OC** pulseheads is recommended.
 - The **MES-DSP-OC** pulsehead is marked on the junction box lid (or new hexagonal J-box) - this distinguishes them from the ordinary MES pulseheads.
 - The new **MES-DSP-OC** pulsehead is much less sensitive to vibration, having much higher hysteresis and using latest ManuFlo technology.

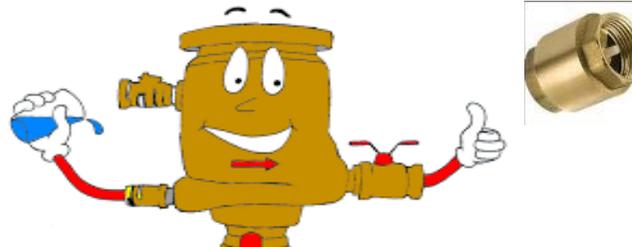
Use NEW : MES20-DSP-OC Special digital smart pulse pulsehead to eliminate any issue.

WARNING:

If the blackflow alarms/counts rapidly and does not stop within 1-2 litres; then in extreme rare circumstances the contactor/pump drive is stuck on, CUT POWER to system (seek rectification).



Wire a neon/globe across coil of suspect contactors



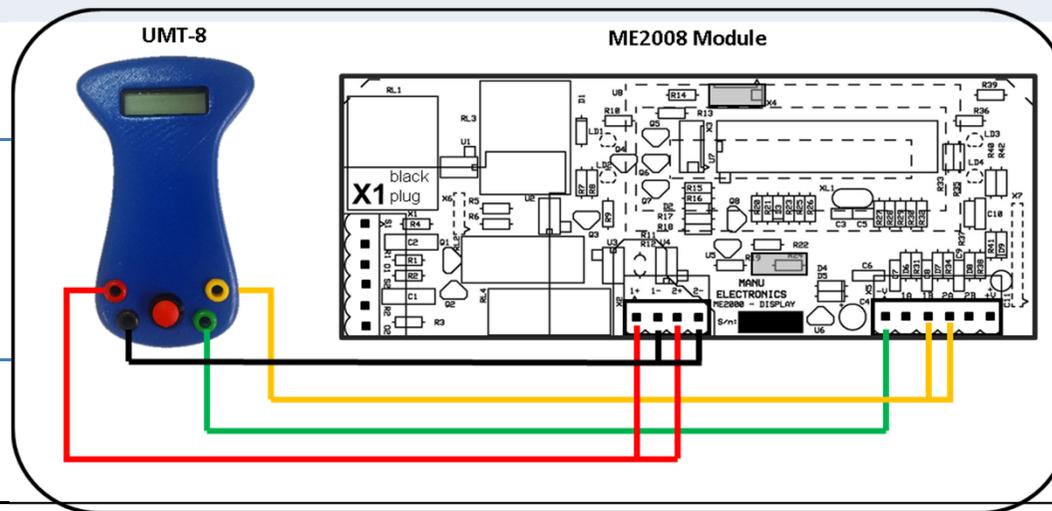
ManuFlo ®™

(c) Manu Electronics 2019

ME2008 Output Over-run explained

<p>Max Out Rate (Hz) 0035</p>	<p>Max Out Rate is the maximum allowed rate of output pulses to the computer. If the maximum is exceeded, then the pump stops and the ME2008 memory sends the extra pulses to the PLC/Computer's DC Optos (under the 35 Hz max. input rate) or low scan rate systems.</p>
	<p>Extra pulses received (above the allowed rate) represent actual extra volume measured by the flowmeter and ME2008, but which would have otherwise not been fully counted by the PLC/Computer system. (This situation is different to actual "inflight overflow", where a DEDUCT value must be programmed in the computer system to stop the pump earlier).</p>
<p>Industrial Grade Input OPTO's count speed:</p> <p>DC White Optos : 35Hz</p> <p>AC Black Optos: 15Hz</p> <p>• (MENU 14). Push Select:</p>	<p>IMPORTANT: PLC/Computers with White Opto DC inputs have a pulse input frequency limit of 35 Hz, so for the ME2008 to protect such systems and prevent overdose, set values in the ME2008:</p> <ul style="list-style-type: none"> * MAX OUT RATE to 35Hz or less; and * OUTPUT (LITRES/PULSE) to a value so that, at your maximum operating flowrate, pulses to PLC/Computer input will not exceed 35Hz <p>e.g. If your maximum operating flowrate is 40 Litres/minute (Max Flow = 0.67 l/s) and pulse output is 20 mls/pulse (Output=00.020 l/p), the ME2008 will output 33.3 pulses/second (i.e. < 35Hz) to the PLC/Computer when flow is 40 Litres/minute.</p> <p>Output Rate (Hz) = Maximum flowrate (l/s) / Pulse output (l/p)</p> <p>Is a pulse data storage buffer to Capture all pulses (= volume).</p>

UMT8 tester for testing of ME2000/08 DCPM modules DC Inputs & outputs



ME2008 Low and High Flow Limits

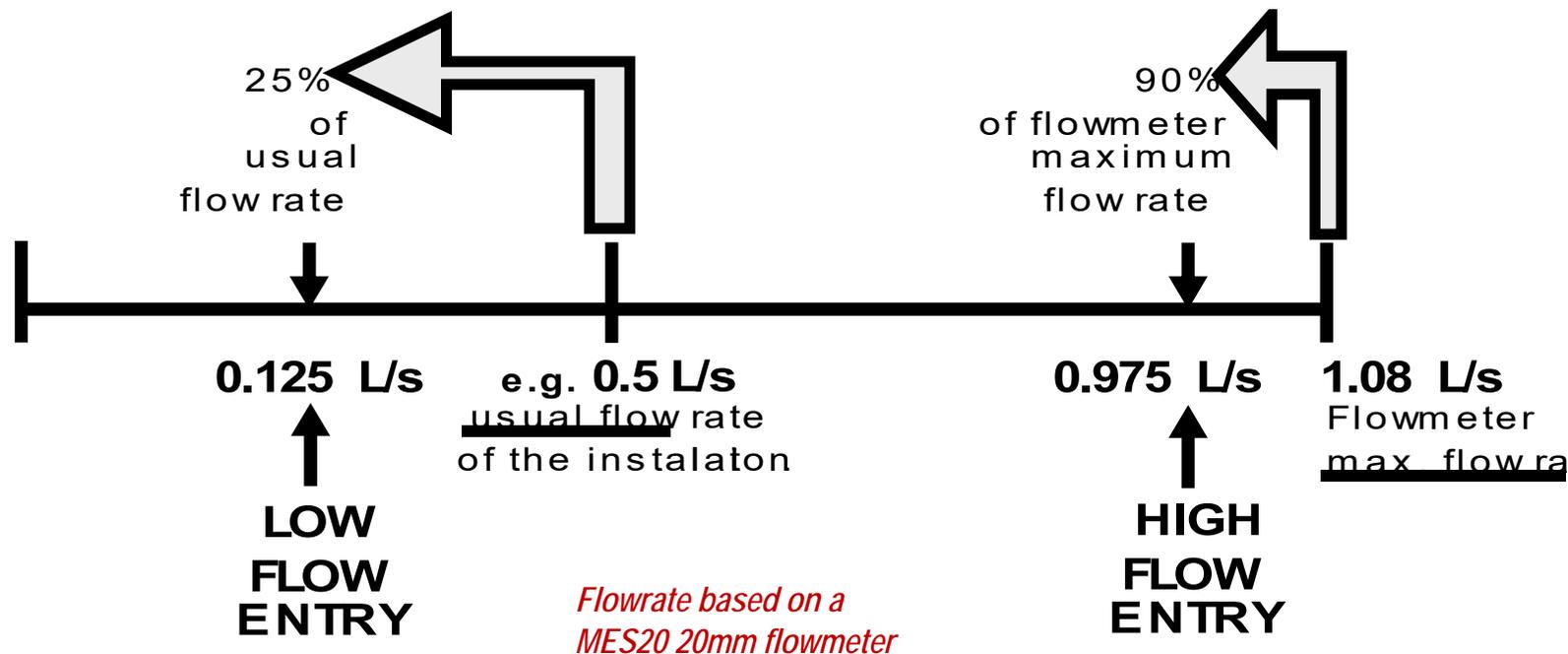


Program Setting in the ME2008

To improve the ability of the ME2008 to detect a problem should a batch error occur due to measurement malfunction, the **settings for Low and High Flow must give a narrow operating window**, especially with mechanical flowmeters. ME2008s are programmed according to the conditions of each plant e.g. according to flowrates and maximum batch quantities.

On each channel of the ME2008:

- the **Low Flow** setting must be set at **25% of the usual flow rate** of that channel; and
 - the **High Flow** setting must be set at **90% of the specified maximum flowrate** of the flowmeter on that channel.
- Also, the **pump start period** should be programmed to atleast 2 seconds according to how quick the flow stabilizes.

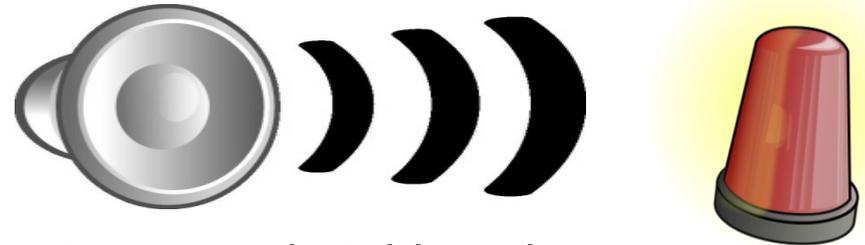


ME2008 – On Alarm condition



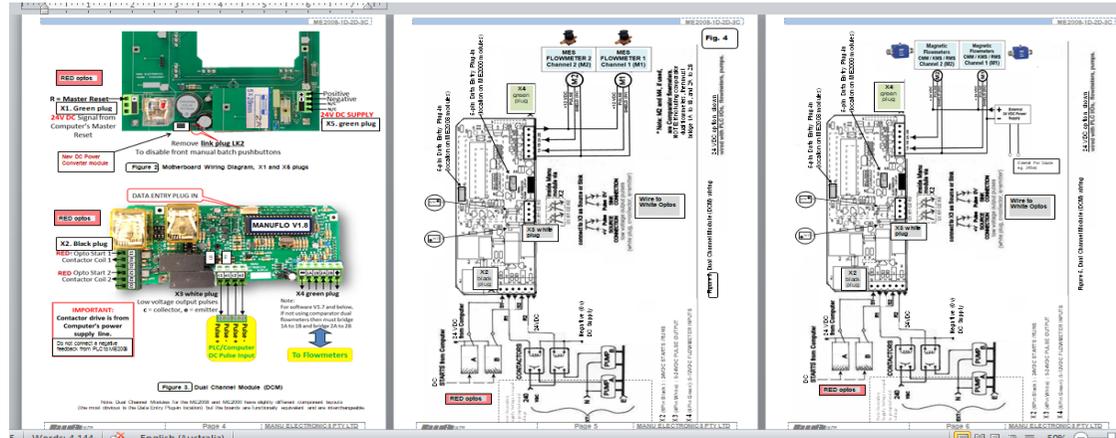
ALARMS

- If any of the safety features are triggered, the relevant alarm will come on.
- The Display will indicate status of the channel that is in alarm condition, in which case, as a precaution the ME2008 will shut down pump drive of the faulty channel only, allowing for further examination of the problem.
- If the alarm comes on, DO NOT push RESET immediately - observe display and take note of the batch readings and the alarm message.
- WAIT for other channels to complete batch, then push RESET to be ready for the next batch.
- If batcher gets Low Flow Alarm on two successive attempts at batching, then:
 - MOVE THE TRUCK MIXER AWAY FROM THE LOADING POINT
 - stop using that chemical channel; as each attempt doses 2 seconds worth of chemical into the mix.
 - record the quantity displayed on the ME2008 and the batch computer; and
 - ring your local admixture supplier or service agent for advise/service (or attempt to address).



ME2008

Wiring of Flowmeters (Refer to ME2008 product datasheet)



<http://www.manuelectronics.com.au/pdfs/Me2008-1d-2d-3c.pdf>

Install Guides (Refer to ME2008 system datasheet)

http://www.manuelectronics.com.au/pdfs/Admix_Batching_System-ME2008.pdf

Admixture Discharge Lines and Sequencing (Refer to info sheet)



<http://www.manuelectronics.com.au/pdfs/Admix-Discharge.pdf>

Go to
the
Website
links



ME2000/08 calibration adjustment guide



A **volumetric calibration test** is performed when commissioning a new installation and periodic follow-up tests.

- To calibrate a vessel is placed near the sock or by-pass port, a selected batch quantity is either;
 - a) set on computer and batched or
 - b) can be manually batched by push & holding the manual batch over-ride pump drive button.

Now compare volume displayed on ME2008 Display and that collected.

If incorrect check flowmeter specification pulse output value which must match the input Pulses per Litre (PPL).

e.g. MES20 =1000ppl so **Input p/L** K-factor must be same 1000.00 p/L {on pg.131 (menu:4)}.

Then divided output pulse value Output L/p e.g. 00.100 must match the computer input pulse value = 100mls/p.

Final Calibration:

- If the liquid collected is **more** than pulse value shown on computer screen or volumetric amount on display, then **decrease** the calibration input set value (K-factor) by the same % difference
- If the liquid collected is **less** than pulse value shown on computer screen or volumetric amount on display, 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.*

Always perform a calibration check of the flowmeter vs volume vs display after any service.

Possible Reasons for Less fluid collected than indicated:-

Fluid back flow due to faulty non-return valve.

Input K-factor set too low. Faulty Flowmeter so replace it.

Possible reasons for More fluid collected than indicated:-

Input K-factor set too high. Output Pls & PLC input not matching.

Flowmeter chamber worn, or parts missing, change flowmeter.



Take a few volumetric test volumes of say 0.25, 0.5, 1.0 or 2.0 Litres.

The percentage difference should be repeatability the same.

If so its is a digital error –the settings, if not then it is analogue error –the install/meter.



ME2000/08 Final Commission / service procedures

When commissioning the plant it is imperative that the settings be entered and recorded on the below programming data form. Flowmeter model type/size/ and K-Factor (input pulses per litre :PPL) and pulse output settings to computer/PLC are most important. Then 1 copy be placed inside the ME2008 unit and copy entered into your company database for future referencing. Any flowmeter other than a MES20 20mm 1000ppl when used, place a sticker on the front panel of the ME2008 to warn of the different K-Factor (e.g. MES32 267ppl). **Incorrect value for PPL will cause over or under dose of chemical.**

When any servicing is then later performed avoids any issues.

ALWAYS perform a volumetric calibration check before leaving plant. Volume Collected = ME2008 display = Computer Screen (+/-5%)

ME2008 PROGRAMMING DATA

Client Name		Date	
Order Code		Invoice #	

Serial Numbers				
Mainboard	DCPM 1	DCPM 2	DCPM 3	DCPM 4

Program Setting	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Flowmeter Model								
Input Pulses per Litre								
Output Litres per Pulse								
Min Flow Litres/Sec								
Max Flow Litres/Sec								
Dose Limit								
Max Backflow (Litres)								
Comparator Difference								
Start Delay (Sec)								
Stop Delay (Sec)								
Differential Channels								
Max Output Rate (Hz)								

Concrete batch Plant Site Details:-



UIC water cards powered from ME2000/08

TECHNICAL BULLETIN rev.1

ME2000 / ME2008 - WARNING

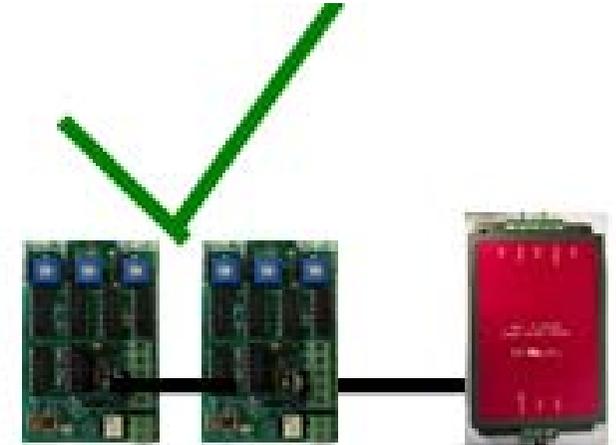
ManuFlo has become aware of the following **issues** in field use of equipment;

- ✗ No ancillary equipment being installed within the ME2000/ME2008 dedicated enclosure.
- ✗ No Universal Interface Cards (used for the water flowmeters) be installed within the housing enclosure.
- ✗ The ME2000/ME2008's dedicated +12VDC output power supply must only be used for powering the MES admixture pulse flowmeters (not other any other devices).
- ✗ Using the internal +12VDC power supply to power Universal Interface Cards (UIC and its RPFS-P flowmeters) will eventually cause overload of the (older style) PCB mounted voltage regulators causing them malfunction, breakdown and cause possible damage to the units.

ManuFlo now recommends Universal interface cards must now be installed externally of the ME2000/08 enclosure and further must be powered by their own dedicated external regulated power supply of normally +12VDC or +24VDC depending on the model type. (UIC's could also malfunction due to insufficient regulated pwr).

Further, having UIC cards within enclosure makes future access difficult and potentially dangerous for water callibrators.

Installations with UIC cards installed internally should eventually be re-positioned externally.



UIC cards wired with independent external regulated Power supply



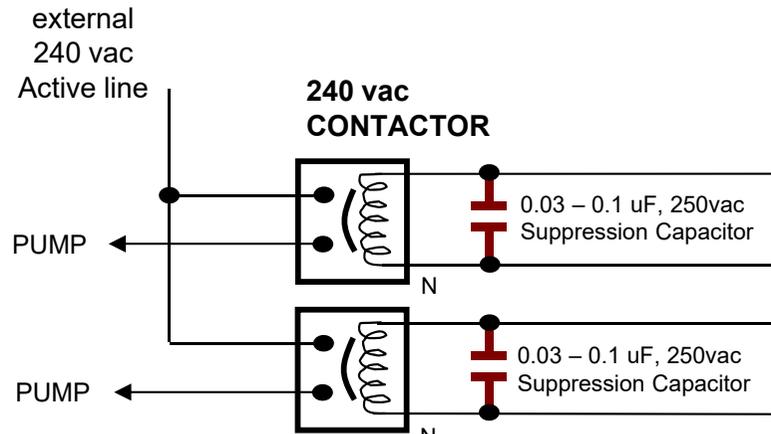
UIC cards wired with internally from ME2008 DC power is not recommended

- Computer may have leaky Optos. On computer batching system, the installing electricians:
 - ❑ must measure, on the batching computer, the leakage voltage (when a batch is NOT in progress) **between each black Opto's start 240v Active and Neutral.**
 - ❑ If the leakage > 50 volts ac, then **resistor** (about 12 K Ω to 15 K Ω , 10 Watt) must be installed to each Opto on the batching computer to drain the leakage to Neutral.

Otherwise, a relay activated by 240 vac could still be held on by 90-110 vac leakage and, consequently, pumping will not stop until the maximum batch limit (as set on Batch Controller or ME2000) is reached, and **an overdose of admixture will occur.**

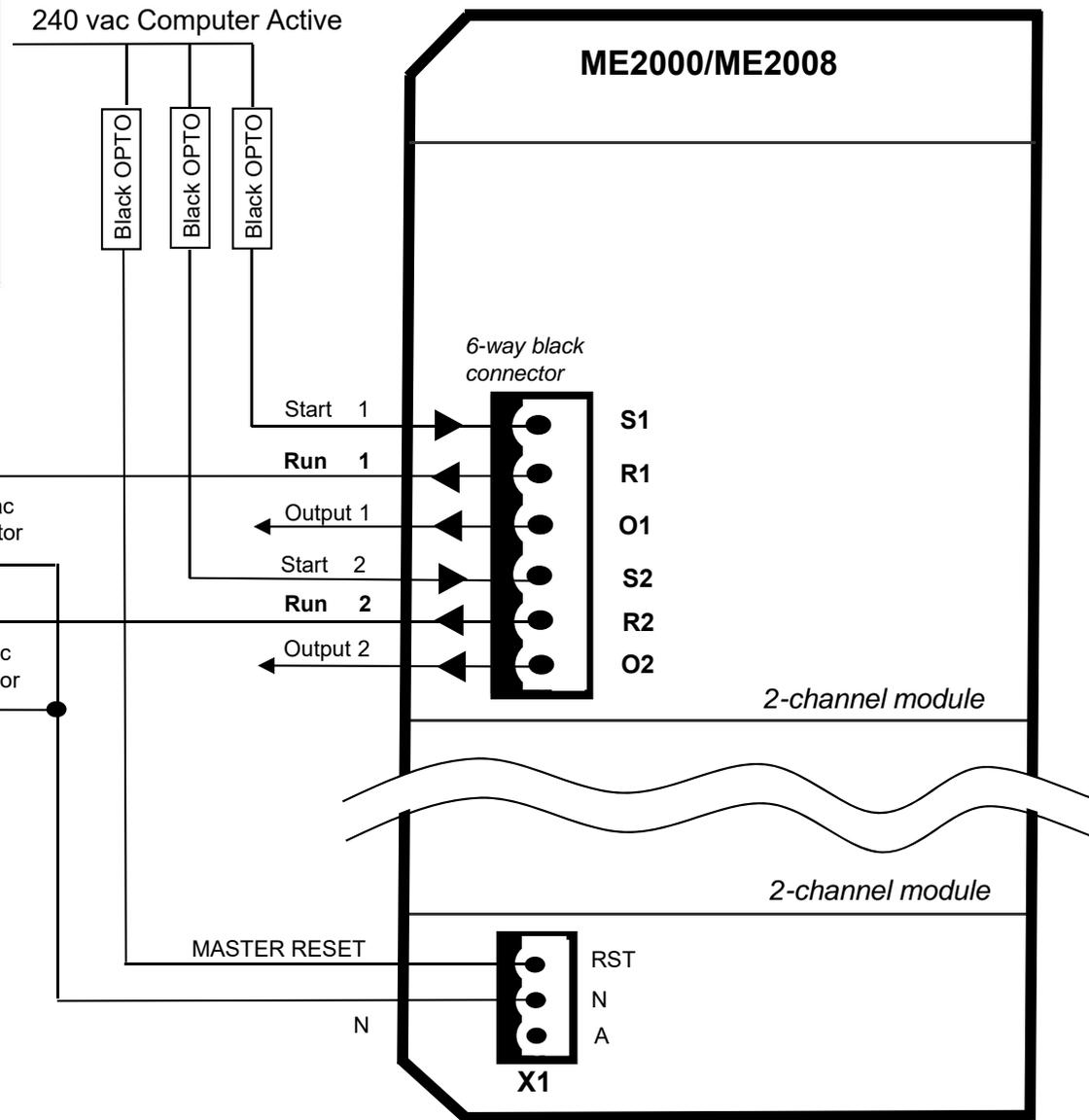


Wire a neon/globe across coil of suspect contactors



For each contactor, fit a Suppression Capacitor across the contactor coil

For 240 vac I/O versions of ME2000/ME2008, as a precaution against excessive industrial noise, Suppression Capacitors are supplied, **to be fitted by the customer** across the coil of each contactor in the field.



INDUSTRY BULLETIN 14/1

Benefit:	Detection of pumping air via PD pumps.
Product:	ME2008, Microprocessor Interface Controller Safety Card
Feature:	Batching computer, ME2008 settings, batching procedure.
Date:	25 th August 2014



To safeguard against possible pumping and recording of air if admixture chemical storage tanks run out (empty) and positive displacement pumps push air through MES pulse flowmeters causing false counting of air miss-interpreted as liquid chemical;

(1) Field Report

A majority of admixture dispensing installations in premix concrete plants are using centrifuge pumps. These type of pumps do not pump/push air in significant capacity.

We were advised that a positive displacement pump was installed in an installation with an MES20 positive displacement pulse flowmeter and ME2008 system. The chemical storage tank ran empty of liquid and the pump continued to push air through the MES flowmeter. The flowmeter continued to transmit pulses to the ME2008. The system interpreted this as liquid whereas it was air, causing under dose of liquid.

(2) ManuFlo factory test

The same installation and equipment conditions were setup at ManuFlo. We found that pumping air registration occurs in a fluctuating manner from 0.06 to 0.340 litres/sec. (60 to 340 millilitres/sec).

(3) Recommendation Setting for the ME2000 / ME2008

To improve the ability of the ME2000/08 to detect a problem if tanks empty and a positive displacement pump pushes air and the MES flowmeter transmits pulses, the **settings for Low Flow {menu:6 of the display screen [min.flow (l/s)] } should be set to 000.100** , this equates to 0.1 litres/sec, or 100mls/sec or 6 litres/min. The value is changed via the hand held programmer.

As general guide, to fully utilize the safety management system of the ME2000/08:

- the **Low Flow** setting should be set at **20%* of the usual flow rate (or 000.100 which ever is the greater)* of that channel**; and
- the **High Flow** setting should be set at **90% of the specified operational maximum flowrate** of the flowmeter on that channel.

(4) When Batching

Or use KMS
Magflows
With empty pipe
detection

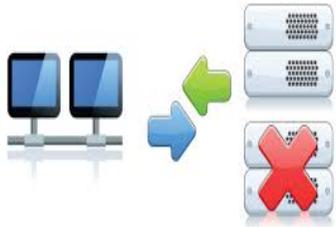


MOST IMPORTANT

If a batcher gets a Low Flow Alarm on two successive attempts at batching, then the batcher must:

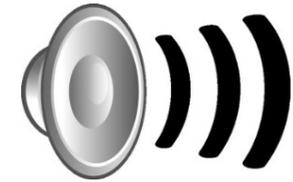
- stop using that channel; and
- record the quantity displayed on the ME2000/08 and the batch computer; and
- ring your local admixture supplier or ManuFlo for service.

Note: ManuFlo has an advanced training course available for relevant personnel.



INDUSTRY BULLETIN 16/8

Benefit:	DETECTION AND RECORDING OVER BATCHES
Product:	ME2008 /ME2000, Microprocessor Interface Controller Safety Card
Feature:	Batching computer with ME2008 over-batch DOSE-LIMIT alarm.
Date:	4 th August 2016



The following is an explanation of the functionality of the ME2008/ME2000 logic in conjunction with the PLC/computer system during an over-batch “**Over Dose**” alarm being triggered due to:

- ✓ Malfunction of PLC/computer START Opto drive (seized ON-state).
- ✓ Oversized recipe or quantity request of the PLC/computer software batch load operator.
- (PLC/Computer Set Quantity \geq ME2008/ME2000 Set “Dose Limit” Quantity)

THE SEQUENCE & LOGIC OF THE SAFETY SYSTEM SCENARIOS EXPLAINED:

- I. The PLC/Computer provides a continuous START drive from its Opto’s to the ME2008.
- II. The ME2008 then provides a continuous RUN drive to the external contactor/solenoid to start the flow of admixture/liquid.
- III. The ME2008 allows 2 seconds (adjustable “Start Delay”) for pulse signals from flowmeters to arrive.
- IV. The ME2008 software now counts then totalise the incoming pulses received and continuously monitor (watchdog safety mode) if no safety setting is being breach (e.g Minimum/Maximum Flow, **Dose Limit** and Max Out Rate settings).
- V. Once the computer has received its desired pulse target quantity the START drive dis-engages and the ME2008 RUN drive dis-engage also at the same time.
- VI. A MASTER RESET command from the PLC/computer will then reset the ME2008 totalisers and ready for the next batch.

Scene 1: Malfunction of PLC/computer START Opto drive

If the PLC/computer START Opto drive is stuck-on then the ME2008 will count continuously to the **Dose Limit** setting and will continue to record and send the incoming pulses from the flowmeter on the ME2008 display to the PLC/computer.

MASTER RESET command will be received by the ME2008 totalisers if the set batch quantity has been met by the PLC/Computer, at this point if the PLC/computer channel inputs close off, it may or may not be live to register further incoming pulses (software dependent), the ME2008 will not accept any RESET command while the START and RUN drive is still active due to START Opto drive malfunction so the total count will not be reset and will continue to transmit pulses to the computer until the Dose Limit quantity is reached and “Over Dose” alarm safety and function will be activated.

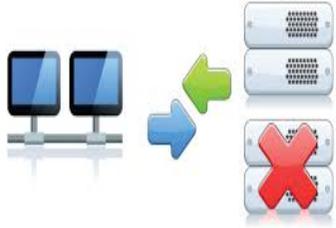
Scene 2: Oversized recipe or quantity request of the PLC/computer software batch load operator.

If the PLC/Computer Set Quantity is equal or more than the ME2008 Set “Dose Limit” Quantity, then the PLC/computer will provide a continuous START drive to the ME2008 until a desired pulse target quantity is achieved but the ME2008 is also continuously monitoring the total quantity being delivered and must not reach the Dose Limit amount setting otherwise “Over Dose” alarm safety and function will be activated.

Note: No MASTER RESET command will be received by the ME2008 totalisers if the batch size has not been met by the PLC/Computer.

Alarm safety and function: “Over Dose”

If “Over Dose” alarm is activated, the ME2008 will override the PLC/computer START drive and disengage the RUN drive to the contactor/solenoids to stop the flow and avoid over dosing of admixture/liquid, and at the same time will raise a visual and audible “Over Dose” Alarm to notify the operator.



INDUSTRY BULLETIN 16/12

CASE:	Over-dose Alarm/Batch count accumulation Troubleshooting
Product:	ME2008 /ME2000, Microprocessor Interface Controller Safety Card
Feature:	Batching computer/PLC with ME2008/2000 intermittent master reset issue and batch count accumulation resulting to Over-dose Alarm (one or more channels only but not all channels)
Date:	14 th December 2016



The following is an explanation of the functionality of the ME2008/ME2000 logic in conjunction with the PLC/computer system during batching and resetting of batch count to zero.

THE SEQUENCE & LOGIC OF THE SAFETY SYSTEM SCENARIOS EXPLAINED:

- I. The PLC/Computer provides a continuous START drive from its Opto's to the ME2008.
- II. The ME2008 then provides a continuous RUN drive to the external contactor/solenoid to start the flow of admixture/liquid.
- III. The ME2008 allows 2 seconds (adjustable "Start Delay") for pulse signals from flowmeters to arrive.
- IV. The ME2008 software now counts then totalizes the incoming pulses received and continuously monitors (watchdog safety mode) that no safety setting is being breached (e.g Minimum/Maximum Flow, **Dose Limit** and Max Out Rate settings).
- V. Once the computer has received its desired pulse target quantity the START drive dis-engages and the ME2008 RUN drive dis-engage also at the same time.
- VI. A MASTER RESET command from the PLC/computer will then reset the ME2008 totalizers and ready for the next batch.

Programming the Computers PLC: Avoiding accumulation of batch count or Over-dose Alarm due to PLC/Computer MASTER RESET timing issue and conflict with START drives;

PLC Master Reset option Logic 1: MASTER RESET is applied after each batch.

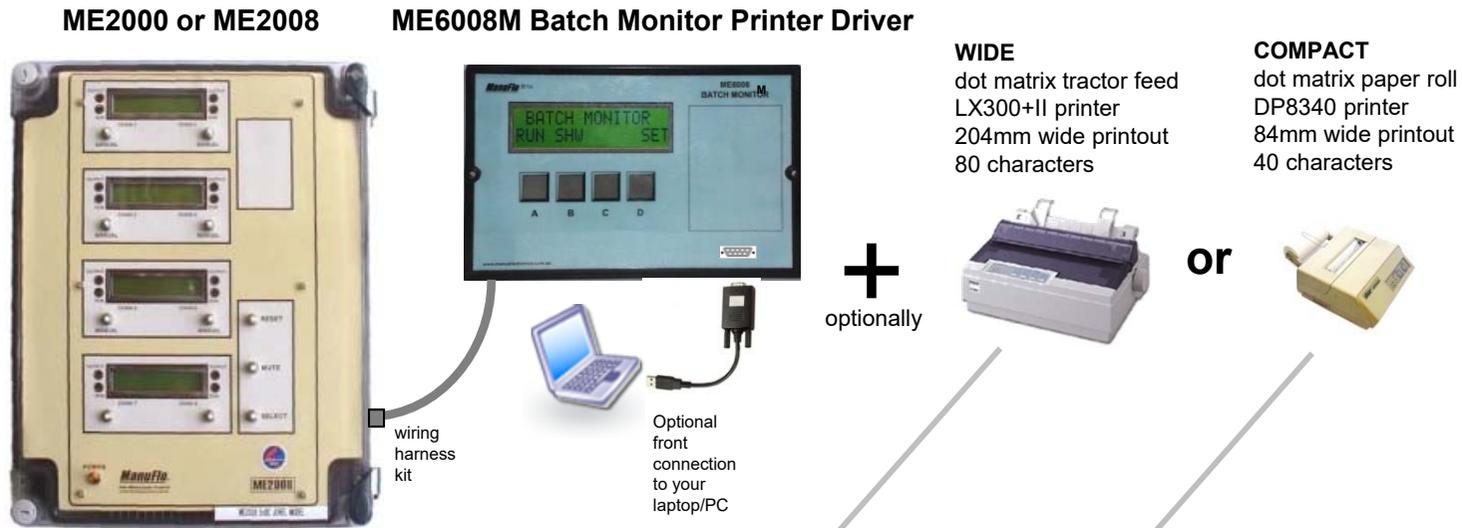
After each batch, make sure that all the channels have already completed batching (START drives all dis-engage) **then program the PLC to wait for at least two seconds gap** before applying at least a one second duration RESET signal to the ME2008/2000 MASTER RESET RELAY.

PLC Master Reset option Logic 2: MASTER RESET is applied before the next batch.

Before the next batch commences, apply at least one second duration RESET signal to the ME2000/2008 MASTER RESET RELAY to reset counts from the previous batch, **then program the PLC to wait for at least two seconds** before START drive is applied on any channels.

Note: If any RESET signal is applied too soon or at the same time with START drive, then any channels that are batching (START drive active) will ignore any reset signal and the total count will not be reset to zero, this count will be accumulated on the next batch and will trigger an "Over-dose" alarm if the previous accumulated batch total reaches the programmed Over-Dose settings in the ME20008. Channels that already finished batching (START drive dis-engage/inactive) will acknowledge any reset command and the total count will be reset to zero.

Upgrade your ME2008 to add Batch Log/Print capability!



DATE	TIME	CH:1	CH:2	CH:3	CH:4	CH:5	CH:6	CH:7	CH:8
		L	L	mL	mL	mL	mL	L	L
B-0001	20-06-11 10:34	000000	000349	000000	000000	000000	000000	000000	000000
B-0002	20-06-11 10:34	000000	000000	000450	000000	000000	000000	000000	000000
B-0003	20-06-11 10:35	000250	000000	000000	000000	000000	000000	000000	000000
B-0004	20-06-11 10:36	000000	000620	000000	000000	000000	000000	000000	000000

BATCH No	DATE	TIME	CH - 4
CH - 1 CH - 5	CH - 2 CH - 6	CH - 3 CH - 7	CH - 8
B - 00001	21 - 03 - 11	10 : 48	
000010 mL	000005 L	000000 mL	000000 mL
000010 L	000090 mL	000000 L	000000 mL
B - 00002	21 - 03 - 11	10 : 49	
000070 mL	000002 L	000080 mL	000000 L
000004 L	000080 mL	000004 L	000000 mL



Provides multi-channel batch log/printout for ME2000/ME2008 units in batch plants, providing an independent batch record.

WH10 Installation of ME2008 to ME6008M-FP Upgrade

Components

• 1x Wiring harness for ME2008, comprising:

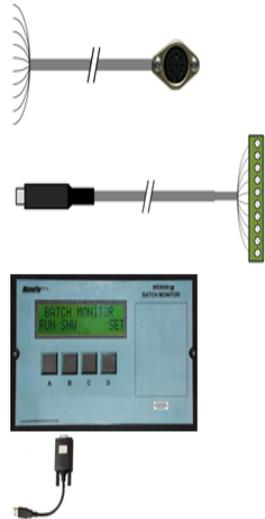
• ME2008 internal connection wiring harness

• ME2008 to ME6008M wiring harness

• 1x ME6008M-FP, comprising:

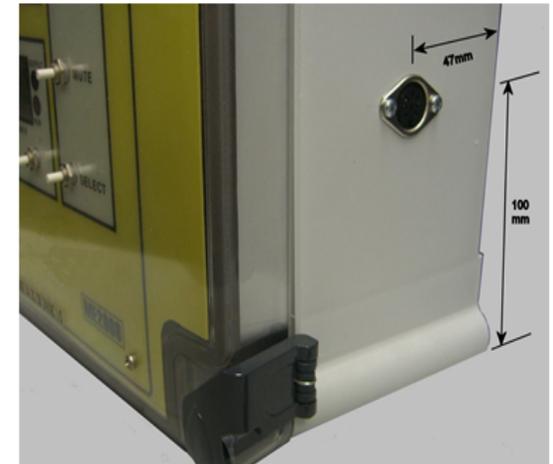
• Batch Monitor Printer Driver Unit

• RS232 to USB adapter cable



ME2008

(a) In the right side of the ME2008 housing box, drill a 15mm diameter hole, whose centre is 100mm from the bottom of box, and 47mm from the back.



From outside the ME2008, thread the **ME2008 internal connection** wiring harness through the hole and into the ME2008, until the socket sits flush with the outside of the ME2008..

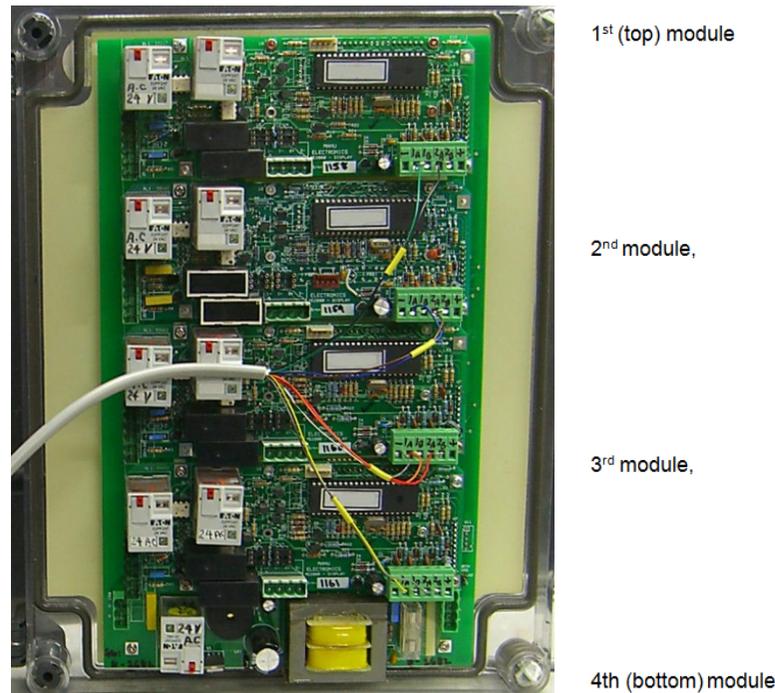


Using the socket as a template, drill two 1/32" holes on either side of the hole, and then use two 1/4" self tapping screws to affix the socket to the ME2008.



- (b) Inside the ME2008, connect the pulse cables of the **ME2008 internal connection** wiring harness to the corresponding pulse inputs on the plugs marked 'X5' on the two-channel modules in the ME2008 (thereby paralleling any existing inputs from flowmeters). The colour code is:

Green	Channel 1	1 st (top)	module	X5 plug, pin 1A
Black	Channel 2	1 st (top)	module	X5 plug, pin 2A
Blue	Channel 3	2 nd	module,	X5 plug, pin 1A
Brown	Channel 4	2 nd	module,	X5 plug, pin 2A
Orange	Channel 5	3 rd	module,	X5 plug, pin 1A
Red	Channel 6	3 rd	module,	X5 plug, pin 2A
Yellow	Channel 7	4 th (bottom)	module,	X5 plug, pin 1A
Grey	Channel 8	4 th (bottom)	module,	X5 plug, pin 2A
Shield (0v)		any module		X5 plug, pin '-'



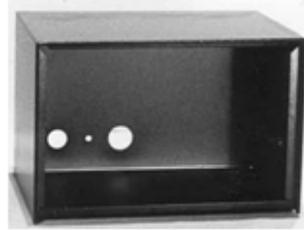
Note: if the ME2008 is not fully populated with dual-channel modules, then any unused harness wires must be taped up to avoid causing random contacts or short circuits.

ME6008M

- Position ME6008M-FP in a location that allows easy access and viewing.
- If panel mounting the ME6008M, create a 190mm long and 122mm high cutout in the panel. Otherwise, use a ManuFlo SHB Single Housing box for remote mounting.



ME6008M-FP



SHB
Single Housing Box

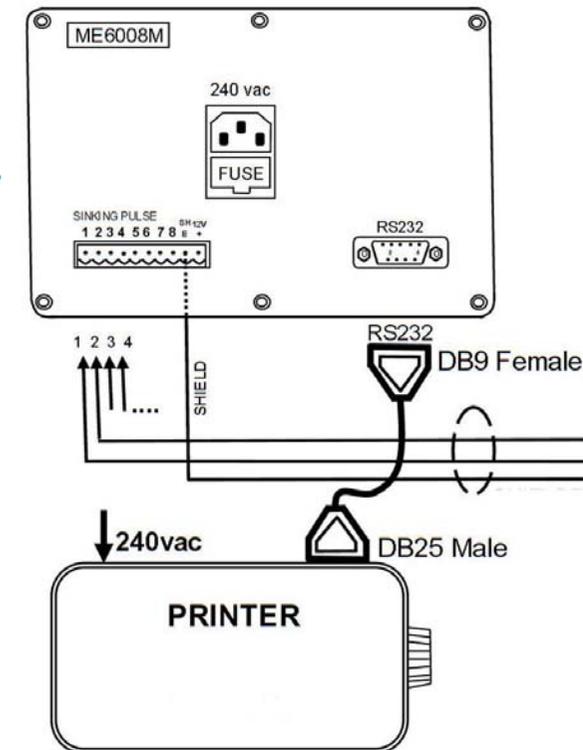
- Plug the ME2008 to ME6008M wiring harness into the ME2008 socket.



- Plug the 10-way plug of the ME2008 to ME6008M wiring harness into the 10-way socket on the back of the ME6008M, thus connecting channels 1 to 8, and the shield.
- Connect 240 vac to the rear of the ME6008M via the IDC power plug.
- Program the ME6008M according to its datasheet (see <http://www.manuelectronics.com.au/pdfs/ME6008M.pdf>) and the parameters of the flowmeter of each channel e.g. the pulses/Litre for each channel (according to the programme in the ME2008).

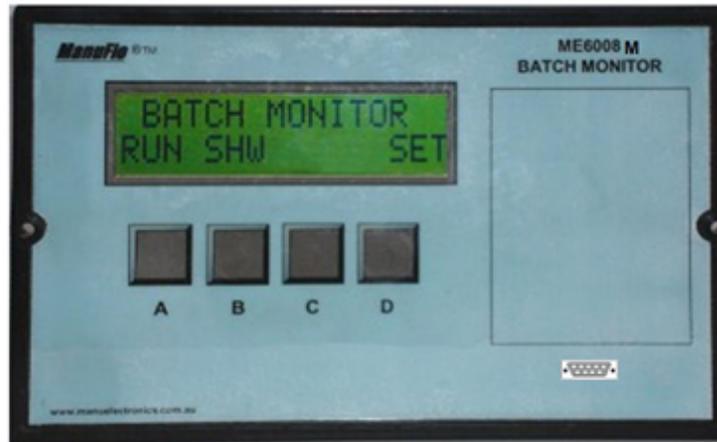
Printer (if used with ME6008M)

- Plug a communications cross-over cable from the RS232 port at the rear of the ME6008M to the printer.
- Test a download of the log from the ME6008M to the PC (see ME6008M datasheet <http://www.manuelectronics.com.au/pdfs/ME6008M.pdf> on how download the log).



PC/Laptop (if used with ME6008M)

- Connect the **RS232 to USB adapter cable** from the front RS232 port on the ME6008M to the USB port of your PC/Laptop.



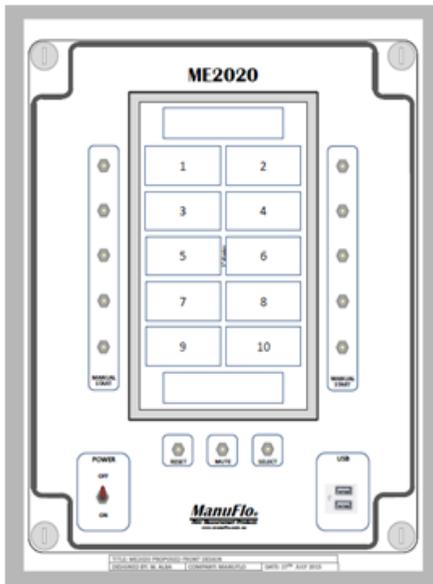
- Configure the HyperTerminal software in your PC/Laptop (see section 10.5 in the ME3000 User Manual http://www.manuelectronics.com.au/pdfs/ME3000_uman.pdf for how to configure Hyperterminal).

Note: HyperTerminal was provided with Windows operating systems up to and including Windows XP, but is not provided in Windows Vista or Windows 7. However, it can be downloaded from the Internet e.g. http://download.cnet.com/HyperTerminal-Private-Edition/3000-2155_4-10966768.html

- Test a download of the log from the ME6008M to the PC (see ME6008M datasheet <http://www.manuelectronics.com.au/pdfs/ME6008M.pdf> on how download the log).

Under Development

ME2008 IoT/Bluetooth/GMS/log smart Motherboard with software patch –V2.2 (release date 2022)



smart
thinking

