

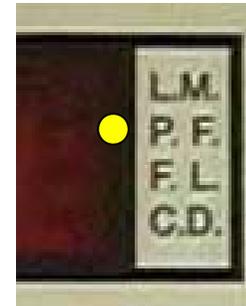
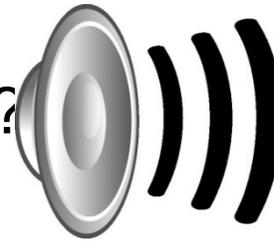


Batch Controllers – Troubleshooting

IMPORTANT

Questions to ask the batcher upon a batching problem

- Which LEDs are on?
- Describe what faults are evident?



- If batcher gets Low Flow Alarm on two successive attempts at batching, then:
MOVE THE TRUCK MIXER AWAY FROM THE LOADING POINT
stop using the Controller; as each attempt doses 2 seconds worth of chemical into the mix.
record the quantity displayed on the ME995; and
ring your local admixture supplier or service agent for advise/service (or attempt to address the problem)



THIS WARNING GUIDE SHOULD BE DISPLAYED AT PREMIX PLANT FOR THE BATCHER / OPERATOR !!

Batch Controllers – Safeguards



ME995 BATCHING DISPENSER IN CASE OF ALARM WARNING:-

- If any of the safety features are triggered, the alarm will sound.
 - The LED's warning indicators will illuminate with PF or LM.
 - DO NOT push RESET immediately - observe display and take note of the batch display reading. then push RESET, residual residue quantity required to be batched to complete the load.
 - If batcher gets an Alarm again at batching, then:
 - MOVE THE TRUCK MIXER AWAY FROM THE LOADING POINT
 - stop using the controller, as each attempt doses 2 seconds worth of chemical into the mix.
 - refer to the ManuFlo website "technical support ME995" or your contact local admixture supplier for advise/service.
 - LIMIT (LM) LED - illuminates if:
 - batch cycle reaches locked internal maximum limit, or internal fault.
 - PULSE FAIL (PF) LED - activates if:
 - no flowmeter pulses arrive within initial 1.5 seconds (variable), or
 - pulses are interrupted or intermittent during batch cycle (blocked flowmeter, seizing pump, valve closed, cut signal wire).
 - FLOW (FL) LED - indicates pulses coming from field flowmeter.
 - CONTACT DRIVE (CD) LED - output drive activated to pump or solenoid.
- Audible ALARM** sounds:
- momentarily upon completion of batch cycle,
 - continuously if PF or LM occurs LEDs are activated or if overflow runs excessively past selected batch quantity.

Warning: if CONTACT or FLOW LED indicators are on,
but controller is not counting, discontinue use, call for service.



THIS WARNING GUIDE SHOULD
LAMINATED AND BE DISPLAYED
AT PREMIX PLANT FOR THE
BATCHER / OPERATOR !!



Batch Controllers – Troubleshooting

Incorrect Batching from Selected to LED display



1. The selector knob number dials on the Batch Controller may not be aligned correctly, and therefore do not correspond to the rotary switch numeric values.
2. To test, set all numbered dials to the zero position, then press the RESET toggle. The alarm should beep momentarily. This will indicate correct alignment of dials. If alarm does not beep, this indicates incorrect alignment of numbered dials.
 - To rectify, remove the grey-colored cap from each dial, the grip nut is now exposed, un-tighten and the knob grip will release from switch shaft and pull off knob.
 - Check that the exposed switch shaft flat side notch is in horizontal. If not, turn shafts to horizontal as pictured above and refit the numbered dial knob to the zero number setting.
 - For dosage switches, position to zero and push up hold the TEST button. Digits should not count (except in the ME995-3 model). If digits count, then remove grey knob and check the numbered dial alignment –same procedure as above.
3. If batch controller is tested and found to be operating correctly, then proceed to checking and testing flowmeter components.

Batch Controllers – Troubleshooting

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
<ul style="list-style-type: none"> No power to batch controller, displays not on 	<ul style="list-style-type: none"> Blown fuse or fuse holder not tight/broken +12vdc and O.V. shorted No main power supply Broken transformer 	<ul style="list-style-type: none"> Check fuse, tighten fuse holder (at rear of controller) Check wiring, rear of controller & at flowmeters, replace cables. Check power supply, check wiring Return to ManuFlo for repair
<ul style="list-style-type: none"> Pulse fails at start of batch 	<ul style="list-style-type: none"> Air pocket Restriction gate valve closed Empty liquid tank Pump not turning Solenoid valve not opening Seized flowmeter chamber Flowmeter pulsehead faulty Signal cable cut or bad joint Pipes/hoses clogged or air pocket. Buildup coagulated admix at discharge point Seized PUMP due to sticky admix 	<ul style="list-style-type: none"> Prime line by shorting output drive (C=Contact & A=Active) Open gate valve Check liquid level Check and service pump Check and service solenoid valve or non return valve stuck closed . Flush out the flow-line, purge air pocket Service and clean flowmeter chamber, replace if required Replace with new pulsehead, or connections corroded. Check signal cable Hit the PUMP with a Rubber mallet to loosen it, then re-batch. Failing that then strip/clean or change the pump

WARNING: In any pulse-fail or repeat malfunction condition, remove the truck mixer from the sock loading point.

NOTE: In winter, liquid may flow slower causing Pulse Fail. We recommend:

- Opening up the restriction valve **OR**
- Fitting the capacitor to change Batch Controller T1 timing

Flowrate lower than average 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.

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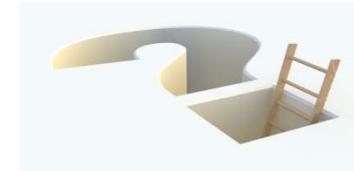
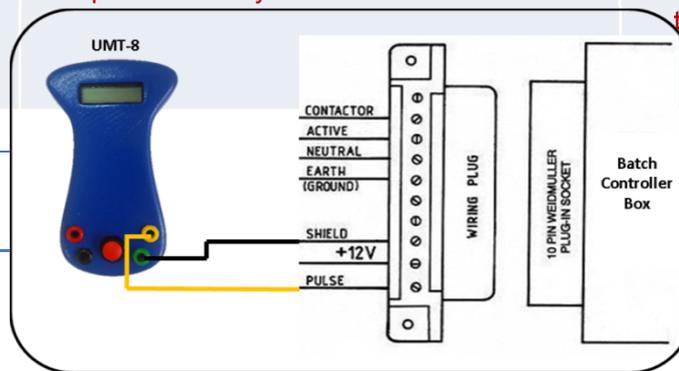
Batch Controllers – Troubleshooting

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
<ul style="list-style-type: none"> ○ Pulse fails during batch cycle 	<ul style="list-style-type: none"> ○ Flowrate too slow ○ Flowrate too fast ○ Blocked filter restricting flow ○ Measuring chamber clutching 	<ul style="list-style-type: none"> ○ Open restriction gate valve or increase flowrate pulse fail timing capacitor (see service guide). ○ Chamber clutching, slow down flowrate via restrictor valve. Check flowmeter specs for performance operating range ○ Cleanout filter ○ Cleanout chamber or replace ○ Clean, service or replace the flowmeter parts
<ul style="list-style-type: none"> ○ Display digits count slowly after batch complete 	<ul style="list-style-type: none"> ○ Non return valve faulty (jammed open) ○ Vibration 	<ul style="list-style-type: none"> ○ Clean, service or replace ○ If Vibration – eliminate or use new MES-DSP-OC Pulseheads.
<ul style="list-style-type: none"> ○ Batch target display counter above batch selection 	<ul style="list-style-type: none"> ○ Flowrate too fast, excessive overflow 	<ul style="list-style-type: none"> ○ Turn down gate valve to restrict flowrate or set preact (overflow deduct) function to compensate (ME995 models –located at rear of unit) ○ Reduce delivery pipe diameter
<ul style="list-style-type: none"> ○ During calibration test, more admix collected than indicated 	<ul style="list-style-type: none"> ○ Flowmeter chamber part missing ○ Chamber excessively worn, liquid is slipping through without registration ○ S.G. below 1.0 ○ MES20 under excessive pressure with AEA slippery admix 	<ul style="list-style-type: none"> ○ Check flow chamber, check O-rings are seated correctly (MEK20/MES20 roller bush or O ring) ○ Replace with new chamber, recheck calibration ○ Replace chamber and restrict flowrate or recalibrate via controller (certain models only) or recalibrate via card ○ Place restriction valve after pump and prior to flowmeter
<p>NOTE: After servicing any flowmeter, always perform a volumetric calibration test. Make sure glands are sealed, pulse cable is lopped downward, and meters are under cover and protected from water ingress.</p>		

Batch Controllers – Troubleshooting

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
<ul style="list-style-type: none"> Less admix collected than displayed 	<ul style="list-style-type: none"> Possible syphoning effect if fed (mixing) into flowing water line Liquid flows backward after batches 	<ul style="list-style-type: none"> Fit ball valve solenoid or do not feed into flowing water line, or check valve Non-return valve faulty, service or replace
<ul style="list-style-type: none"> Controller starts counting when power switched on, does not stop at batch complete 	<ul style="list-style-type: none"> Active and contact power drive short circuited Contactors sticky or fused 	<ul style="list-style-type: none"> Short circuit on PCB, check PCB or replace External pump contractor relay fused or need higher ampere rating, replace contractor
<ul style="list-style-type: none"> Controller not counting but flow and/or contact drive LED's are on 	<ul style="list-style-type: none"> Controller malfunction, IC failure 	<ul style="list-style-type: none"> Replace controller, ring ManuFlo for urgent advice
<ul style="list-style-type: none"> Controller counts although pump off (contact drive LED off) 	<ul style="list-style-type: none"> Dried out main electro capacitor, leads to unstable +12VDC line to circuit. Moisture on PCB –return to ManuFlo dry out clean 	<ul style="list-style-type: none"> Replace electrolytic capacitor (Pre ME995 units)
<ul style="list-style-type: none"> Controller counts up a batch cycle but no admixture delivered 	<ul style="list-style-type: none"> Flowmeter (MES) measuring air 	<ul style="list-style-type: none"> Can occur with positive displacement pumps. Fit a recirculation line on inlet/outlet of pump. See install guide brochure.
<ul style="list-style-type: none"> Controller Limit “LM” LED light triggers disabling controller or spike of counts appears on display counts suddenly when engaging start toggle 	<ul style="list-style-type: none"> Spike caused by 240vac contactor coil 	<ul style="list-style-type: none"> Fit a 0.1uF 275vac> mains capacitor across the coil to filter initial start s

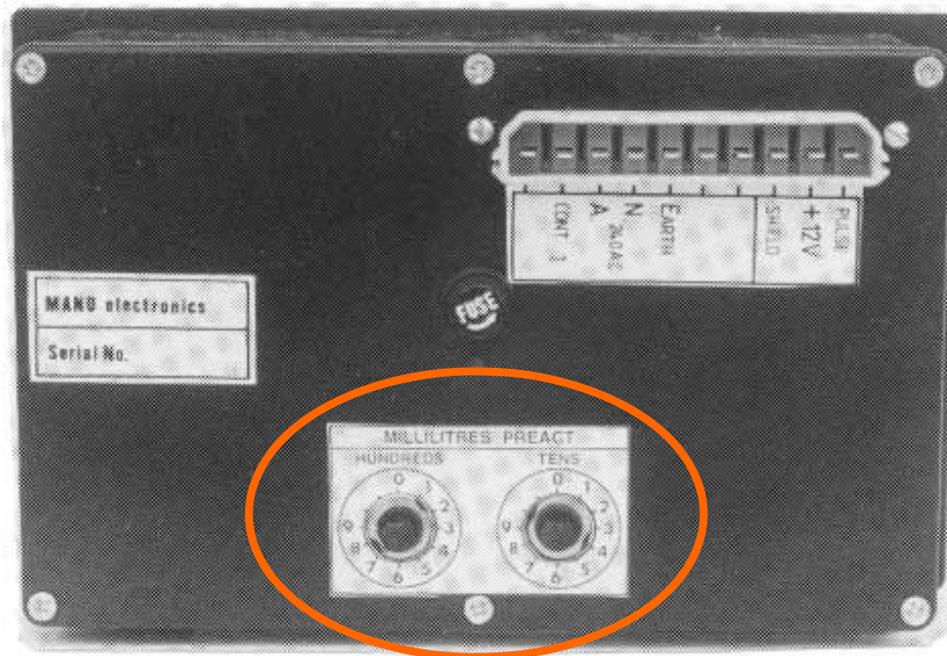
Use UMT-8 Tester to check the functions of the inputs.



Batch Controller Pre-act Explained

PREACT: Calibrating inflight overflow deduct:

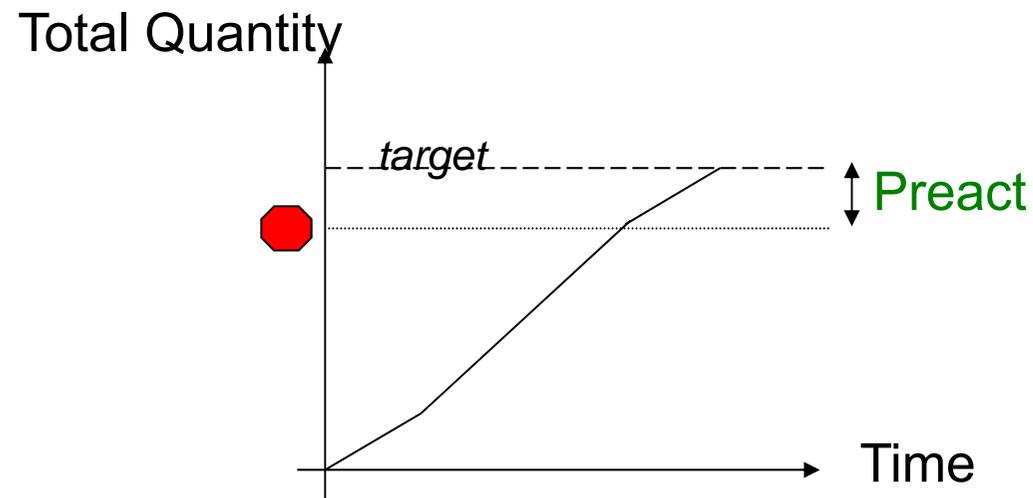
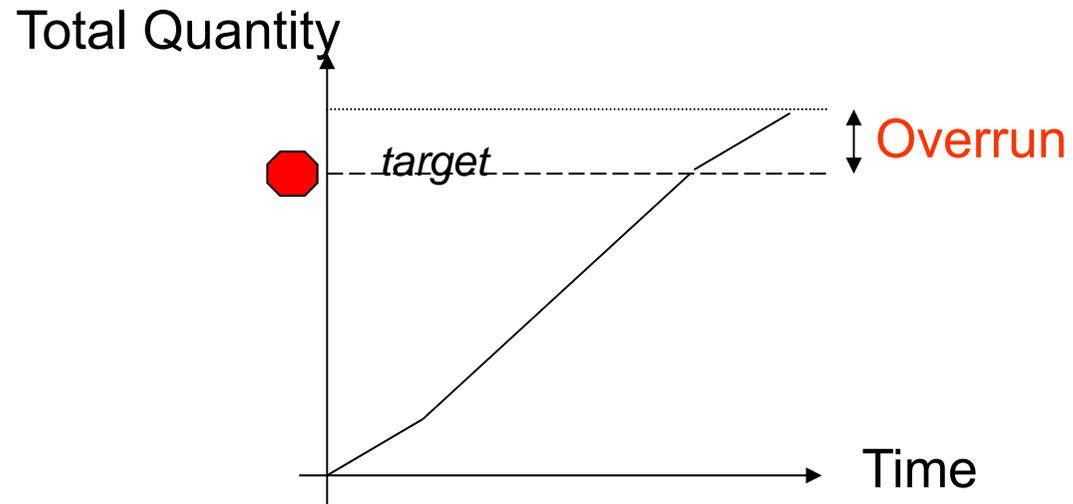
- Is via **two rotary knobs** marked (on ME995) “HUNDREDS” and “TENS” of mls located at the rear of the Batch Controller. (ME995-6 “TENS” & “UNITS”)
- As the batch display will indicate total kilograms of cement at the selected dose rate, a calculation must be performed to convert the overrun displayed into actual overflow millilitres of dose.



PREACT KNOBS at rear of batch controller

NOTE: You cannot set a batch quantity below any set PREACT value. The controller will not start.

Batch Controller Pre-act



Batch Controller Preact

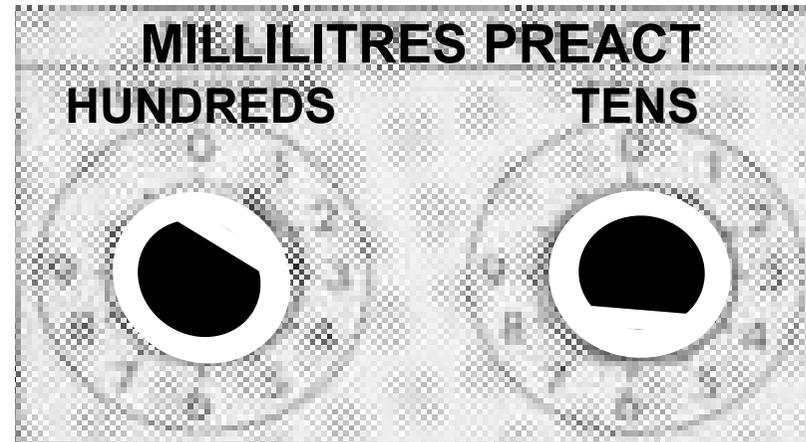
ME995-6, Example 1

- Total Litres selected was 11.2 Litres
- Actual quantity delivered shown on display was 11.4 litres
- Overflow is 0.2 Litres
- Set the Preact to TENS=0 and UNITS=2
- The flat shaft with notch is gripped and turned to point of desired setting.

ME995-6



ME995-1A, -1 (set on 16 =



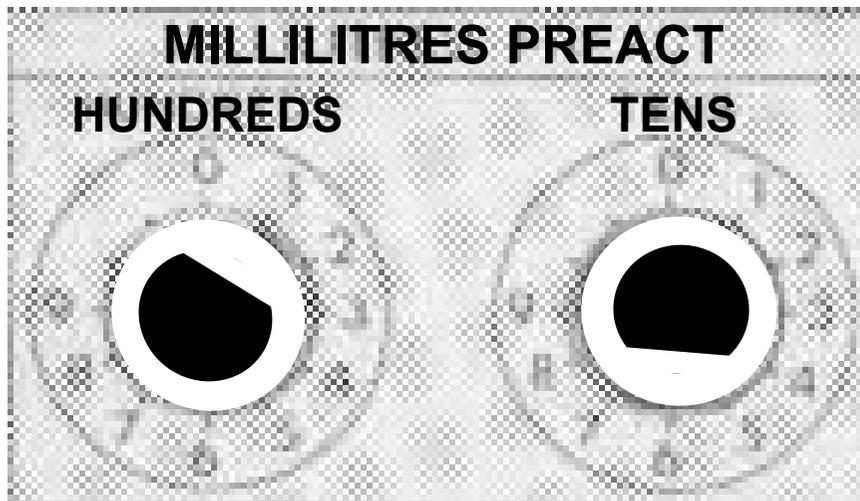
Batch Controller Preact

ME995-3K, Example 1

- Doserate was **10 x 10 mls/100kg** (i.e. 100 mls/100 kg,
- Total kgs cement load selected was 2000kg,
- Actual quantity delivered shown on display was 2060kg (**60 kgs** over at the selected doserate).

$$\text{Dose Overflow} = \frac{\text{overbatch} \times \text{Doserate}}{100 \text{ kg}} = \frac{60 \text{ kg} \times 10 \times 10 \text{ mls}}{100} = \frac{60 \times 100 \text{ mls}}{100} = 60 \text{ mls} = 60 \text{ mls overflow}$$

Set the preact to HUNDREDS=0 and TENS=6 (0x100 + 6x10 = 0 + 60 = 60 mls)



For pure volumetric selection controllers:
Models: ME995-1, -4, -6 and -7 simply
if you selected 1000 mls but at
batch complete the display shows
1110 mls, then simply set the rear
pre-act knobs to 110mls.
(Hundreds = 1 & Tens = 0).

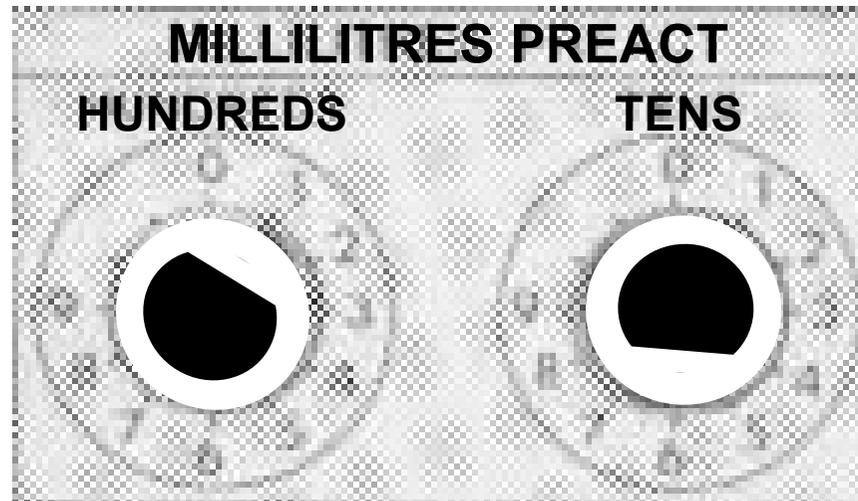
Batch Controller Preact

ME995-3K, Example 2

- Doserate was **27 x 10 mls/100kg** (i.e. 270 mls/100 kg),
- Total kgs cement load selected was 2000kg,
- Actual quantity delivered shown on display was 2060kg (**60 kgs** over at the selected doserate).

$$\text{Dose Overflow} = \frac{\text{overbatch} \times \text{Doserate}}{100 \text{ kg}} = \frac{60 \text{ kg} \times 27 \times 10 \text{ mls}}{100} = \frac{60 \times 270 \text{ mls}}{100} = 162 \text{ mls} = \sim 160 \text{ mls overflow}$$

Set the preact to HUNDREDS=1 and TENS=6 (1x100 + 6x10 = 100 + 60 = 160 mls)



Batch Controller - Service Adjustments to Safety Timings and Limits for ME995

INITIAL START (T2):

- Once start toggle is pressed, controller allows 1.5 seconds for pulses to arrive from the flowmeter.
- If there are no pulses within the 1.5 second time period, controller will shut down the output voltage drive, and will turn on the pulse fail LED and alarm warnings.
- In some applications, the 1.5 second delay may not be long enough, due to slow opening solenoids or slow pressure buildup pumps etc.
- The initial start time period can be increased by soldering a tantalum capacitor in parallel with the standard capacitor value, found on the rear of the PCB.

CAUTION

FLOWRATE (T1):

- If pulses do arrive within the allocated initial start time, the controller then locks in pulserate safety.
- Most ManuFlo Batch Controllers have a standard 30 counts per second (30Hz) pulserate safety setting.
- If the pulses from the flowmeter drop below the 30Hz, the controller will shut down the output voltage drive, and turn on the Pulse Fail LED and alarm warnings.
- The 30Hz standard setting is typical with concrete admixture dispensing systems using MES20 (1ml/1 pulse) flowmeters, where if the flowrate drops below 30 millilitres per second the pulse fail safety will activate. T
- The flowrate (frequency) minimum setting can be adjusted by soldering a capacitor in parallel with the standard capacitor found on the PCB.

Physical mods not needed for ME3000 (is programmable).

Note: The flowrate safety timing is changed if required:

- because of viscosity changes due to seasonal temperatures, or
- by very low flowrate applications, or
- when using flowmeters other than the most commonly used (MES20 20mm 1 pulse/1ml output flowmeter) with Batch Controllers that have K-factor (ppl) calibration.

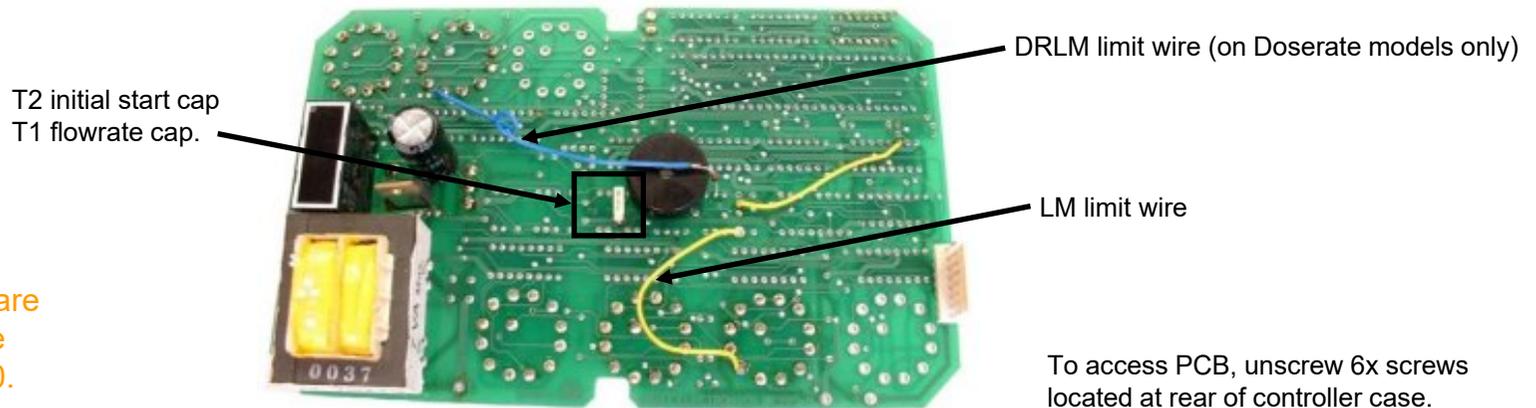
When controller/flowmeter systems are ordered, we supply the safety timing setting to suit your chosen flowmeter, thus always providing the safest possible watchdog system.

BATCH LIMIT (LM):

- The maximum permissible batch is determined by the internal limit value.
- The factory setting is always at the maximum value.
- The limit setting can be reduced by simply desoldering the limit lead wire (connected to the rear of the rotary switch solder pads) and resoldering to set the desired quantity.

DOSE RATE LIMIT (DRLM), on Doserate models only:

- The maximum permissible doserate is determined by the internal limit value.
- The factory setting is always at the maximum value.
- The limit setting can be reduced by simply repositioning the limit wire at the rear of the rotary switch solder pads.

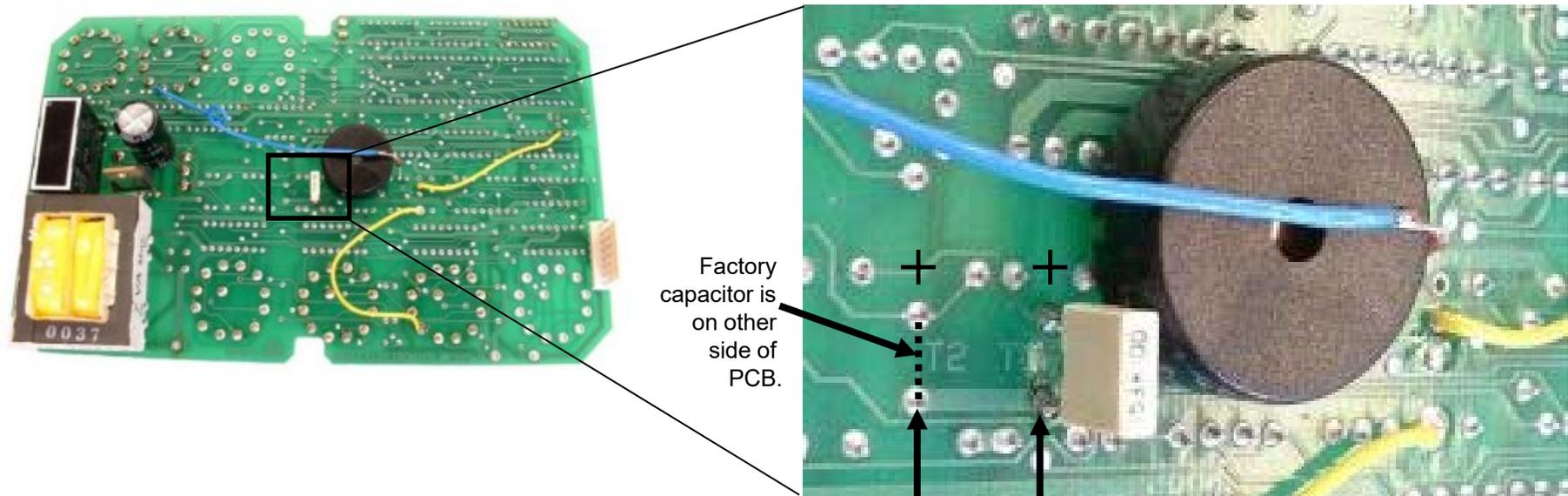


Note: Setting are programmable in the ME3000.

Rear view of ME995 PCB

To access PCB, unscrew 6x screws located at rear of controller case.

Batch Controller – T2 (Initial Start) and T1 (Flowrate) Timing CAUTION



Factory capacitor is on other side of PCB.

Physical mods not needed for ME3000 (is programmable).

Initial Start capacitor T2.
Add Tantalum capacitor in parallel to adjust.

T1 flowrate capacitor.
Add capacitor in parallel to adjust.

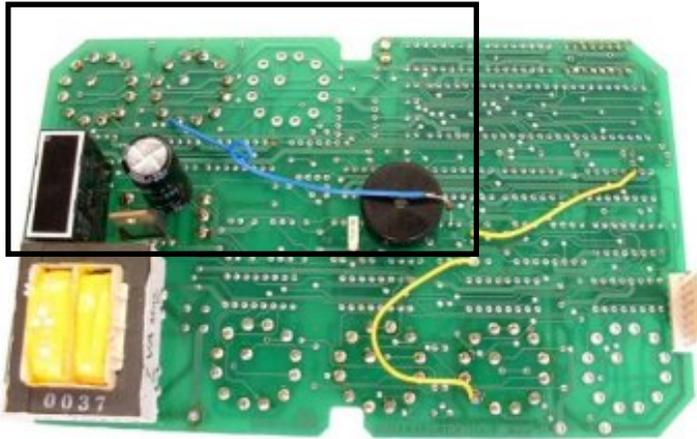
**Standard factory set values are T2: 1 μ F capacitor, T1: 0.02 μ F.
Use the following tables to change factory set values.**

<u>Extra</u> Capacitor value	<u>Extra</u> timing
1 μ F	1.5 seconds
2 μ F	3.0 seconds
3.3 μ F	4.1 seconds
4.7 μ F	5.8 seconds

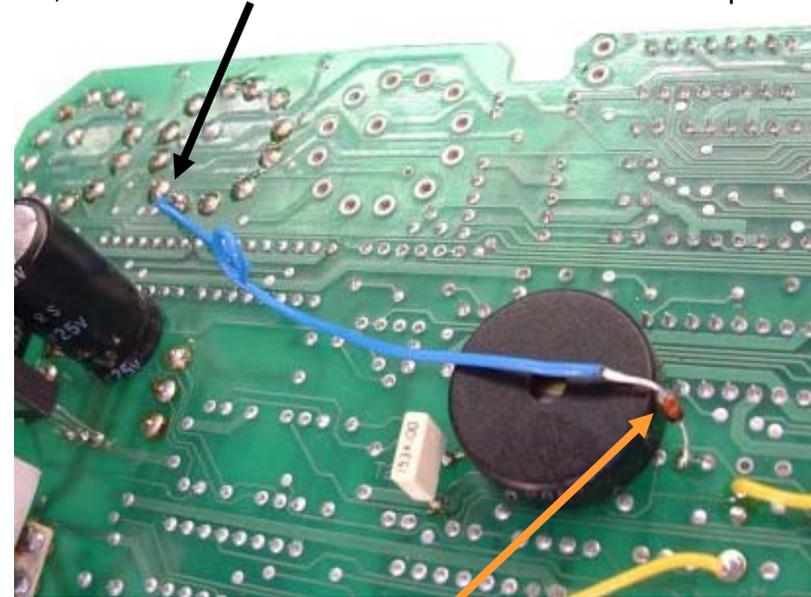
<u>Total</u> Capacitor value	Frequency Hz (pulses per second)
0.01 μ F	30 Hz
0.02 μ F	25 Hz
0.03 μ F	20 Hz (low flowrate MES20)
0.1 μ F	07 Hz
0.2 μ F	03 Hz
1.0 μ F	0.2 Hz (PSM20-T flowmeters)

Batch Controller – DRLM Dose Rate Limit (Doserate Models Only)

To change doserate limit, move this end of the DRLM limit wire to a new pad on the rotary.



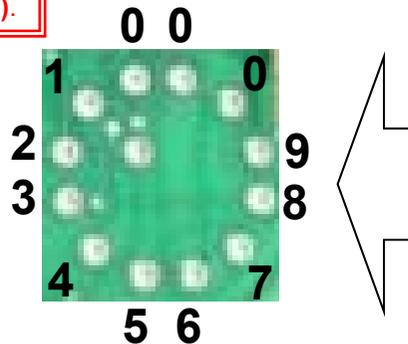
Doserate Limit wire is connected to the right-most installed Doserate dial (as seen on this view).



1N4148 signal diode

Physical mods not needed for ME3000 (is programmable).

Doserate Limit Values, According to DRLM Limit Wire Position

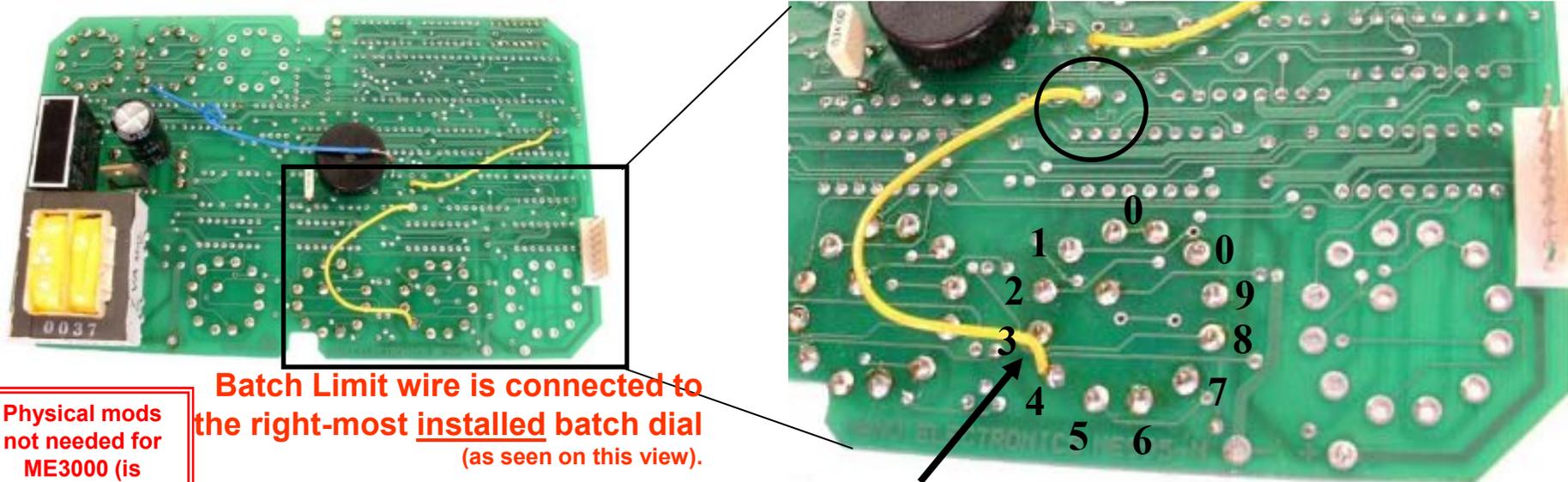


		ME995 model							
		-2	-2H	-2C	-2CH	-3	-3H	-3K	-3KH
units ->		mls/m3	mls/m3	mls/m3	mls/m3	mls/100kg	mls/100kg	mls/100kg	mls/100kg
	0	0	0	0	0	0	0	0	0
P	1	100	1000	100	1000	100	1000	100	1000
o	2	200	2 000	200	2 000	200	2 000	200	2 000
s	3	300	3 000	300	3 000	300	3 000	300	3 000
l	4	400	4 000	400	4 000	400	4 000	400	4 000
t	5	500	5 000	500	5 000	500	5 000	500	5 000
l	6	600	6 000	600	6 000	600	6 000	600	6 000
o	7	700	7 000	700	7 000	700	7 000	700	7 000
n	8	800	8 000	800	8 000	800	8 000	800	8 000
	9	900	9 000	900	9 000	900	9 000	900	9 000

Batch Controller – LM Batch Limit

CAUTION

Start pad of Limit Wire is marked LM



Batch Limit wire is connected to the right-most installed batch dial (as seen on this view).

Physical mods not needed for ME3000 (is programmable).

To change batch limit, move this end of the LM limit wire to a new pad on the rotary.

Batch Limit Values, According to LM Limit Wire Position

		ME995 model														
		-1	-1A	-2	-2H	-2C	-2CH	-3	-3H	-3K	-3KH	-4	-6	-7	-7D	-7H
units ->		mls	mls	m3	m3	m3	m3	kg	kg	kg	kg	L	L	L	L	L
	0	0	0	0.0	0.0	0.0	0.0	0	0	0	0	0.000	0.0	0	0.0	0
P	1	10 000	1000	1.0	1.0	1.0	1.0	1000	1000	1000	1000	10.000	10.0	1000	100.0	10 000
o	2	20 000	2 000	2.0	2.0	2.0	2.0	2 000	2 000	2 000	2 000	20.000	20.0	2 000	200.0	20 000
s	3	30 000	3 000	3.0	3.0	3.0	3.0	3 000	3 000	3 000	3 000	30.000	30.0	3 000	300.0	30 000
l	4	40 000	4 000	4.0	4.0	4.0	4.0	4 000	4 000	4 000	4 000	40.000	40.0	4 000	400.0	40 000
t	5	50 000	5 000	5.0	5.0	5.0	5.0	5 000	5 000	5 000	5 000	50.000	50.0	5 000	500.0	50 000
l	6	60 000	6 000	6.0	6.0	6.0	6.0	6 000	6 000	6 000	6 000	60.000	60.0	6 000	600.0	60 000
o	7	70 000	7 000	7.0	7.0	7.0	7.0	7 000	7 000	7 000	7 000	70.000	70.0	7 000	700.0	70 000
n	8	80 000	8 000	8.0	8.0	8.0	8.0	8 000	8 000	8 000	8 000	80.000	80.0	8 000	800.0	80 000
	9	90 000	9 000	9.0	9.0	9.0	9.0	9 000	9 000	9 000	9 000	90.000	90.0	9 000	900.0	90 000