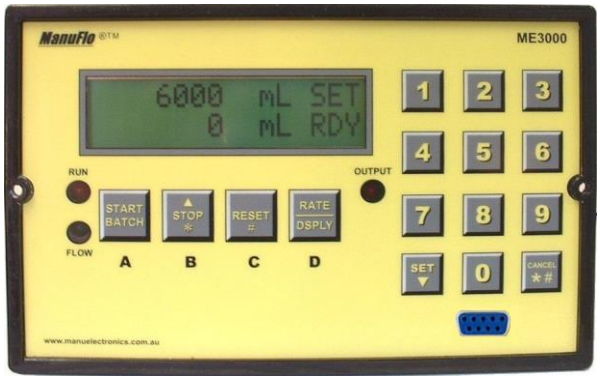
ME3000 MICROPROCESSOR PRESET BATCH CONTROLLER

FEATURES:

- **Displays in ml, Litres, KL, grams, KG, US Gallons.**
- **Keypad input for batch setting, and programming.**
- **2 line x 16 character display for quantity set and dispensed. 3 indicator LEDs.**
- **Alarm messages shown on LCD display.**
- **Safety features include missing pulse detection.**
- **Functions include Preact and preset maximum limit.**
- **Optional RS232 printer interface for batch tickets, and to download internal Event Log.**
- **Single channel, can be used with any size flowmeter.**
- **Optional PLC/Computer control interface.**



Shown with optional –FP front interface for easy access to download the internal event log.

The ME3000 microprocessor-based preset Batch Controller can be used with pulse output flowmeters of any size, for preset batch control applications. Batch counting can be in units of millilitres, Litres, KiloLitres, US Gallons (USG), grams or kilograms. The Controller is fully programmable, and has a range of safety features e.g. if no pulses arrive within a configurable batch start period, or if pulses are interrupted during the batch cycle or if the flow rate falls below the allowed minimum, then the pump voltage contact drive is automatically shut off and an alarm is raised.

- **RUN LED** indicates voltage contact output drive when pump or solenoid is activated.
- **FLOW LED** monitors and indicates incoming pulses from field flowmeter.
- **OUTPUT LED** indicates scaled pulses output from Batch Controller e.g. to a PLC/Computer.

Internal audible **ALARM** sounds momentarily upon completion of batch cycle, and continuously if an error occurs.

With the ME3000 Batch Controller using the same instrument housing, and the same 10-pin Weidmuller receptacle plug, as other ManuFlo Batch Controller models, changeover or upgrade is instant with no rewiring necessary. It can be easily interfaced with PLCs (through the optional computer control interface), thus incorporating the controller's safety features and providing a backup batch facility. An optional RS232 9600 baud interface allows the printing of batch tickets through an associated printer, and the downloading of the internal event log to a laptop/PC for analysis.

The controller operates from standard 220 - 240 vac (or optional 110 vac or 12 - 24 VDC) voltage supplies. Contact output drive is via a relay (optional open contact). Standard controllers are in panel mount form, or optionally can be housed in a metal box or IP65 ABS wall mount enclosure.

Displays
- Quantity set/dispensed
- Flowrate
- Backflow amount
- Grand Total (resetable)
- Batch Id (resetable)

Alarms
- No pulses from flowmeter
- Batch Limit exceeded
- Max Flow Limit exceeded
- Pulse Output Rate exceeded
- Backflow
- Overbatch

Configuration
- Batch units for display.
- Calibration input pulse scaling
- Output pulse scaling
- Pulse output rate limit
- Batch limit
- Backflow threshold
- Min/Max flow limits
- Batch Units
- Start/stop delay
- 4-20mA current output
- Preact
- No. of Batch Ticket copies.
- Time and date
- Date last calibrated

Features
- Event Log (500 batches)
- Indicator LEDs - Run/Flow/Output

Optional Outputs
- scaled Open Collector pulse output e.g. to PLC/Computer
- 4-20mA output representing flowrate

Optional Interfaces
- PLC/Computer control (stop/start/reset)
- RS232 9600 baud printer interface at rear for batch tickets and event log download.
- RS232 9600 baud interface at front for easy access for download of event log.

The ME3000 controller is designed for compatibility with ManuFlo flowmeters and many other types.

INSTALLATION

1. Please disconnect all mains supply before proceeding with Installation.
2. Connect wiring as per the wiring examples for the device.
3. Mount the device in a panel housing such as the SHB or SHB1, otherwise in accordance with the relevant safety standards for laboratory equipment in industrial environments.
4. Do not mount the unit in such a way that will impede the on off switch on the ME3000 unit which is used to disconnect device from mains power.
5. Do not remove any connections to the Earthing terminals in the unit.
6. If you are using your own panel housing and mains cabling. Only use a mains cabling that has an earth connection. Make sure you connect the earth to the earth terminal pin symbol on the rear connector of the unit. This is shown in wiring examples below.
7. Ensure unit is mounted properly in the panel housing before connecting mains power.
8. Refer to operating instructions.

MAINTAINANCE

If the device is not turning on indicated by light on the LCD display, then do the following:

1. Please disconnect all mains supply before proceeding with Removal of ME3000 unit from Panel housing.
2. Remove the device with a Philips screwdriver on either side of the panel.
3. If the device is not working inspect the fuse, by removing the fuse holder with a flat screwdriver. Replace fuse with only a M205 F1.5A rated fuse and type.
4. Replace the device in the panel using the screws before turning on the main power.
5. Should the device still not operate please contact ManuFlo support.

CLEANING

1. Please disconnect all mains supply before proceeding.
2. Clean the device with a cloth and damp with isopropyl alcohol.

WARNING

- This product is intended to and must be used in a housing enclosure or panel mount in accordance with the relevant safety standards.
- The ME3000 must not be used on a freestanding on a desktop surface as there is a risk of electric shock from exposed high voltage AC.
- Disconnect main supply before opening unit or performing cleaning and maintenance.

PLEASE READ INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS BEFORE USE. IF THIS EQUIPMENT IS USED IN A MANNER NOT SPECIFIED IN THIS MANUAL, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED.

- Switch the power ON to unit. In a few seconds, the display shows SET and RDY(ready), with a zero quantity for RDY, all LED indicators and alarms are off. The unit is ready for batching or configuration.
- BATCHING: When SET/RDY is displayed, entering a batch quantity via the numeric keypad buttons will cause the displayed SET value to change and flash. Then, pressing the SET button locks in the new value, or pressing CANCEL reverts the value to its original setting, and the display digits stop flashing.
- Press the START BATCH button to start batch batching the set quantity. The RDY line title changes to REC (received).
- The voltage contact drive activates, the RUN LED illuminates indicating pump or solenoid are energized, followed by FLOW LED illuminating, indicating pulsing and operation of flowmeter. The digits on the REC (received) display line begin counting upward towards the selected batch quantity.
- Upon REC digits reaching the selected batch quantity the alarm sounds (short beep) indicating completion of batch; RUN, FLOW and OUTPUT LEDs turn off. The displayed SET and REC values should correspond. If REC digits overshoot target, then scale back the difference by changing the Preact value via the Configuration Mode (see below).
- To interrupt batch, push STOP button; REC counting will stop, and drive contact goes off. Push START BATCH to resume batch.
- On batch completion or termination, press RESET. Display REC line title changes to RDY (ready).
- To dispense the same set quantity again, press START BATCH. Otherwise, use the keypad to enter a new batch quantity.
  Warning: if RUN or FLOW LED indicators are on, but controller is not counting, discontinue use and call for service.
- EVENT LOG: using a straight-through female- to-female DB9 cable, connect from the Batch Controller's (optional) RS232 port (the optional front RS232 port provides easier access) to a Laptop/PC serial port. On the Laptop, start the HyperTerminal software (supplied as part of Windows), set up a connection at 9600 baud, 8 Data Bits, no parity, 1 stop bit, and capture text to a file. On the Controller, press the CANCEL and RESET buttons (those marked with '#') simultaneously for 5 secs, and the Event Log will download. To stop download, press CANCEL for 2 secs. See the ME3000 User Manual for more details.
- CONFIGURATION: The Controller is factory configured to your requirements, but can be re-programmed by the user if required.
- Configuration Mode is entered from the SET/RDY display by pressing the CANCEL and STOP buttons (those marked with a '*') simultaneously for 5 seconds.
- Use the buttons with the up/down arrows to step through configuration settings.
- When a configuration value is diplayed, entering a new value via the keypad causes the display value to change and flash. Then, pressing SET locks in the new value, or pressing CANCEL reverts value to its original setting, and the display digits stop flashing.
- Use up/down arrows buttons to step through more configuration settings, or press CANCEL for 2 seconds to exit the SET/RDY display.

CALIBRATION:

1) The Batch Controller is set up for the connected flowmeter using the Calibration Input pulse scaling item under Configuration Mode, to match the flowmeter's output pulse value.

On-site calibration adjustment and test:

2) Must adjust what is shown as received (REC) on the Batch Controller LCD display to match a known amount dispensed. So, set batch quantity to say 190L, and batch into a 200 litre (44 gallon) drum.
3) If the amount collected is **more** than the REC amount shown on the LCD display, then **decrease the Calibration Input** value by the same % difference e.g. if collected 200L when 190L on LCD, this is 10L more or 5% over (10/190x100%).
   So, decrease the calibration value by 5% i.e. if Calibration Input value is 300, new value is 300-5% = 300-15 = 285.
4) If the amount collected is **less** than the REC amount shown on the LCD display, then **increase the Calibration Input value** by the same % difference. e.g. if collected 180L when 190L on LCD, this is 10L less or 5% under (10/190x100%).
   So, increase the calibration value by 5% i.e. if Calibration Input value is 300, new value is 300+5% = 300+15 = 315.
5) **PREACT:** To calibrate inflight overflow, enter Configuration Mode (as described above), and set the Preact value to the same overflow reading as indicated by the LCD display, where overflow = (the REC quantity) - (the SET quantity).

Example: You set 190 Litres, batch the quantity, 200 Litres is shown on display, and 200 Litres is collected in drum. A valve may take extra time to close, so the received quantity usually overshoots. So, set 10 Litres on Preact to deduct the 10 Litres overshoot. Next batch, the set batch quantity, LCD REC reading and amount collected in drum are all 190 Litres.

Power supply	220-240 vac @50Hz ± 10% Typical Current: 9mA Overvoltage category: II Maximum Current: 8.3A (Using SHB1 Housing at Maximum load) (optional 110 vac or 12-24 VDC)
Fuse	1.5 Amp (5 x 20mm case)
Frequency input	5 KHz
Event Log	internally records 500 batches
Output to flowmeter	12 VDC, up to 100mA
Relay	Same as supply voltage, or Open Contact on request. **SHB1 model:** 240VAC socket drive to pump maximum load 1800W.
Display	2 line x 16 character, for quantity set and dispensed.
Connection	10 pin Weidmuller mating plug and socket
Batch entry	quantity selection and commands via keypad
Optional Outputs	scaled pulse output; 4-20mA output
Optional interfaces	RS232, 9600 baud; PLC/Computer stop/start/reset
Instrument housing	ABS hi-impact case mould
Mounting	Panel mount. Panel cutout :190 L, 122 H mm
External dimensions	206 L, 130 H, 90 D mm.
Sound	80dB at 10cm
Environmental Usage	5 – 40 Degrees Celsius 0% to 75% relative humidity Up to 2000m Altitude Pollution Degree 1 Indoor Use (air is not significantly polluted by dust, oil, or chemicals)

Rear of ME3000 shown with optional -SC and -5P interfaces

Due to continuous product improvement, specifications are subject to change without notice.

Batch Ticket

29/06/2005	11:30:10	000000000000002512	mL	MANUAL_RESET
29/06/2005	11:30:08	000000000000002512	mL	BATCH_B0001
29/06/2005	11:29:59	000000000000000000	mL	MANUAL_START
29/06/2005	11:29:57	000000000000002500	mL	BATCH_SET
29/06/2005	11:29:49	000000000000000000	mL	BATCHID_RESET
29/06/2005	11:29:42	000000000000000000	mL	GTOTAL_RESET
29/06/2005	11:29:32	000000000000009010	mL	MANUAL_RESET
29/06/2005	11:29:12	000000000000009010	mL	BACK_FLOW
29/06/2005	11:29:11	000000000000000950	mL	BATCH_B0005

Event Log example

ORDER CODES:

ME3000 Batch Controller, 240vac.

Options:

Code	Description	Code	Description
-DC	12-24 VDC powered.	**-5P**	5-pin computer interface plug (start, stop, reset, pulse,+12V) for use with ME5IC interface card for **Jonel, COMMANDbatch etc PLCs.**
-24VAC	24 vac powered.	**-MC**	4-pin PLC/Computer Command (Start/Stop/Reset) interface plug.
-110	110 vac powered.	**-MC2**	2-pin plug for scaled open collector pulse output. Includes 4-pin external command (Start/Stop/Reset) interface plug.
-L	For connection to a coil-type flowmeter.	**-SSR**	External command: Start/Stop/Reset, for connection to HB2500-SSR housing box, or for remote control facility.
-OC	Open Contact pump output.	**-SC**	RS232 serial interface, 9600 baud, at rear, for connection to printer.
-OPA	Alarm output.	**-FP**	RS232 port on front (includes XC4834 RS232 to USB converter cable), in addition to an RS232 port at back, for easy access to download data to laptop.
-OPB	Batch complete output.	**XC4834**	DB9 Serial to USB converter cable.
-OPC	4 - 20 mA output.		

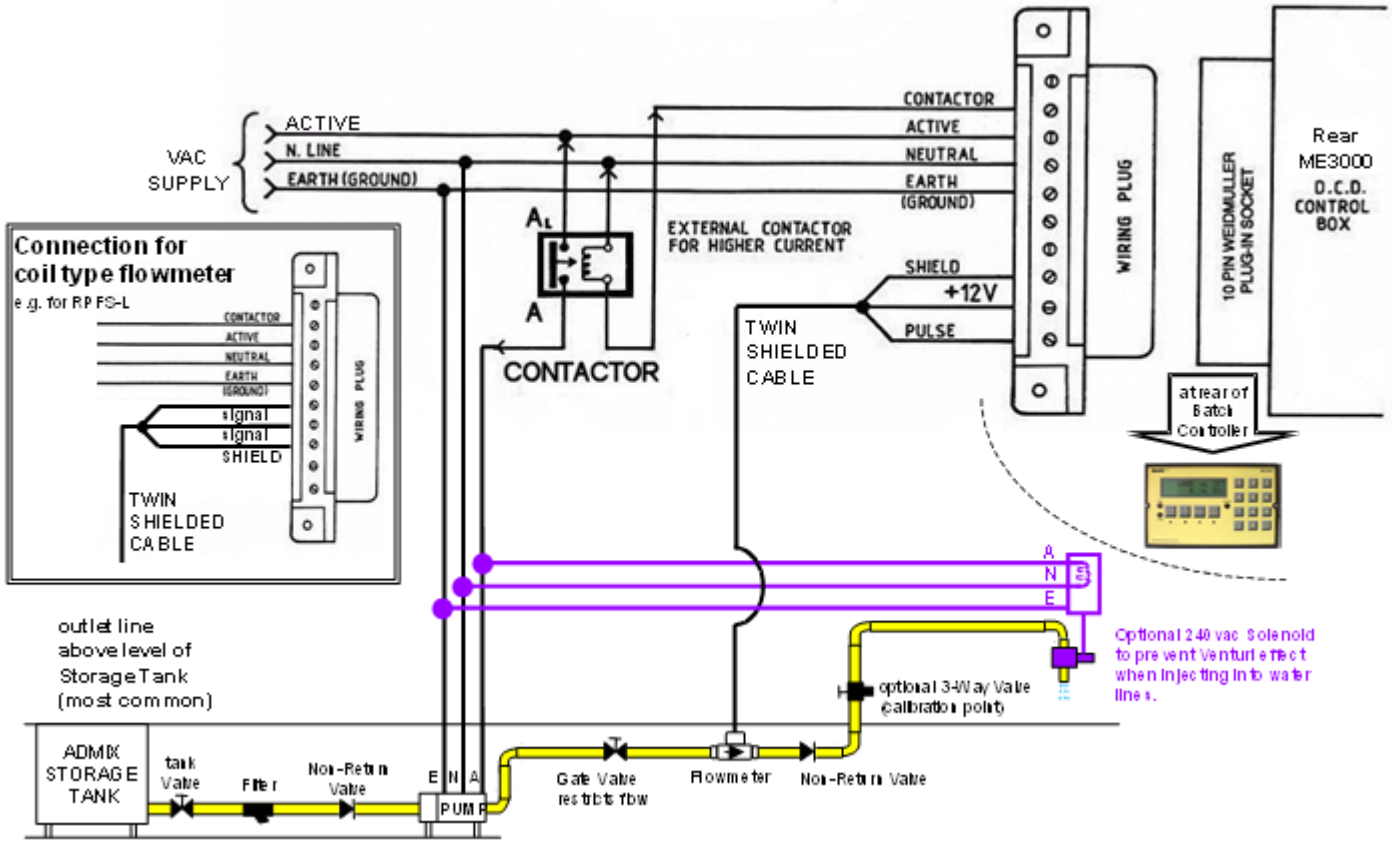
e.g. “ME3000” is the standard Batch Controller, 240vac powered, without any of the options, whereas “ME3000-MC2” is an ME3000 Batch Controller with a scaled open collector pulse output, and external Start/Stop/Reset.

BATCH TICKET ACCESSORIES ME3000

Code **Description**

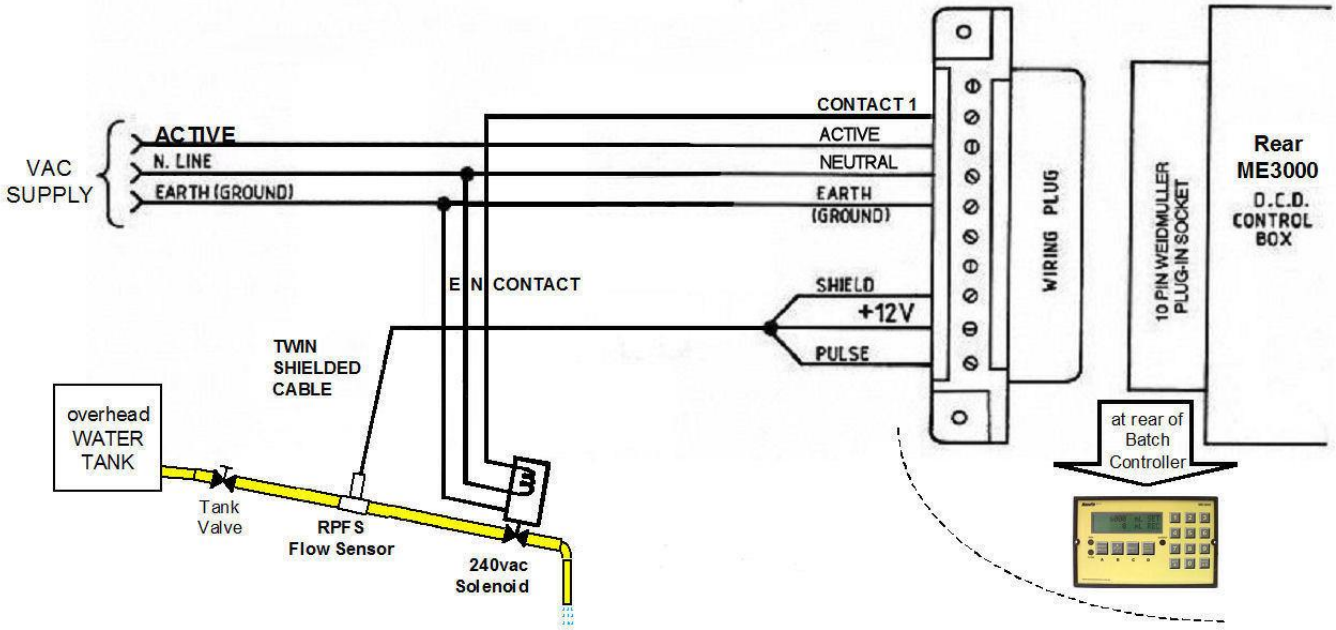
APM-n93XS
- Thermal Ticket Printer, without power supply.
- suitable for custody transfer dockets for ME3000-SC.

TMP
- ME3000-SC and APM-n93XS printer, wired and mounted in a key lockable rugged IP64 hinged enclosure.
- automatic ticketing.
- prints Batch ID, quantity, time and date.
- ribbon and paper easily changed.
- Ideal for delivery trucks or loading and discharge locations where a custody transfer docket is required.



Standard AC Wiring for Pump and optional Solenoid

Note the different connection to the Batch Controller Wiring Plug if the flowmeter is a coil type.



Wiring for AC Solenoid without Pump

Batch Controller supply: 240vac. Solenoid: 240vac

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