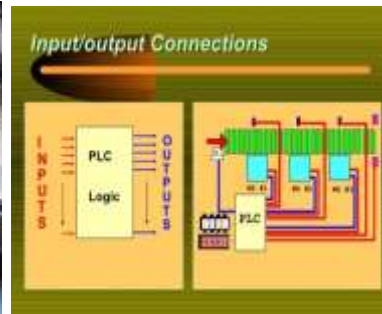
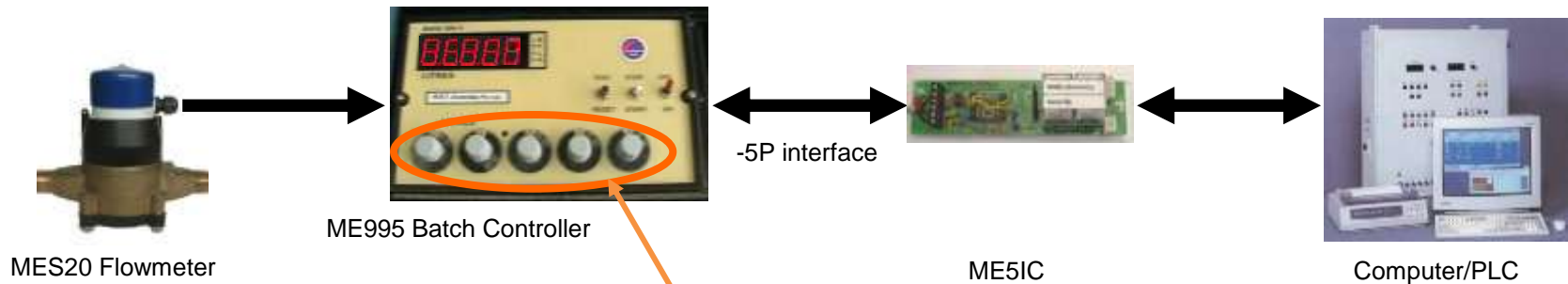


# Interfacing Flowmeters via ME995 batch controllers to PLC/Computer Controlled Batch Plants with ME51C cards



- ManuFlo do not supply Batching Computers/PLC's but our equipment & or flowmeters interface with computers in customer installations.
- Call ManuFlo if you are unsure as to the interface required.

# Interface Cards – Using ME5IC with ME995 / MES20

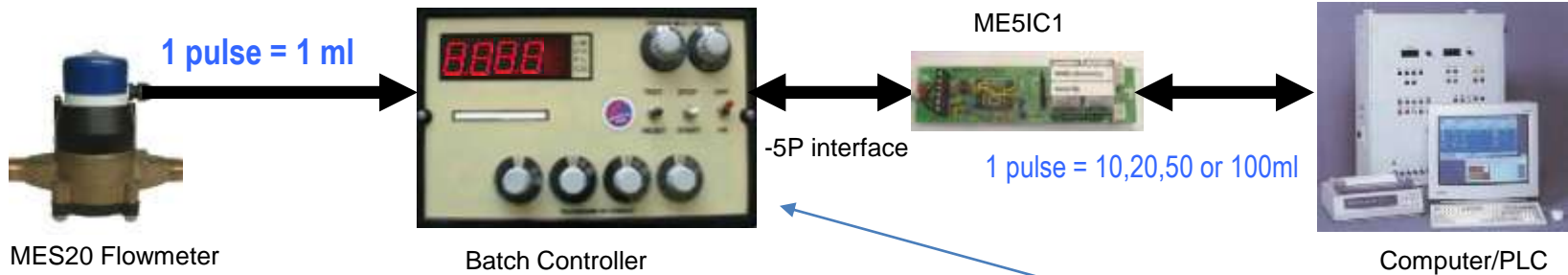


- **When the PLC/batch Computer controls the system, then set the ME995 rotary dial knobs on the maximum permissible batch limit required. E.g. 50,000 Milliliters or 50 liters.**  
(The PLC will now control the starting and resetting the system for each batch selection via the ME5IC interface card).
- **Interface card (1 to 5 channel options)**
- Provides interfacing and control of ManuFlo **Batch Controllers with Computer/PLC's**. Primarily designed for interfacing to American Command-batch, Eagle, Alkon and Jonel industrial computer batching systems.  
(which only have a PLC Start & Hold batch active drive – no stop signal).
- Enables incorporation of the ME995 Batch Controllers and their **safeties** to the Computer/PLC batch system, & provides an **independent backup batch facility**.
- **Batch Controller must be fitted with the “-5P” 5-pin interface plug option.**

Superseded by ME2008.

# Interface Cards – with ME5IC

Superseded by ME2008.



## ME5IC enables:

- PLC/computer to control the ManuFlo Batch Controller, and receive divided/scaled graduations of 10, 20, 50 or 100mls pulses which are opto isolated in divided pulse form.



### Ordering Option Codes:

No:	CHANNELS (on Card)	POWER SUPPLY (To Card)	PULSE OUTPUT (to computer input)
ME5IC-5	5 channel card	1A - 240vac power supply	2A - 110-240vac triac pulse output switching
ME5IC-4	4 channel card	1B - 110vac "	2B - 24vac " "
ME5IC-3	3 channel card	1C - 24vac "	2C - 5-24vdc opto isolated pulse switching (sink=pulse to O.V.)
ME5IC-2	2 channel card	1D - 24VDC "	2D - 5-24vdc (source = pulse to +).
ME5IC-1	1 channel card		
ME5IC-1W	1 channel card		

-W for water batch applications)



ME5IC-5

### START DRIVES (from computer output control drives)

	START DRIVES (from computer output control drives)	CABLE LENGTH
3A -	240vac start and reset relays	4A - 2 metres cable x 5 cords (Card to ManuFlo controllers)
3B -	110vac "	4B - 3 "
3C -	24vac "	4C - 4 "
3D -	24VDC "	4D - 5 "

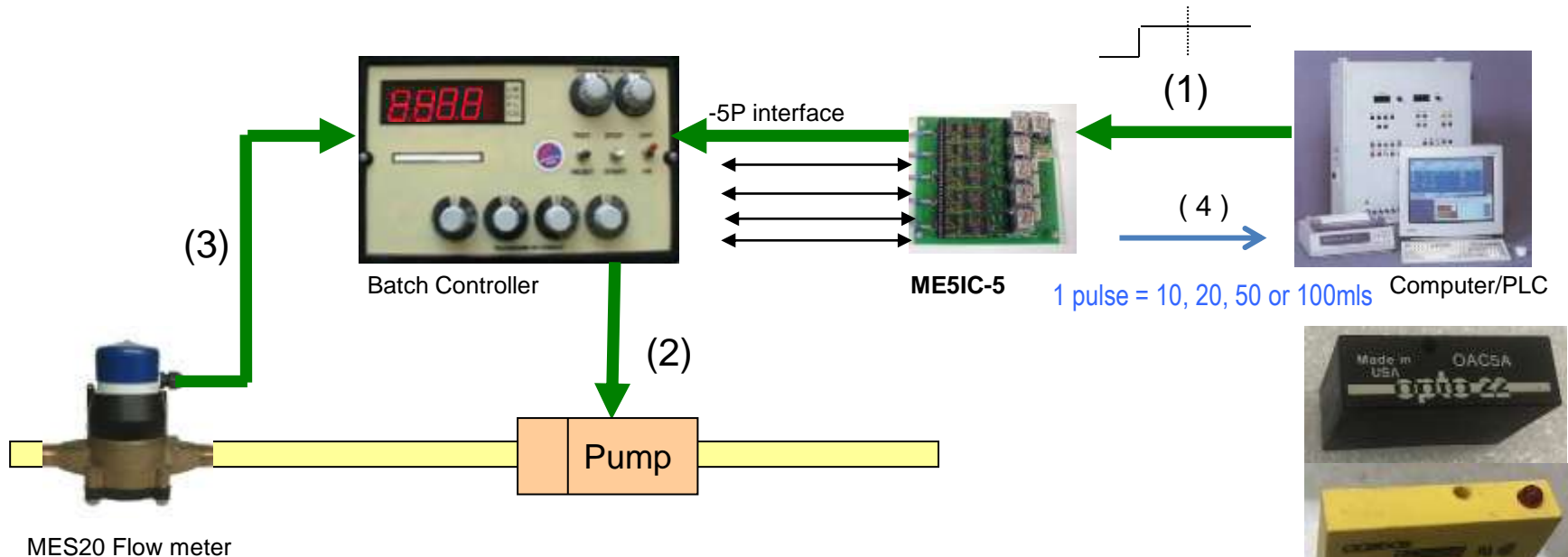


ME5IC-1

# Interface Cards – ME5IC-5 – Operation

(e.g. 240vac Command – 5 channel Admixtures)

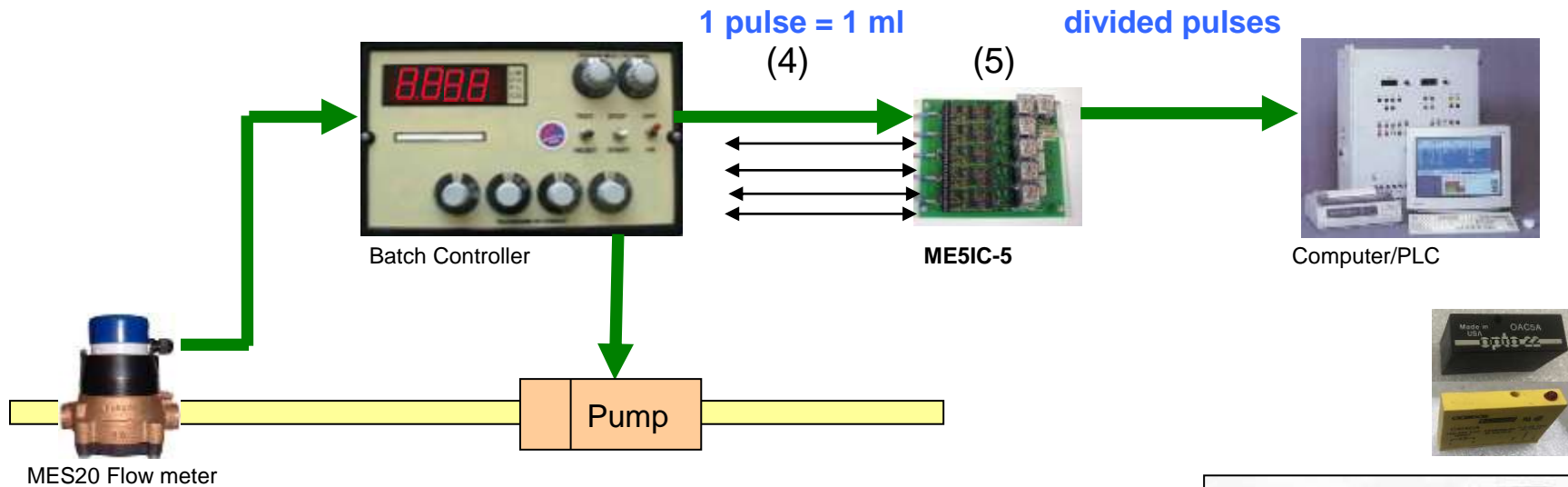
Superseded by  
ME2008.



MES20 Flow meter

- (1) The **computer 'start' command** is via Computer's (Black) Opto22.  
**The Opto stays on for the duration of computer batch cycle.**  
The start voltage to the Batch Controller must be **on for at least 1.0 second**
- (2) **Batch Controller starts** : activates 240vac drive to pump and/or solenoid.
- (3) Once liquid flow begins, flowmeter will **pulse** to the Batch Controller.
- (4) Scaled pulses from the ME5IC card are sent to computer OPTO (yellow) input.

# Interface Cards – ME5IC-5 – Operation



(4) Batch Controller outputs 1 pulse / 1 millilitre to ME5IC card.

(5) **ME5IC divides pulses** by either 10, 20, 50 or 100.

The divide factor on each of the 5 channels can be individually set by the 4 way **DIP**.

Each divided pulse passing through the card is indicated via **LED**.

The 12VDC **pulse is then converted** to 24-240vac pulse via Crydom AO241 triac opto.

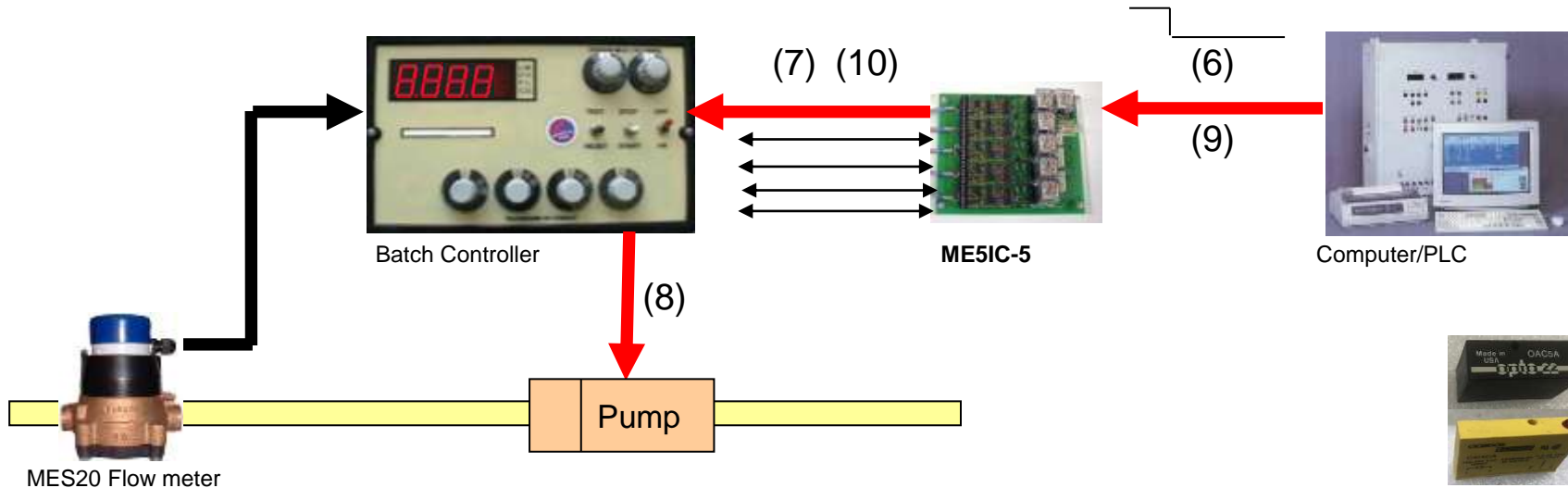
The Crydom opto then pulses to the computer (Yellow) Opto22 input.

**Pulse Division Settings (SW)**

To set division rate slide pin to ON.

All OFF	+100 (100 ml.s/pulse)
1 ON only	+ 10 ( 10 ml.s./pulse)
2 ON only	+ 20 ( 20 ml.s./pulse)
3 ON only	+ 50 ( 50 ml.s./pulse)

# Interface Cards – ME5IC-5 – Operation



**When computer determines batch target is reached: (receives desired graduation pulses)**

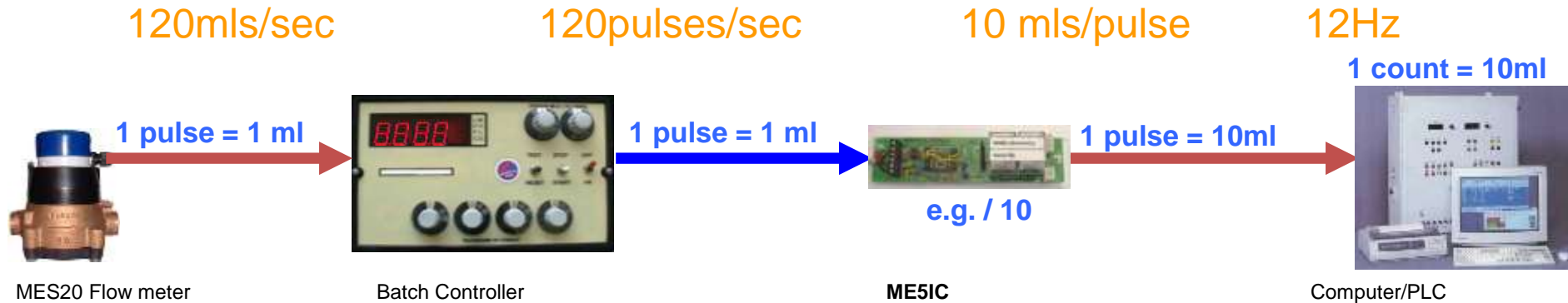
(6) the START (black) Opto22 switches off;

(7) then the **ME5IC** card then internally generates a stop pulse to ME995 Batch Controller(s) which then (8) stop pump(s) and or solenoid valve drive(s);

(9) at batch complete, the computer will provide **24-240vac Master RESET** to ME5IC master reset relay, (10) resetting the Batch Controller(s).

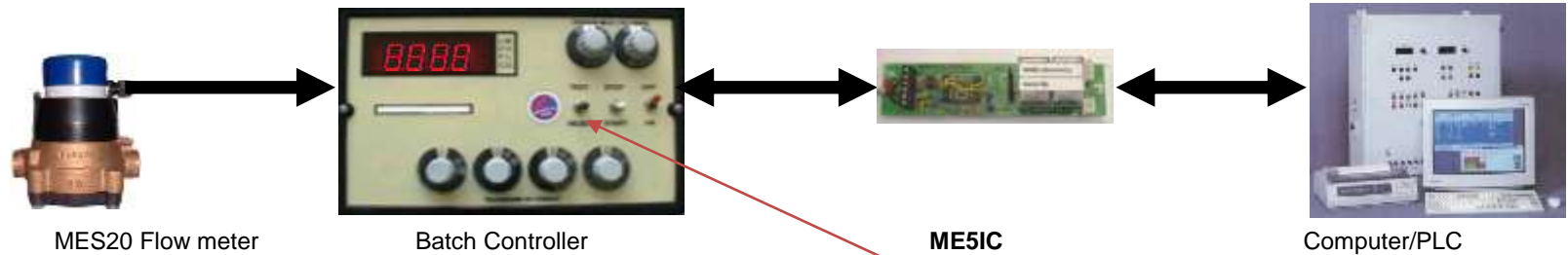


# Interface Cards – ME5IC-5 – PULSE Overview Operation



- Batch Controller outputs 1pulse/1ml to the ME5IC interface card.
- The ME5IC then divides the pulses (according to the onboard 4-way DIP setting) to be 10, 20, 50 or 100 mls per pulse.
- The set pulse divided value must be then be entered into the computer software graduation input parameters e.g. divide by 10 on card, so set computer input to 1count = 10mls.
- NOTE: The output rate to the computer input must not exceed 12-15Hz for AC-inputs or beyond the maximum permitted scan time.

# Interface Cards – ME5IC-5 – TEST Operation



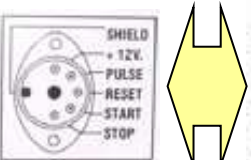
## To test the system:

- Push and hold **test toggle** on ManuFlo controller.
- Pulses are generated through ME5IC card to computer input and screen.
- Release the test toggle.
- Check that **readout** on Batch Controller and computer screen correspond (the computer input parameter must be programmed to the same divided output pulse value).
- Perform a **batch test** via computer start or via Batch Controller start. The volumetric quantity received should correspond with Batch Controller and computer displays (a small % variation is acceptable).

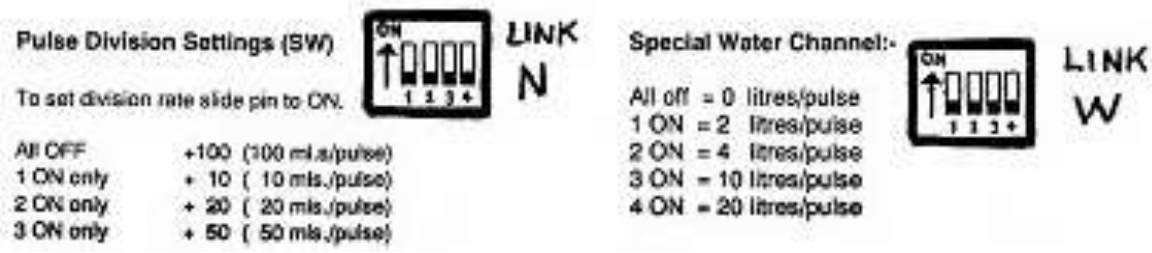
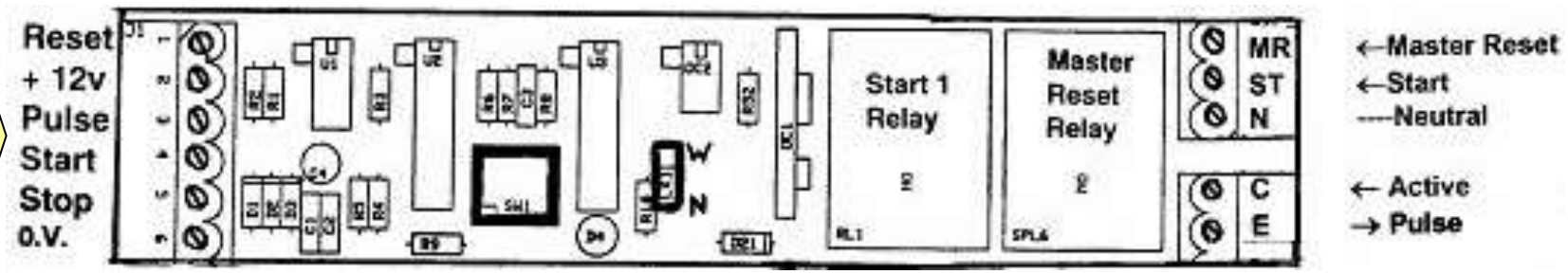




# Interface Cards – ME5IC-1



-5P Plug on Batch Controller



ME5IC-1 Single channel Card Schematic

**MR** (Master Reset) connect to computer OPTO output control active RESET signal.  
**ST** (Start) connect to computer OPTO output control START signal (will stay ON for duration of batch).  
**N** (Neutral) connect to Neutral voltage line from computer/PLC supply board.

### 5-24 VDC pulse option:

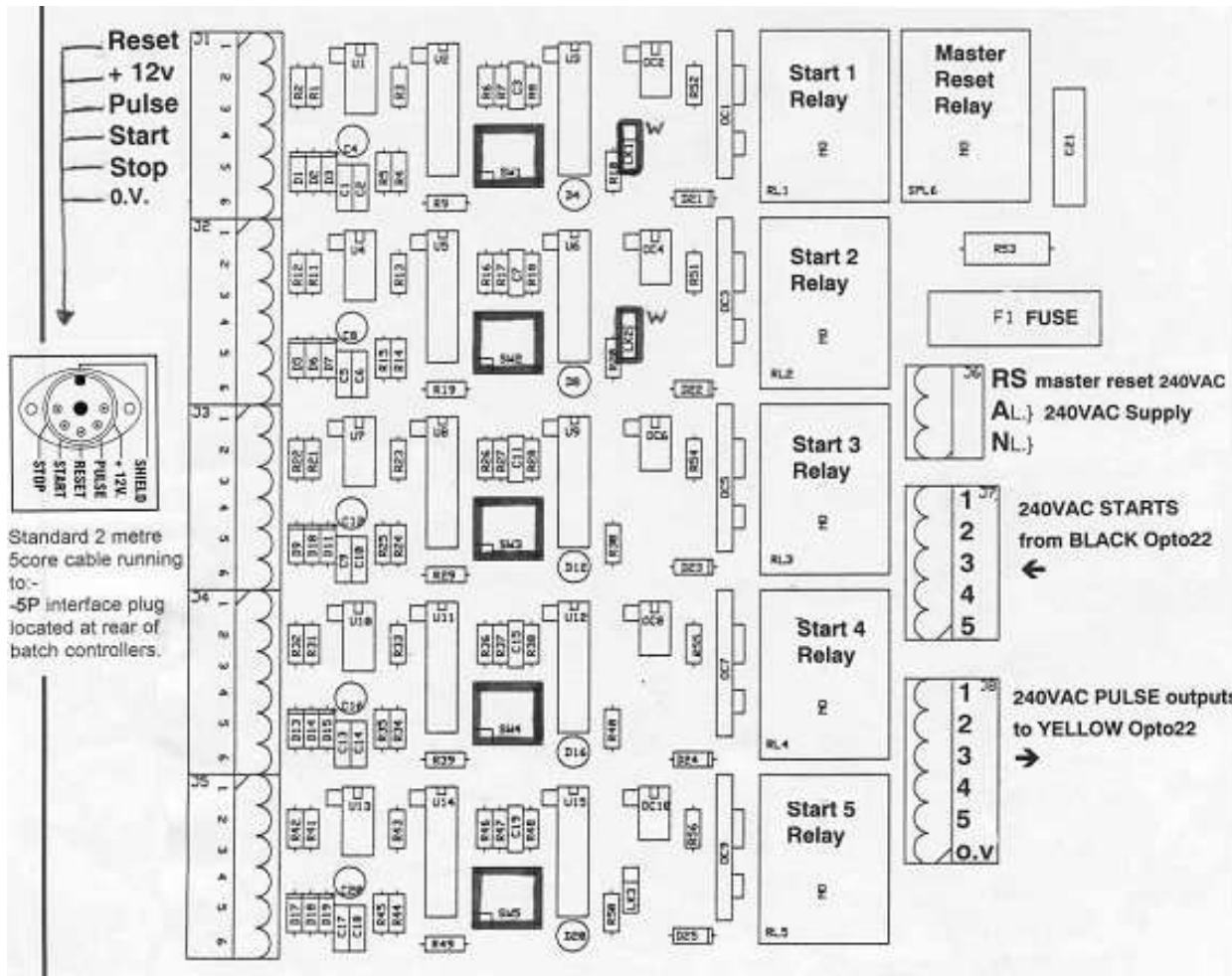
**C** (Collector) ← : connect to Computer pulse input line OPTO (White),  
**E** (Emitter) → : connect to 0.V. input line.

### 24-240 vac pulse option:

**C** (Collector) ← : Active line from Computer supply line  
**E** (Emitter) → : 24-240 vac pulse to Computer input pulse OPTO (Yellow).

Card can be piggy-backed to existing ME5IC-5 multi-channel cards by paralleling Neutrals and Master reset wires.

# Interface Cards – ME5IC-5 – DIP Pulse Graduation Settings



## Pulse Division Settings (SW)



To set division rate slide pin to ON.

- All OFF +100 (100 ml.s/pulse)
- 1 ON only + 10 ( 10 mls./pulse)
- 2 ON only + 20 ( 20 mls./pulse)
- 3 ON only + 50 ( 50 mls./pulse)

Special:- DIP switches 1 & 2 optionally for water batch controllers: Set LINK to W.

- 2 ON only+2 (2 litres/pulse)
- 3 ON only+5 (5 litres/pulse)
- +2 ( 2 litres per pulse)
- All OFF +10 (10 litres/pulse)

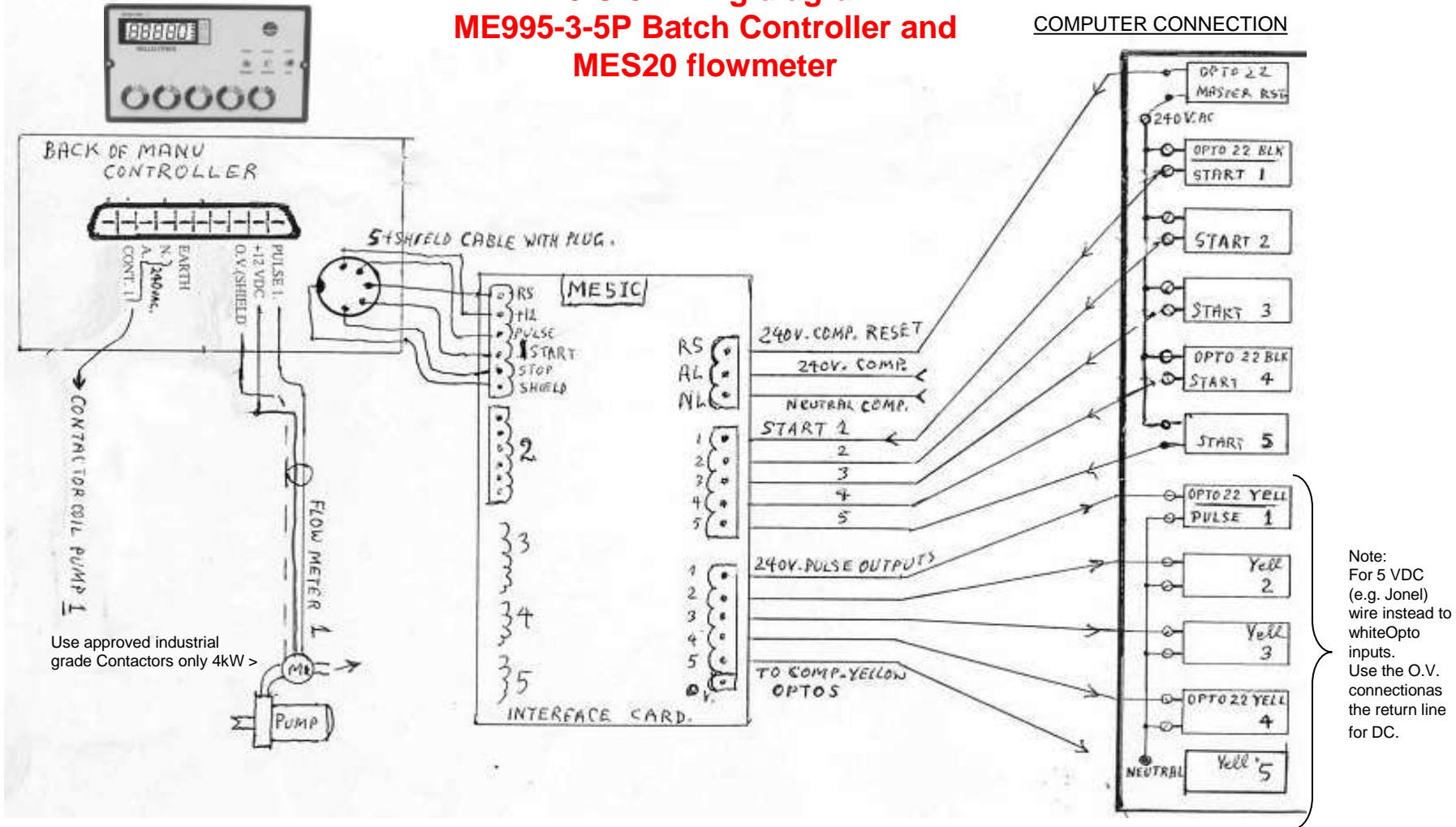
**Superseded  
by ME2008.**

## Interface Cards – ME5IC-5 - wiring

Batch Controllers set on maximum dosage  
(batch) quantity limit.

### ME5IC-5 wiring diagram: ME995-3-5P Batch Controller and MES20 flowmeter

COMPUTER CONNECTION

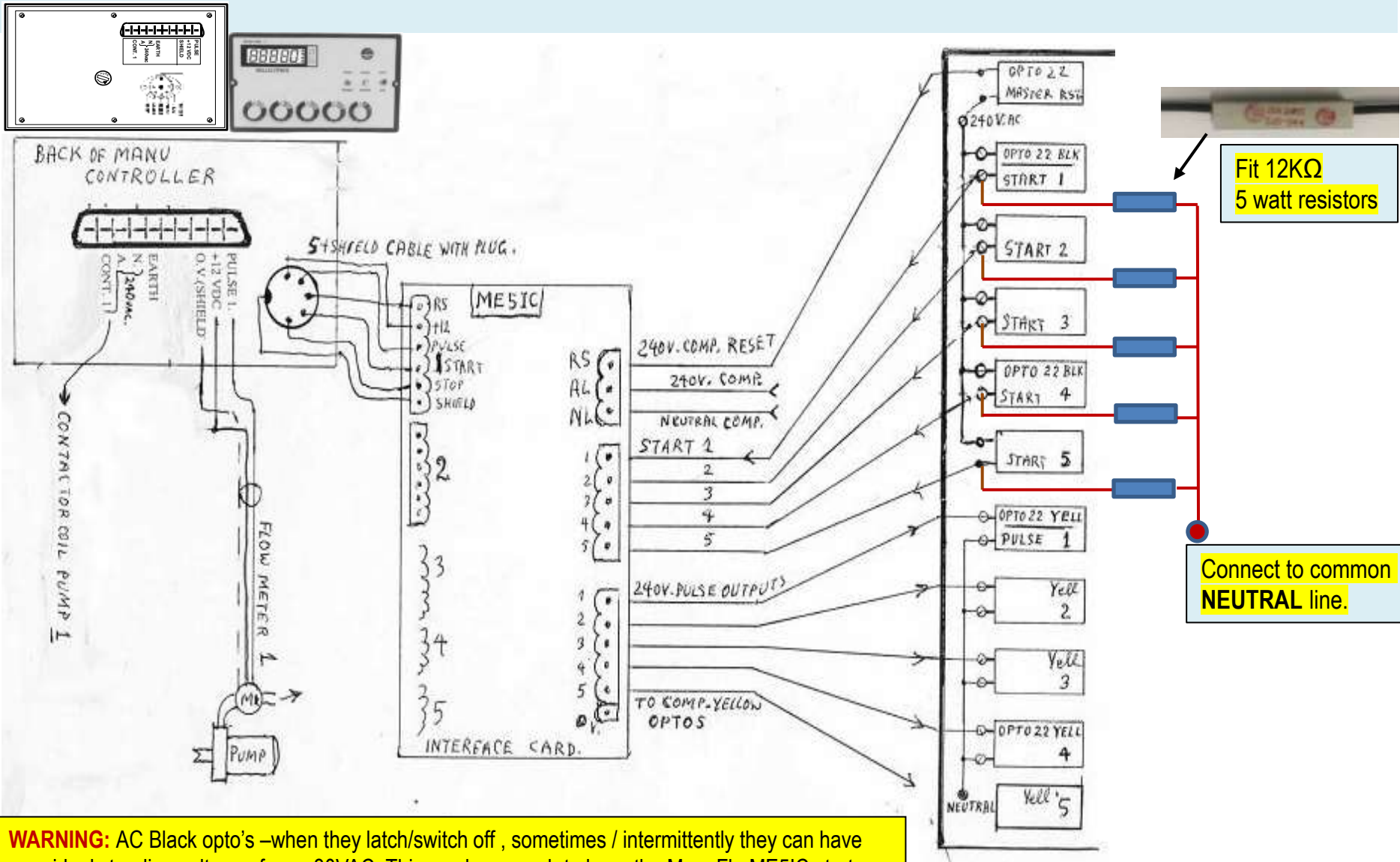


# Interface Cards – ME51C – Troubleshooting

Symptom	Solution
<p>1. ME995 SYSTEM continues batching after batch complete target is reached. Computer continues to receive pulses after batch target. LEAKY voltage on OPTO's drives the ME51C start/drive relay coil</p>	<p>Optos when switching off, can have residual leakage voltage, high enough to keep relay coil of ME51C in on-state, driving Batch Controller and pump until it reaches its setting on front dials. Measure between Neutral and Active of Opto, if above 50vac in off-state, fit a 10-15K 10watt resistor to drain leakage to neutral. Generally in this situation, batch will run to setting on ManuFlo controller. If running past settings, contactor coil may be stuck on (i.e. is faulty). Turn off power and replace contactor.</p>
<p>2. Computer display and ME995 display not matching.</p>	<p>Check that the divided pulse value on ME51C and computer pulse input value are matched e.g. 10mls/pulse. Note: Preferably use ME995 controllers that display in total millilitres or litres dispensed.</p>
<p>3. Calibrated collected quantity matches ME995 display but not computer display quantity. Computer misses pulses.</p>	<p>Check pulse divider value on ME51C card, check computer input value. Pulses to AC computer inputs must not exceed 13HZ or max. scanning time. Check pulse dividers and computer input (Admix Flowspeed mls/sec) divided by (divided pulse value) =&lt; 13HZ. E.g. AEA flowing at 150ml/sec through divider of 10ml/pulse = 15HZ. Means computer i/p will miss pulses, and overdose will occur. So, restrict flow or increase divider to 20mls/pulse.</p>
<p>4. Reset, start or stop function to ME995 not working. ME995 counts but no counts to ME51C (LED pulse not blinking).</p>	<p>Check 5-pin (-5P) interface plug at rear of ME995 Batch Controller, may not be properly secured and locked (intermittent contact), or wire broken inside plug. Open plug and inspect wiring joints. Inspect connections from cable entering ME51C interface plug. Wire may be shorted – inspect.</p>
<p>5. ME995 Batch Controller stops under batch target.</p>	<p>Front dial batch settings below computer batch targets. Select to higher value. Pulsefail LED activated, flowmeter blockage/problem, check flowmeter.</p>
<p>6. ME995 alarm condition</p>	<p>This indicates batch has been interrupted, or overbatched. Before releasing truck load, check ME995 and computer displays. If discrepancy, dump load or compensate. Call for service. Refer to ME995/MES20 troubleshooting/maintenance guides.</p>
<p>7. After above checks, ME51C still appears defective.</p>	<p>After consultation with installer/admix supplier or ManuFlo, replace ME51C card or ME995 controller or Flowmeter or OPTO. Check operation guides for each product.</p>



# How to solve leaky opto's that keep the ME5IC start drive relay activated



**WARNING:** AC Black opto's –when they latch/switch off , sometimes / intermittently they can have a residual standing voltage of over 30VAC. This can be enough to keep the ManuFlo ME5IC start relay HELD ON & ACTIVATED. This will keep the batch controller ON and powering the PUMP until power is cut off. Install the resistor to reduce / minimize OPTO leakage to solve the issue.