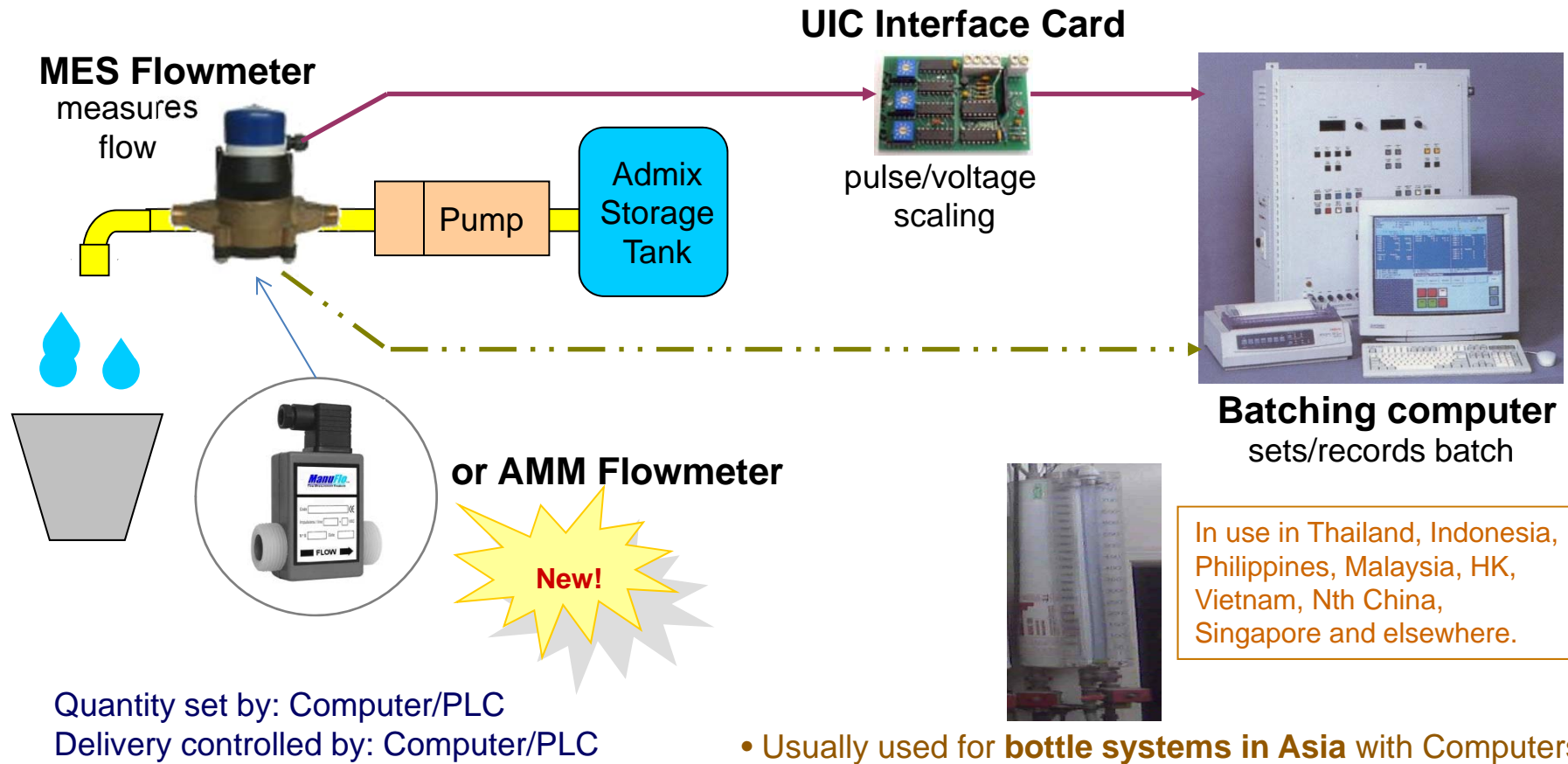


Interface Cards

UIC

With UIC Interface Card

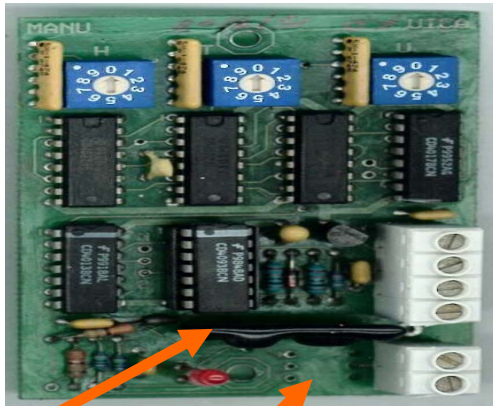
The UIC **Universal Interface Card** provides: signal **scaling** and an **isolation interface** to pulse flowmeter outputs, and re-transmits to PLC/computer inputs. Models available: **UIC/A2** = 24-240vac switching or **UIC/D** = 5-30vdc switching.



UIC Interface Card - Configurations

- switches 24-240vac, 5-12 VDC powered

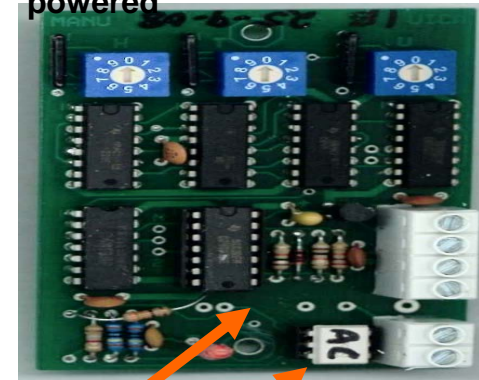
UIC/A2



triac no IC

- switches 220-240vac, 5-12 VDC powered

UIC/A1

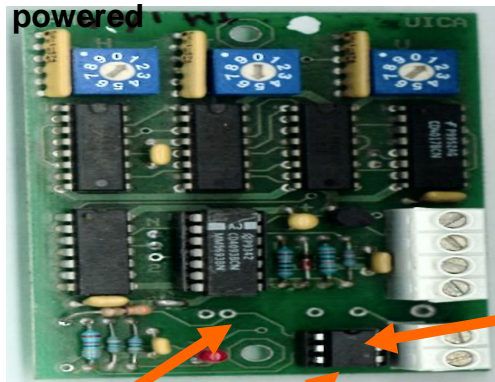


no triac white IC, labelled "AC"

Code: -24DC for 24VDC powered

- switches 5-30VDC, 5-12 VDC powered

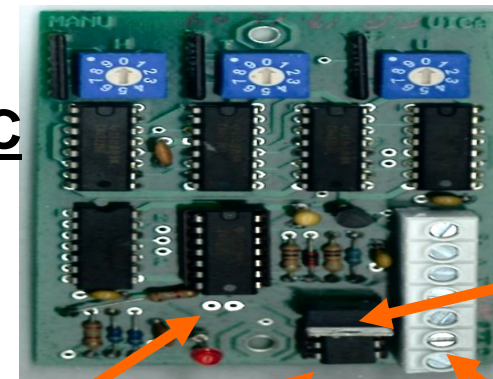
UIC/D



no triac 6pin IC opto no regulator

- switches 5-30VDC, 24 VDC powered

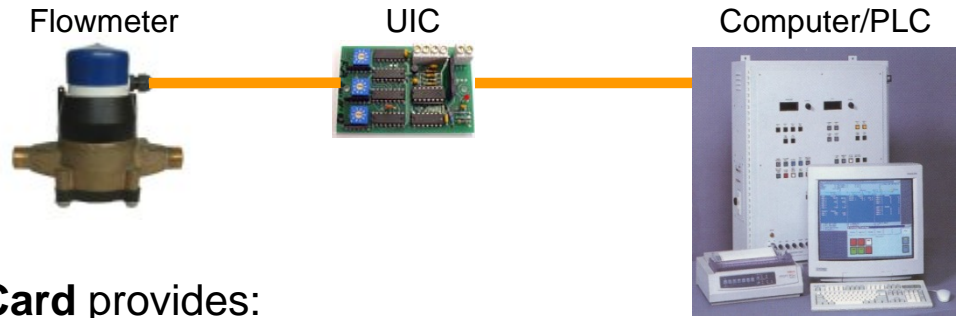
UIC/D-24DC



no triac 6pin IC opto regulator 7-element terminal block

Interface Cards – UIC for Admixtures

Usually used with Bottle Systems Mainly in Asia.



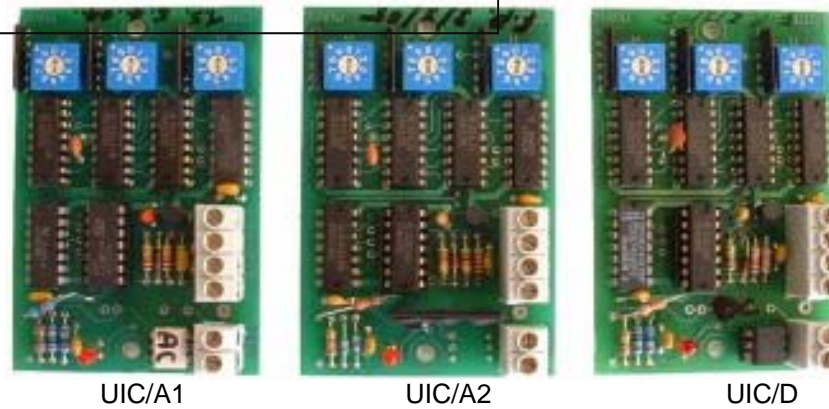
The UIC **Universal Interface Card** provides:

- signal **scaling** and
- an **isolation interface**

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

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

4) **-24DC : 30 24VDC powered option**

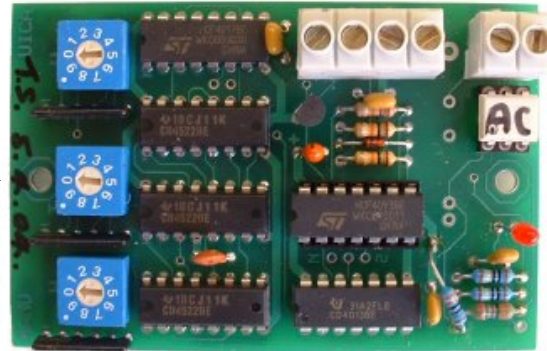


ManuFlo [®]™

(c) Manu Electronics 2015

Interface Cards - UIC

2 mounting holes,
for fixing to panels,
enclosures etc.



all scaled output pulses
are indicated by a **LED**

VOLATGE SUPPLY

- Requires strictly regulated **supply** of 5 to 12VDC, which in turn supplies flowmeter.
If only 24 VDC available, an optional voltage regulator is pre-fitted on card (**-24DC**).

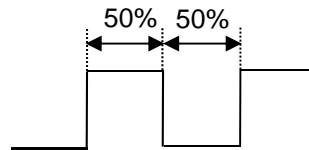
input

- Schmitt trigger input filters possible industrial noise.

Pulse input frequency max:	
x 10 input (standard)	2 kHz (e.g. with MES20)
x 50 input (optional)	350 Hz (used with low frequency pulse output flowmeters).

output

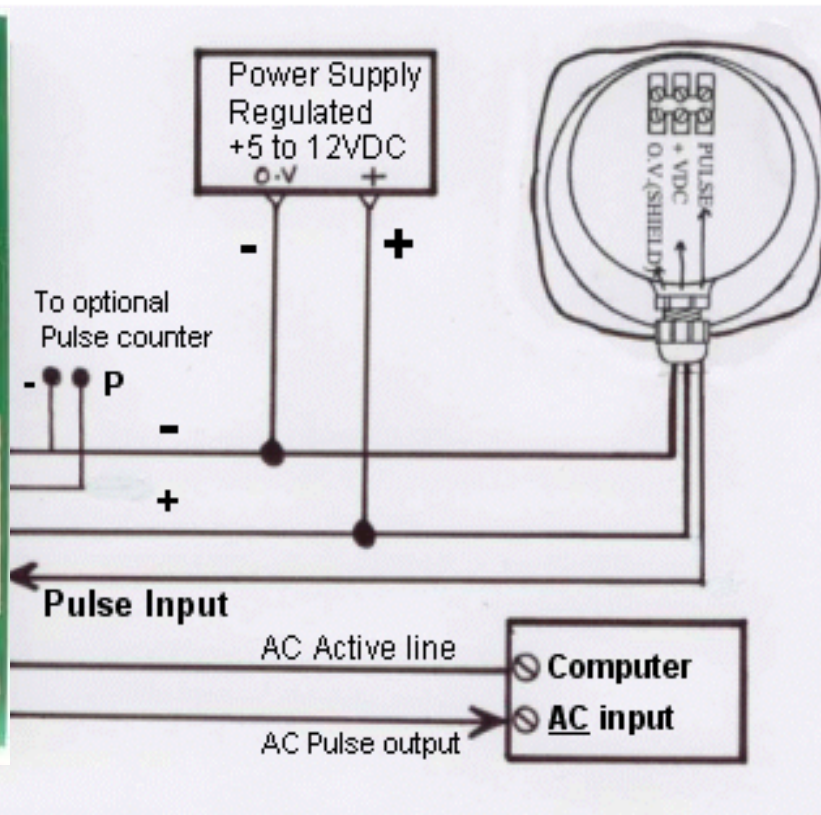
- produces low voltage 5-12 VDC NPN (sinking) **scaled output pulse** (proportional to supply voltage), which can be used for connection to counters or other devices.
- output pulses feeding PLC input have 50% **duty cycle** (square wave).



Interface Cards - UIC – Wiring for AC

WIRING /CONNECTION DETAILS

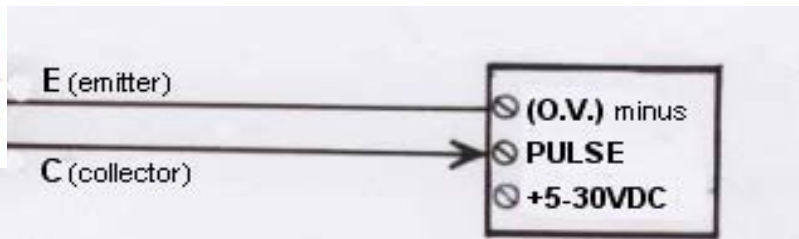
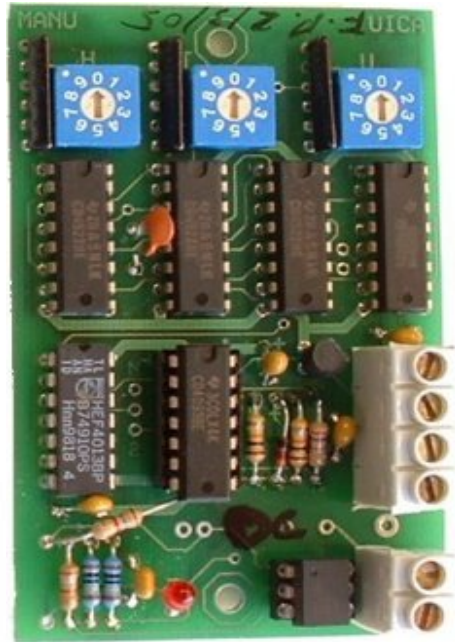
Note: Supply voltage must be regulated 5-12 VDC only
(Unless the special voltage regulator is fitted on UIC card)



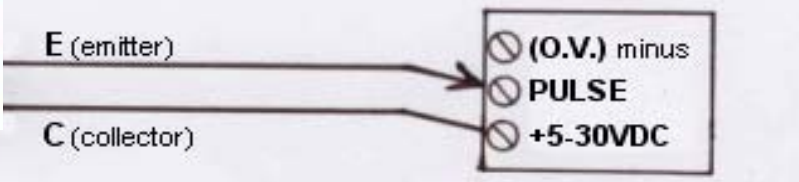
Flowmeter Pulsehead entry
MES20 or other meter
Upto 1km distance
USE SHIELDED CABLE ONLY

UIC/A1 or A2
AC Pulse version
AC Pulse to TRIAC

Interface Cards - UIC – Wiring for DC



UIC/D SINK
DC Pulse wiring
Pulse & Ground (o.v.) Connection



UIC/D SOURCE
DC Pulse wiring
Pulse & Positive (+) Connection

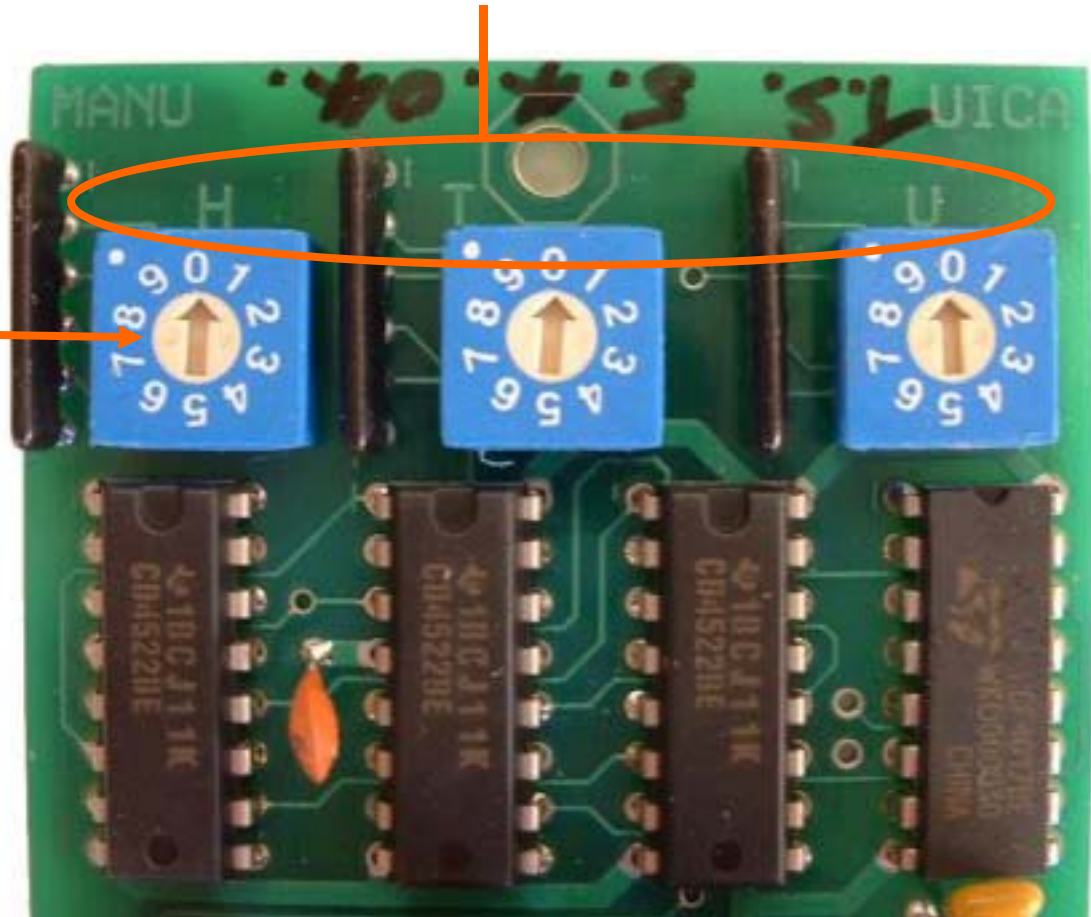
Interface Cards - UIC – Installation

- Mount UIC interface cards on a suitable **panel or inside an enclosure** near the Computer/PLC input panel.
- When wiring the flowmeter, use **shielded cable**.
For example, when wiring 4 flowmeters in the one installation, use at least 6-core shielded cable: 4 cores for each pulse wire and at least one core for the positive DC voltage supply linked to each UIC card and the flowmeters, and one core coupled with the shield as O.V.
- Wire the **Pulse Output and return line** from the dual (white) terminal to the computer/PLC pulse input(s).
- Wire the **external power supply** (also available from ManuFlo), to the UIC card which in turn supplies voltage to flowmeter(s).
Power supply must be strictly regulated +5 to 12 VDC only, noting each UIC card/flowmeter can draw up to 25mA each.
Or 24VDC if UIC-24VDC input powered option is installed.
- Select the appropriate **calibration pulse ratio** setting via the 3 decade rotary pots, marked **Hundreds(H) Tens(T) and Units(U)**.
- **Power up the system.**
- **Prime the admix line**, until liquid appears at outlet line, UIC card's pulse LED is blinking and the computer screen is counting.
- A **volumetric calibration test** must be performed when commissioning a new installation, and a follow-up quarterly test: a calibrated vessel is placed near the sock, a selected batch quantity set on computer, and batched.

Interface Cards - UIC - Scaling

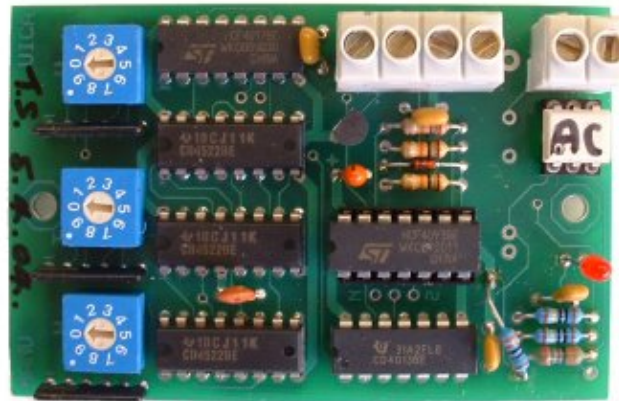
Calibrating or scaling of pulse output signals is via 3 rotary select switches (numbered 0-9) marked **Hundreds (H)**, **Tens (T)** and **Units (U)**.

Use small flat-bladed screwdriver, insert into switch slot and turn arrow to desired number.



HTU =	$\frac{\text{input pulses/Litre}}{\text{output pulses/Litre}}$	x 5
e.g. to convert 20 pulses/Litre to 1 pulse/Litre:		
HTU =	$\frac{20 \text{ pulses/Litre}}{1 \text{ pulse/Litre}}$	x 5
HTU =	100 (i.e. H=1 T=0 U=0)	

Interface Cards - UIC - Scaling



For batching with concrete admixtures, the MES20/MES20S 20mm pulse flowmeters are primarily used. Scaling values (x10 input card standard) : \longrightarrow

Final Calibration:

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

Rotary decade value H T U	Pulse output rate
0 2 5	5 mls/pulse
0 5 0	10 mls/pulse
1 0 0	20 mls/pulse
1 5 0	30 mls/pulse
2 5 0	50 mls/pulse
5 0 0	100 mls/pulse
9 9 9	200 mls/pulse

Interface Cards - UIC - Scaling

Note:

- Pulse output rate to **AC** input PLC/computers **must not exceed 15 Hz (15 pulses/sec)**.
- Any pulserate faster than 15 Hz will cause overdose, as computer will start missing pulses due to AC input or scanning time.
- Relates to any 24 – 240 vac pulse inputs (Eagle/Alcon/Commandbatch/Jonel etc).
- To use UIC/A (x10input) card with MES 20mm flowmeter:

Meter		UIC/A card setting			Equivalent
Model	Size	H T U	Pulse Output value	Flowrate	pulse frequency
MES20	20mm	5 0 0	100 mls per pulse	1 Litre/sec	10 Hz **
"	"	2 5 0	50 mls per pulse	0.65 Litres/sec	13 Hz
"	"	1 0 0	20 mls per pulse	0.36 Litres/sec	13 Hz
"	"	0 5 0	10 mls per pulse	0.13 Litres/sec	13 Hz

(Maximum flowrate MES20 is 1000mls/sec i.e. 1Litre/sec, 60 LPM)

*** best and most common setting*

Interface Cards - UIC - Calibration

Volumetric Calibration example:

- MES20 flowmeter used.
- **10.1** Litres called on batch computer program.
- 100 mls/pulse set on UIC (HTU=500)
- **10.1** Litres of admixture collected in container.
- 101 counts on computer.

$101 \times 100\text{mls/count} = 10.1 \text{ litres} = \text{CORRECT RESULT.}$



Interface Cards - UIC - Calibration

Volumetric Calibration Example:

- MES20 flowmeter used.
- **10.1** Litres called on batch computer program.
- 100 mls/pulse set on UIC (HTU=500)
- **10.3** Litres of admixture collected in container.
- 101 counts on computer.

INCORRECT RESULT. This is

$$\frac{10.3}{10.1} = 102\% \text{ or } 2\% \text{ excess admix, so}$$



- subtract 2% from the current HTU=500 setting i.e. set HTU= 500-10 = 490.
- Batch again, result should BE CORRECT.