

# **ME4-T reset counter with CMM25 Magflow** **Slumpstand Recycle Water Measurement System**

Congratulations on choosing a **ManuFlo**®™ (Manu Electronics) slumpstand recycle water measurement system. You will now join many satisfied customers worldwide.

## Your system comprises:

1 x **ME4-T-P** 4 digit resettable (bat.pwr) counter c/w pulse output option

1 x **CMM25** MinMag pulse flowmeter (24vdc pwr)

1 x **JB3W** junction box (pre-wired)

+24VDC supply



## Information sheets included:

1. Installation Guide
2. ME4-T-P resettable counter datasheet
3. CMM25 Magflow flowmeter
4. Wiring etc



## Prior to installation:

- A. Consider a good viewing position for the **ME4-T-P** reset counter. Allow clearance for the opening flip lid reset function. The unit is internally battery powered. One gland entry is for the incoming pulse from the mag-flowmeter, the other gland is for the pulse output which is re-transmitted to batch-room (now or at a later date) for connection to a counter and or PLC input for incorporation into the overall QC system.
- B. The **CMM25** Magflow is installed as per the installation guidelines in the following datasheet. The flowmeter has a custom 5 metre lead m12 plug-set for pulse and voltage supply.
- C. The system comes pre-wired with the **JB3W** junction box. This allows simple “plug and play” install and the only requirement is to provide +24VDC to the system.

If unsure on any aspect of installation or operation, refer to our website or call ManuFlo or your local installer.

**Happy Flowmetering ..... Go with the Flow**

**FEATURES:-**

- 4 digit Large (20mm high) LCD resettable totalizer
- Total displayed in LITRES
- Easy reset of total via flip top lid.
- No power required incorporating internal 3.6 v Lithium Battery (10+ year life).
- Maximum ambient Temperature 55 °C
- Robust ASA high impact, high UV resistant, IP65 Display housing
- Dual Hinged lid protects LCD from sunlight, with magnet secure function.
- With NFC capability offering easy access for programming and re-calibration or Simple internal push button K-factor settings.
- Can be used with pulsing flowmeters e.g. CMM25 or RPFS-L(GAL25-T2)
- Optional pulse output :-  
Pulse output is disabled when lid is closed (code **-P**) or  
Live even when lid is closed (code **-PL**) and  
option for Continuous Live LCD display (code **-NS** "no sleep mode")



The **ME4-T** resettable counter is custom designed and manufactured in Australia by ManuFlo. The **ME4-T** will operate for example with CMM25 and RPFS-L pulsing flowmeters. The unit is ideal for concrete Batch plant **SLUMPSTAND** applications for final adding of water into the Mobile concrete truck mixers. The display is easily reset by closing the lid and re-opening again or optionally by external contact closure. An internal long life lithium battery powers the LCD and circuit. When not in use the indicator will go in to 'Sleep' mode which prolongs the battery life up to 10+ years. The unit is woken by a magnet when the lid is opened.

The **ME4-T** will accept flowmeter input pulses up to a maximum of **500 Hz** from e.g. CMM25 and RPFS-L flowmeters. e.g. The flowmeters pulse rate multiply by flowrate must not exceed 500hz.

The unit is housed in a compact IP65 ASA (acrylonitrile styrene acrylate) enclosure with high UV and impact resistance making it suitable for constant exposure to the harshest of weather conditions. The housing includes fastening lugs for securing to an upright structure or wall mount.

Prior to shipping the **ME4-T** will be custom wired and programmed by ManuFlo according to your requirements including 'K-factor' input. Any subsequent calibrations in situ can be performed either by the on-board push buttons for example using the user friendly smart 1 point re-calibration-self calculation function, or alternatively via a free app using NFC capable smart phones.

**SPECIFICATIONS****ME4-T**

<b>Accuracy</b>	Dependent on flowmeter connected (refer equipment specifications) Digital input.
<b>Display Readout</b>	Counter: 4 digit (8mm W x 20mm H mm) in Litres (L)
<b>Programming</b>	Option 1: via 3 internal push buttons Option 2: via PC with RFID reader and EWM Calibration software or ANDROID device with built-in NFC and EWM application
<b>Power Source</b>	3.6v replaceable lithium battery (typically in excess of 10 year life)
<b>Display Housing Ingress</b>	IP65
<b>Max. Ambient Temperature</b>	55 °C
<b>Pulse input (compatibility)</b>	All square waveforms and Voltage free switching (500hz max.)
<b>Pulse Output (optional)</b>	N-Channel MOSFET, 5-100VDC 1 Amps, 100 Hz maximum
<b>External Reset Input (option)</b>	Passive input via 2 wire volt free contact for PLC or external totaliser reset switch.

<b>Dimensions:</b>	52mm (H) x 84mm (W) x 84mm (L) Fastening lugs with 94mm centers
<b>Weight (unpacked)</b>	0.4 kg

## MATERIALS OF CONSTRUCTION

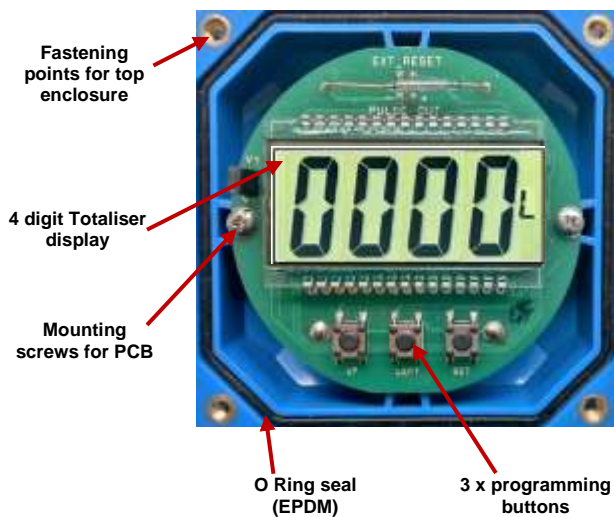
ME4-T

<b>Display Housing - Lower Upper</b>	ABS (acrylonitrile butadiene styrene) ASA (acrylonitrile styrene acrylate)
<b>Viewing Window</b>	Polycarbonate (c/w 3M 'anti scratch' protection film)
<b>Gasket</b>	EPDM
<b>Cable Glands</b>	PG7 in Polyamide
<b>Lid Housing Fasteners</b>	4 x cheese head screws in 316 stainless steel

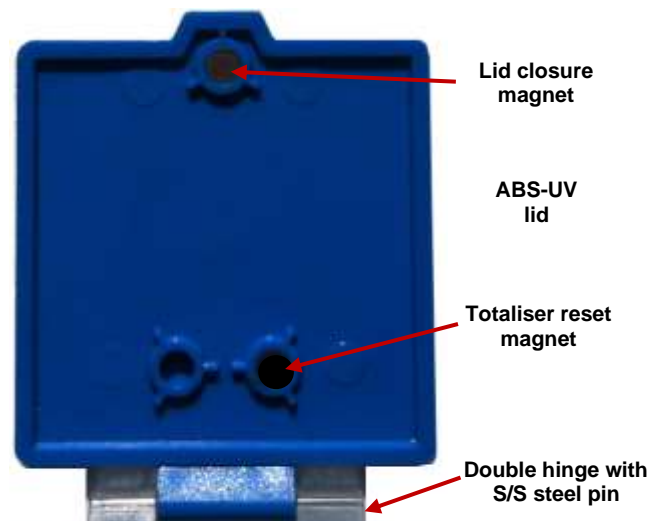
## PARTS AND DIMENSIONS

ME4-T

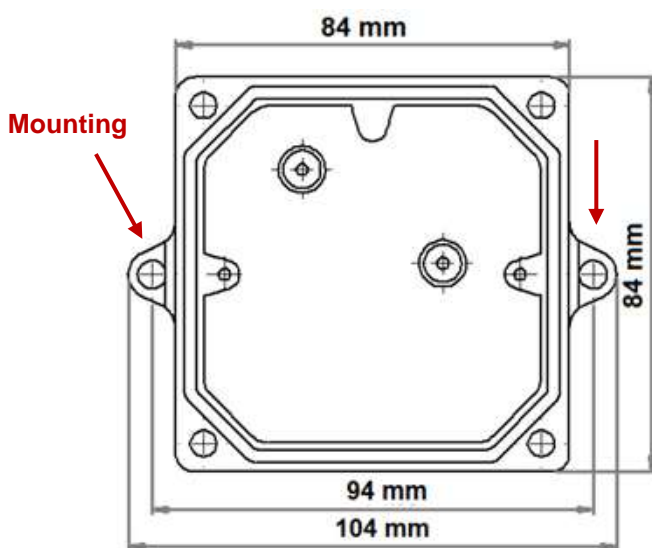
Internal View - PCB



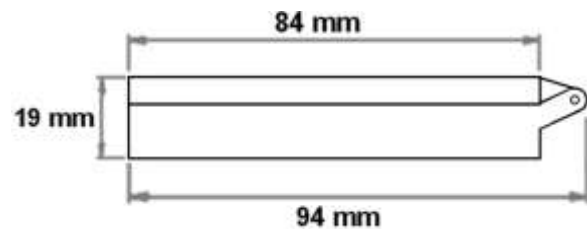
Lid Section



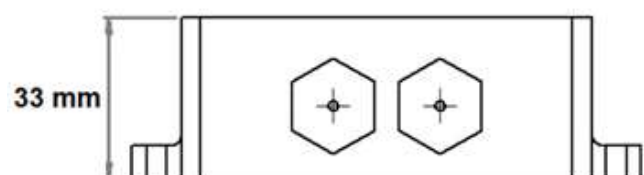
Lower Enclosure - Plan

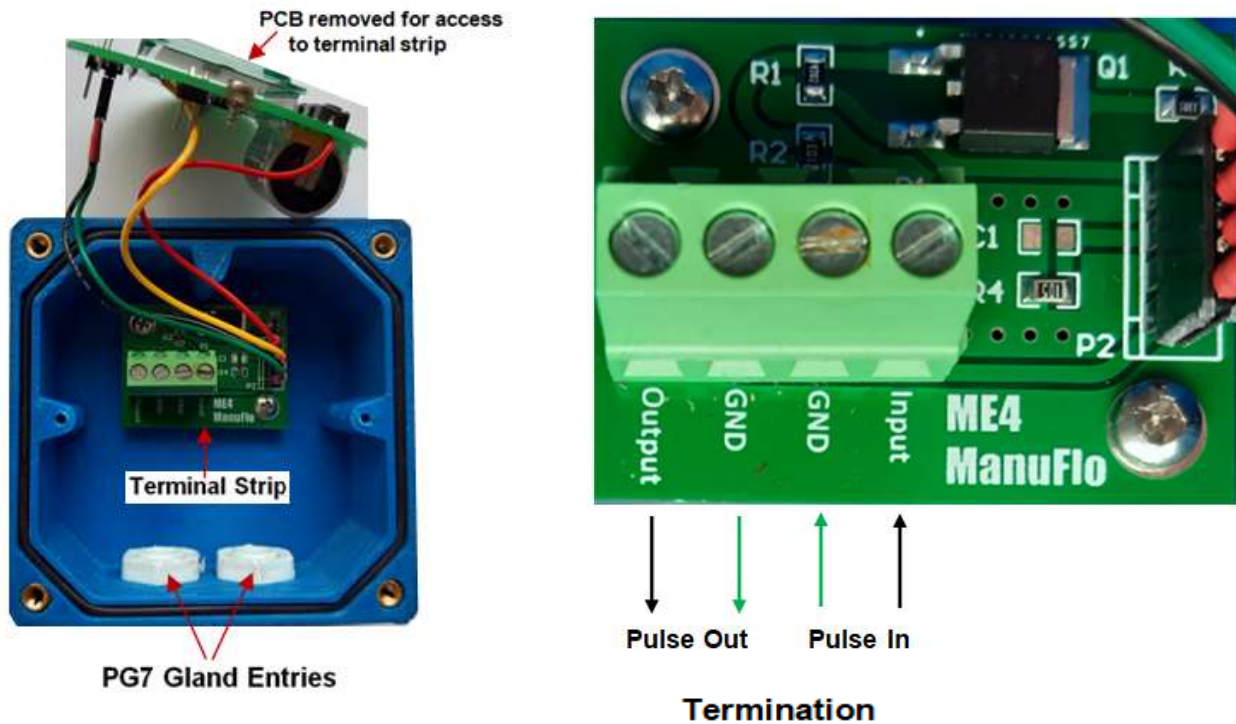


Upper Enclosure & Lid



Lower Enclosure - Side





**Mounting:**

The **ME4-T** has two external lugs for mounting to an upright structure, (refer detail page 2 'Lower Enclosure' diagram). Do not over tighten the mounting screws when using these lugs (Note: mounting screws not supplied with the ME4-T). Choose a suitable mounting position that allows the display to be read without strain by the operator and also allows easy access to the wiring terminals.

**Pulse Termination:**

In order to gain access to the terminals for wiring of pulse input/output it is necessary to first undo the 4 cheese head screws in the top section of the enclosure, this gains access to the PCB and LCD display, remove the two small Phillips head fasteners that hold the PCB to the mounting posts, carefully lift the PCB and let it dangle from the wiring harness taking care to set aside the two fastening screws in a safe place, access to the terminals is via PG7 cable glands. There are 4 terminals that are clearly labeled two for input pulses from the flow meter and two for pulse output if required.

**Removing the PCB:**

To service or replace the PCB first disconnect the 4 pin connector from the lower wiring terminal board, following replacement or service ensure the connection pins are returned to the correct position with the red wire at the top of the connector.

**O-Ring Seal:**

It is extremely important to make sure the EPDM O-ring is positioned correctly in to the groove of the enclosure prior to re-fastening the cheese head screws. Failure to do this if mounted externally will result in water ingress and associated void of warranty following failure of the indicator.

**Cable Glands:**

Make sure after running cables (most be round) the glands are properly tightened to reseal to IP65.

**Exposure to Sunlight:**

To prevent LCD fading due to prolonged exposure in direct sunlight **always close lid after viewing.**

# INDICATOR ORDERING CODE

ME4-T

## ME4-T-

A	B	C	D	E	F	G	H
<b>P Input -</b>	<b>P Output -</b>	<b>P Scale -</b>	<b>T Units -</b>	<b>T DP -</b>	<b>Sleep -</b>	<b>Reset -</b>	<b>ER -</b>
<b>Pulse Input Information</b> Option 1 - Confirm Fixed Number of Pulses/Litre <b>? PPL</b> Option 2 - For ManuFlo RPFS-L Confirm Pipe I.D. mm <b>? mm</b>							
<b>Pulse Output Options:</b> Without pulse output <b>(Default)</b>	<b>0</b>						
With pulse output ('pulse not live' lid open or closed) Standard	<b>P</b>						
With pulse output ('pulse live' when lid closed)	<b>PL</b>						
<b>Pulse Output Scaling</b> 1 Pulse / 1 Litre <b>(Default)</b>		<b>1</b>					
Any other option from 0.1 to 999.9 Litres/pulse		<b>?</b>					
<b>Totaliser Display Units:</b> Litres <b>(Default)</b>			<b>L</b>				
<b>Totaliser Decimal Place:</b> Without Decimal Place <b>(Default)</b>				<b>0</b>			
With 1 Decimal Place				<b>1</b>			
<b>Sleep Mode (Battery Conservation):</b> Sleep in 5 Minutes <b>(Default)</b> - LCD Turns off after 5 mins. without flow - value can be adjusted from 5 to 999.9 mins.					<b>S5</b>		
Sleep Function Off - Display is always live (reduced battery life but still >5 years in most applications)					<b>NS</b>		
<b>Totaliser Reset Options:</b> Reset <b>(Default)</b> Totaliser is reset each time the lid is closed						<b>0</b>	
<b>External Reset Option:</b> No external reset <b>(Default)</b>							<b>0</b>
External Reset - Totaliser reset via external input (includes IP67 plug and socket c/w 5m cable)							<b>ER</b>

### Example:

ME4 - T -	A	B	C	D	E	F	G	H
ME4 - T -	100	- P -	1 -	L -	0 -	S5 -	0 -	0

#### Position Selection Description:

Code A:	<b>100 PPL</b>	100 Pulses/Litre
Code B:	<b>P</b> .....	With pulse output ('pulse off when lid closed)
Code C:	<b>1</b> .....	Pulse output 1 pulse / Litre
Code D:	<b>L</b> .....	Totaliser in Litres
Code E:	<b>0</b> .....	Totaliser without decimal point
Code F:	<b>S5</b> .....	Display sleep after 5 minutes inactivity

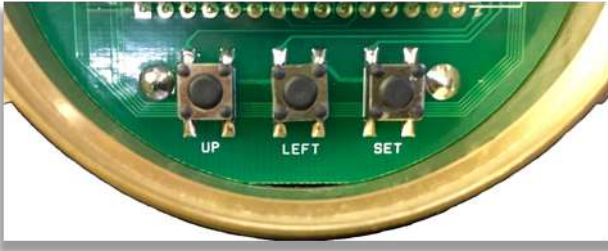
### Populate for your selection:

(Minimal information required is Column A - If no other selections are made ME4-T will be supplied with 'Default' settings highlighted in blue above)

ME4-T								
ME4-T	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>



Programming of unit is via the three internal pushbuttons (marked **UP**, **LEFT** and **SET**) located underneath LCD screen.



Input multiplier factor fixed on x10  
e.g.  
CMM25 25mm magmeter 100ppl  
Then 10 x 100ppl = 1000 on the K-FACTOR

### User access for re-calibration (K-FACTOR) only

1. Press SET to enter Calibration Mode.  
0010 (example only, value depends on the pre-programmed K-factor (C))
2. Press LEFT to select desired digit to be change.
3. Press UP to change value of selected digit.
4. Press SET to lock in the changed value.

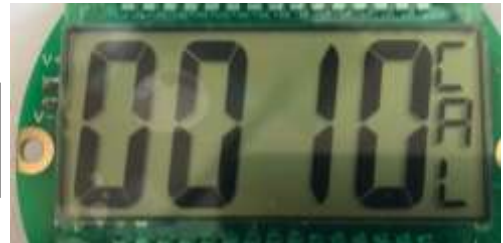
Calibration is via the three internal pushbuttons (marked **UP**, **LEFT** and **SET**) located underneath screen.

- Note: The calibration (K-factor) characteristics can vary up to 6% between horizontal or vertical runs.
- Run liquid through the MRTU4 into a calibrated vessel or load cell, until at least 50 Litres is displayed on the MRTU4. For accuracy, keep flowrate continuous and above minimum flow range for the pipe size.
- Compare the actual amount collected against what is displayed on the MRTU4. If the amount collected matches the amount displayed within  $\pm 2\%$ , then no adjustment to calibration is necessary.
- **Formula:**  $Percentage\ error = (Amount\ displayed - Amount\ collected) / Amount\ displayed \times 100$
- If the percentage error is more than  $\pm 2\%$ , please follow **1 point calibration** procedure.
- **To access buttons**, open the hinged lid and remove the four SST screws holding the viewing window to the enclosure. Set the viewing window aside in a safe place you will now be able to see the green electronics board.

Adjusting the Calibration Value using the internal Calibration push buttons SET, LEFT and UP.

LCD display in simple manual calibration mode.

(K-Factor: CAL input:  
Displayed for a flowmeter with 1 pulse /1 litre  
e.g. 1ppl x 10 = 0010 CAL



### Advanced programming of Parameters

1. Check with ManuFlo

NOTE; Specifications can change without prior notice.

**ManuFlo**®™  
Flow Measurement Products

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10 Pages

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### FEATURES:

- Very compact, light weight design.
- Sizes 15mm (1/2"), 20mm (3/4") & 25mm (1").
- High resolution Pulse output signal.
- 1000 PPL (15mm), 500 PPL (20mm), 100 PPL (25mm size).
- Full scale Accuracy  $\pm 1.5\%$ ,  $\pm 0.3\%$  of rate, 1% repeatability.
- PEEK sensor tube, Stainless Steel 316 electrodes
- BSP (M) threaded end connections.
- Electrical connection via M12 Plug and socket set.
- Virtually maintenance free, with no moving parts.
- Measures liquids with conductivity  $> 50\mu\text{S/cm}$ .
- Process temperature to  $90^\circ\text{C}$ , pressure to 1600 kPa.
- Accuracy is unaffected by varying viscosity or specific gravity of liquids.
- No moving parts, nothing to block.



### INTRODUCTION:

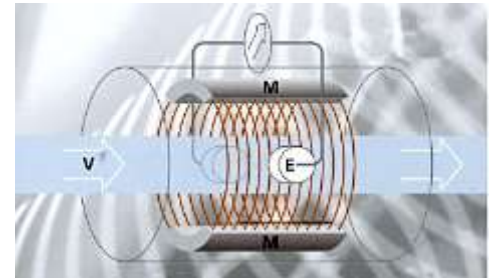
The CMM Mini-Mag is a low-cost compact Electromagnetic Flowmeter, suitable for industrial applications for flowrate and totaliser liquid metering and batching.

Liquids with an electrical conductivity of at least  $50\mu\text{S/cm}$  can be measured. The converter/processor is inbuilt on the flowmeter sensor primary. These two elements form a very compact package.

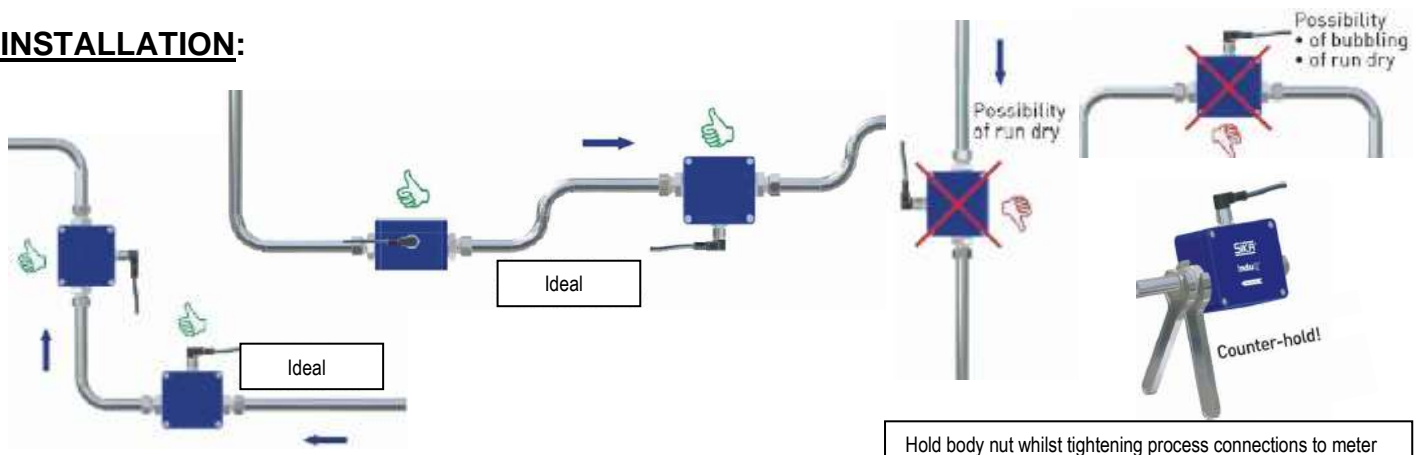
With no moving parts and an obstruction-free bore, this type of flowmeter is ideal for measuring a wide range of conductive liquids (that are chemically aggressive, or dirty) up to a temperature of  $90^\circ\text{C}$ , with minimal head losses and virtually no ongoing maintenance. CMM Mini-Mag is ideal for measurement of recycle water or water based liquids including admixtures with impurities, providing flowrate or total display for shotcrete and for process batching/monitoring applications. The MiniMag can be used in conjunction with a remote ManuFlo FRT-303 Indicator, ME4-T reset counter, ME-series Batch Controllers, ME2008 batch interface cards, UIC scaler cards or can be connected to 3<sup>rd</sup> party PLCs via the onboard pulse output.

### PRINCIPLE OF OPERATION:

The operation of electromagnetic flow meters is based on Faraday's Law of Induction. A voltage is induced in a conductor as it moves through a magnetic field. This principle is applied in the Mini-Mag design. The voltage induced in the flowing liquid is measured at two electrodes, and is proportional to the average flow velocity. The microprocessor then scales this signal voltage to read in digital units.

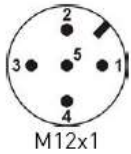


### INSTALLATION:



**ELECTRICAL CONNECTIONS:** (Via M12 5-pin screwed socket and 3mtr plug lead connector)

Pinout:



Possible pinout:

- Pin 1: **+ Supply Voltage**
- Pin 2: d. n. c. (do not connect)
- Pin 3: **GND**
- Pin 4: Frequency
- Pin 5: **PULSE**

Pin No.	Cable Colour
1	Brown
2	White
3	Blue
4	Black
5	Neutral

**+24VDC**  
**Ground (o.v.)**  
**Pulse**



**SPECIFICATIONS:**

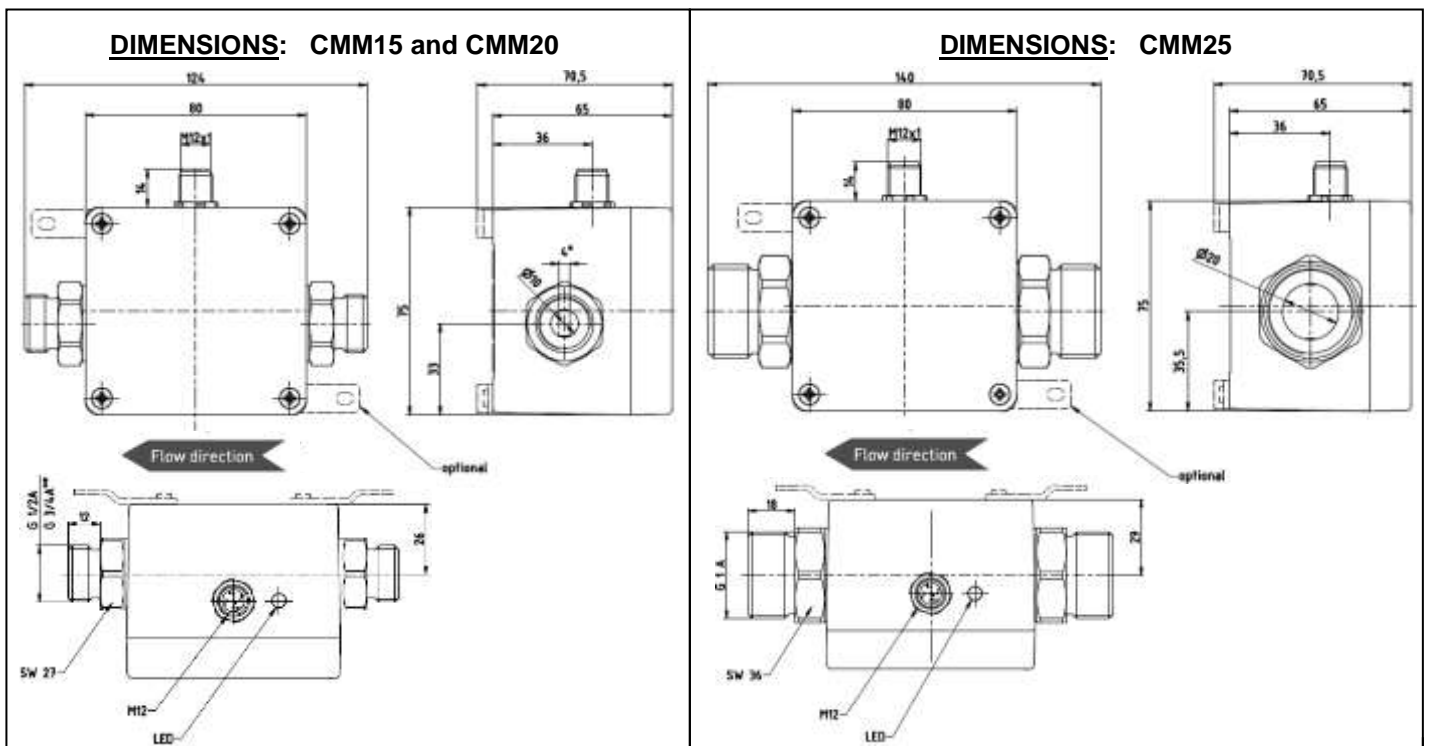
<b>Accuracy (of range):</b>	+/- 1.5%	<b>Accuracy (of reading):</b>	± 0.3%
<b>Repeatability:</b>	1 %	<b>Response Time:</b>	<500 mS
<b>Supply Power:</b>	24 VDC (± 10%) @<150mA	<b>Plug connector:</b>	M12 x 1 plug and socket set (5pin)
<b>Liquid Temp.:</b>	-20 °C to 90 °C	<b>Ambient Temperature</b>	-10 °C to 70 °C
<b>Max. Pressure:</b>	1600 kPa	<b>Ingress Rating</b>	IP65 (IP67 with M12 plug)
<b>Flow Indication:</b>	LED proportional Flashing	<b>Flow Direction:</b>	Forward (arrow label)

**MATERIALS OF CONSTRUCTION** (All models):

<b>Housing:</b>	Cast Aluminum
<b>Electrodes:</b>	Stainless steel 1.4571
<b>Process connections:</b>	Stainless steel 1.4571
<b>Measuring tube:</b>	PEEK-GF30
<b>O-rings:</b>	EPDM (FKM Optional)

**VARIOUS MODELS:**

Order Code:	CMM15	CMM20	CMM25
<b>Connection Size:</b>	15mm	20mm	25mm
<b>Actual Bore Size:</b>	7mm	10mm	20mm
<b>Thread G BSP M</b>	G½" ISO 228 M	G¾" ISO 228 M	G1" ISO 228 M
<b>Order Code: Barrel-Union connectors Bsp-f</b>	<b>SBU15</b>	<b>SBU20</b>	<b>SBU25</b>
<b>Flow Range (Litres/minute)</b>	0.5 - 30	1 - 60	5 - 250
<b>Signal output starts (Litres/minute):</b>	0.4	0.9	4
<b>Pulse output (Pulses/Litre)</b>	1000	500	100
<b>Pulse Signal shape:</b>	Square wave, pulse duty ratio 50:50, Push-Pull		
<b>Signal current:</b>	< 100mA, current limited		

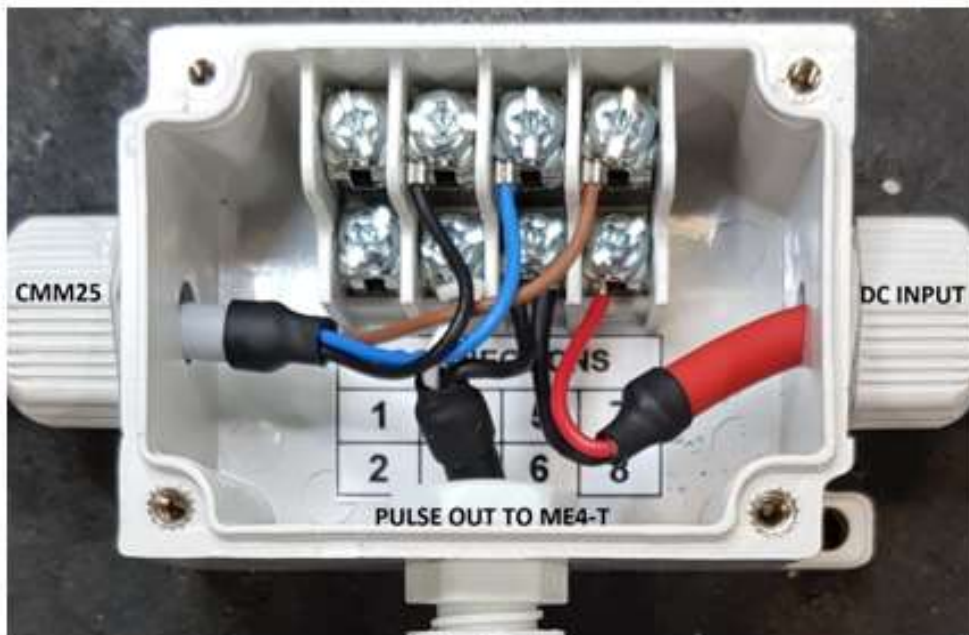




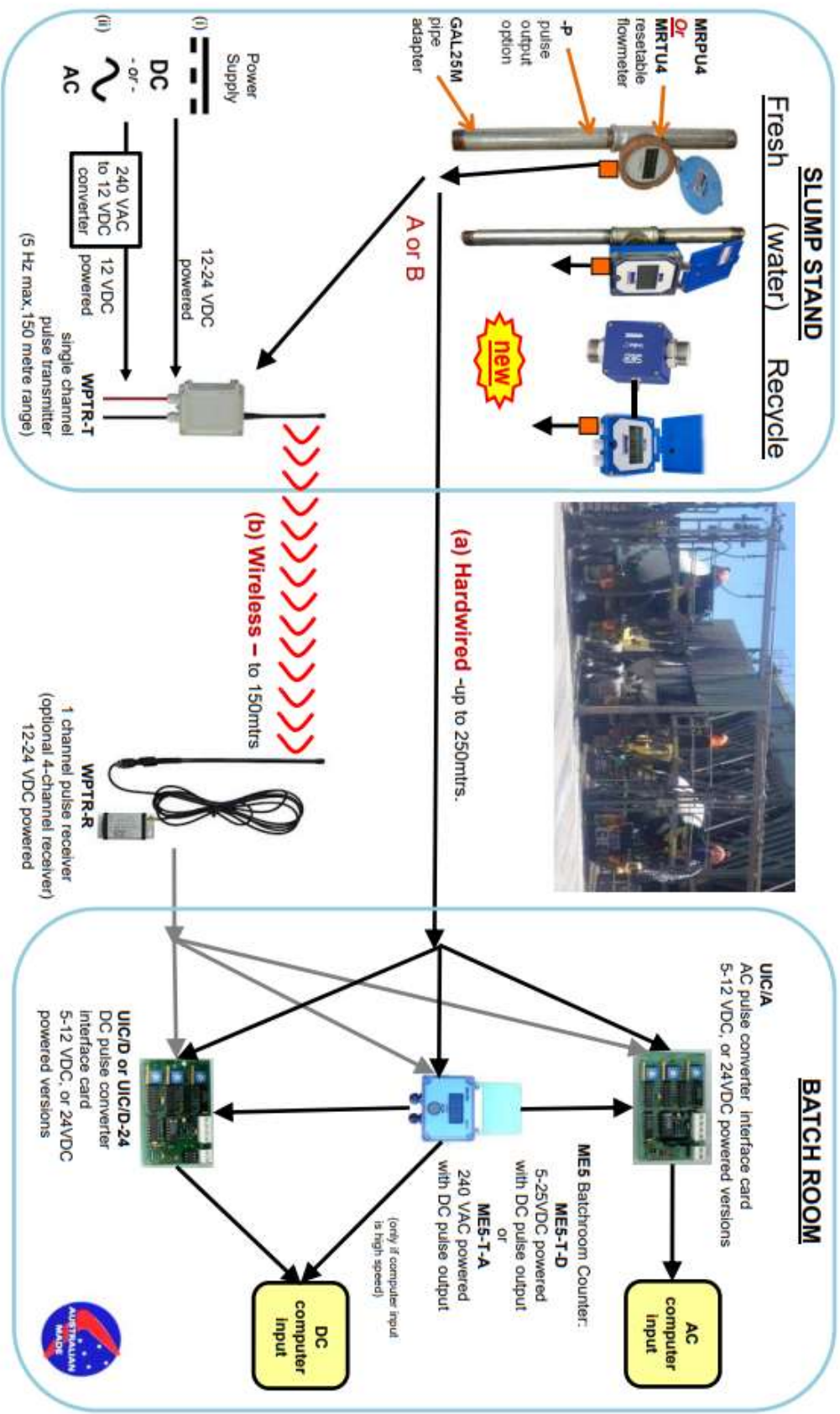
# CMM25 and ME4-T

## Junction Box Wiring

Junction Box Connections		
Terminal #	Colour	Description
3	Black	Pulse input from CMM25 flowmeter
4	White	Pulse output to ME4-T
5	Blue	Ground to CMM25 flowmeter
6	Black	Pulse output ground to ME4-T
6	Black	Power supply ground
7	Brown	DC + to CMM25 flowmeter
8	Red	DC + from power supply



# Slumpstand To Batchroom Full Options



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