TECHNICAL PRODUCT
DATA SHEET

titan

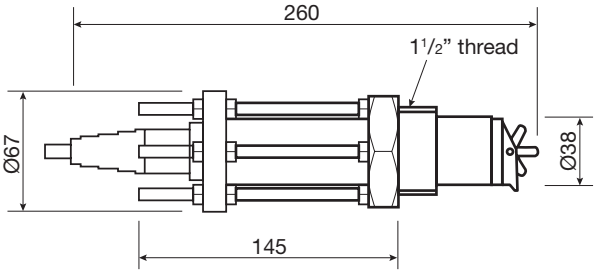
Insertion Turbine

This innovative, robust insertion turbine combines proven technology with modern materials and design. The PVDF turbine rotates freely on a 316 St St shaft and has specially aerofoil shaped blades to extend the dynamic range of the meter. The specially contoured housing further improves the meters linearity particularly at lower fluid velocities. Each meter contains two sensors, one self powered for our battery operated equipment and the other an open collector transistor.

A reed switch may be specified for hazardous areas where simple apparatus is acceptable. The body is manufactured from AISI316 stainless steel and as standard is supplied with 1.5M of five core screened instrument cable. The Metra-Count, Metra-Smart and Metra-Batch devices can all be mounted directly onto the meter (via a mounting stalk) and all of these can be self powered with the exception of Metra-Batch which requires an external power source.

IDEAL FOR

- HVAC
- Water distribution
- Boiler feed
- Irrigation



Insertion depth = pipe internal diameter divided by 8.

FEATURES

- Economical
- For 40–900mm pipes
- 0.3 to 10M/S velocity
- Linearity 1.5% typical
- 316 St St body
- Dual sensing
- Low installation cost
- Pulse output
- 80 Bar rating
- Viton® seal
- 1½" fitting
- 1% repeatability
- IP68 (NEMA 6)
- 100°C standard
- IS option for hazardous areas
- Bi-diectional flow measurement
- Simple apparatus option

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Insertion Turbine

Ordering codes – Standard meter

BSPT mount
400-003
BSPT reed switch
400-003-R
NPT mount
400-004
Mounting stalk
400-005
For local instrument mounting

These insertion turbines provide a cost effective and simple means to measure the flow of a wide range of low viscosity liquids. Installation is quick and inexpensive in pipes from 40mm diameter up to 900mm diameter. For rate and total applications a self powered instrument can be mounted directly onto the meter for a stand-alone measurement.

Other instruments permit high and low flow alarms, 4–20mA loops or even batching functions, these all require external power. The meter requires at least ten pipe diameters of straight pipe upstream and five downstream to ensure a fully developed flow profile and accurate measurements. Large disturbances may require greater straight lengths.

TECHNICAL SPECIFICATIONS

Meter 'K' factors for common pipe sizes				
Pipe I/D (#40)mm	**Schedule 40 Pipe (#40)**		**Schedule 80 Pipe (#80)**	
	pulses/litre	**pulses/USG**	**pulses/litre**	**pulses/USG**
1½" 40.9	18.678	70.695	21.524	81.468
2" 52.6	11.238	42.534	12.818	48.517
2½" 62.7	7.880	29.824	8.899	33.682
3" 78.0	5.062	19.161	5.676	21.485
4" 102.0	2.912	11.021	3.233	12.237
Weight	1.30kg (model 400-003)			

Standard specification

Pipe sizes	40 to 900mm
Velocity range	0.3 to 10M/sec
Fitting size	1½" BSPT or NPT
Linearity	± 1.5% typically
Repeatability	± 1.0% typically
Pressure	80Bar Maximum
Temperature	-40°C to +100°C Optional 200°C
Body material	316 Stainless steel
Rotor material	PVDF
Rotor shaft	316 Stainless Steel
Spindle	Tungsten carbide
'O' Ring seal	Viton®
Outputs	Open collector pulse 1.5V X 10µS pulse Reed switch (optional)
Frequency	230Hz @ 10M/sec 77Hz with reed switch
Cable	1.5m X 5 core screened
Protection	IP68
Options	Mounted instruments Reed switch sensor Conduit entry

TECHNICAL PRODUCT
DATA SHEET

Metra-Smart Totaliser & Rate Meter

Ordering codes

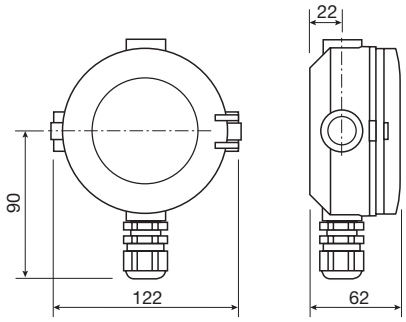
Metra-Smart
380-101
Metra-Smart IS option
380-101-IS – Exia IIB T4
Wall bracket
380-103

The Metra-Smart was specifically designed for computing and displaying rates and totals as well as giving an analogue output proportional to flow. It can also give two pre-set flow switch points and calculate differential rates from two input sensors. The instrument will display Re-settable Total, Accumulated Total and Flow Rate in engineering units as programmed by the user. Simple PIN protected flow chart programming with English prompts guide you through the entire programming routine greatly reducing the need to refer to the instruction manual.

The pulse output can be selected to act as an input pulse repeater serving as a signal conditioner module or may be programmed as a scaled pulse output for remote metering. There is a ten point linearisation for non-linear sensors. The analogue output and flow switch function requires an external 8-24Vdc power supply. The robust housing is purpose designed to suit harsh indoor & outdoor industrial and marine environments. It is weatherproof to IP66/IP67 (Nema 4X) standards, UV resistant and uses glass reinforced nylon mouldings with stainless steel screws and Viton® O-Ring seals.

IDEAL FOR

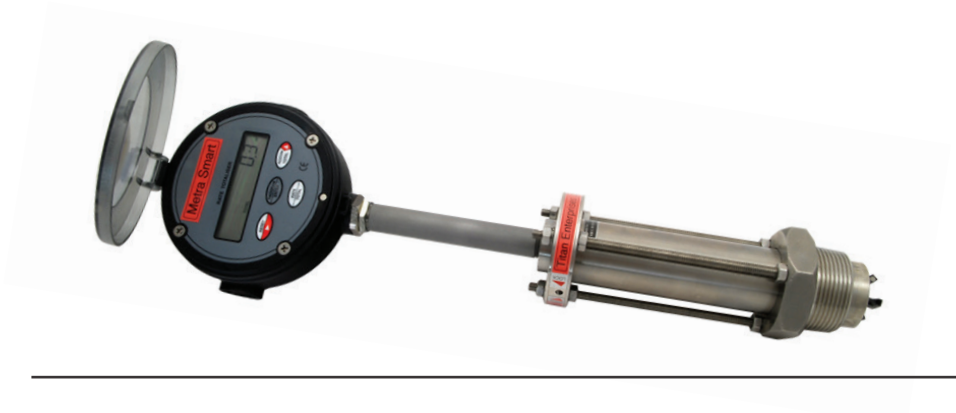
- Flow rate and total
- Production lines
- Fuel consumption
- Process indicators



FEATURES

- 5 Digit rate indication
- 8 Digit total
- 8 digit accumulated total
- Analogue output
- 2 programmable flow alarms
- Dual input A+B, A-B, A/B
- Simple programming with English prompts
- 10 point linearisation
- Scaleable pulse output
- IP66/IP67 (NRMA 4X)
- Clear 9mm LCD display
- Remote/local reset
- Long battery life (up to 10 years)
- -20 to 80°C (-4 to 176°F) Operation
- Non-volatile memory
- IS Option (-20 to 60°C) – Exia IIB T4/IECE
- Low battery indicator

Metra-Smart Totaliser & Rate Meter



The drawing below shows all of the segments on the LCD display illuminated. This occurs for five seconds whenever the program mode is entered.

5 digit rate display has flashing time base enunciation on the first 3 characters and is programmable for up to three "floating" decimal places.

The 8 digit Total display is front panel re-settable and can be programmed for up to three decimal places.

Advanced power handling techniques with three display settings, "power save", "Standby" & "continuous".

Engineering units selected during the initial programming routine.

Accumulative total. Up to 3 decimal places. Reset through a PIN protected security code.

Battery condition indicator shows only when the battery is low. Battery life can be up to 10 years.

Low and high flow switch indicators show when output transistor is activated. Rate set in program mode.

TECHNICAL SPECIFICATIONS

Display	Custom multifunction LCD	LCD 8 digit alpha-numeric 9mm high Engineering units and mode indicators Low battery indicator. 3 programmable decimal points for totals English programming prompts
Signal inputs	Universal pulse-frequency input	Compatible with reed switch, Hall effect detector, magnetic coil (15mV P-P), Voltage pulse & Namur proximity detectors. Maximum input frequency 500 to 10Khz depending on sensor type, minimum 2Hz, (0.2Hz) when used on external power).
Signal output	4-20mA	Loop powered 4 to 20mA can be spanned anywhere within the flow range. 12~24Vdc into 750Ω loop load. Accuracy is ±0.1% FSD. A test output is activated during programming.
Flow set points	High and low flow switches	Two NPN/PNP selectable FET transistors programmable as high and low set points with dead bands. Maximum power is 100mA at 24Vdc.
Power	Battery and/or external 8-24Vdc	Internal 3.6V ultra lithium battery.
Pulse output	Scalable	Selectable NPN or PNP it has a maximum frequency of 50Khz (5000Hz unscaleable). @ 1A maximum.
Enclosure	IP66/IP67 (NEMA 4X)	High impact glass reinforced nylon. Self drill cable gland in the base or rear. Operating temperature range –20°C to +80°C
K Factor range	0.001 to 9,999,999.999	With floating decimal points during entry.
Rate time base	Seconds, minutes, hours or day	Flashes when rate/total button pressed.
Weight	0.400kg	

TITAN ENTERPRISES LTD.

TECHNICAL PRODUCT
DATA SHEET

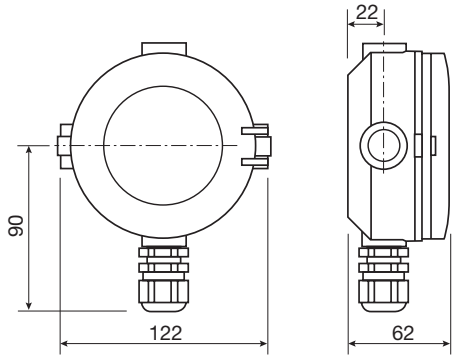
Metra-Batch Batch Controller

Ordering codes

Metra-Batch
380-102
Metra-Smart panel mount
380-102-PM (96mm x 96mm DIN Case)
Wall bracket
380-103

IDEAL FOR

- Bottle filling
- Recipe blending
- Any batch process



The Metra-Batch was specifically designed for flowmeters or machinery with pulse or frequency outputs. It has a two stage batching facility with selectable automatic over-run compensation as well as safety features to prevent erroneous dispense with a faulty system. Batching can be set to either count up from zero or down from the batch quantity as well as programmed for local, remote, automatic or manual start. Simple PIN protected flow chart programming with English prompts guide you through the entire set up routine greatly reducing the need to refer to the instruction manual.

Several Metra-Batches may be used in conjunction with each other with lock out and networking enunciation giving the user full operating data. The robust housing is purpose designed to suit harsh indoor and outdoor industrial environments. It is weatherproof to IP66/IP67 (Nema 4X) standards, UV resistant and uses glass reinforced nylon mouldings with stainless steel screws and Viton® O-Ring seals.

FEATURES

- High speed count
- Two stage control
- Automatic overrun compensation
- Simple programming with English prompts
- IP66/IP67 (Nema 4X)
- Remote start/stop facility
- Non-volatile memory
- 8 Digit rate display
- 12-24Vdc operation
  and mains operation with 380-102PM
- Batch total
- Accumulated total
- Number of batches total
- Networking facility
- Clear 9mm “starburst” LCD display
- Maximum dispense setting
- Received pulse time out

Metra-Batch Batch Controller

The drawing below shows all of the segments on the LCD display illuminated. This occurs for five seconds whenever the program mode is entered.

A five digit total number of batches (TNB) dispensed since the last reset. This is only re-settable through the PIN code.

The 8 digit batch display can be programmed for up to three decimal places.

The enunciators clearly show the operation of the instrument at all times.

Engineering units selected during the initial programming routine.

Accumulative total shows only when the "accum total" key is pressed. Up to 3 decimal places. Reset through a PIN protected security code.

When networked the dormant units will scroll "ENGAGED" across the screen. The working unit will operate as normal.

TECHNICAL SPECIFICATIONS

Display	LCD 8 digit alpha-numeric 9mm high Engineering units and mode indicators 3 programmable decimal points for both totalisers. English programming prompts.
Signal inputs	Universal pulse-frequency input compatible with reed switch, Hall Effect detector, magnetic coil (15mV P-P), Voltage pulse & Namur proximity detectors. Maximum input frequency 500 to 10Khz depending on sensor type, minimum 0.2Hz.
Power	12-24Vdc, 50mA 95-260Vac (pm)
Control output	Two selectable NPN or PNP field effect transistors 1A maximum.
Enclosure	IP66/IP67 (NEMA 4X) High impact glass reinforced nylon. Self drill cable gland in the base or rear. Operating temperature range -20°C to +80°C.
K Factor range	0.001 to 9,999,999.999.
Weight Batch Controller Panel Mount	0.400kg 0.800kg

Simple progamming

Display	Action
Program mode entered	Display self-tests
Enter PIN number	XXXX
Change PIN number Y/N	Incorrect PIN number permits viewing of the program data only
Reset ACCUM total	Y/N
Set engineering units	Ltr, gal, M3, lbs, kgs or none
Enter pulses per unit volume	E.g. 20.465 Pulses per litre etc
Set decimal point Dpt TOTAL	0 0.0 0.00 0.000
Dpt ACCUM TOTAL	0 0.0 0.00 0.000
Set count direction	Count DN/up
Start delay relay 2	000 - 999 seconds
Pre stop valve relay 2	000 - 999 seconds
Automatic overrun compensation	Y/n
Set missing pulse time out	00 - 99 seconds
Set batch limit	xxxxxxxx

Simple batch operating procedure

Press BATCH SET
Enter batch quantity xxxxxxxx
Press BATCH SET
Press RUN..... to pause press STOP
to abort press RESET
to resume press RUN
End of batch

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For reference only; for latest information contact your local distributor.

PULSITE solo

5 year
typical battery life

Titan's flexible, battery powered Pulsite Solo digital rate and total indicator with dc power capability

General Information

These panel or surface mounting digital instruments that require no external power, are designed to be as versatile as possible permitting customisation to suit the application. Programming is simple the front panel keys are used with easy to follow screen prompts.

- Clear 6 digit LCD display with enunciators
- 8mm high main digits with 2.5mm enunciators
- Simple setting procedure
- Password protected
- Programmable scaling for rate and total
- Programmable time base for rate
- 96 x 48mm 1/8 DIN case
- Environmentally protected tough polymer housing
- Panel or surface mount
- Replaceable battery
- Front panel programmable
- 5 to 24 V dc power with the battery as backup
- Coil and switch inputs
- Logic\transistor inputs (external power recommended)

Technical Specification

Display		IP64 Enclosure
Enclosure		Tough polymer housing
Display		Trans-reflective LCD display with 6 x 8mm high numerals with 2.5mm enunciators
Power		
	Solo	Battery 5 years typical life
		External 5 – 24V dc
Input		
	Pulse	2kHz max
	Coil	3mV – 24V sine wave, 2 KHz max
	Switch:	Limited to 100Hz
Unit Display		9.99999 to 999999
Enunciators		
	Total	No units displayed, Gall, cc, kg, gms or Ltr
	Rate	Total time units – Sec, min & Hr

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