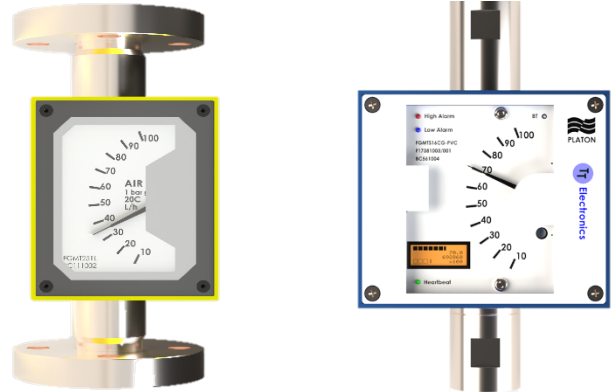


FEATURES

- ½” - 4” line sizes
- Mechanical flowmeter
- Electronic flowmeter
- Clearly visible meter
- Scaled for process fluids
- Easy installation—flanged or screwed
- Robust, simple construction
- Pulsation damper on gas meter



PLATON METAL TUBE VA FLOWMETER TYPE GMT

GMT & GMTE metal tube flowmeters are variable area meters of totally welded stainless steel construction. Liquid or Gas flowing up the tapered flow tube lifts the float to an equilibrium position, dependent on flow rate, and a magnetically coupled pointer indicates this flow on an external scale. The large meter indication is easily visible at a distance, with the pointer moving over a 160° scale. Each scale is produced specifically for the fluid involved and process conditions expected: several flow ranges are available for meters of each standard line size. All gas flow meters are supplied with an integral piston damper to smooth out flow pulsations.

Installation is simple, in a vertical section of flow line: meters can be supplied with EN, ANSI or other standard flanges, or BSP or NPT screwed connections.

The flow tube's robust construction with no glands or seals to leak, means the meters are suitable for high pressure applications, or extremes of temperature. While the GMT is totally self-contained and needs no external power, the GMTE combines a mechanical meter with an electronic 3-wire transmitter. The GMTE features, adjustable low and high alarm with LED indicator, totalisation, 4-20 mA output, adjustable averaging of the flowrate reading, heartbeat indicator, and backlit LCD display.

Alternative materials are available for special order, e.g. Hastelloy or Monel wetted parts. For lower cost, Brass or Stainless-steel bodied meters up to ”-2” in size are available with screwed connections.

Metal tube meters are ideal for arduous industrial service as an alternative to large glass tube flowmeters. They have particular advantages, where fluids are opaque or cause staining, or to provide higher safety and security for dangerous or toxic fluids.

General Note

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PRINCIPLE OF OPERATION

The metering element consists of a precision machined tapered tube and a float. The height to which the float rises in taper is determined by the gap at which upward flow force and float weight are balanced.

In both GMT and GMTE, a permanent magnet encapsulated within the stainless-steel float drives the magnetically coupled pointer inside the instrument. Float movement is related to flow rate, and the indicator scale is marked in the correct units of flow for the process conditions. The GMTE identifies the angle of the pointer using a Hall Effect absolute encoder from which the signal is passed on to the microcontroller where it is processed.

Since the measuring element is a sharp-edged disc, the meter is relatively insensitive to viscosity changes in the fluid, and to bends in the external pipework. The only moving part in the flow is the float, which is retained in place by float guides at either end of the meter.

SPECIFICATION

Flanged flow tube	316 Stainless Steel, all welded construction
Flanges	EN1092-1 PN16 or ANSI 150 standard. Other flanges to order
Line Sizes	15, 25, 50, 80, 100 mm
Pressure	To flange rating, 100 bar max
Screwed flow tube	Brass or 316 Stainless Steel
Connections	½”, 1” or 2” BSPP or NPT standard
Pressure	75 bar max GMTB (Brass) 100 bar max GMTS (Stainless)
Float	316 Stainless Steel PVC float on low pressure drop option units
Pulsation Damper	All gas flowmeters have a dashpot damper built-in

Indicator housing	Polyester coated aluminium alloy, with UV stable polycarbonate face
Protection	IP65
Scale size and angular range	Typically 100 x 50 mm, 160 degrees
Scales	Produced to order to suit process fluid and conditions. Air and water flow ranges quoted opposite
Turndown	Typically 10:1
Accuracy	±2% FSD
Hysteresis	±0.5% FSD
Fluid Temperature	200 °C max (higher to special order)
Pointer Response time	Less than 0.5 secs
Flow direction	Vertically upwards
Surface finish	1.6 µm

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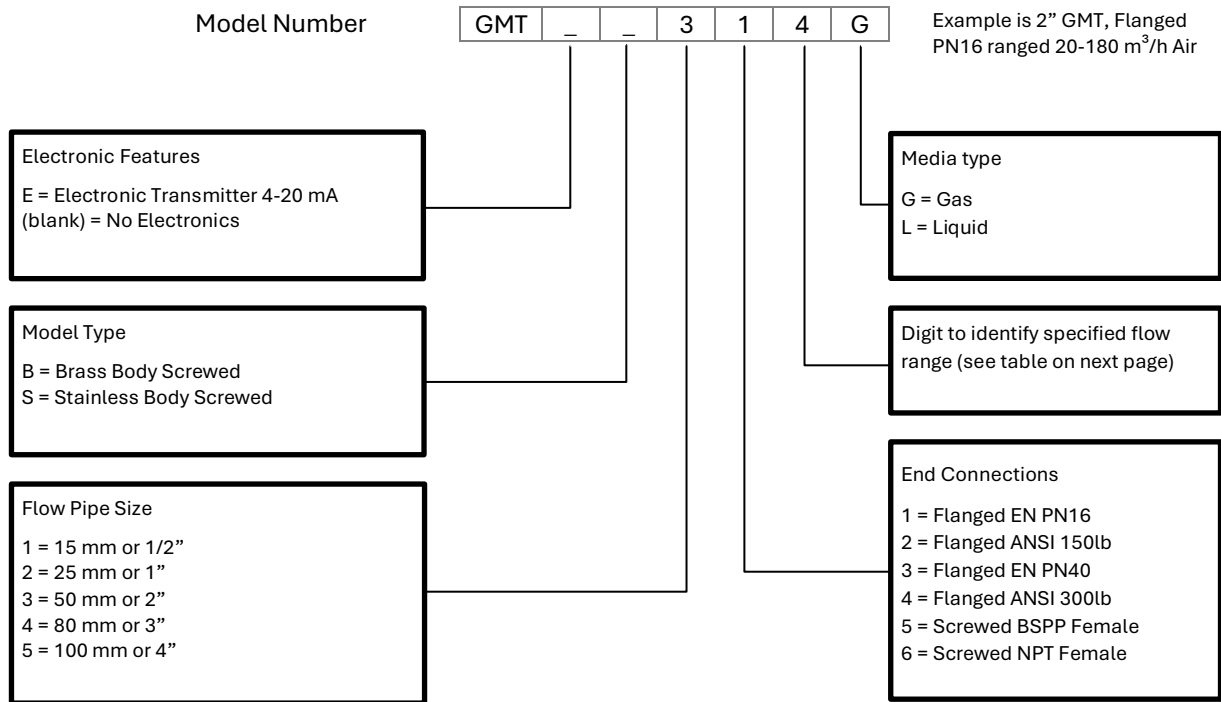
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Platon Metal Tube VA Gas or Liquid

DS1220



ORDER CODE



To place an order, specify the process conditions at the measurement point, including fluid type, density/SG, viscosity, temperature, and pressure, as well as the operational flow range and units.

Note: Not all options available together

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FLOW RANGES

Size/Model	Flow Digit	STANDARD UNITS			LOW DP GAS UNITS			
		Water (20 °C)	Air at ATP (m ³ /h)	Max DP (mbar)	Flow Digits	Air (ATP) m ³ /h	Natural Gas (ATP) m ³ /h	Max DP (mbar)
15 mm (GMT1)	1	20-160 l/h	0.5-5.0	15	A	0.3-3	0.4-3.5	7
	2	20-250 l/h	0.5-7.5	30	B	0.4-4	0.5-5	10
	3	40-400 l/h	1.2-12	20	C	0.5-7	1.0-9	7
	4	60-600 l/h	2.0-18	35	D	1.0-9	1.0-12	10
25 mm (GMT2)	1	0.1-1.0 m ³ /h	3.0-30	15	A	1.5-15	2-20	8
	2	0.2-1.6 m ³ /h	4.0-50	30	B	3-23	4-30	9
	3	0.2-2.5 m ³ /h	10-75	35	C	4-36	5-45	8
	4	0.4-4.0 m ³ /h	12-120	80	D	5-50	6-60	9
	5	0.6-6.0 m ³ /h	20-200	160				
	6	1.0-10.0 m ³ /h	30-360	400				
50 mm (GMT3)	1	0.6-6.0 m ³ /h	20-180	30	NOTES 1. Units will be scaled and calibrated for customers specific process conditions, which may differ from those tabulated (see overleaf). 2. Typical maximum liquid viscosity is 50 cP, lower for the highest flow ranges and small sizes. 3. Screwed Units are not available for Flow Digit 6.			
	2	1.0-10.0 m ³ /h	30-300	40				
	3	2.0-16.0 m ³ /h	60-600	80				
	4	2.0-25.0 m ³ /h	100-1000	190				
80 mm (GMT4)	1	2.0-2.5 m ³ /h	N/A N/A	140				
	2	3.0-40 m ³ /h	N/A	220				
	3	6.0-60 m ³ /h	N/A	525				
100 mm (GMT5)	1	10-100 m ³ /h	N/A	440				

OPTIONS

1. Oxygen Service

Standard units cleaned to required specifications. Special units available with Brass internal construction.

2. Alternative body Materials/Design

PTFE lined meter is available for use with corrosive chemical.

Float, guides and Flange raised face are PFTE or ceramic.

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ALTERNATIVE FLUIDS

Approximate flow ranges for alternative process fluids and gas pressures can be calculated using the following formulae. For a full calculation please contact our Sales Team.

1. Gases at pressure or temperature

For air or gas flows where the pressure in the line on the discharge side of the flowmeter is not atmospheric (1.013 bar), multiply the flow range at ATP quoted in the table by a factor calculated as the square root of the pressure (in bar abs) divided by 1.013.

$$\text{Air flow in process} = \sqrt{\frac{P(\text{abs})}{1.013}} \times \text{Air flow in table}$$

For temperature changes:

$$\text{Air flow at } T = \sqrt{\frac{293}{T(K)}} \times \text{Air flow in table}$$

2. Alternative gases

For gases other than air, find the Relative Density (RD) of the gas compared to air, and divide the flow range quoted for air in the table by the square root of the Relative Density.

$$\text{Gas flow range} = \text{Air flow in table} \times \sqrt{\frac{1}{RD}}$$

Examples of RD figures for some gases are as follows

Acetylene	0.898	Carbon Dioxide	1.520	Nitrogen	0.968
Argon	1.380	Hydrogen	0.070	Oxygen	1.105
Butane	2.007	Natural Gas	0.608	Propane	1.522

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3. Alternative liquids

For non-vicious liquids other than water, the main correction arises from the density/SG. For the process liquid flow range, multiply the water flow range from the table by a factor D from below.

SG	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4
D	1.328	1.221	1.134	1.062	1.000	0.947	0.900	0.858	0.821

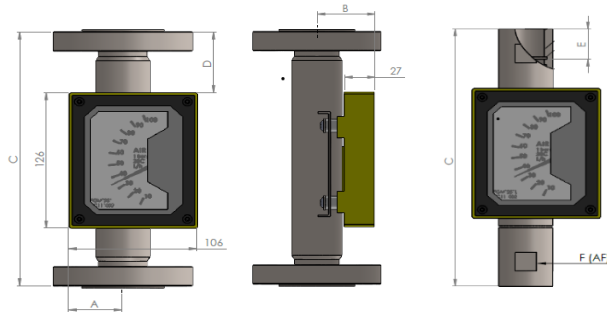
For liquid of 1.2 SG, the GMT411L flowmeter would have a full-scale flow of 25×0.9 i.e. $22\text{m}^3/\text{h}$: the scale would be drawn 2-23 typically. The actual scale used would be rounded up, for example, 2-23 in this case.

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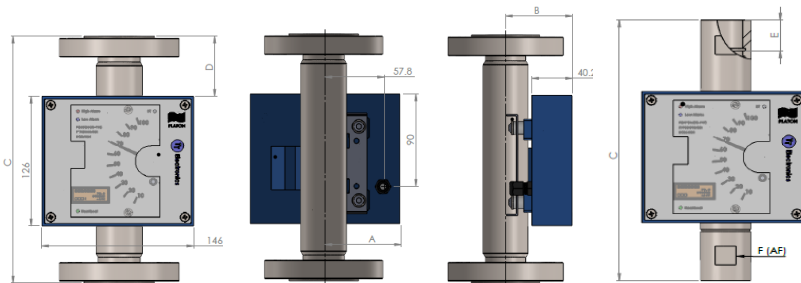


GMT Dimensions



Pipe Bore	15	25	50	80	100
A	51	45	42	42	39
B	48	51	66	87	100
C	250	250	250	300	400
D	51	49	49	75	113
E	26	34	27	N/A	N/A
F	27	41	60	N/A	N/A

GMTE Dimensions



Pipe Bore	15	25	50	80	100
A	81	75	72	72	69
B	66	69	84	105	118
C	250	250	250	300	400
D	51	49	49	75	113
E	26	34	27	N/A	N/A
F	27	41	60	N/A	N/A

1. All VA meters are designed for vertical installations, with flow upwards. It is necessary to have 5 straight pipe diameters upstream and 2 straight pipe diameters downstream. Bends in two places should be avoided.
2. The upstream and downstream pipe bores should suit the normal size of the instrument, if possible. Ensure that no ferromagnetic material is situated within 300 mm of the indicator.
3. Before installing the meter, the pipeline should be flushed to remove any foreign matter, or swarf, likely to collect on the float unit and magnet.
4. For ultimate protection a filter should be fitted upstream of the meter to remove large particles.

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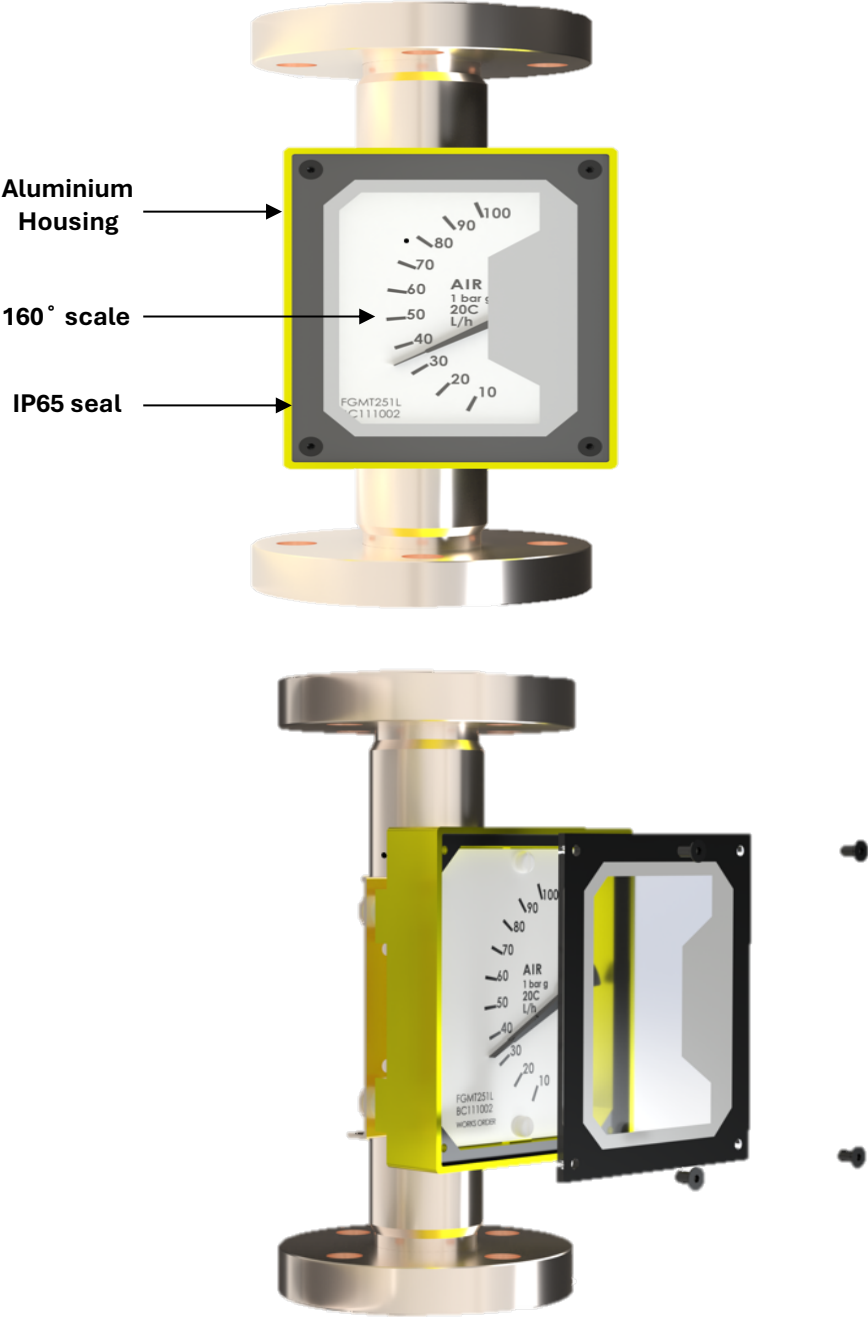
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GMT



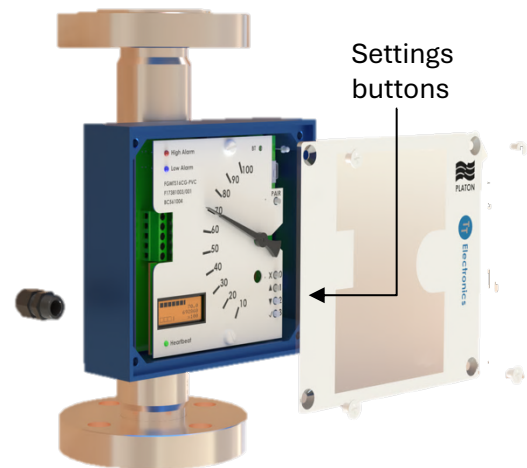
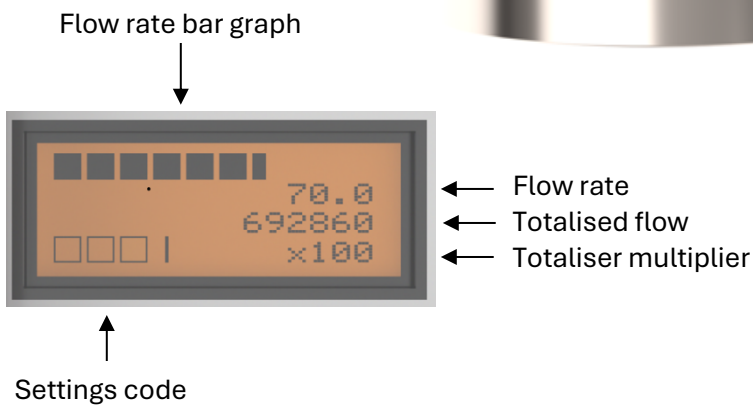
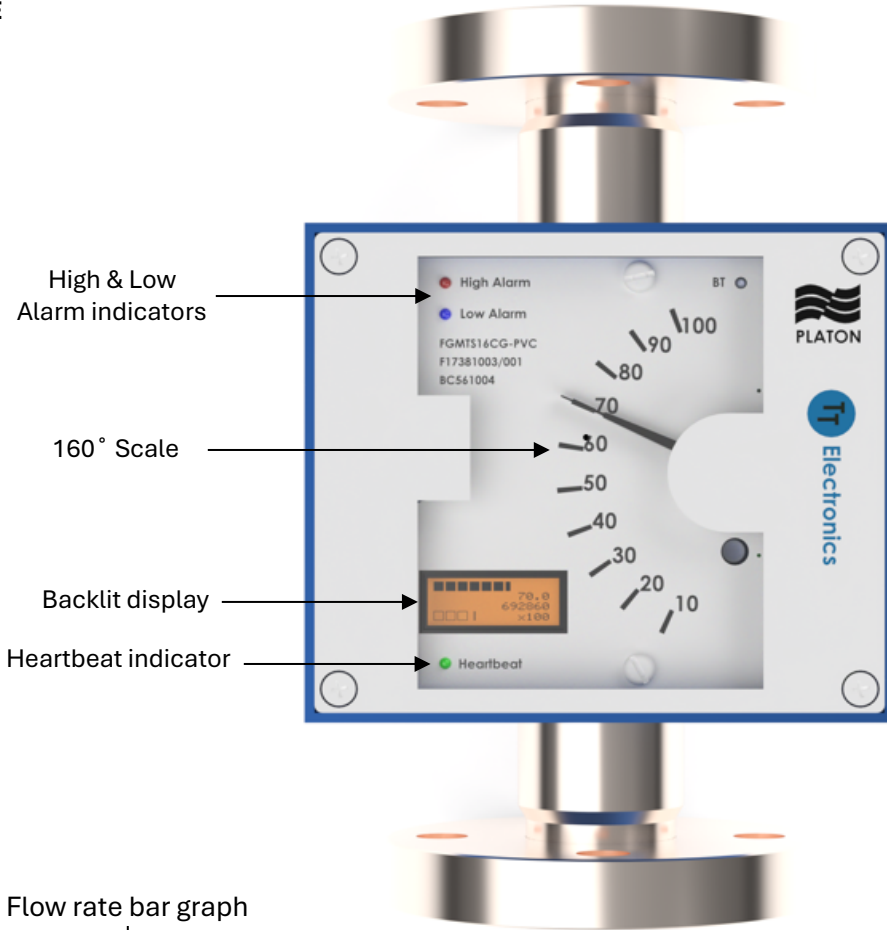
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GMTE



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ELECTRICAL PARAMETERS

Supply	Voltage Current	12-36 V less than 50 mA
Output signal	3-wire current loop DAC resolution	4-20 mA 12 bits
Communication ports	User Factory setup	IOLINK – coming soon USB-C
Alarm	Outputs Output type Max. voltage Max. current	2 open drain 36 V 100 mA
Screw terminal connections	V G S L H	Supplying voltage 0V (Common) Signal (4-20 mA / IOLINK – coming soon) Low Alarm output High Alarm output

USER SETTINGS

Alarm	Low level High level Hysteresis	OFF / adjustable with 1% resolution of Full Scale OFF / adjustable with 1% resolution of Full Scale adjustable in the range of 0 – 10% of Full Scale
Flow rate	Reading interval Rolling average window	0.1 – 6.0 seconds OFF / 2 – 60 samples
Backlight	Status	ON / OFF
Totaliser	Count	Reset

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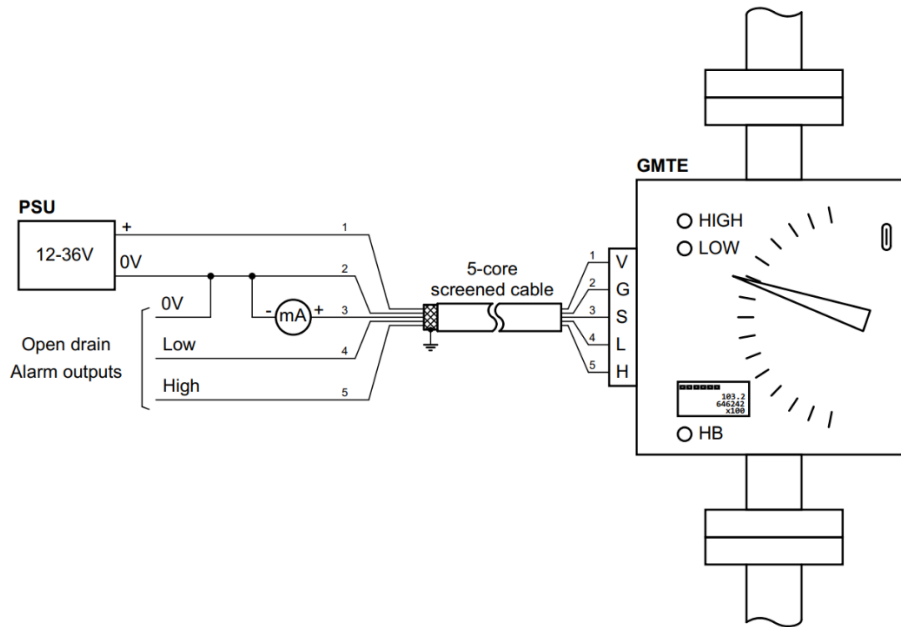


FACTORY SETTINGS

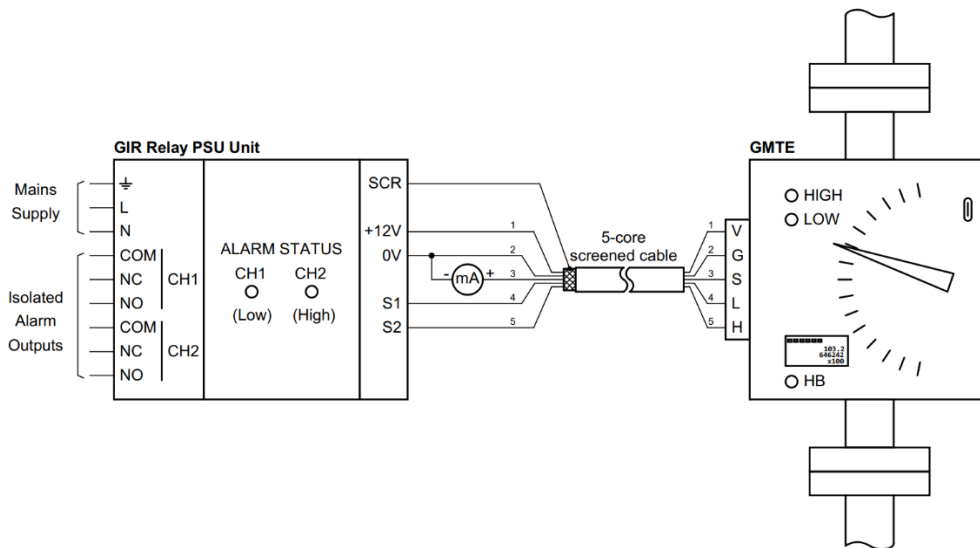
Set points number	Up to 32 (including fixed Rest Point)
Flow rate ranges	0.00000 - 0.60000 0.0000 - 6.0000 00.000 - 60.000 000.00 - 600.00 0000.0 - 6000.0 00000 - 60000
Flow rate time base	Seconds Minutes Hours
Totaliser max. count	9999.99999 99999.9999 999999.999 9999999.99 99999999.9 999999999
Totaliser multiplier	(none) x10 x100 x1000

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WIRING



WIRING WITH OPTIONAL PSU / RELAY BOX (product code: F58384)



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