PALM TREE

ENGINEERING PRODUCTS PRIVATE LIMITED

METAL TUBE ROTAMETER

"PROCESS MEASUREMENT & CONTROL SPECIALISTS"

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METAL TUBE ROTAMETER

Metal tube flowmeter consists of measuring tube, float, indicator and process connection components with the characteristics of small size, wide measuring range, and easy installation. In the industry area, it is widely used to measure flow of gas, liquid, and steam, especially suitable for mediums with low current velocity and low flow rate.

There are local indicators and smart remote types. For the local type, needles pointer shows instant flow. For the LCD type, needles pointer shows instant flow, the instant flow and the accumulative flow are digitally shown on the LCD display. For the smart remote type, there are many kinds of outputs, such as upper-lower limit alarming output, pulse output, standard two-wire 4-20mA current output, and HART communication protocol and so on.

Smart remote metal tube flowmeter adopts advanced 16-bit microprocessor, high accuracy sensor, SMD elements and high-quality industrial components to guarantee the excellent performances of this flowmeter after the signal processing technology of digital filtering and software calibration.

According to different process connection methods, customer can choose the measuring tube needed according to the field requirements. Due to its excellent performance, reliability and competitive price, it is widely used in the fields of oil, chemical industry, steel manufacture, light industrial, water etc. Metal tube flowmeter takes many different materials and is suitable for flow measurement of all non-corrosive, corrosive and strong corrosive mediums.

Design Features

- Single axle, smart display, high reliability, easy maintenance, long life time.
- Flow ratio: 10:1, special type: 20:1. Less requirement on the straight tube.
- Suitable for small size type and low flow rate fluids.
- Metal structure, suitable for strong corrosive mediums and environments with non-contacting magnetic coupling transmission.
- LCD display, showing instant flow and total flow at same time. High temperature, high pressure and flammable and explosive conditions.
- With function of upper-lower limit alarm, two-wire system to isolate switch output.
- Compatible with HART.
- Local display and remote display available, also AC power, DC power and battery can be provided.

Technical Parameters

Measuring range	Water:1-150000L/ H (20℃)
	Air: 0.7~3000m3 /h (20℃, 0.1013MPa)
Measuring range proportion	Standard: 10:1
Accuracy class	Standard:1.5, 2.5; Special: 1.0
Pressure rating	Standard & sanitary one: DN15~DN50≤4.0MPa; DN80~DN200≤2.5MPa
	Special one: DN15~DN25≤42MPa; DN50~DN100≤16MPa
	Jacket one: 1.6MPa
Pressure loss	7kPa~70kPa
Medium temperature	Standard: -70℃~+180℃; PTFE: -50℃~+100℃ (Change frequently is not allowed)
	High pressure:350℃
Medium viscosity	DN15: η<5mPa.s(F15.1~F15.3), η <30mPa.s(F15.4~F15.8)
	DN25: η<250mPa.s; DN50~DN200: η<300mPa.s
Environment temperature	Remote type: -40℃~+85℃ (LCD display: - 35℃~+70℃)
	Local needle indicator: -40℃~+100℃
Connection type	Flange; Sanitary tri-clamp
Jacket connection	DN15/PN1.6MPa or 1/2” ANSI 150LB RF or ϕ12mm tube
Flange Standard	Standard: GB/T 9119-2010, HG20592, ASME/ANSI B 16.5, DIN2501, SH3406
	Food type: SMS, DIN 11851, Tri-clamp
Wiring connection	M20×1.5; 1/2NPT female thread
Power supply	Standard: 24VDC two-line 4~20mA(12VDC~32VDC)
	AC type:85~260VAC
	Battery type:3.6V lithium battery (2-3 years lifetime)
Loading resistance feature	Two-line: max loading resistance 500Ω(24VDC)
	Multi-line: max loading resistance 500Ω
Warning signal output	Reed pipe warning switch output, upper limit and lower limit flow warning (contact capacity 250V 0.05A or 24VDC 0.2A)
LCD display	Instant flow display scope:0~99999
	Total flow display scope: 0~99999999
Protection grade	IP65, IP67
Explosion-proof grade	Exia II CT6Ga Ex’d II BT6Gb
Installation Height	Standard height: 250mm for DN15-DN200; High pressure type: 300mm for size ＞ DN80

Model Introduction

Our company provide three kinds of indicator for customer choice (M1, M2, M3). M1 and M3A are mechanical needle pointer, suitable for local display; M2 is remote type with LCD indicator and can used for Exia II CT5Ga application. M3 is digital display and used for Exia and Ex'd application.

M1, M3A mechanical needle indicator

M1 is square shell structure & M3A is round housing. They use float in the pipe to let needles moving by magnetic steel moving, thus to get the flow from scale. Its characteristic is simple structure, reliable and no need power supply.

M2 Exia indicator

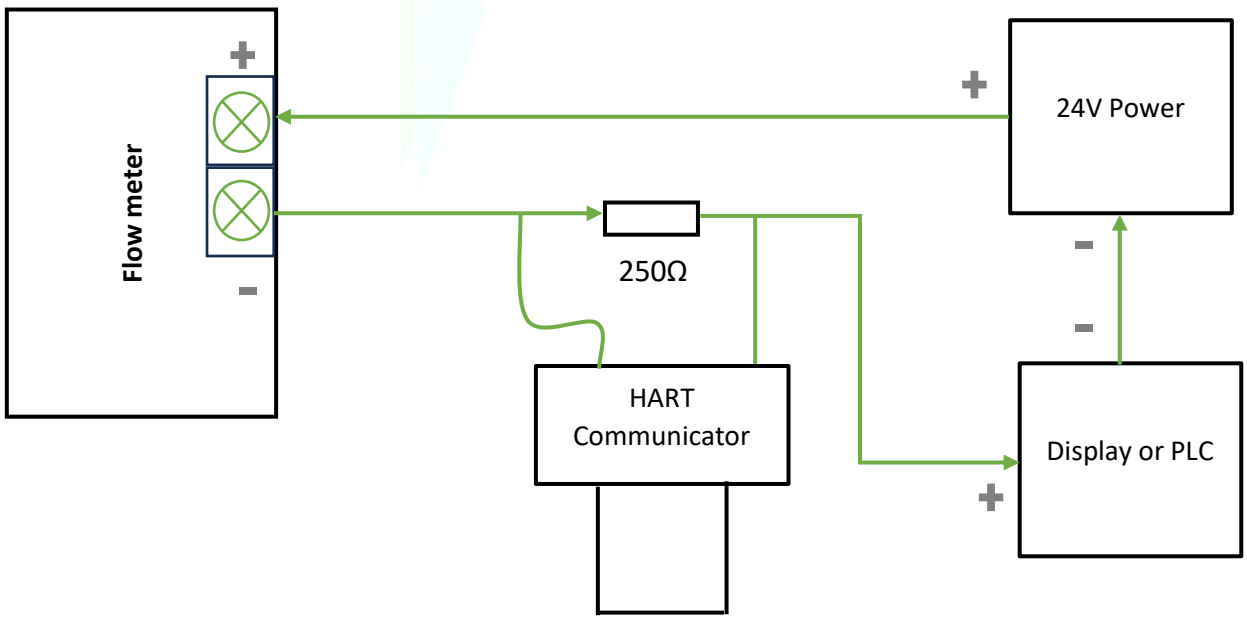
M2 is square housing structure, Exia II CT5Ga design. This type is mechanical needle display to show instant flow, 5-digit LCD displaying Instant flow, 8-digit LCD display total flow, also output 4~20mA signal, upper limit and lower limit warning signal. M2 indicator provides 2 NO alarm contacts, with capacity 400V 0.05A or 24VDC 0.2A. It can be set by the screen panel.

M3 Ex'd indicator

M3 is a round housing, designed with Exia II CT6GB and Ex'd IICT6Gb. Its function covers all of M1 and M2. It has needle pointer system, which can replace M1 and M2 indicators. M3 has battery powered one, but without signal output and warning output. The battery is lithium battery with 3.6V and can last 2-3 years. There is electricity capacity display in LCD right side, which can remind customer to change battery in time.

Wiring Diagram

M1 Square meter



Ordering Number

PTE-	VAFM-	1	2	3	4	5	6	7	8	9	10
1	Indicator Type										
	L:	Local type				D:	Remote type				
2	Nominal diameter and sealing surface (Please also indicate the flange standard)										
	15	25	40	50		80	100		150		200
	DN15	DN25	DN40	DN50		DN80	DN100		DN150		DN200
3	Structure type										
	A		B			C			DR		DL
	Bottom in & top out type		Bottom in & Right-out type			Right in & Right-Out type			right in & Left Out type		left in & Right-out type
4	Material of Measuring tube										
	R0		R1			R4			RL		HC
	316		321			304			316L		Hastelloy C
	RP		RW			Ti					
	304+PTFE		polished pipe (304)			Titanium					
5	Additional Structure										
	0		B		T		G		Y		Z
	Standard		Insulation jacket		Steam heating		High temperature		High Pressure		Damping type
6	Nominal Pressure (Unit: MPa)										
	1.6- DN80~DN200		4.0 - DN15~DN50			16 - DN80~DN200			25 - DN15~DN50		
7	Working Temperature										
	E: -40~+100^{0}C		J: ≤150^{0}C			H: -40~+300^{0}C			T: customize		
8	Indicator Type										
	M1				M2				M3		
	Square Local Indicator				Square Digital Indicator (Exia)				Round Digital Indicator (Ex'd)		
9	Output & Power Supply										
	No	No Mark. M1, for Local supply									
	A	85~265VAC 50Hz power supply, 4-20mA, can add back-light, relay, pulse output									
	B	Battery power supply, LCD display, No back-light, No signal, no alarm output.									
	C	24VDC power supply, 2-wires 4-20mA, no back-light, can add HART protocol									
	DN15	24VDC power supply, multi-wires 4-20mA, can add back-light, relay, pulse output									
10	Explosion Proof										
	N: Without				i: Exia II CT6Ga				e: Ex'd II CT6Gb		