



## Plastic Flow Meters for gases & liquids, using TROGAMID\* & POLYSULFON Technology.

### Applications

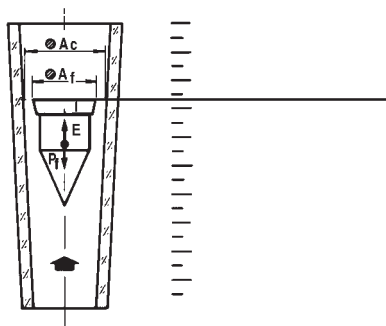
Monitoring & Control of processes for:

- Water & Waste Water Treatment.
- Chemical, Petrochemical & Paper.
- Pharmaceutical, Cosmetics & Synthetics.
- Refrigeration & Air Conditioning.
- Smelting & Refining.
- Osmosis.
- Gas processes.

### Benefits

- Low cost.
- Excellent readability.
- Scaled directly in l/h, m<sup>3</sup>/h, % etc.
- Temperatures up to 80°C.
- Pressures up to 40 Bar.
- Simple installation (flanged, threaded or glued connections).
- Light weight.
- High & Low Flow alarms.
- 4-20 mA Output (15 point).

\* TROGAMID is a registered trade mark of Dynamit Nobel.



### Measurement Principle

Variable area flow using a float in a tapered tube made from special plastic materials.

### Operation

The fluid flows up through the tapered tube forcing the float to a position with sufficient free area to enable the flow to pass. This free area is related to the flow rate, the weight of the float and the density and viscosity of the fluid.

The pressure drop across the flow meter remains constant over the entire flow range. This occurs because the pressure drop is related to the fluid velocity and area of flow, the area of flow increases as the flow rate increases.

## Technical Data

- Connections:  
PT-11 & PS-31: Threaded or glued from 1/2" to 3" PVC fittings.  
PT-12 & PS-32: Flanges DN-15 to DN-80, PN-10.  
Other connections available on request.
- Length
 

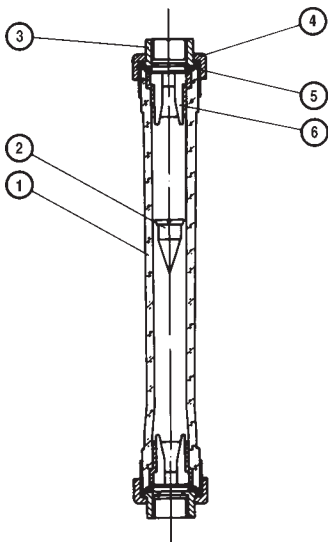
	Minimum	Maximum
PT-11	340	414
PT-12	390	538
PT-12(BR)	380	420
- Accuracy  
According to Standards VDE/VDI Class 4.
- Scales calibrated directly in l/h, m<sup>3</sup>/h, %.
- Scale length 160 ± 5mm.
- Rangeability 10:1.

- Temperature Limits:
 

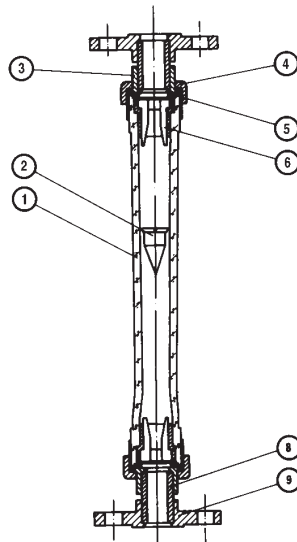
Trogamid T (tubes)	70-80°C
PVC (connections)	55°C
PP (connections)	100°C
- Materials:
 

Flow Tube	Connectors	Float	Stops
PT: Trogamid T	PVC/PP	SS/PVC	PVC/SS
PS: Polysulfon	PVC/PP	PTFE/Al	PTFE
- Alarm Options:
  - PT-AMM 1...2 Magnetic Actuated micro switch
  - PT-AMD 1...2 Inductive proximity sensor.
  - PT-AMO 1...2 Optical position detector.
  - PT-AMR 1...2 Magnetic actuated reed switch.
- Transmitter Options:
  - PT-MUR 0...4-20mA. (15 Point resolution).

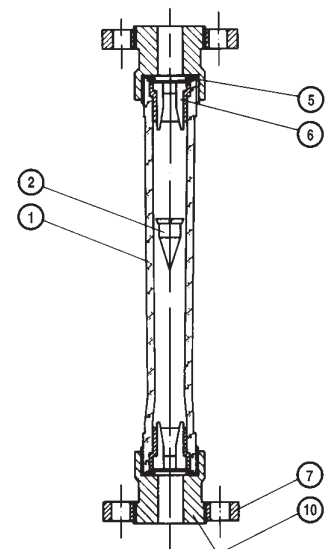
PT-11



PT-12



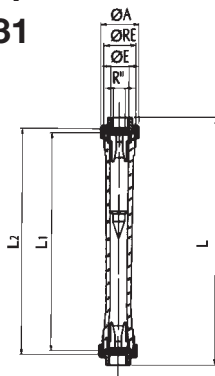
PT-12(BR)



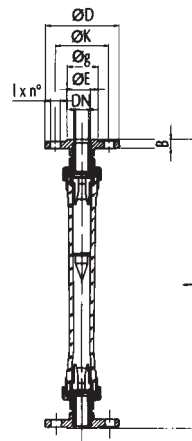
No	Item	PT-11/PT-12	PS-31/PS-32	Specials
1	Flow Tube	Trogamid T	Polysulfon	-
2	Float	AISI-316, PVC, Al.	AISI-316, PVC, Al.	PTFE, PTFE+Lead, Hastaloy, Titanium
3	Connector	PVC/-	PP/-	PVC, Steel, PTFE, Threaded
4	Nut	PVC	PVC	PP, Titanium, Hastaloy
5	O-Ring	Nitrile, Viton	Nitrile, Viton	PTF
6	Stops	PVC/AISI-316	PP/AISI-316	PTFE
7	Flanges	-/PVC, Steel	-/PP, Steel	PTFE
8	Tube Union	-/PVC	-/PP	-
9	Glued Flanges	-/PVC	-/PP	-
10	Flange neck	-/PVC	-/PP	-

Flow Tube Series PT	Measuring Range vs Float Type						Max. Pressure	Pressure Drop mm Water		Tube Length mm (±1mm)	Series	
	AISI-316 & PVC-Lead 7.95 g/cm <sup>3</sup>			Aluminium 2,85 g/cm <sup>3</sup>				Float			DN	E
	Water 20°C l/h		Air @ STP Nm <sup>3</sup> /h	Air @ STP Nm <sup>3</sup> /h		Bars		SS-316 PVC-Pb	Al			
min	max	min	max	min	max							
PT-312-0100	10	100	0.30	3	0.17	1.7	15	90	35	300	15	20
PT-312-0160	16	160	0.45	4.5	0.25	2.5	15	90	35	300	15	20
PT-312-0250	25	250	0.7	7	0.4	4	15	90	35	300	15	20
PT-313-0400	40	400	1.1	11	0.7	7	15	125	50	300	20	25
PT-313-0630	60	630	1.8	8	1	10	15	125	50	300	20	25
PT-313-1000	100	1000	3	30	1.7	17	15	125	50	300	20	25
PT-314-1600	160	1600	4.5	45	2.5	25	10	175	75	300	25	32
PT-314-2500	250	2500	7	70	4	40	10	175	75	300	25	32
PT-315-4000	400	4000	11	110	7	70	10	230	95	300	40	50
PT-315-6300	500	6300	18	180	10	100	10	230	95	300	40	50
PT-316-M4000	400	4000	11	110	7	70	10	300	125	300	50	63
PT-316-M6300	500	6300	18	180	10	100	10	300	125	300	50	63
PT-316-M010	1000	10000	30	300	17	170	10	300	125	300	50	63
PT-316-M014	2000	14000	120	420	45	200	10	300	125	300	50	63
PT-317-M016	1600	16000	45	450	25	250	8	400	170	300	65	75
PT-317-M025	2500	25000	70	700	40	400	8	400	170	300	65	75
PT-317-M040	6000	40000	180	1200	100	712	8	400	170	300	80	90

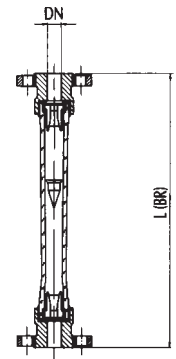
**PT-11  
PS-31**



**PT-12  
PS-32**



**PT-12(BR)  
PS-32(BR)**



**PT-11/PS-31**

R" = DN	E	RE	A	L	L1	L2	H
1/2"	15	20	1"	43	340	300	307
3/4"	20	25	1 1/4"	53	346	300	309
1"	25	32	2"	74	352	300	311
1 1/2"	40	50	2 1/4"	80	366	300	314
2"	50	63	2 3/4"	99	372	300	314
2 1/2"	65	75	4"	135	378	300	318
3"	80	90	4"	135	414	300	318

**PT-12/PS-32 & PT-12(BR)/PS-32(BR)**

DN	E	D	k	g	1 x n°	B	L	L(BR)
15	20	95	65	45	14x4	12	390	380
20	25	105	75	58	14x4	13	396	380
25	32	115	85	68	14x4	15	412	390
40	50	150	110	88	18x4	17	446	400
50	63	165	125	102	18x4	20	458	410
65	75	185	145	122	18x4	21	490	420
80	90	200	160	138	18x8	22	538	420



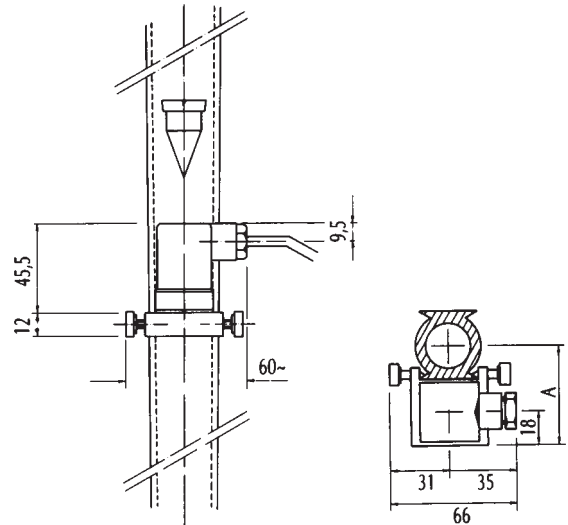
## Adjustable Alarms PT-AMR

Reed switch, actuated by a magnet inside the float.

- Mounted within a plastic enclosure:  
PT-AMR 1...2 Adjustable reed switches.  
Connection standard DIN 43650.  
IP 65 Protection.  
Max. Voltage: 220 Vac, 30 Vdc.  
Max. Current: 0.5 A.  
Max. Power: 14 W/VA  
Contact Speed: 1.1 mS  
Temperature Range: -40 to +150°C  
(Use a relay to protect the reed switch, for inductive loads).
- Operation:  
The contact is normally open, when not in alarm condition.

DN	15	20	25	40	50	65	80
R	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"
A	47	52	62	70	70	90	90

- Maximum Flow:  
On increasing flow, the contact closes when the float reaches the height of the alarm sensor. It remains closed while the float is above the sensor. It opens again when the flow reduces and the float returns to below the sensor.
- Minimum Flow:  
On reducing flow, the contact closes when the float reaches the height of the alarm sensor. It remains closed while the float is below the sensor. It opens again when the flow increases and the float rises above the sensor.

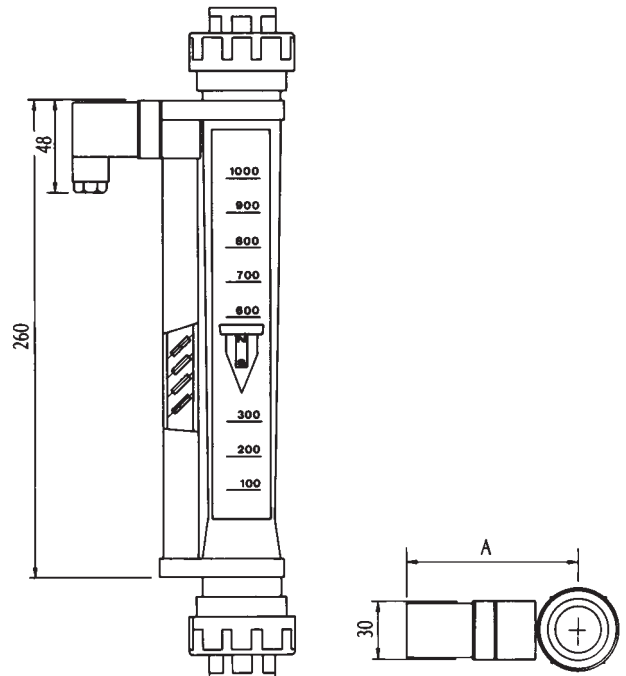


## Transmitter PT/TMUR 0/4-20 mA.

0...4-20 mA Output from a series of reed switches mounted on the side of the flow tube, in a plastic enclosure.

- Separate DIN rail mounted signal converter.  
Power Supply: 220/110/24 Vac, 24 Vdc.  
Output: 0...4-20 mA.  
Connection: 4 wire.  
Accuracy: ± 9% of full scale.  
Sensor Connection: PE-11 Unpluggable connector to the converter enclosure.

DN	15	20	25	40	50	65	80
A	95	105	110	120	130	145	145



We are at your service, please consult us.  
TECFLUID develops and manufactures instruments for gases and liquids, using the most advanced techniques.  
Request Information by telephone nº (34 3) 372 45 11

