NIVETEC Instrumentação e Controle

Catálogo

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Type 2537 Paddlewheel Flowmeter

Product description

The type 2537 Flowmeter is the next generation in fluid measurement technology from the inventor of the original paddlewheel flowmeter. This sensor is an improvement on what's already an industry standard. It has the added functionality of various output options including flow switch, multi-functional pulse, digital (S^3L) or 4 to 20 mA. Additionally, it offers low flow, low power and high resolution and can be configured onsite directly through the built-in user interface.

Installation is simple because the type 2537 utilizes the same fittings as the popular type 515 and 2536 Paddlewheel Sensors and fits into pipe sizes ranging from DN15 to DN200 (½ to 8 inches). Available in Polypropylene and PVDF, it is ideal for a variety of applications including chemical processing, water and wastewater monitoring and scrubber control.

Features

- Digital (S^3L) or 4 to 20 mA outputs or (Multi-function)
- Allows for up to six sensors to type 9950-XX
- Low flow capabilities down to 0.1 m/s (0.3 ft/s)
- Polypropylene or PVDF sensor bodies
- Polypropylene or PVDF retaining nuts standard, Valox optional
- Installs into pipe sizes DN15 to DN200 (½ to 8 in.)
- Test certificate included for -X0, -X1
- Low power and high resolution

Certified to NSF/ANSI 61 & 372

(3-2537-XC-PX version only)

Applications

- Process Flow Monitoring
- Pump Protection
- Pure Water Production
- Filtration Systems
- Chemical Production
- Reverse Osmosis
- Demineralization/Regeneration
- Fume Scrubbers
- Cooling Towers
- Proportional Metering Pump

Technical Details

General			
Operating Range	0.1 to 6 m/s	0.3 to 20 ft/s	
Pipe Size Range	DN15 to DN200	½ to 8 in.	
Linearity	±1% of max. range @ 25 °C (77 °F)		
Repeatability	±0.5% of max. range @ 25 °C (77 °F)		
System Responses	100 ms update rate nominal		

Wetted Materials	
Sensor Body	Glass-filled PP (black) or PVDF (natural)
O-rings	FKM (std) optional EPR (EPDM) or FFKM
Rotor Shaft	Titanium, Hastelloy-C or PVDF; optional Ceramic, Tantalum or Stainless Steel
Rotor	Black PVDF or Natural PVDF; optional ETFE, with or w/o carbon fiber reinforced PTFE sleeve for rotor shaft

Electrical			
Multi	With Dry-Contact Relay	24 VDC nominal, ±10%, regulated, 30 mA max current	
	With Solid State Relay	6 V to 24 VDC, ±10%, regulated, 30 mA max current	
	Digital (S^3L)	5.0 VDC min to 6.5 VDC max., 30 mA max current (1.5 mA nominal)	
	4 to 20 mA	400 mV max ripple voltage, 30 mA max current	
	Maximum Pulse Rate	300 Hz	
	Maximum Pulse Width	50 ms	
	Minimum Pulse Rate	0.5 Hz	
	Compatible with PLC, PC or similar equipment		
	Compatible with customer supplied metering pump		
Digital (S^3L) Version		5 VDC nominal, regulated, 3 mA max current	
	Type	Serial ASCII, TTL lever 9600 bps	
	Compatible with types 9900,9950-1/2, 9950-10/11		
4 to 20 mA Version		12 to 32 VDC nominal, ±10%, regulated, 21 mA max current	
	Loop Accuracy	±32 µA @ 25 °C @ 24 VDC)	
	Loop Resolution	5 µA	
	Temp. Drift	±1µA per °C max.	
	Power Supply Rejection	±1µA per V	
	Max. Cable	305 m	1'000 ft
	Maximum Loop Resistance	600 Ω @ 24 VDC	1 KΩ @ 32 VDC
	Load Impedance	375 Ω	
Reverse Polarity and Short Circuit Protected		Up to 40 V. 1 hour	
Over-voltage Protection		> 40 VDC over 1 hour	

Relay Specifications

	Mechanical SPDT	5 A @ 30 VDC, 5 A @ 250 VAC
	Solid-State Relay	100 mA @ 40 VDC, 70 mA @ 33 VAC
	Relay Modes	Low, High
	Time Delay	0.0 to 6'400.0 seconds
	Hysteresis	Adjustable for exiting alarm condition

Max. Temperature/Pressure Rating			
Storage Temperature		-10 °C to 75 °F	14 °C to 167 °F
Operating Temperature		0 °C to 65 °C	32 °F to 149 °F
Relative Humidity		0 to 90%, non-condensing	
Flow Sensor/ Retaining Nut	PP	12.5 bar @ 20 °C	181 psi @ 68 °F
		1.7 bar @ 85 °C	25 psi @185 °F
	PVDF	14 bar @ 20 °C	203 psi @ 68 °F
		1.7 bar @ 85 °C	25 psi @ 185 °F

Operating Temperature

	PP	-18 °C to 85 °C	0 °F to 185 °F
	PVDF	-18 °C to 85 °C	0 °F to 185 °F

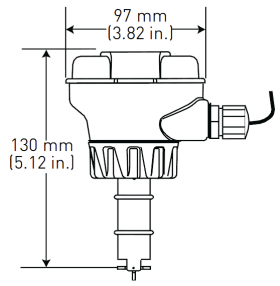
Environmental	
Enclosure	NEMA 4X/IP65

Shipping Weight		
	0.640 kg	1.41 lb

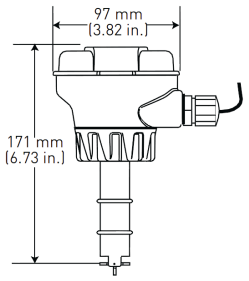
Standards and Approvals
CE, UKCA, FCC, UL, NSF (3-2537-XC-PX version only)
RoHS compliant, China RoHS
Manufactured under ISO 9001, ISO 14001 and ISO 45001

Dimensions

½ in. to 4 in. pipe



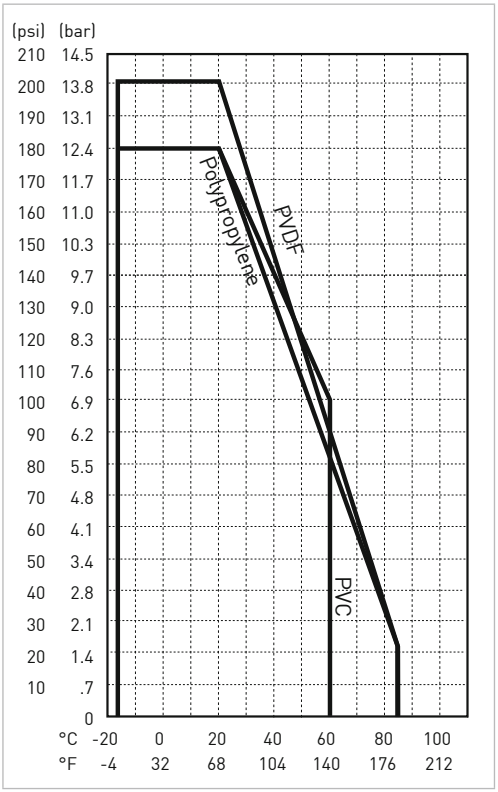
5 to 8 in. pipe



Pressure-temperature diagrams

Note

The pressure-temperature diagrams are specifically for the GF sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.



System Overview

Panel Mount	4 to 20 mA Dry Contact, Solid State	4 to 20 mA Output	Automation System
GF Instruments - 9900 - 9950	- Customer Supplied Metering Pump	- Customer Supplied Chart Recorder - Programmable Logic Controller or Programmable Automation Controller	- 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller

Type 2537 Paddlewheel Flowmeter

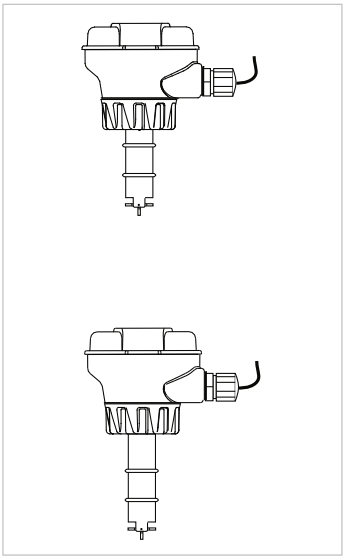
GF Fittings

All Sold Separately

Application Tips

- Select PVDF Rotor Shaft for use in Deionized Water.
- Use a sleeved rotor in abrasive liquids to reduce wear.
- Sensor plug is used to plug installation fitting after extraction of sensor from pipe.
- For liquids containing ferrous particles, use GF Magmeters.
- For systems with components of more than one material, the maximum temperature/ pressure Specification must always be referenced to the component with the lowest rating.

Ordering Information



Mfr. Part	Code	Output
Paddlewheel Flowmeter – Integral Mount (8512 sensors)		
DN15 to DN100 - ½ to 4 in.		
Polypropylene body, black Polypropylene retaining nut, black PVDF rotor, Titanium shaft, FKM O-rings		
3-2537-1C-P0	159 001 291	Pulse/Flow Switch Dry Contact Relay (DCR)
3-2537-2C-P0	159 001 292	Pulse/Flow Switch Solid State Relay (SSR)
3-2537-5C-P0	159 001 295	Digital (S^3L)
3-2537-6C-P0	159 001 296	4 to 20 mA
Natural PVDF body, Natural PVDF retaining nut, rotor and shaft, FKM O-rings*		
3-2537-1C-T0	159 001 315	Pulse/Flow Switch Dry Contact Relay (DCR)
3-2537-2C-T0	159 001 316	Pulse/Flow Switch Solid State Relay (SSR)
3-2537-5C-T0	159 001 319	Digital (S^3L)
3-2537-6C-T0	159 001 320	4 to 20 mA
DN125 to DN200 – 5 to 8 in.		
Polypropylene body, black Polypropylene retaining nut, black PVDF rotor, Titanium shaft, FKM O-rings		
3-2537-1C-P1	159 001 303	Pulse/Flow Switch Dry Contact Relay (DCR)
3-2537-2C-P1	159 001 304	Pulse/Flow Switch Solid State Relay (SSR)
3-2537-5C-P1	159 001 307	Digital (S^3L)
3-2537-6C-P1	159 001 308	4 to 20 mA

* PVDF available ½ in. to 4 in. only.

Accessories and Replacement Parts

Mfr. Part	Code	Output
Rotors		
3-2536.320-1	198 820 052	Rotor, PVDF Black
3-2536.320-2	159 000 272	Rotor, PVDF Natural
3-2536.320-3	159 000 273	Rotor ETFE
3-2536.322-3	198 820 056	Sleeved rotor, PVDF Black
3-2536.322-2	198 820 057	Sleeved rotor, PVDF Natural
3-2536.322-3	198 820 058	Sleeved rotor, ETFE
Rotor Shafts		
M1546-1	198 801 182	Shaft, Titanium
M1546-2	198 801 183	Shaft, Hastelloy-C
M1546-3	198 820 014	Shaft, Tantalum
M1546-4	198 820 015	Shaft, Stainless Steel
P51545	198 820 016	Shaft, Ceramic
O-Rings		
1220-0021	198 801 000	O-ring, FKM (2 required per sensor)
1224-0021	198 820 006	O-ring, EPR (EPDM) (2 required per sensor)
1228-0021	198 820 007	O-ring, FFKM (2 required per sensor)
Miscellaneous		
P31536	198 840 201	Sensor plug, Polypropylene
3-2536.321	198 820 054	PVDF Natural, Rotor kit
3-8050.390-1	159 001 702	Retaining Nut Replacement Kit, NPT, Valox
3-8050.390-3	159 310 116	Retaining Nut Replacement Kit, NPT, PP
3-8050.390-4	159 310 117	Retaining Nut replacement Kit, NPT PVDF
3-8050-396	159 000 617	RC Filter kit (for relay use, inductive loads) 2 per kit
3-9000.392-1	159 000 839	Liquid tight connector kit, NPT (1 piece)
3-9000.392-2	159 000 841	Liquid tight connector kit, PG13.5 (1 piece)
7310-1024	159 873 004	24 VDC Power Supply, 10 W, 0.42 A
7310-2024	159 873 005	24 VDC Power Supply, 24 W, 1.0 A
7310-4024	159 873 006	24 VDC Power Supply, 40 W, 1.7 A
7310-6024	159 873 007	24 VDC Power Supply, 60 +, 2.5 A
7310-7024	159 873 008	24 VDC Power Supply, 96 W, 4.0 A

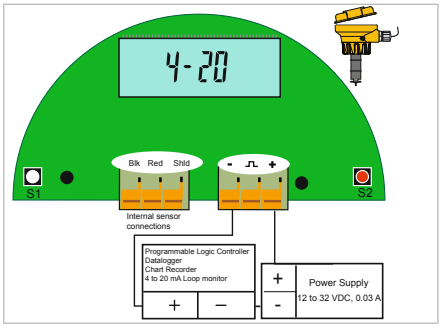
Wiring Information

Digital (S³L) Wiring

The digital (S³L) output is compatible with the type 9900 single-channel transmitters and 9950 multi-channel transmitters.

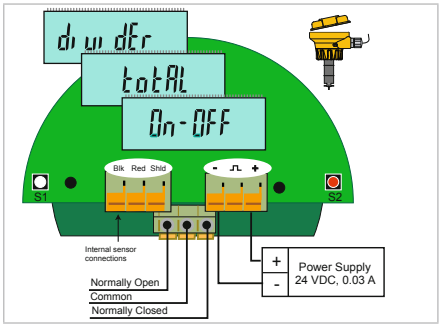
Loop Wiring

The 4 to 20 mA output can be connected to Chart Recorders, PLCs or any device that requires a 4 to 20 mA signal.



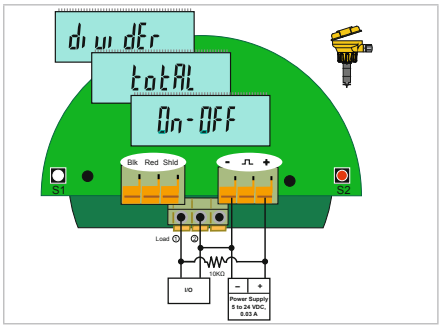
Dry Contact Relay Wiring

The wiring is identical for On-OFF and Pulse modes.



Solid State Relay Wiring

The wiring is identical for On-OFF and Pulse modes.



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