

Rosemount 2100 Series

Vibrating Fork Liquid Level Switches



Level Switches for Demanding Applications

ROSEMOUNT®


EMERSON™
Process Management

Introduction

Rosemount® 2100 series vibrating fork level switches are suitable for virtually all liquid applications. They offer a complete range of process connections with a wide choice of housing and wetted part materials. Built-in instrument health/self-checking diagnostics, plus explosion/ flameproof options make it the ideal choice for a variety of challenging applications in many industries.

Key features and benefits

- Virtually unaffected by turbulence, foam, vibration, solids content, coating or liquid properties, the 2100 is suitable for almost all liquid applications
- Extending the temperature range, the new 2130 is designed for operation in temperatures from -94 to +500 °F (-70 to 260°C)
- Electronic, self-checking and condition monitoring, the Heartbeat LED gives status and health information
- Enhanced instrument health / self-checking diagnostics of the fork and sensor available on the 2130 only
- Adjustable switching delay for turbulent/splashing applications prevents false switching
- "Fast Drip" fork design gives quicker response time especially with viscous liquids



Fit and Forget

Once installed, the Rosemount 2100 series is ready to go. It needs no calibration and requires minimum installation. The 'heart-beat' LED gives instant visual indication that the unit is operational. In addition, the Rosemount 2130 has enhanced instrument health monitoring diagnostics that can detect any external damage to the forks, internal damage to the sensor, excessive corrosion and over-temperature. With its local magnetic test point, functional testing of the instrument and system is easy. You install it and forget it.

Extended high and low temperature performance

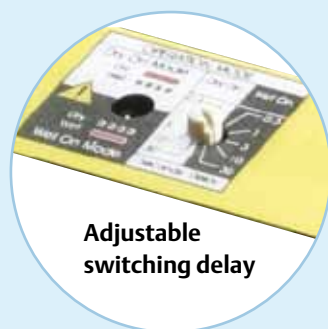
The 2120 is already a popular choice for high and low level alarm and pump control duties. Simple and easy to use and reliable in a wide range of applications, the addition of the high temperature version enables standardisation of the Rosemount 2100 across a wide range of process environments and industries. The durable 2130 is ideally suited for applications that have previously proved unsuitable for other switches, especially harsh process conditions where a high level of reliability must be maintained.

Superior performance

Functionality is virtually unaffected by flow, turbulence, bubbles, foam or vibration. The 'Fast Drip' fork design allows the liquid to be quickly drawn away from the fork tip, making the 2100 series quicker and more responsive in high density or viscous liquid applications. With a user selectable time delay feature, the risk of false switching is minimized in turbulent or splashing



Fast drip forks



Adjustable switching delay

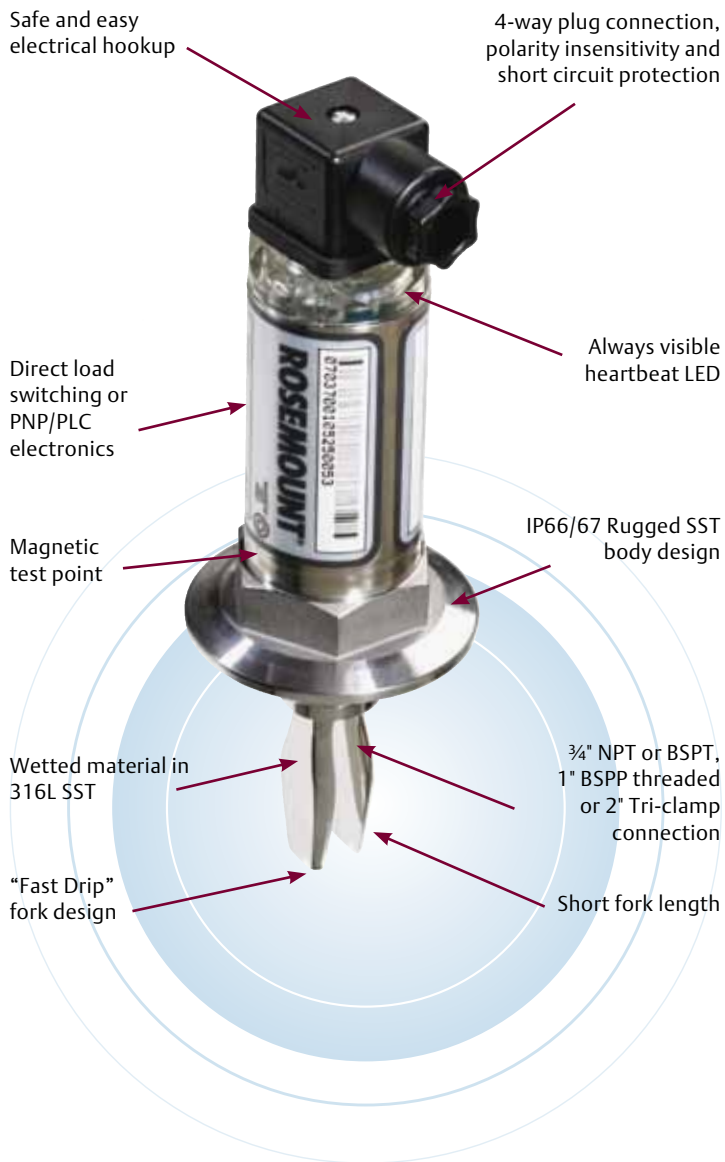


Magnetic test point



Corroded or damaged forks

2110 Compact liquid level switch



- Rugged stainless steel body and fork; the ideal choice for OEM applications
- Compact design, small and lightweight, perfect for small vessel or pipe installations
- Short fork or semi-extended lengths
- Direct load switching or PNP/PLC electronics
- Safe area only

2120 Liquid level switch

ATEX, FM approved
Flame/Explosion
Proof and
Intrinsically
Safe

IP66/67 or
Type 4X
housing in
plastic,
aluminum or
316 SST

Threaded,
flanged or
hygienic
connections

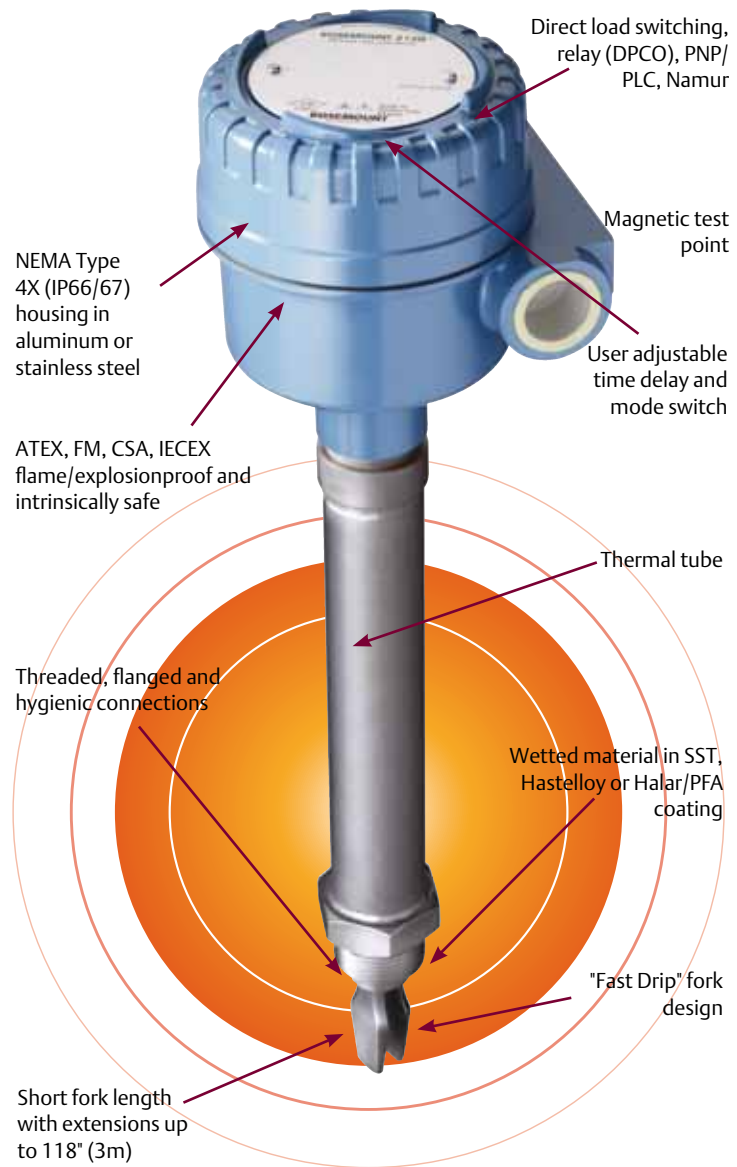
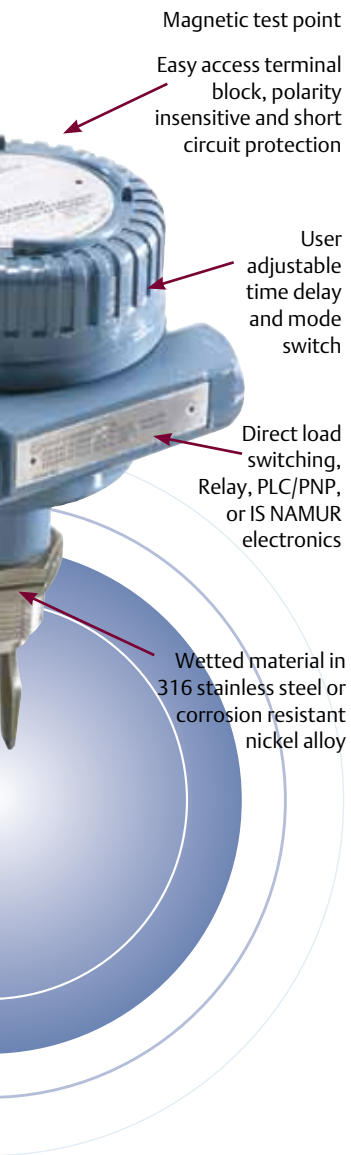
Short fork length
with extensions
up to 118" (3m)

- The fully featured 2120 is ideal for hazardous area applications
- Wide choice of materials of construction for process connections and fork
- Configurable for your application
- Electronic, self-checking and self-cleaning
- Mode select/user adjustable
- SIL2 Certified

switch

2130 Extreme temperature level switch

NEW FOR 2009



deal for almost all liquid

construction, complete range of switching mechanisms

and condition monitoring
time delay switch

- For use in liquids down to -94°F and up to +500°F (-70 to + 260°C) the 2130 is ideal for both high and low level applications
- Stainless steel thermal tube moves the electronics away from the process
- Enhanced instrument health/self-checking diagnostics of the fork and sensor
- Mode select/user adjustable time delay switch

2100 Selection Guide

Specification		2110	2120	2130
Certification	Explosion proof certification	●	●	●
	Intrinsically safe	●	●	●
	Ordinary location	●	●	●
	No hazardous area certification	●	●	●
	Overfill protection (DIBt/WHG)	●	●	●
	SIL 2	●	●	●
Output	Direct load switching (ac or dc)	●	●	●
	DPDT Relay output	●	●	●
	PNP for PLCs	●	●	●
	Intrinsically safe NAMUR	●	●	●
	Enhanced health/self-check diagnostics	●	●	●
	Self-check, condition monitoring	●	●	●
Housing	Plastic	●	●	●
	Aluminum	●	●	●
	Stainless steel	●	●	●
Wetted material	316L Stainless steel	●	●	●
	ECTFE/PFA copolymer, coated 316L SST	●	●	●
	Corrosion resistant nickel alloy C	●	●	●
Process temperature	-40 to 302°F (-40 to +150°C)	●	●	●
Process temperature	-94 to 500°F (-70 to +260°C)	●	●	●
Process pressure	1450 psig at 122°F (100 barg at 50°C)	●	●	●
IP Rating	IP66/67	●	●	●
	IP66/67 to Type 4X	●	●	●
Electrical Connection	Plug	●	●	●
	Terminal block	●	●	●
Connections	Threaded	●	●	●
	Hygienic	●	●	●
	Flanged	●	●	●
Extended lengths available		●	●	●
Suitable for use with Rosemount 702 for Wireless applications		●	●	●

2100 Industry Guide

Industry	OEM	Oil & Gas	Refining	Petro-chem	Chemical	Power	Water & Wastewater	Food & Beverage	Metals & Mining	Pulp & Paper
2110	●	●	●	●	●	●	●	●	●	●
2120	●	●	●	●	●	●	●	●	●	●
2130	●	●	●	●	●	●	●	●	●	●

Recommended ● Not recommended ●

Applications

Overfill protection

Spillage caused by overfilling can be hazardous to people and the environment, resulting in lost product and potentially high clean up costs. The 2120 is available with DiBt/WHG overfill protection approval.

High and low level alarms

Maximum and minimum level detection in tanks containing many different types of liquids are ideal applications for the 2100 series. The 2100 is robust and reliable with a range of process connections, choice of housings and wetted part materials. It is common practice to fit an independent high level alarm switch as a backup device to an installed level device in case of primary device failure.

Limit detection / pump control

A level switch can be used to detect when the liquid in a tank has reached its maximum permitted level and switches on a pump. In order to protect the pump from running dry, a second level switch must also detect when the liquid reaches its minimum level and therefore switch off the pump. The 2100 series is ideal for applications where reliable control between two or more switch points is required.

Run dry / pump protection

The loss of a pump due to dry running conditions can be an expensive or even dangerous problem in a plant. The consequences of pump failure can range from the loss of product in batch control applications to damage to nearby equipment. Installing a 2100 series level switch eliminates the damage caused by a pump running dry.

Hygienic applications

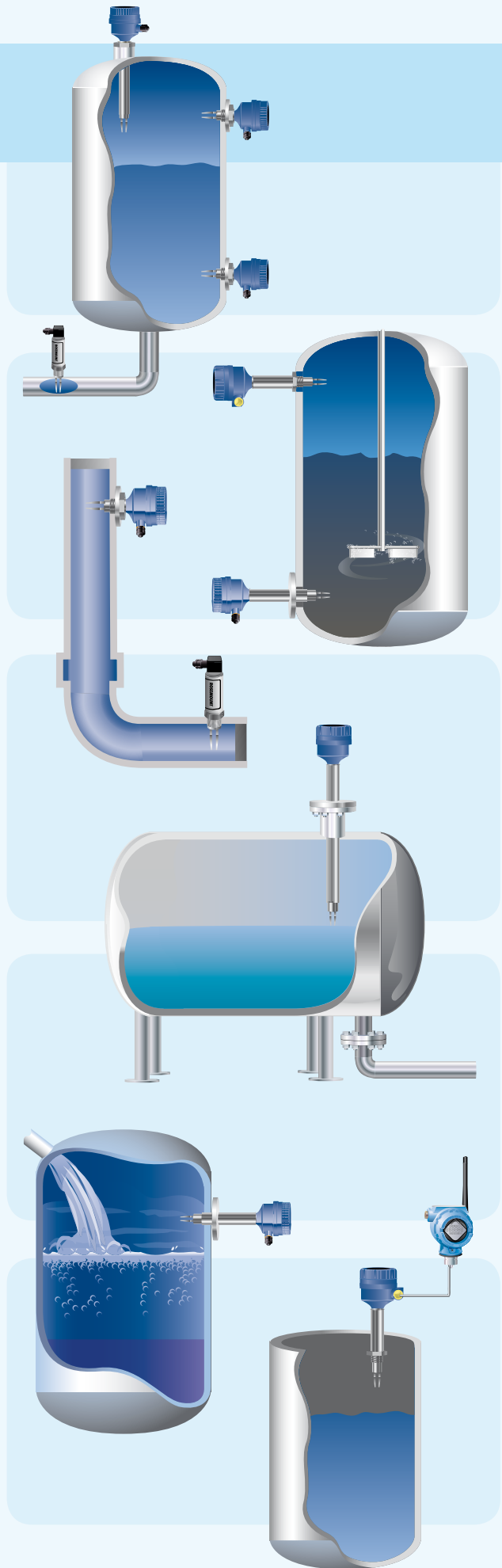
With the option of highly polished forks providing a surface finish (Ra) better than $0.8 \mu\text{m}$, the 2100 series meets the principle design criteria of the most stringent hygienic requirements used in food and beverage, and pharmaceutical applications.

High temperature applications

The 2130 is designed for extremes of temperature. Its robust design makes it suitable for continuous operation across a temperature range of -94 to 500°F (-70 to 260°C).

Wireless applications

Owing to the high cost of wiring, most process plants have hundreds or even thousands of discrete measurement points that are not connected to the control system. The advent of wireless communications allows process plant managers to save up to 90% of installation cost compared with wired technologies, enabling them to collect more data at central locations than has ever been possible before. The 2120 and 2130 can be used with a Rosemount 702 wireless transmitter.



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