high-accuracy
measurement
instruments

FICHA TÉCNICA DE PRODUTO

PRODUCT DATASHEET

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ABB MEASUREMENT & ANALYTICS | DATA SHEET

RS85

Vibrating fork level switch

Measurement made easy

Multi–option liquid level switch K–TEK Level products

Features

- Direct replacement for ultrasonic Gap switches, RF capacitance switches, float switches and other technologies
- Immune to most coating or build–up on sensor
- Robust sensing element
- ¾ in (NPT) threaded process connections
- Field selectable parameters with external magnet or internal pushbuttons (fail safe, density, time delay)
  - Temperatures between –40°F to 250°F
  - Pressures to 2000 psig (137.8 bar)
  - Viscosity up to 1000 cP
  - Density from 0.52 to 2.0
- Modular electronics with alarm status LED
- Self–test diagnostics

Specifications

Mechanical	
Housing type	Single compartment powder coated aluminum (standard)
Electronics temperature	–40 °C to 70 °C (–40 °F to 158 °F)
Process temperature	–40 °C to 121.1 °C (–40 °F to 250 °F)
Process pressure	0 to 2000 psig (137.8 bar)
Process connection	¾ in NPT (standard)
Viscosity*	Up to 1000cP
Probe length	85.8 mm (3–⅜ in) (standard)
Approvals	
Factory mutual system	XP CL1, Div1 ABCD, CLIII EFG
ATEX/IEC	II 1/2G Ex d IIC T5 Ga/Gb (-40°C ≤ Tamb ≤ 66°C) II 1/2G Ex d IIC T6 Ga/Gb (-40°C ≤ Tamb ≤ 50°C) II 1D Ex ta IIIC T150°C Da (-40°C ≤ Tamb ≤ 66°C)
Electrical	
Input power	18 to 36 VDC
Relay contact rating	1 x DPDT resistive: 8 @ 250 VAC; 8 A @ 30 VDC Inductive: 1/2 HP @ 240 VAC, 1/4 HP @ 120 VAC
Repeatability	2.6 mm (0.1 in)
Static protection	Peak surge current: 800 A; clamp voltage: 75 V
Selectable fail–safe	High or low
Adjustable time delay	0.5 to 35 s
Cable entry	2 x ¾ in NPT (Single compartment)
Power consumption	1.5 W

*Only clean liquids, ensure that there are no solids, build-up in the process that may bridge the tines of the fork , affecting the performance.

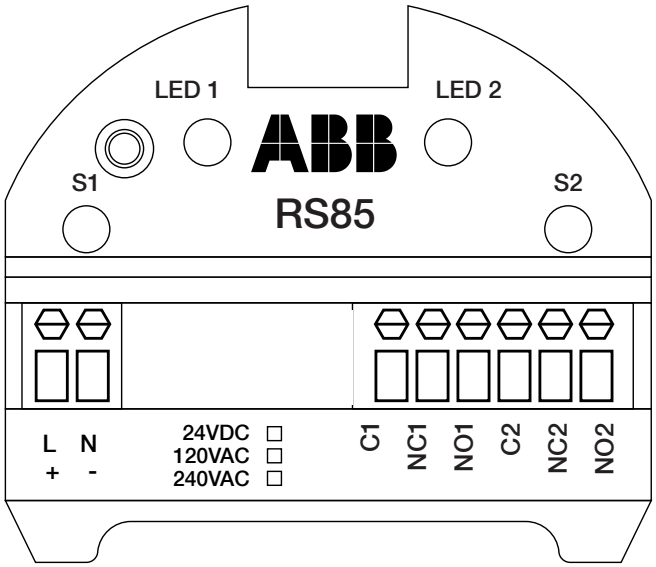

Figure 1 Modular electronics connection diagram

Principle of Operation

The RS85 utilizes a piezoelectric driven tuning fork that exhibits a large change in resonant frequency when immersed in any liquid. A 'smart' microprocessor–based electronic unit keeps the sensor in a resonant state as it changes from dry to wet or wet to dry. The resonant frequency is continuously monitored for changes created by a wet or dry sensor and an alarm is provided via a dry contact relay. An important feature of the RS85 is that its resonant frequency is not significantly affected by coating on the fork until the space between the forks is bridged. The RS85's ability to identify true liquid level in viscous, coating or aerated liquids is unparalleled. The continuous self–test electronics checks for fault conditions such as piezo crystal damage or excessive product build up on the sensor. Applications include high/low liquid level detection without concern for parameters such as specific gravity, dielectric constant or mounting position of the sensor.

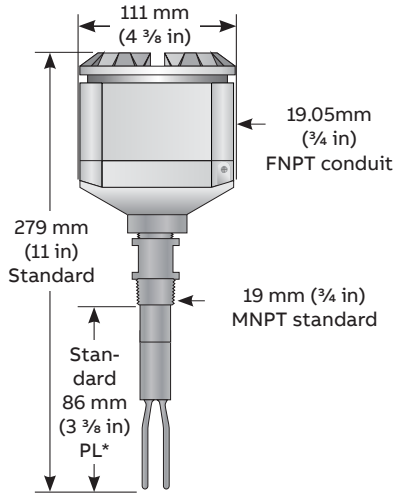

Figure 2 Standard single compartment dimensions

Ordering information

	Main code														
Mandatory characteristics	**RS85**	**XXX**	**XX**	**XX**	**XXX**	**XX**	**X**	**X**	**XX**	**XXX**	**X**	**X**	**X**	**X**	**X**	**X**
Housing																
Single Compartment Aluminum Housing (Standard)		A1														
Single Compartment Aluminum Housing with Glass Viewing Window		A1W														
Process connection																
¾ in MNPT (Standard)*			P7													
Tri-Clamp*			T													
Welded Flange*[1,2]			WP													
Loose Flange*[1,2,3]			FL													
Process connection material																
316SS (Standard)				S6												
Flange connection size/rating type																
None					X											
1 in tri-clamp					10											
1.5 in tri clamp					15											
2 in tri-clamp					20											
1in,class 150 ASME(ANSI) Raised Face					R11											
1in,class 300 ASME(ANSI) Raised Face					R13											
1in,class 600 ASME(ANSI) Raised Face					R16											
2in,class 150 ASME(ANSI) Raised Face					R21											
2in,class 300 ASME(ANSI) Raised Face					R23											
2in,class 600 ASME(ANSI) Raised Face					R26											
3in,class 150 ASME(ANSI) Raised Face					R31											
3in,class 300 ASME(ANSI) Raised Face					R33											
3in,class 600 ASME(ANSI) Raised Face					R36											
Sensor material																
316LSS (standard)						S6										
Probe finish																
Standard finish							X									
Power																
18–36 VDC								1								
Approvals																
No approvals									X							
ATEX & IECEx flameproof									E2							
Standards (FM) Explosion proof									N2							
Probe length																
3⅜ in (86 mm) Standard										086						
Extended Length Probe, must be greater than 7 in. (177.8 mm)*										EXT						
High temperature extension																
None											X					
6 in 316SS High Temperature Extension (>250°F / 121°C up to 350°F / 176.6°C)											HT6					
Electrical connection																
None												X				
Hermetic seal																
None													X			
Remote mounted electronic																
None														X		
Packing gland																
None															X	
Additional ordering codes																
Additional ordering codes will follow the model number with a dash (–)																

1. Minimum Flange size is 1”.
2. View “Data Sheet” section and select “Flange Designations.”
3. P7 (¾” MNPT) will be utilized with loose flanges unless otherwise specified.

*Minimum custom probe length for the “P7” process connection option is 3.875” when probe length option = “EXT”, max is 36”.
*Process connection type “T” can only be selected when probe length option is “EXT”, minimum custom probe length for this option is 4.375”, max is 36”.
*Minimum custom probe length for the “WP” process connection option is 3.375” when probe length option = “EXT”, max is 36”.
*Process connection type “FL” can only be selected when probe length option is “EXT”, minimum custom probe length for this option is 3.875”, max is 36”.

Service codes

	Main code	Additional codes
Service codes	**RS85. XX.XX.XX.X.XX.X.X.XX.XXX.X.X.X.X.–**	**XXX**
Engineering documents (drawings for record)		GD2
Hydrostatic examination		
Hydrostatic examination – (10 min)		CP1
Certifications		
Certificate of functionality		CU3

Notes

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