


















Level Measurement Overview






Overview

Application	Device description	Page	Programming Software
Point level measurement - RF Capacitance switches			
	<p>Powerful range of level switches suitable for a variety of industries.</p>	<p>Pointek CLS100/CLS200/CLS300</p>	
	<p>CLS100: compact 2-wire inverse frequency shift capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries, and foam</p>	4/10	-
	<p>CLS200: a versatile inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output, ideal for detection of liquids, solids, slurries, foam, and interfaces; digital version (with PROFIBUS PA) includes a display and provides additional diagnostic features</p>	4/16	SIMATIC PDM
	<p>CLS300: inverse frequency shift capacitance level switch with optional rod/cable choices and configurable output. It is ideal for detecting liquids, solids, slurries, foam and interfaces in demanding conditions where high pressure and temperatures are present; digital version (with PROFIBUS PA) includes a display and provides additional diagnostic features</p>	4/42	SIMATIC PDM
Point level measurement - Vibrating switches			
	<p>Reliable vibrating point level switches for liquid and slurry applications across all industries.</p>	<p>SITRANS LVL100/LVL200</p>	
	<p>LVL100: compact vibrating level switch for use in liquid and slurry applications such as overflow, high, low, and demand level applications. Also ideal for dry run protection</p>	4/64	-
	<p>LVL200: advanced vibrating level switch for use in liquid and slurry applications. Suited for most hazardous area applications such as: overflow, high, low, demand, and dry run protection; can also be used for Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511</p>	4/71	-
	<p>Reliable vibrating point level switches for bulk solids in a wide variety of applications at a competitive price.</p>	<p>SITRANS LVS100/LVS200</p>	
	<p>LVS100: vibrating point level switch designed to be impervious to external vibrations and to provide reliable performance in demanding bulk solids applications</p>	4/87	-
	<p>LVS200: vibrating point level switch designed to be impervious to external vibrations and to provide reliable performance in demanding bulk solids applications</p>	4/91	-
Point level measurement - Rotating paddle switches			
	<p>Reliable rotating point level switches for bulk solids in a wide variety of applications at a competitive price.</p>	<p>SITRANS LPS200</p>	
	<p>Rotating paddle switch for detection of high, low, and demand levels in a wide variety of bulk solids industries. Unique engineering provides long-lasting, reliable performance</p>	4/101	-
	<p>Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511.</p>		
Point level measurement - Ultrasonic switch			
	<p>Ultrasonic non-contacting switch with two switch points for level detection of bulk solids, liquids and slurries in a wide variety of industries.</p>	<p>Pointek ULS200</p>	
	<p>Rugged design, no moving parts, and virtually maintenance-free</p>	4/113	-
	<p>Transducer available in ETFE or PVDF copolymer and therefore inert to most chemicals</p>		

	Application	Device description	Page	Programming Software
Continuous level measurement - Ultrasonic transmitters				
	SITRANS LU150 and LU180 are short-range integrated ultrasonic level transmitters. These 2-wire, 4 to 20 mA loop powered transmitter are ideal for liquids, slurries, and bulk materials in open or closed vessels to 5 m (16.4 ft).	<p>SITRANS LU150 LU150 is approved for general purpose applications Easy to install, program, and maintain Patented Sonic Intelligence echo processing</p> <p>SITRANS LU180 LU180 is approved for intrinsically safe applications Easy to install, program, and maintain Patented Sonic Intelligence echo processing</p>	4/119 4/124	- -
	2-wire loop powered ultrasonic transmitter for level, volume, and flow monitoring of liquids in open channels, storage vessels and simple process vessels.	<p>SITRANS Probe LU Continuous level measurement up to 12 m (40 ft) range Sonic Intelligence signal processing Auto False-Echo Suppression</p>	4/129	SIMATIC PDM
	Compact level transmitter with integrated transducer for accurate level measurement of liquid applications.	<p>The Probe A short-range integrated ultrasonic level transmitter, ideal for liquids and slurries in open or closed vessels. 3 wire system with mA output and alarm relay</p>	4/134	-
Continuous level measurement - Ultrasonic controllers				
	The SITRANS LUT400 series controllers are compact, single point, long-range ultrasonic controllers for continuous level or volume measurement of liquids, slurries, and solids, and high accuracy monitoring of open channel flow.	<p>SITRANS LUT420/430/440 In addition to industry leading 1 mm (0.04 inch) accuracy, each of the three models in the series are compatible with our full range of EchoMax transducers and offer varying degrees of pump, alarm, and other control functionality, all from a very compact and easy-to-use interface. 1 mm accuracy HART communications Next Generation Sonic Intelligence</p>	4/137	SIMATIC PDM
	Versatile short- to medium-range ultrasonic single- and dual-vessel level controller for virtually any application in a wide range of industries.	<p>MultiRanger 100/200 Using non-contacting ultrasonic technology, the controller measures the level in short to medium range applications up to 15 m (50 ft) of solids, liquids, or slurries Auto False-Echo Suppression of false echoes</p>	4/145	SIMATIC PDM
	Ultrasonic level controller for up to six pumps - control, differential control, and open channel flow monitoring.	<p>HydroRanger 200 An economical, low-maintenance solution delivering control efficiency and productivity needed to meet today's exacting standards Auto False-Echo Suppression of false echoes</p>	4/154	SIMATIC PDM

Level Measurement Overview

	Application	Device description	Page	Programming Software
Continuous level measurement - Ultrasonic transducers				
	ST-H: ETFE or PVDF transducer for chemicals XRS-5: Standard transducer for applications to 8 m (26 ft)	ST-H/EchoMax XRS-5 ST-H: the narrow design of the ST-H allows the sensor to be mounted using a 2 inch connection XRS-5: narrow beam angle of only 10°, measuring range maximum 8 m (26 ft) for measurement of liquids, solids, and slurries	4/163 4/166	- -
	Transducers for liquids and bulk solids XPS series: Hermetically sealed PVDF enclosure for chemical immunity	EchoMax XPS XPS series offers versions for various distances up to 30 m (100 ft) and up to a maximum temperature of 95 °C (203 °F)	4/170	-
Continuous level measurement - Radar transmitters				
	2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage vessels with nominal pressure and temperature, to a range of 20 m (66 ft).	SITRANS Probe LR Uni-Construction polypropylene rod antenna standard Process Intelligence signal processing Auto False-Echo Suppression of false echoes	4/185	SIMATIC PDM
	2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft).	SITRANS LR200 Program without opening the lid, even in hazardous areas, using patented infrared IS handheld programmer Special Uni-Construction hermetically sealed polypropylene rod antenna has integrated threaded connection Built-in alphanumeric display with support in four languages	4/189	SIMATIC PDM AMS SITRANS DTM
	2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage and process vessels including high temperature and pressure, to a range of 20 m (66 ft); antenna designs ideal for small vessels, low dielectric media, food & beverages and corrosive/aggressive media.	SITRANS LR250 Simple operation using the graphical local user interface (LUI) Plug-and-play setup using the intuitive Quick Start Wizard 25 GHz high frequency allows for small horn antennas and easy mounting in nozzles Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions	4/204	SIMATIC PDM AMS SITRANS DTM
	2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of solids and liquids up to 30 m (98.4 ft); ideal for level measurement with quick response or intrinsically safe requirements.	SITRANS LR260 Simple operation using the graphical local user interface (LUI) Plug-and-play setup using the intuitive Quick Start Wizard 25 GHz high frequency allows for small horn antennas and easy mounting in nozzles Process Intelligence signal processing for improved measurement reliability and Auto False-Echo Suppression of fixed obstructions	4/260	SIMATIC PDM SITRANS DTM

	Application	Device description	Page	Programming Software
	4-wire, 24 GHz FMCW radar level transmitter with extremely high signal-to-noise ratio and advanced signal processing for continuous monitoring of solids up to 100 m (328 ft); ideal for measurement in extreme dust and high temperature applications	SITRANS LR460 Process Intelligence for advanced signal processing and quick and easy adjustment Self-guided Quick Start Wizard for plug and play startup 100 m (328 ft) range for long-range and difficult applications	4/266	SIMATIC PDM
	2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids and liquids to a range of 100 m (329 ft); easy to install, plug and play, virtually no maintenance	SITRANS LR560 Rugged stainless steel design 78 GHz high frequency provides very narrow beam, virtually no mounting nozzle noise, and optimal reflection from sloped solids Aimer option to direct beam to area of interest, such as draw point of cone Air purge connection is included for self-cleaning of extremely sticky solids Lens antenna is highly resistant to product buildup Local display interface (LDI) allows local programming and diagnostics	4/272	SIMATIC PDM AMS SITRANS DTM
Continuous level measurement - Guided wave radar transmitters				
	Guided wave radar transmitters for short- and medium-range level, level/interface, and volume measurement of liquids, slurries, and solids. The four LG models are unaffected by changes in process conditions, high temperatures and pressures, and provide a wide range of hygienic options.	SITRANS LG240/250/260/270 Measures accurately on materials with dielectric (dK) as low as 1.4 Guided wave radar measurement for up to 2 mm (0.08 inch) accuracy Measures level, level/interface, and volume of solids, slurries, and liquids 4 button programming for quick setup Reliable level measurement on harsh applications with pressure up to 400 bar g (40 000 kPa) and temperatures as high as 450 °C (842 °F)	4/279	SIMATIC PDM SITRANS DTM
Continuous level measurement - Capacitance transmitters				
	For liquids and solids applications, ideal for standard industrial applications in chemical, hydrocarbon processing, food and beverage, and mining, aggregate and cement industries.	SITRANS LC300 Sophisticated, but easy-to-adjust microprocessor combined with field-proven probes Active shield technology ensures measurements are unaffected by vapors, product deposits, dust, and condensation	4/321	-
Communications				
		SmartLinx Module, Dolphin Plus software Optional communication modules, SmartLinx, provide direct digital connection to popular industrial fieldbus systems Dolphin Plus for quick and easy configuring, monitoring, tuning, and diagnostics of Siemens devices	4/337 4/338	- -

Product documentation on DVD and Safety Note

Siemens products for process instrumentation will be delivered with a multi-language Safety note and a Mini DVD - Process Instrumentation and Weighing Systems.

On the DVD, customers can find many important operating instructions and certificates of our Siemens portfolio for process instrumentation and weighing systems.

Additionally, product or order-specific print material might be part of the delivery.

For further information see appendix page 10/11.

Level Measurement Overview

Level Measurement Selector

Continuous Level						
Conditions	Ultrasonic	Radar	Guided Wave Radar	Capacitance	Gravimetric	Hydrostatic pressure
Measurement						
Level	■	■	■	■	◆	■
Interface (liquid/liquid)			■	◆		■
Interface (liquid/solid)	◆			◆		
Volume	■	■	◆	◆	◆	■
Mass					■	■
Flow (open channel)	■	◆				
Level Applications						
Changing density	■	■	■	■		
Changing dielectric	■	■	■	◆	■	■
Aggressive chemicals	■	■	■	■	■	■
Pressure/vacuum		■	■	■	■	■
High temperature		■	■	■	■	■
Cryogenic			■	■	■	
Turbulence	■	■	◆	◆	■	■
Steam		◆	■	◆	■	■
Hydrocarbon vapors/solvents		■	■	■	■	■
Foam	◆	◆	◆	◆	■	■
Buildup	◆	◆	◆	◆	■	◆
High viscosity	■	■	◆	◆	■	◆
Dust	◆	■	■	■	■	
Solids powders	◆	■	◆	◆	■	
Solids granules/pellets < 25 mm (1 inch)	■	■	◆	◆	■	
Solids > 25 mm (1 inch)	■	■			■	
High angle of repose	◆	■	■	◆	◆	

■ preferred
 ◆ condition dependent

Point Level				
Conditions	Vibration	Capacitance	Paddle	Ultrasonic
Measurement				
Level	■	■	■	■
Interface (liquid/liquid)		■		
Interface (liquid/solid)	◆	◆		
Volume				
Mass				
Flow (open channel)				
Level Applications				
Changing density	■	■	■	■
Changing dielectric	■	◆	■	■
Aggressive chemicals	■	■	◆	■
Pressure/vacuum	■	■	■	
High temperature	■	■	■	
Cryogenic		■		
Turbulence	◆	◆		■
Steam	■	◆	■	
Hydrocarbon vapors/solvents	■	◆		
Foam	◆	◆		◆
Buildup	◆	◆	■	◆
High viscosity	◆	◆	◆	■
Dust	■	■	■	◆
Solids powders	■	◆	■	◆
Solids granules/pellets < 25 mm (1 inch)	■	◆	■	■
Solids > 25 mm (1 inch)	◆	◆	■	■
High angle of repose	■	■	■	◆

- preferred
- ◆ condition dependent