



LEVEL MEASUREMENT GUIDE

Level choices for your application

[siemens.com/level](https://www.siemens.com/level)

SIEMENS

CONNECT. CONTROL. SAVE

The front lines of digitalization

Enormous potential benefits await your operations with Industry 4.0. With unparalleled control and access, you now have complete knowledge of what's happening in your plant at all times.

But even in the age of digital, you still need accurate, reliable, and rugged process instrumentation. Because if field instruments can't supply the right data, even the most sophisticated digitalization plans will fail.

Intelligent level monitoring brings intelligent operations:

Connect devices to Siemens MindSphere Cloud for Industry and use SITRANS IQ apps to see your plant open up before you.

Commission, monitor, and diagnose operations with the touch of your smartphone through the SITRANS mobile IQ app.

Save operators' time and eliminate inefficiencies through optimized processes, delivering cost savings directly to your bottom line.

With the knowledge that no single technology can address the needs of all industrial applications, Siemens provides a complete range of level measurement devices. All backed by our global support network, providing experienced sales and technical assistance when and where you need it.

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Because no single technology measures level in all applications, **Siemens offers selection.**

Start with the right product, finish with low cost of ownership and increased safety.

Non-contacting technology

Ultrasonic Radar

Always consider non-contacting technology first. SITRANS LU and SITRANS LR ultrasonic and radar technologies measure most level applications.



Minimal maintenance



No wear and tear



Easiest to commission and install



Contacting technology

Pressure Guided wave radar Capacitance Weighing



For high accuracy dosing/batching use SIWAREX (weighing). SITRANS LG (guided wave radar), SITRANS P (pressure), and SITRANS LC (capacitance) are the answer for the following:



Small process connections



Interface detection



Extreme pressure and temperature applications

Safety and assurance

Control



For point level detection, safety of personnel, back-up control, and to avoid costly shutdowns, install point level devices like Pointek CLS, SITRANS LCS, SITRANS LVL, SITRANS LVS or SITRANS LPS.



Pre-programmable control features, datalogging, extra inputs/outputs, full communication. For applications when you want more than strictly level measurements.



SITRANS LUT400

MULTIRANGER

SITRANS LT500

Level technology selector

- preferred
- condition dependent

Continuous level

Point level

Conditions	Ultrasonic	Radar	Guided wave radar	RF Capacitance	Gravimetric	Hydrostatic pressure
Measurement						
Level	●	●	●	●	●	●
Interface (liquid/liquid)			●	●		●
Interface (liquid/solid)	●			●		
Volume	●	●	●	●	●	●
Mass					●	●
Flow (open channel)	●	●				
Level Application						
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")	●	●	●	●	●	●
Solids > 25 mm (1")	●	●			●	

Conditions	Vibration	Capacitance	Paddle	Ultrasonic
Measurement				
Level	●	●	●	●
Interface (liquid/liquid)		●		
Interface (liquid/solid)	●			
Volume				
Mass				
Flow (open channel)				
Level Application				
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")	●	●	●	●
Solids > 25 mm (1")	●	●	●	●

* Check chemical compatibility.

LEVEL MEASUREMENT

Because no single technology measures level in all applications,
Siemens offers selection

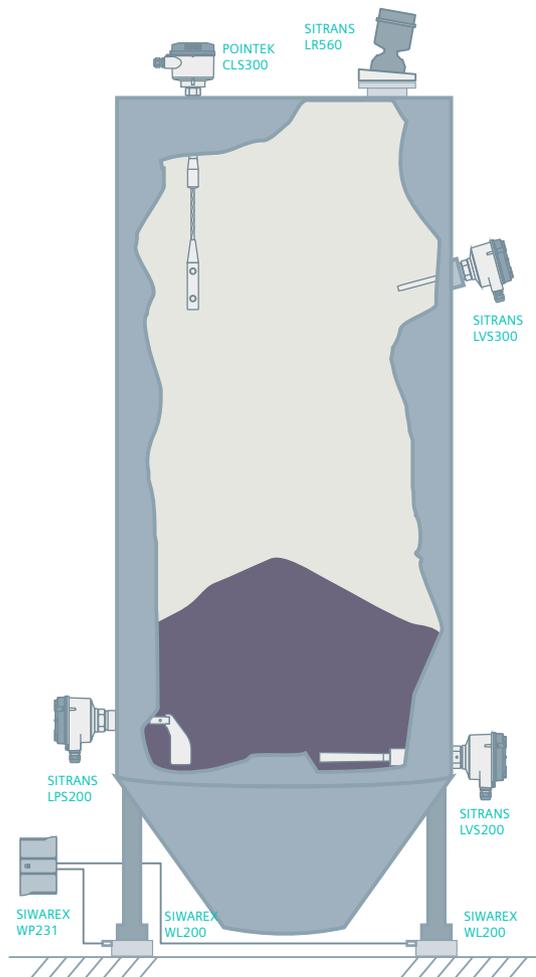
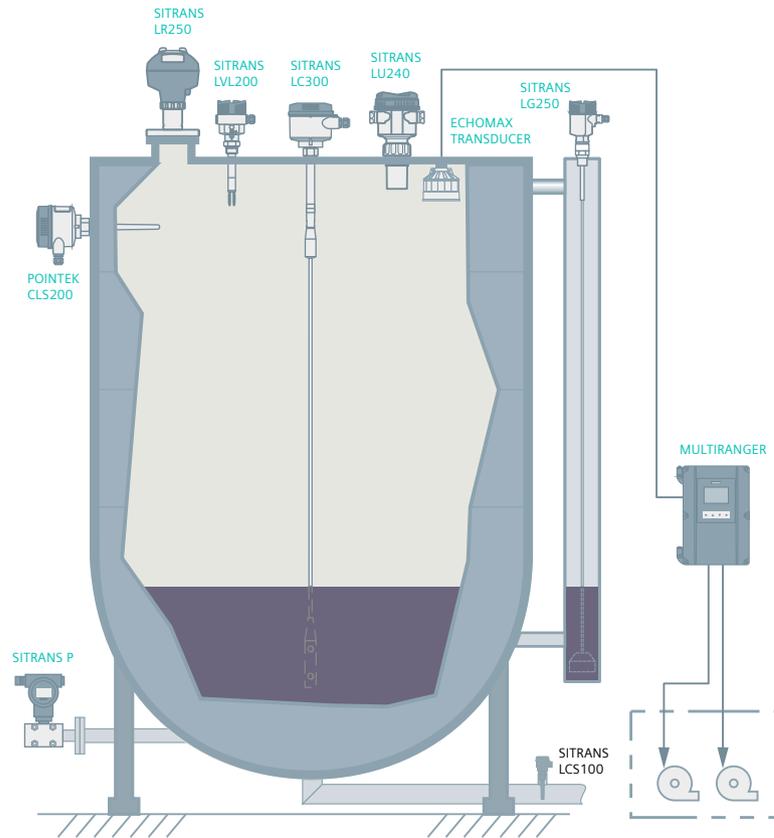
Monitoring water levels in open channels. Tracking the amount of grain in a silo. Measuring oil in a tank. Simply put, level measurement tells you how much material is at a given location.

The right instrument for your application

Siemens level measurement instruments let you get on with your day. Easy 4-button programming and graphical Quick Start Wizards deliver headache-free installation and setup. Advanced processing means that operators aren't spending valuable time repeatedly troubleshooting devices—instead they can be confident that these instruments are delivering reliable, accurate results.

Complementing our level technology is Siemens' complete suite of process instruments, gas analytics, automation, and drives for industries around the globe:

Flow	Gas analytics
Weighing	Gear reducers
Pressure	Motors
Temperature	Control systems
Positioning	Industrial communication
Power supplies	PLCs
Process protection	HMI's
Process controllers	Drives
Remote displays	Motion control
Process recorders	



LEVEL CONTROLLERS

Ultimate control for your application

After leading the market in ultrasonic level controllers for the past 40 years, Siemens has evolved its industry-leading control solutions to include 80 GHz radar sensors.

Need high-accuracy open channel monitoring? How about flexible control with multiple relays and ultrasonic level? Or perhaps you need a reliable controller for long-range, high-frequency radar?

Siemens level controller portfolio answers all these questions—and more.

The new SITRANS LT500 level, flow, and pump controllers for radar transmitters—or any two-wire 4-20 mA devices—offers everything from basic level control to complex pumping routines. Easily retrofit older equipment with SITRANS LT500 and see how improved system control delivers savings directly to your company's bottom line.

[siemens.com/controllers](https://www.siemens.com/controllers)





SITRANS LUT400

High accuracy and data logging

MultiRanger200 / HydroRanger200

Differential measurement and six control relays

SITRANS LT500

First choice for radar sensor measurement at 80 GHz

Technology	Ultrasonic	Ultrasonic	Ultrasonic, radar, 4-20 mA
Order No.	7ML5050	7ML5033 / 7ML5034	7ML60
	SITRANS LUT400 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.	MultiRanger/HydroRanger are versatile short- to medium-range ultrasonic single and multi-vessel level monitor/ controllers for virtually any application in a wide range of industries.	SITRANS LT500 is a controller for level, volume, volume flow, and pump applications for radar and ultrasonic transmitters – or any other 2-wire 4 to 20 mA devices.
Range	0.3 to 30 m (1 to 98 ft), sensor dependent	0.3 to 15 m (1 to 49 ft), sensor dependent	Sensor dependent
Key features	<ul style="list-style-type: none"> Digital receiver for high performance and reliability in noisy applications Intuitive ease of use Advanced pump, alarm, and flow control features with three relays Integrated datalogger Real-time clock with daylight saving time and energy-saving algorithms 	<ul style="list-style-type: none"> Range of models for simple level measurement or pump control to more complex for differential level, open channel measurement, advanced pump control, alarming, and gate control Auto False-Echo Suppression to avoid false echoes from fixed obstructions Intuitive ease of use Six relays 	<ul style="list-style-type: none"> Single- and dual-point measurements Quick Start Wizards with 6 different display views and optional view information Compatible with SITRANS LR110/120, SITRANS Probe LU240 and generic mA inputs Six fully programmable relays rated at 5A for pump control and alarming Datalogging, parameter backup and copy configuration on micro memory card
Communications or outputs	<ul style="list-style-type: none"> HART USB: Integrated web browser for local programming 	<ul style="list-style-type: none"> RS-485 with Modbus RTU or ASCII SmartLinx cards for PROFINET, Modbus TCP/IP, Ethernet/IP, PROFIBUS DP, DeviceNet 	HART, Modbus RTU, PROFINET, PROFIBUS DP or PROFIBUS PA options
Data logging	•		•
Communication options		•	•
High-accuracy flow	•		
Dual point pump control		•	•

ULTRASONICS

Active face technology keeps transmitters **free of material buildup**

Siemens non-contacting ultrasonic sensors and transmitters have active face technology which reduces material buildup and provides trouble-free, reliable performance. Both our transmitters and transducers (when combined with a Siemens controller) feature Process Intelligence, our field-proven echo processing algorithms, to guarantee the most reliable performance possible.

SITRANS Probe LU240 transmitters are a great solution, where value and performance meet. These cost-effective, compact intelligent level transmitters give you the level, volume, and flow measurement you need with field-proven echo processing.

Siemens Echomax ultrasonic level transducers are impervious to buildup, moisture, vibrations, and flooding. With the ability to detect submergence – when paired with a submergence shield – these transducers are a perfect fit for a range of industrial applications. Siemens transducers are easy to install and require little to no maintenance. The unmatched beam angle – stronger pulse and sensitivity in a compact beam – make our transducers the most powerful in the industry.

[siemens.com/ultrasonics](https://www.siemens.com/ultrasonics)





SITRANS Probe LU240

2-wire transmitter with HART 7 communications

Order No.	7ML511
	SITRANS Probe LU240 is a cost-effective, compact, intelligent level solution for liquid chemical inventory, monitoring small process vessels, and level monitoring measurement in the environmental industry.
Range	0.2 to 12 m (0.8 to 39 ft)
Process temperature	-40 to 80 °C (-40 to 176 °F)
Process pressure	0.5 bar
Key features	<ul style="list-style-type: none"> • IP68 fully potted option with its fully encapsulated PVDF sensor is resistant to corrosion, chemicals and extreme shock • Battery and solar-powered friendly, with low start-up current and 10.5-volt operation • Reduced blanking distance • 4-button user interface or remote configuration • Compatible with SITRANS LT500 controller
Communications or outputs	HART 7

Echomax transducers

Full range of options for all application needs

	7ML1106, 7ML1100, 7ML1115, 7ML1118, 7ML1171 and 7ML1123
	<ul style="list-style-type: none"> • Echomax XRS-5: for flumes and weirs • Echomax ST-H: installation flexibility • Echomax XPS-10/15: liquids, solids and slurries • Echomax XPS-30: deep wells and solids
Range	0.3 to 30 m (1 to 98 ft), model dependent
Process temperature	-40 to 95 °C (-40 to 203 °F), model dependent
Process pressure	8 bar, model dependent
Key features	<ul style="list-style-type: none"> • IP68 fully potted option with its fully encapsulated PVDF sensor is resistant to corrosion, chemicals and extreme shock • PVDF, ETFE or PVDF copolymer and CSM face • Submergence detection with shield available • Compatible with SITRANS LUT400 and ultrasonic controllers
Communications or outputs	Controller dependent

Local HMI	•	
Continuous measurement	•	•
Alarming and control		
Extreme shock and vibration		•

RADAR FOR LIQUIDS AND SLURRIES

Wide range of process connections and antennas for most materials

Liquid level measurement challenges are no match for Siemens' complete range of radar transmitters. Whether it's turbulent process vessels, hazardous chemicals, or slurries with a tendency to build up, our portfolio has the solution.

Take the 80 GHz SITRANS LR100 series: these transmitters operate far above most application requirements, easily handling whatever liquid or slurry you've got. Zero blanking distance allows you to measure right up to the sensor, avoiding costly overfilling.

SITRANS LR250 is an excellent choice for liquid level measurement in storage and process vessels to 20 meters (66 ft). With its range of antennas, this transmitter can handle whatever you need it to. Its class-leading range of process connections mean that hygienic applications are no problem for this instrument.

And for monitoring the level of sea or river water, SITRANS LR560 can effectively provide accurate measurements with its long range and narrow beam.

[siemens.com/radar](https://www.siemens.com/radar)





SITRANS LR100 series

SITRANS LR250

SITRANS LR560

	Universal applications with Bluetooth connectivity	Process conditions in oil and gas, chemical, or hygienic industries	Sea and river level measurement
Order No.	7ML530, 531, 532, 533, 534	7ML5431 PLA, 7ML5431 horn, 7ML5432, 7ML5433	7ML5440
	80 GHz compact radar transmitters with Bluetooth wireless technology.	2-wire, 25 GHz pulse radar level transmitter.	2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids or liquids.
Versions	<p>SITRANS LR100 for basic measurement</p> <p>SITRANS LR110 with communication and hazardous approvals options</p> <p>SITRANS LR120 with communication and optional submergence shield for flooding protection</p> <p>SITRANS LR140 for basic measurement</p> <p>SITRANS LR150 versatile version with communication and hazardous approval options and optional HMI</p>	<p>SITRANS LR250 PLA for process industries</p> <p>SITRANS LR250 FEA for extreme corrosive chemicals and high temperature</p> <p>SITRANS LR250 horn ideal for oil and gas, highest temperature rating</p> <p>SITRANS LR250 HEA hygienic antenna and variety of process connections</p>	n/a
Range	<p>SITRANS LR100 to 8 m (26 ft)</p> <p>SITRANS LR110 to 15 m (49 ft)</p> <p>SITRANS LR120 to 30 m (98 ft)</p> <p>SITRANS LR140 to 8 m (26 ft)</p> <p>SITRANS LR150 to 15 m (49 ft)</p>	up to 20 m (66 ft)	<p>40 m (131 ft)</p> <p>100 m (328 ft)</p>
Process temperature	-40 to 80 °C (-40 to 176 °F)	-40 to 200 °C (-40 to 392 °F), process connection dependent	<ul style="list-style-type: none"> -40 to 100 °C (-40 to 212 °F) -40 to 200 °C (-40 to 392 °F)
Process pressure	-1 to 3 bar	up to 40 bar g (580 psi g), process connection dependent	up to 3 bar g (43.5 psi g) option
Key features	<ul style="list-style-type: none"> Narrow beam for flexible installations in existing vessel openings – or non-intrusively through plastic vessels Accuracy: 2 mm (0.08") Optional submergence shield Gas & dust Ex approval 	<ul style="list-style-type: none"> Process Intelligence – advanced echo processing for reliable performance Graphical HMI Quick Start Wizard and display diagnostics 3-A, EHEDG Antennas for aggressive conditions (acids, alkalis, and other corrosive chemicals) SIL 2 for functional safety 	<ul style="list-style-type: none"> Process Intelligence – advanced echo processing for reliable performance Graphical Quick Start Wizard for easy and fast setup Stainless steel enclosure for near-shore corrosion resistance Narrow 4-degree beam yields reliable measurement when installed close to wall
Communications or outputs	<ul style="list-style-type: none"> HART, Modbus RTU Bluetooth 4.2 or higher 	HART or PROFIBUS PA	HART, PROFIBUS PA
Extreme temperature/pressure		•	
Extreme corrosion resistance		•	
Long range			•
SITRANS LT500 programmable	SITRANS LR110/120		
Bluetooth connectivity	•		

RADAR FOR SOLIDS

Narrow beam and high frequency for reliable measurement of solids.

Strong signals over long distances, reliable measurements unaffected by temperature change, and clear echo profiles in dusty environments—Siemens high-frequency 80 GHz radar means application troubles are a thing of the past.

SITRANS LR560 is the easiest-to-use solids radar-transmitter on the market. With a suite of enhanced features including: 100 m range, high temperature capability, durable metal enclosure, purging, flanging and aiming options, and process connections to meet your basic to most challenging process needs.

SITRANS LR100 series transmitters meet the needs of general solids applications. Featuring a compact size, shorter ranges, and Bluetooth and SITRANS mobile IQ for easy installation and configuration.

[siemens.com/radar](https://www.siemens.com/radar)





SITRANS LR560

First choice

Order No.	7ML5440
Range	<ul style="list-style-type: none"> • 40 m (131 ft) • 100 m (328 ft)
Process temperature	<ul style="list-style-type: none"> • -40 to 100 °C (-40 to 212 °F) • -40 to 200 °C (-40 to 392 °F)
Process pressure	up to 3 bar g (43.5 psi g) option
Key features	<ul style="list-style-type: none"> • Process Intelligence – advanced echo processing for reliable performance • Graphical Quick Start Wizard for easy and fast setup • Push buttons or optional Intrinsically Safe infrared handheld programmer • Narrow 4-degree beam yields reliable measurement when installed close to wall • Dust Ex approval

Communications or outputs
HART, PROFIBUS PA

Purging in challenging conditions

•

Standard process flange connections

•

Local HMI

•

Intrinsically safe approval

•

Bluetooth connectivity

•

SITRANS LR110/120

Basic applications

Order No.	7ML531, 7ML532
Range	<p>80 GHz compact radar transmitters with Bluetooth wireless technology.</p> <p>SITRANS LR110 to 15 m (49 ft)</p> <p>SITRANS LR120 to 30 m (98 ft)</p>
Process temperature	-40 to 80 °C (-40 to 176 °F)
Process pressure	-1 to 3 bar
Key features	<ul style="list-style-type: none"> • Narrow beam for flexible installations • Process connections: Thread 1" • Accuracy: 2 mm (0.08") • Beam angle: 4° (SITRANS LR120), 8° (SITRANS LR110) • Gas and dust Ex approval • Very fast response rate
Communications or outputs	<ul style="list-style-type: none"> • HART, Modbus RTU • Bluetooth 4.2 or higher

CONTINUOUS CONTACT LEVEL

Simple installation

for interface or level monitoring that works

SITRANS LG guided wave radar transmitter is the solution for your easiest level or interface application to your most demanding—and everything in between. With simple, reliable installation and little to no configuration, you'll be operational in minutes, saving you time and money.

Extreme process conditions don't stand a chance, and these transmitters feature SIL options for applications requiring functional safety. Advanced diagnostics including trending, profiles, and event logging give you the data you need at every step of your process. Rapid response times and superior echo processing deliver accurate and reliable readings over the full application range, even in small containers and in low dielectric constant material. And with field-replaceable and adjustable probes, if your process changes, your measurement device can too.

SITRANS LC300 is ideal for a range of liquids, solids, and interface applications in the chemical, hydrocarbon processing, and food and beverage industries. Capacitance instruments use active-shield technology to ensure true and accurate level readings are recorded from the material surface.

[siemens.com/sitransLG](https://www.siemens.com/sitransLG)





SITRANS LG

SITRANS LC300

	Liquids, solids, hygienic and extreme conditions	General liquids or solids
Order No.	7ML5880, 7ML5881, 7ML5882, 7ML5883	7ML5670-3
	Guided wave radar transmitters for level, level/interface, and volume measurement of liquids and solids.	Inverse frequency shift capacitance continuous level transmitter for liquids, solids and Interface detection for harsh conditions including buildup.
Versions	SITRANS LG240 for hygienic applications SITRANS LG250 highly flexible solution for liquid level and interface applications SITRANS LG260 for solids applications SITRANS LG270 for extreme conditions including high temperature and high pressure applications	n/a
Range	<ul style="list-style-type: none"> • Insertion length 300 mm (11.8 inches) to 75 m (246 ft) • Probe types include: cable, rod, and coaxial versions 	<ul style="list-style-type: none"> • Rod: max. length 5.5 m (18 ft) • Cable: max. length 25 m (82 ft)
Process temperature	-196 to 450 °C (-321 to 842 °F)	-40 to 200 °C (-40 to 392 °F)
Process pressure	-1 to 400 bar / -100 to 4000 kPa	-1 to 35 bar (-14.6 to 500 psig)
Key features	<ul style="list-style-type: none"> • Ability to measure interface and level at the same time, digital and 2 current options available • Advanced diagnostics including trending, event logging, multiple profile logging • Self monitoring to ensure reliable operation to international NE 107 standards • Automatic false echo suppression to ensure ongoing reliable measurements even with buildup • Functional Safety suitable (SIL 2/ redundant 3) • Field replaceable and adjustable probes • Remote display or remote electronics • Accuracy up to ±2 mm (0.08") • Real-time measurements for applications in steam boilers • Safety rated for 72 hours of unattended operation 	<ul style="list-style-type: none"> • Active-Shield technology • Push-button calibration • Integrated local display • Inverse frequency approach provides high resolution • Accuracy: < 0.5% of actual measurement value
Communications or outputs	<ul style="list-style-type: none"> • HART, PROFIBUS PA, Modbus RTU, and Foundation Fieldbus 	4 to 20 mA
High pressure/temperature	•	
Interface with emulsion		•
Clean interface	•	
Bottom mount		•
Short range		•

POINT LEVEL

A switch for every application with options for **remote testing** and **extreme temperatures**.

With options as simple or sophisticated as you need them to be, Siemens point level devices are your answer.

[siemens.com/pointlevel](https://www.siemens.com/pointlevel)



Whether you're looking for backup, high- or low-level detection, interface, or dry run protection – these switches will reduce your maintenance, downtime, and equipment replacement costs.

Remote testing? Not a problem. A range of Siemens point level instruments now feature convenient remote testing via single or two-channel remote test signal conditioners or your control system.

Product buildup? Rotary point level devices specialize in low bulk density applications, ensuring accurate readings even in dusty, turbulent, and vaporous environments. And because even a small level change creates a large and detectable change in frequency, Siemens capacitance switches provide excellent resolution while consistently demonstrating immunity to buildup.

Need functional safety in your application? Siemens offers the world's first rotary paddle switch with SIL options in addition to a series of SIL instruments in all our point level lines.

Whatever your requirements – digital communication support for advanced monitoring, ease of configuration and integration – Siemens has a switch solution.



	SITRANS LVS100/200/300	SITRANS LVL100/200	SITRANS LPS200	Pointek CLS200/300 and SITRANS LCS050/100
	Dry powder solids	Non-sticky liquids and slurries	Extreme temperatures and buildup	Solids, liquids and interface point level detection
Order No.	7ML5735, 7ML5731-4, 7ML5736-8	7ML5745, 7ML5746, 7ML5747, 7ML5748	7ML5725-8, 7ML5730	7ML700-3, 7ML5630-3, 7ML5640-3, 7ML5650-2, 7ML5660-2, 7ML5772
	Vibrating point level switches for dry powder, fine grain, and granular bulk solids with densities from 5 to 30 g/l (0.3 to 1.9 lb/ft ³).	Compact vibrating point level switch for liquid and slurry and pump protection. Ideal for use in confined spaces.	Rotary paddle switch for point level detection of powder and granular solids with bulk densities as low as 15 g/l (0.94 lb/ft ³).	RF capacitance switch for point level detection in interfaces, solids, liquids, slurries, and foam and demanding conditions.
Versions	SITRANS LVS100 for dry powder SITRANS LVS200 for dry powder with very low density SITRANS LVS300 for bulk solids and aggressive applications	SITRANS LVL100 compact SITRANS LVL200 for applications with higher pressure/temperature Ex approvals	Standard for side or top mount Cable extended top mount Shaft protection for side mounting with buildup Angled shaft for aggressive side mount applications	SITRANS LCS050 ultra-compact liquids detection with IO-link SITRANS LCS100 versatile liquids and solids detection with IO-link Pointek CLS200 liquids and solids detection with digital display and PROFIBUS Pointek CLS300 liquids and solids detection in harsh demanding applications
Range	Insertion length: 170 mm to 20 m (6.7" to 65 ft)	Insertion length: 40 mm to 4000 mm (1.5" to 13 ft)	Insertion length: 100 mm to 10 m (4" to 30 ft)	Compact version starts at 12 mm (0.47") Rod: 50 mm to 5.5 m (14" to 18 ft) Cable: 1 to 30 m (3 to 98 ft)
Process temperature	-40 to 150 °C (-40 to 302 °F)	-196 to 450 °C (-321 to 842 °F)	-25 to 600 °C (-13 to 1112 °F)	-40 to 400 °C (-40 to 752 °F) high temperature version
Process pressure	Up to 10 bar g (145 psi g) Pressure to 30 bar options available	-1 to 160 bar/-100 to 16000 kPa (-14.5 to 2320 psi g)	Up to 0.5 bar g (7.25 psi g) Optional up to 10 bar g (145 psi g)	Up to 35 bar g (511 psi g)
Key features	<ul style="list-style-type: none"> • Replaceable electronics • Interface model for solids in liquids • Best-in-industry lowest density measurement • Unaffected by external vibrations • Remote buildup monitoring 	<ul style="list-style-type: none"> • Test function including remote options • Fault monitoring for corrosion, loss of vibration, or line break to the piezo drive • ½" process connections • SIL 2 and hygienic options • Options for extreme pressures and temperatures 	<ul style="list-style-type: none"> • Optional hinged vane • 5 seal ingress protection • Motor switches off during alarm for long service life • Friction clutch design prevents impact damage • Rotation failure monitoring • SIL 2 options 	<ul style="list-style-type: none"> • Adjustable sensitivity to handle buildup or non contact material detection • SensGuard for abrasives • Display with local button configuration • Active-shield for increased sensitivity and buildup protection • SIL 2 options
Comms.	N/A	N/A	N/A	PROFIBUS PA, IO-Link
Buildup			•	•
Interface	•			•
Granular size > 20 mm	•		•	•
Very low bulk density	•			
Remote testing		•		•

HYDROSTATIC

Level measurement in **chemical** **and petrochemical industries**

Hydrostatic level measurement with Siemens gauge, absolute, and differential pressure transmitters is a low cost option for direct mounting or mounting with remote seals on tanks and vessels.

These instruments can handle extreme chemical and mechanical loads as well as electromagnetic interference. They are widely applied in chemical and petrochemical industries.

[siemens.com/hydrostatic](https://www.siemens.com/hydrostatic)





SITRANS LH100



SITRANS LH300



SITRANS P320/420

	SITRANS LH100	SITRANS LH300	SITRANS P320/420
	Submersible sensor	Submersible sensor	Advanced
Order No.	7MF1570	7MF1575	7MF036, 7MF046
	Hydrostatic level transmitter for direct mounting in tanks and vessels.	Hydrostatic level transmitter for direct mounting in tanks and vessels	Hydrostatic level transmitter for mounting with remote seal on open or closed vessels with corrosive or non-corrosive liquids.
Range	3 m to 20 m H ₂ O (9 ft to 60 ft H ₂ O)	1 m to 40 m H ₂ O (3 ft to 120 ft H ₂ O)	50m (167ft) H ₂ O
Process temperature	-10 to 80 °C (14 to 176 °F)	-10 to +80 °C (14 to 176 °F)	-40 to 100 °C (-40 to 212 °F)
Process pressure	N/A	N/A	depending on process connection
Key features	<ul style="list-style-type: none"> • Applicable to harsh environmental conditions due to the piezoresistive ceramic sensor • Compact stainless steel enclosure and sensor • Easy installation • Intrinsically Safe • Special measuring ranges: 0 to 3 mH₂O to 0 to 30 mH₂O • Cable length up to 100 m (328 ft) 	<ul style="list-style-type: none"> • Compact stainless steel transmitter with Al₂O₃ ceramics sensor • Sensor purity 99.6% • Easy installation • Special measuring ranges: 0 to 1 mH₂O to 0 to 160 mH₂O • Cable length up to 1000 m (3300 ft) 	<ul style="list-style-type: none"> • With remote seals up to 400 °C (752 °F) • Self-diagnostic elements for parameterization • Intrinsically Safe • Explosion proof and flame proof • SIL 2/3 approved • Corrosion-resistant diaphragm and process connections • Range of different process connections
Communications or outputs	N/A	4 to 20 mA	4-20 mA, HART, PROFIBUS PA
Local display			•
SIL			•
Ceramic membrane		•	

LEVEL BY WEIGHT

Gravimetric technology provides **non-intrusive mass measurement**

With SIWAREX weighing electronics and load cells, not only are you choosing the highest quality in construction, long-lasting performance, and easy integration into your weighing systems, you are also opening the doors to Siemens' comprehensive spectrum of instrumentation.

Automate all of your scales with SIWAREX weighing modules. Part of Siemens Totally Integrated Automation (TIA), SIWAREX modules can be integrated into SIMATIC and expanded as required to meet your individual requirements.

SIWAREX DB – your connection to the digital world

Analogue limitations are left behind with SIWAREX DB. Instead of doing a parallel connection of the analog load cells and having no information about the single load cell, digitalization of each load cell offers full transparency.

[siemens.com/weighingmodules](https://www.siemens.com/weighingmodules)





SIWAREX WT231

SIWAREX WP231

SIWAREX WP321

	SIWAREX WT231	SIWAREX WP231	SIWAREX WP321	SIWAREX WP52x ST
	Stand-alone	Stand-alone and S7-1200 integrated	ET 200SP integrated	S7-1500 integrated
Order No.	7MH4965-2AA01	7MH4960-2AA01	7MH4138-6AA00-0BA0	7MH4980-[1;2]AA01
Typical applications	Weighing terminal for platform scales, silo and bunker weighing, scales in hazardous areas, force measurement.	Fast weighing and force measurement for non-automatic scale applications like fill level monitoring of silos, hopper scales, platform and crane scales within SIMATIC S7-1200 systems or stand-alone operation.	Technology module for the distributed I/O system SIMATIC ET 200SP. Suitable for fast and accurate non-automatic scales in level measurement in silos and bunkers and platform scales.	Technology modules for the SIMATIC S7-1500 advanced controller family. Optimally prepared for gravimetric level measurement of silos and hoppers as well as for platform scales
Automation system integration	<ul style="list-style-type: none"> • RS485 (Modbus RTU) • 0/4-20mA • Four digital outputs • Four digital inputs 	<ul style="list-style-type: none"> • SIMATIC S7-1200 (directly via SIMATIC bus) • Operator panel • Automation systems from other manufacturers, via Ethernet (Modbus TCP/IP) or RS-485 (Modbus RTU) 	<ul style="list-style-type: none"> • SIMATIC S7-400 • SIMATIC S7-300 • SIMATIC S7-1200 • SIMATIC S7-1500 via SIMATIC ET 200SP distributed IO 	S7-1500 (directly via SIMATIC bus)
Accuracy	0.05%	0.05%	0.05%	0.05%
SIMATIC PCS7 integration	–	–	Via SIMATIC PCS7 add-on software package including faceplate and function block	–

LEVEL BY WEIGHT

Diverse types and graded load classes offer a solution for a range of applications

SIWAREX load cells have high precision and repeatability of weighing and batching processes. They are designed for a range of applications, especially when accuracy is a must. With Siemens, you can source both your load cells and electronics. Choose from our extensive, performance-graded line of weighing systems – with everything you need for the whole range of tasks in your industry.

SIWAREX load cells are ideal in almost any industrial sector – food-processing, steel-making, chemical and pharmaceutical, to name a few. With the diverse construction types and comprehensive, graded load classes ranging from 300 grams to 500 tons (6.6 pounds to 551 short tons), you are sure to find the right load cell for your application.

[siemens.com/loadcells](https://www.siemens.com/loadcells)





	SIWAREX WL230	SIWAREX WL230	SIWAREX WL250	SIWAREX WL260	SIWAREX WL270	SIWAREX WL270 K	SIWAREX WL280 RN	SIWAREX WL290
Type	Shear beam	Bending beam	S-Type	Single point	Compression	Compression	Ring-torsion	Double shear beam
Order No.	7MH5107, 21	7MH5106	7MH5105	7MH5118	7MH5108, 10	7MH5114	7MH5113	7MH5122
Typical applications	Container, overhead rail conveyor, and platform scales	Small scale containers and platform scales	Tank weighing, hybrid scales, or suspended container weighing	Small to medium platform scales and weighing machines, conveyor small scales	Containers, hoppers, and vehicle scales	Vehicle scales, overhead rail scales, container weighers	Container, conveyor, platform and roller table scales	Platform scales, hoppers and vehicle scales
Nominal load (Emax)	0.1 to 5 t (0.55 to 5.5 short tons)	10 to 500 kg (22 to 1102 lbs)	50 kg to 10 t (110 lbs to 11 short tons)	10 to 500 kg (22 to 1102 lbs)	10 to 100 t (11 to 220 short tons)	2.8 to 500 t (3 to 551 short tons)	60 kg to 60 t (132 lbs to 66 short tons)	2.3 to 113 t (2 to 111 tn. L)
Accuracy class and max. scale intervals	C3, C4, C5 3,000...5,000	C3 to OIML R60; 3,000 intervals	C3 to OIML R60; 3,000 intervals	C3 to OIML R60; 3,000 intervals	C3 to OIML R60; 3,000 intervals	0.1%	C3 to OIML R60; 3,000 intervals	C3 to OIML R60
Degree of protection	IP68/67	IP68	IP67	IP68/IP69K	IP68	IP68	IP66/IP68	IP67



SIWAREX DB

Order No.	7MH5001-0AD20 7MH5001-0AD01
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SIWAREX DB makes the digitalization of the proven, most common and cost-effective strain gauge technology possible. For direct connection to a SIMATIC S7 or PCS 7 PLC the SIWAREX WP weighing electronics are ideal.

Seamless communication between SIWAREX and SIMATIC ensures less time and effort during commissioning. During operation the single channel monitoring, allowing wire break, impedance, and the current utilization of each load cell to be detected and corrected in the event of an error.

SIWAREX DB supplies diagnostics data that are fully integrated in the SIMATIC environment. Error messages are displayed centrally on the SIMATIC controller and the HMI.

REMOTE MONITORING AND DISPLAYS

Share critical information and provide control where it is needed

Ideal for remote monitoring applications including inventory levels, regulatory monitoring, remote maintenance alarming, or process and environmental monitoring, SITRANS RTU3000C family remote data manager helps you stay connected and informed.

SITRANS RD100, SITRANS RD150, SITRANS RD200, and SITRANS RD300 remote displays bring you the flexibility of seeing instrumentation readings in a convenient location for your operators.

Our family of displays offer options for integrated pump control, totalizing, dual input, remote communication and monitoring via HART or Modbus and remote configuration of connected sensors. Siemens' selection of displays gives you an inexpensive view into your processes.

And the compact SIMATIC RTU3000C remote terminal units are energy-self-sufficient, low-power devices with flexible power supplies. Easily configured, they operate reliably even under harsh conditions and in areas prone to flooding.

[siemens.com/SupplementaryComponents](https://www.siemens.com/SupplementaryComponents)





	SITRANS RD100	SITRANS RD150	SITRANS RD200	SITRANS RD300	SIMATIC RTU3000C family
Order No.	7ML5741	7ML5742	7ML5740	7ML5744	6NH3112-4BB00-0XX0
Input types	4 to 20 mA	4 to 20 mA and HART	Universal current, voltage, RTD, thermocouple	4 to 20 mA, 0 to 10 V DC	<ul style="list-style-type: none"> • 8 DI • 4 4-20mA • HART/Modbus expansion available
Digits	3.5 digit display	5 digits	4 digit display	Dual-line 6 digit display	Internal web page
Key features	<ul style="list-style-type: none"> • 2-wire loop-powered • Two-step configuration • Intrinsically Safe, non-incendive • Serviceability without loop interruption • Factory calibrated 	<ul style="list-style-type: none"> • Remote display with sensor configuration via HART • Monitor extended data via HART • Flexible field and panel mount options • Menu driven backlit display • Plastic, aluminum and stainless housing options 	<ul style="list-style-type: none"> • Easy to read in all conditions • Temperature and process meter • Software supports monitoring and configuration • Alarm indication and process control • Provides power to instrument • Modbus RTU output 	<ul style="list-style-type: none"> • Easy to read, dual-line display • 32-point linearization and square root function • Nine digit totalizer • Flexible outputs with up to eight relays and eight digital I/O for process control alarming • Modbus RTU output • Multi-pump alternation control • Software supports monitoring and configuration 	<ul style="list-style-type: none"> • Battery or solar-operated • 10.8V to 28.8V DC • LTE-M/NB-IoT • Internal GPS • Text message, email and datalogging • FTP client • Ethernet port • 4 Digital outputs • Local control functions • IP20 rating
Operating temperature	-40 to 85 °C (-40 to 185 °F)	<ul style="list-style-type: none"> • Without display and adjustment module -40 to 80 °C (-40 to 176 °F) • With display and adjustment module -20 to 70 °C (-4 to 158 °F) 	-40 to 65 °C (-40 to 149 °F)	-40 to 65 °C (-40 to 149 °F)	Vertical: -40 to 60 °C (-40 to 140 °F) Horizontal: -40 to 70 °C (-4 to 158 °F)
HART		•			optional
Modbus			•	•	optional
Pump control			•	•	•
Loop powered	•	•			
Graphic display		•			web page
Remote comms.					•



GO THE DISTANCE WITH DIGITALIZATION

Introduce easy-to-use apps into your operations and **harness new opportunities**

Put your plant's data to work and see your operations open up before you with intuitive digital solutions from Siemens.

Combined with our digitalization-ready instruments, SITRANS IQ apps bring usable device data directly to operators' smartphones or tablets, giving your staff the ability to examine trends, analyze performance, and even commission devices.

SITRANS Library provides visualized device functions to help in both the engineering phase and with process control. The measurement range on the transmitter and in the control system can be synchronized with one click, ensuring consistency between the field device and DCS system, higher reliability, and transparency.

With the ability to connect your products, instruments, systems, and machines, only a complete automation and instrumentation supplier like Siemens puts the information your operators need directly in their hands. With new customer-driven apps coming to market from our world-class R&D teams, the possibilities truly are endless.

SITRANS SCM IQ

Monitors the condition of your plant's mechanical components and detects imminent equipment failures empowered by SITRANS multisensors.

SITRANS store IQ

Easily implement cloud-based real-time monitoring and lay the foundation for effective inventory management.

SITRANS mobile IQ

Via a Bluetooth connection, supported field devices in the environment can be easily and quickly commissioned, parameterized and monitored.

Free download: www.siemens.com/siossitransmobileiq

PIA Life Cycle Portal

This portal helps you select, size and configure your ideal piece of instrumentation. The portal interfaces with COMOS and exports to Siemens Industry Mall. You are able to track the lifecycle of your instrument, see warranty and extended exchange option information as well additional information such as factory certificates (e.g., for calibration or validation).

COMOS

The engineering tool from Siemens for the entire lifecycle of your plant. With the direct integration of our PIA Lifecycle Portal, we guarantee the seamless integration of our field devices in the engineering environment. We can offer field devices best suited to your processes, properties, and measuring requirements.

SIMATIC Process Device Management (PDM)

One of the most widely used tools for access of a device's parameters, diagnostic and maintenance information. More than 4,500 devices from more than 200 different manufacturers can be commissioned, parameterized, or serviced using a single program with a uniform user interface.

SITRANS Library

Optimize your process – SITRANS Library function blocks and faceplates for SITRANS field devices enhance SIMATIC automation and TIA Portal systems experience. They are an easy and effective interface between your field devices and operating system.

Sales and support



Maximize your skills with factory-certified training

Siemens provides a full schedule of Process Instrumentation training opportunities for Siemens employees, channel partners, and customers.

Custom engineering

Siemens provides custom-engineered products to solve your special application needs. From material compatibility challenges to unique size requirements, Siemens custom engineering team can help.

Service around the world

Plants must function reliably at all times. Efficient and effective process instrumentation and analytics are an indispensable requirement to this end. You also need to be certain of fast and competent service from your supplier. Siemens is a global company that reacts locally. Whether you require consulting, quick delivery, or installation of new devices, the Siemens network of specialists is available to you around the world, wherever your location.

Service around the clock

Our online support system offers rapid, comprehensive assistance regardless of time or location. From product support to service information, Siemens Industry online support is your first choice – around the clock, 365 days a year.

[siemens.com/service&support](https://www.siemens.com/service&support)

PI training

The PI Introductory Training courses are designed for new sales and service employees to learn the product lines, the technologies, and the applications. These courses are also prerequisites for the advanced technology courses which provide in-depth application training.

Designed for hands-on learning, all courses are led by field-tested instructors who combine extensive application and instrumentation knowledge with seasoned training experience. Our PI Training Center is specifically designed to optimize your classroom time. It is fully equipped with application simulation stations, a full range of PI instruments, and complete industrial communication networks.

For current information and schedules, visit our website at:

[siemens.com/pi-training](https://www.siemens.com/pi-training)

TOTALLY INTEGRATED AUTOMATION.

End-to-end integration from controller level to field level

With Totally Integrated Automation (TIA), Siemens is the only provider of an end-to-end integrated portfolio of products and systems for the automation of the entire production workflow. From the goods receiving area to the finished goods warehouse.



Totally Integrated Automation reduces the complexity of the automation solution and enables what really counts: the practical combination of optimally coordinated individual components without interface problems.

Totally Integrated Automation integrates not only the production process but all parts of the company from the field level to the management level. The result: a perfectly coordinated overall concept that delivers higher productivity.

Communication flexibility

Siemens TIA approach offers ease of connection to a DCS system such as SIMATIC PCS 7 using industrial standards. Siemens provides communication flexibility, supporting:

SIMATIC PDM

PROFIBUS

HART

FOUNDATION Fieldbus

Model 375/475 HART field communicator and Emerson AMS

SmartLinx (cards are available for PROFIBUS DP, Modbus RTU, and DeviceNet)

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