SIEMENS

Ingenuity for life

Level measurement guide

Complete level solutions

A new level of experience in all of your applications.

usa.siemens.com/level

Transparency. Connectivity. Intelligence.

The eyes and ears 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 are unable to supply the right data, even the most sophisticated digitalization initiative won't help.

Take the MultiRanger/HydroRanger ultrasonic level controller. Connect it to Siemens MindSphere Cloud for Industry and see your operations open up before you. Access to all sensor data and device parameters allows you to compare level readings with external sensors – compare outside temperatures to river levels combined with rain fall gauges to predict flood zones. Intelligent level monitoring brings intelligent operations.

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

1 **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

Weighing Guided wave radar Pressure Capacitance

2 **For high accuracy dosing/mixtures 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

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

Level technology selector

▯ **preferred**

▯ **condition dependent**

	Continuous level						Point level			
Conditions	Ultrasonic	Radar	Guided wave radar	RF Capacitance	Gravimetric	Hydrostatic pressure	Vibration	Capaci-tance	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.

Siemens level measurement

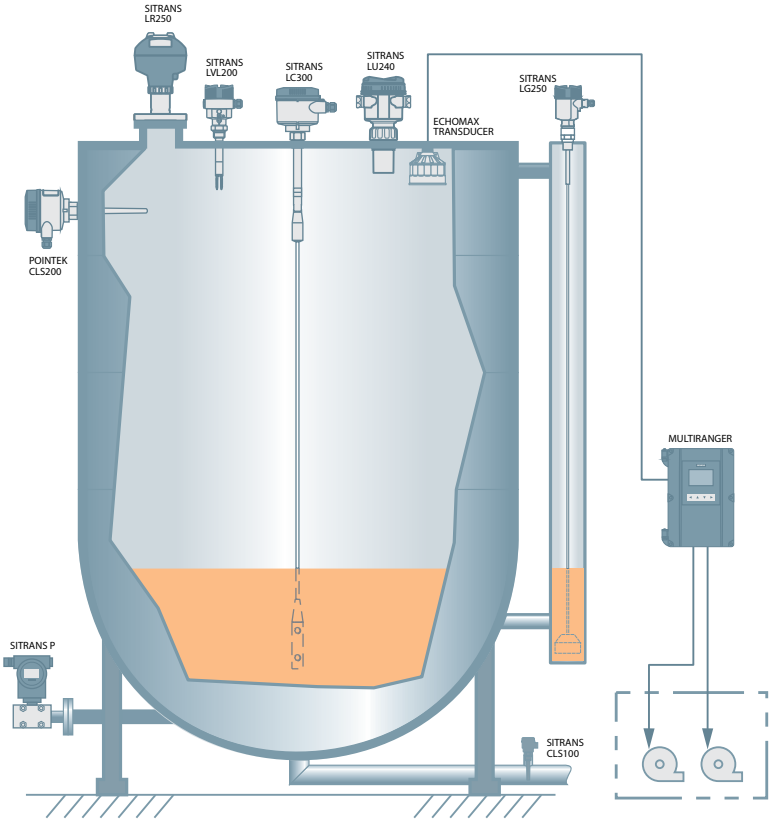
Monitoring water levels in open channels. Tracking the amount of grain in a silo. Measuring oil in a tank. Simply put, level measurement tells you how much material is at a given location.

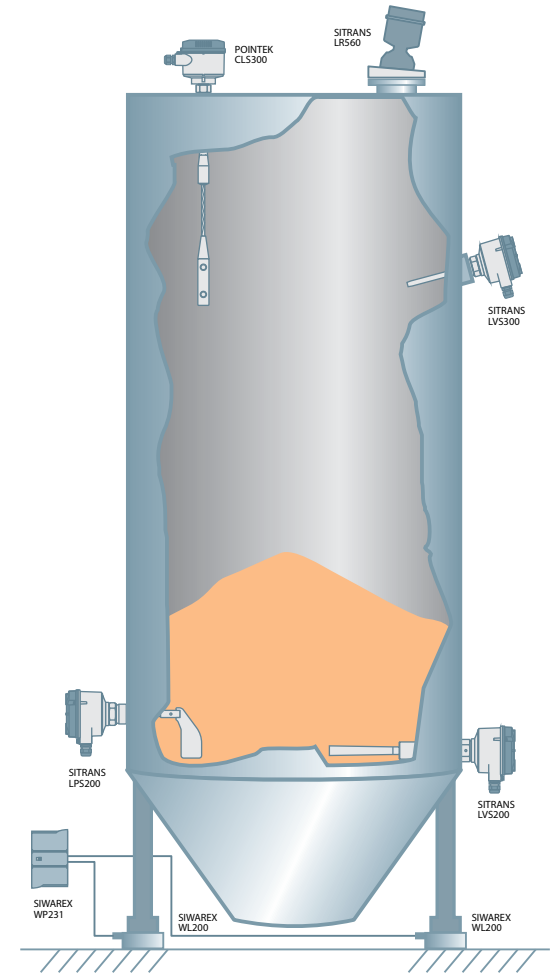
The right instrument for your application

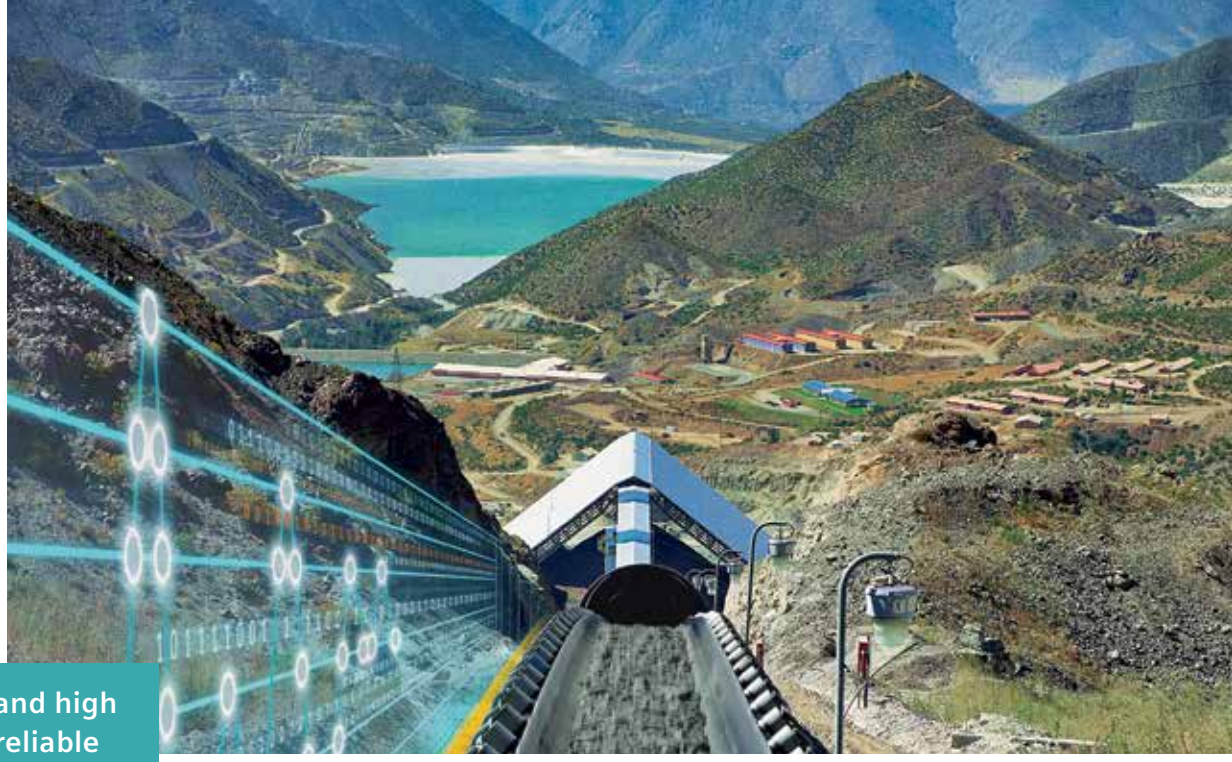
Siemens level measurement instruments let you get on with your day. Easy 4-button programming and graphical Quick Start Wizards deliver headache-free installation and setup. Advanced processing means that operators aren't spending valuable time repeatedly troubleshooting devices—instead they can be confident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

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

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


SITRANS LR250
SITRANS LVL200
SITRANS LC300
SITRANS LU240
SITRANS LG250
ECHOMAX TRANSDUCER
POINTEK CLS200
MULTIRANGER
SITRANS P
SITRANS CLS100


POINTEK CLS300
SITRANS LR560
SITRANS LVS300
SITRANS LPS200
SITRANS LVS200
SIWAREX WP231
SIWAREX WL200
SIWAREX WL200



Narrow beam and high frequency for reliable measurement of solids.

Radar for solids

SITRANS LR560 is the easiest to use solids radar transmitter on the market. With a high frequency of 78 GHz, 4 degree narrow beam, and short wavelength, it performs reliably on solids material from practically any installation location.

For extremely low dielectric, low density powders, the 25 GHz SITRANS LR460 is the preferred solution. Featuring a horn antenna with an 8 degree beam, the 4-wire FMCW SITRANS LR460 has proven itself in thousands of applications.

Siemens solids radar transmitters easily tackle dusty environments and are not affected by temperature changes.

SITRANS LR560

SITRANS LR460

SITRANS LR260

	SITRANS LR560	SITRANS LR460	SITRANS LR260
	First choice	**Challenging solids applications**	**Intrinsically safe**
Order No.	7ML5440	7ML5426	7ML5427
	2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids or liquids.	4-wire, 25 GHz FMCW radar level transmitter for continuous monitoring of solids. Ideal for materials with extremely low dielectric properties.	2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of solids and liquids. Ideal for applications requiring quick update rates.
Range	40 m (131 ft) 100 m (328 ft)	100 m (328 ft)	30 m (98 ft)
Process temperature	-40 to 100 °C (-40 to 212 °F) -40 to 200 °C (-40 to 392 °F)	-40 to 200 °C (-40 to 392 °F)	-40 to 200 °C (-40 to 392 °F)
Process pressure	Up to 3 bar g (43.5 psi g) option	0.5 bar g (7.25 psi g) max.	Up to 3 bar g (43.5 psi g), process connection dependent
Key features	• 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 • Air purge connection included • Aimer flange for optimizing readings in the silo cone area	• Process Intelligence – advanced echo processing for reliable performance • Intrinsically Safe infrared handheld programmer • Extremely high signal yields high performance (high signal-to-noise ratio) • Quick Start Wizard for setup • PTFE antenna cover • Air purge connection	• Process Intelligence – advanced echo processing for reliable performance • Reliable and accurate – high signal and low noise yields high performance • Graphical HMI makes operation simple with plug-and-play setup using the intuitive Quick Start Wizard • Optional dust cover and air purge available
Communications or outputs	• HART, PROFIBUS PA, or FOUNDATION Fieldbus • Enhanced EDD for SIMATIC PDM, Emerson AMS Device Manager, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics	• HART or PROFIBUS PA • Enhanced EDD for SIMATIC PDM for configuration and diagnostics	• HART or PROFIBUS PA • Enhanced EDD for SIMATIC PDM and SITRANS DTM (for PACTware) for configuration and diagnostics

Wide range of process connections and antennas for most materials.

Radar for liquids and slurries

SITRANS LR250 is your first 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 new encapsulated antenna and class-leading range of process connections mean that hygienic applications are no problem for this instrument.

For process vessels which may include turbulence, buildup, or foam, choose SITRANS LR200. Its low frequency better suits this environment and functions reliably in applications up to 20 meters (66 ft).

And for basic continuous monitoring, SITRANS Probe LR offers a small process connection for easy installation. It's low frequency operation means high immunity against condensation or deposits.

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

SITRANS LR250 Family

SITRANS LR560

	SITRANS LR250	SITRANS LR200	SITRANS Probe LR	SITRANS LR560
	Universal applications	**Severe process conditions**	**Low-cost basic applications**	**Sea and river level measurement**
Order No.	7ML5431, 7ML5432, 7ML5433	7ML542x	7ML5430	7ML5440
	2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage/process vessels.	2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids. Ideally suited for complex, turbulent process vessels.	2-wire, 6 GHz pulse radar level transmitter for basic continuous monitoring of liquids in storage vessels.	2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids or liquids.
Range	20 m (66 ft)			40 m (131 ft) 100 m (328 ft)
Process temperature	-40 to 200 °C (-40 to 392 °F), process connection dependent	-40 to 200 °C (-40 to 392 °F), process connection dependent	-40 to 80 °C (-40 to 176 °F)	-40 to 100 °C (-40 to 212 °F) -40 to 200 °C (-40 to 392 °F)
Process pressure	Up to 40 bar g (580 psi g), process connection dependent	Up to 40 bar g (580 psi g), process connection dependent	Up to 3 bar g (43.5 psi g)	Up to 3 bar g (43.5 psi g) option
Key features	• Process Intelligence – advanced echo processing for reliable performance • Narrow beam for easy setup and high performance • Graphical HMI • Quick Start Wizard and display diagnostics • 3-A, EHEDG EL Class 1 and EL Class 1 aseptic certification with TFM 1600 PTFE-wetted antenna parts (FDA and USP Class VI approved) for hygienic and sanitary environments • Antennas for aggressive conditions (acids, alkalis, and other corrosive chemicals) • SIL 2 for functional safety	• Process Intelligence – advanced echo processing for reliable performance • Graphical HMI • Quick Start Wizard and display diagnostics • Multiple antenna designs for application flexibility • Purging (self-cleaning) for buildup protection • Optional horns	• Process Intelligence – advanced echo processing for reliable performance • Hermetically sealed shielded polypropylene rod antenna with threaded process connection	• 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
Communications or outputs	• HART, PROFIBUS PA, or FOUNDATION Fieldbus • Enhanced EDD for SIMATIC PDM, Emerson AMS, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics	• HART or PROFIBUS PA • Enhanced EDD for SIMATIC PDM, Emerson AMS, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics	• HART • EDD for SIMATIC PDM for configuration and diagnostics	• HART, PROFIBUS PA, or FOUNDATION Fieldbus • Enhanced EDD for SIMATIC PDM, Emerson AMS Device Manager, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics

Simple installation for interface or level monitoring that works.

Continuous contact level

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.

SITRANS LG Family

SITRANS LC300

	SITRANS LG240 SITRANS LG250 SITRANS LG260	SITRANS LG270	SITRANS LC300
	Liquids, solids and hygienic	**Extreme conditions**	**General liquids**
Order No.	7ML5880/7ML5881/7ML5882	7ML5883	7ML5670-3
Range	• Insertion length 300 mm (11.8 inches) to 75 m (246 ft) • Probe types include: cable, rod, and coaxial versions	• insertion length 300 mm (11.8 inches) to 60 m (196.8 ft) • Probe types include: cable, rod, and coaxial versions	• Rod: max. length 5.5 m (18 ft) • Cable: max. length 25 m (82 ft)
Accuracy	±2 mm (0.08")		< 0.5% of actual measurement value
Key features	• 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 build-up • Quick response with high accuracy • Software and display Wizards for ease of installation • Probe end tracking for low dielectric constant material measurement • Functional Safety suitable (SIL 2/ redundant 3) • Field replaceable and adjustable probes • USB interface with remote display or remote electronics	Includes all the key features of the LG family and the following: • Extreme conditions with high or low pressures or temperatures • Strong construction with dual seal to ensure its integrity in tough applications including ammonia • Real-time measurements for applications in steam boilers • Safety rated for 72 hours of unattended operation • SIL 2	• Active-Shield technology • Push-button calibration • Integrated local display • Inverse frequency approach provides high resolution
Communications or outputs	4 to 20 mA/HART, PROFIBUS, Modbus, and Foundation Fieldbus, Support for SIMATIC PDM, Emerson AMS, DTM (for PACTware), 375/475 handheld, for configuration and diagnostics		4 to 20 mA

Loaded with advanced echo processing features for reliable measurement.

Ultrasonic controllers and transmitters

For close to thirty years, the MultiRanger 200 and HydroRanger 200 have been the industry standard for level measurement in a world of industries. Now we've made the best even better. These enhanced controllers give you unparalleled ease of use, setup in under a minute, customer-driven features, and PROFIBUS DPV1, PROFINET, MODBUS TCP/IP, Ethernet IP.

As well, with world-leading accuracy of ±1 mm (0.04"), SITRANS LUT400 gives you confidence in your measurements across a wide range of industries.

SITRANS Probe LU240 is the cost-effective, compact, intelligent level solution. Ready for digitalization with HART 7, this device provides reliable level measurement of liquids applications.

The SITRANS LU150 is a cost-effective, short-range, non-contacting ultrasonic level measurement transmitter that combines both the sensor and electronics into a one-piece, sealed unit.

SITRANS LUT400

MultiRanger200
HydroRanger200

SITRANS Probe LU240

SITRANS Probe LU

SITRANS LU150

	SITRANS LUT400	MultiRanger100/200 HydroRanger200	SITRANS Probe LU240	SITRANS Probe LU	SITRANS LU150
	High accuracy and data logging	**Differential measurement and six control relays**	**HART 7 communications**	**PROFIBUS PA communications**	**Short range, simple measurements**
Order No.	7ML5050	7ML5033/7ML5034	7ML511	7ML5221	7ML5201
	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 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.	SITRANS Probe LU is a 2-wire loop-powered level measurement transmitter for measuring storage vessels, filter beds, and open channel flow in the water and wastewater, food, and chemical industries.	SITRANS LU150 is a short-range integrated ultrasonic level transmitter – ideal for liquids and slurries in your open or closed vessels.
Key features	• 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	• 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	• Maintenance-free active face technology keeps the sensor clean • IP68 fully potted option with its fully encapsulated PVDF sensor is resistant to corrosion, chemicals and extreme shock • State-of-the-art Process Intelligence echo processing • 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	• Superior functionality and plug-and-play performance • Programming via PC software or infrared handheld programmer • IP68 rated • Level, volume, and flow measurement • -40 to 85 °C (-40 to 185 °F) • PVDF or ETFE transducer for chemical compatibility	• Easy to install and maintain • Easy two-button programming • PVDF transducer for chemical compatibility • -30 to 60 °C (-22 to 140 °F) • IP68 rated
Communications or outputs	• HART: EDDs for SIMATIC PDM, Emerson AMS Device Manager, and Field Communicator 375, plus SITRANS DTM for FDTs • USB: Integrated web browser for local programming	• RS-485 with Modbus RTU or ASCII • Compatible with SIMATIC PDM via Modbus RTU, PROFINET, or PROFIBUS • SmartLinx cards for PROFINET, Modbus TCP/IP, Ethernet/IP, PROFIBUS DP, DeviceNet	• HART 7 • EDD for SIMATIC PDM for remote configuration and diagnostics • FDT such as PACTware or Fieldcare via SITRANS DTM	• PROFIBUS PA • EDD for SIMATIC PDM for remote configuration and diagnostics	• 4 to 20 mA output

Active face technology keeps the transmitter free of material buildup.

Ultrasonic Echomax transducers

Siemens Echomax ultrasonic level transducers provide trouble-free, reliable performance. Our non-contacting transducers are impervious to dust, moisture, vibrations, flooding, and high temperatures. With the ability to detect submergence – when paired with a submergence shield – and an active face to reduce material buildup, these transducers are a perfect fit for a range of industrial applications. Siemens transducers are easy to install and require little to no maintenance.

Echomax transducers feature Process Intelligence (when paired with a Siemens controller), our field-proven echo processing algorithms which guarantee the most reliable performance possible. And how about our unmatched beam angle – stronger pulse and sensitivity in a compact beam make our ultrasonic transducers the most powerful in the industry.

	Echomax XRS-5	Echomax ST-H	Echomax XPS-10 Echomax XPS-15 (standard and F models*)	Echomax XPS-30
	Flumes and weirs	**Installation flexibility**	**Liquids, solids, slurries**	**Deep wells and solids**
Order No.	7ML1106	7ML1100	7ML1115, 7ML1118, 7ML1171	7ML1123
Max. range	8 m (26 ft)	10 m (33 ft)	XPS-10: 10 m (33 ft) XPS-15: 15 m (50 ft)	30 m (98 ft)
Min. range	0.3 m (1 ft)	0.3 m (1 ft)	0.3 m (1 ft)	0.6 m (2 ft)
Enclosure	• PVDF copolymer and CSM face • IP68 rated • CPVC Flange • PTFE face with CPVC Flange • Submergence detection with shield	• ETFE • PVDF • IP68 rated • 2" and 1" process connections	• PVDF • IP68 rated • PVDF with CPVC Flange • PTFE face with CPVC Flange • Submergence detection with shield	• PVDF • IP68 rated • PVDF with CPVC flange • PTFE face with CPVC Flange
All Siemens transducers have one or more of the following approvals: CE, CSA, ATEX, SAA, ABS, and Lloyd's Register of Shipping. *FM Class 1 Div 1 approved.				

Level measurement in chemical and petro-chemical industries.

Hydrostatic

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.

SITRANS LH100

SITRANS LH300

SITRANS P320/420

SITRANS P500

	SITRANS LH100	SITRANS LH300	SITRANS P320/420	SITRANS P500
	Submersible Sensor	**Submersible Sensor**	**Advanced**	**Premium**
Order No.	7MF1570	7MF1575	7MF036	7MF56x
	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.	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_2O (9 ft to 60 ft H_2O)	1 m to 40 m H_2O (3 ft to 120 ft H_2O)	50m (167ft) H_2O	60m (210ft) H_2O)
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)	-40 to 125 °C (-40 to 257 °F)
Process pressure	N/A	N/A	depending on process connection	depending on process connection
Key features	• Compact stainless steel enclosure and sensor • Easy installation • Intrinsically Safe • Special measuring ranges: 0 to 3 mH_20 to 0 to 30 mH_20 • Cable length up to 100 m (328 ft)	• Compact stainless steel transmitter with Al2O3 ceramics sensor • Sensor purity 99.6% • Easy installation • Special measuring ranges: • 0 to1 mH_20 to 0 to160 mH_20 • Cable length up to 1000 m (3300 ft)	• 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	• With remote seals up to 400 °C (752 °F) • Diagnostics for customized configuration • Outstanding accuracy and excellent long-term stability • Short response times • Intrinsically Safe • Explosion proof and flame proof • Corrosion-resistant diaphragm and process connections • SIL 2 approved • Range of different process connections
Communications or outputs	N/A	4 to 20 mA	• HART • Enhanced EDD for SIMATIC PDM, Emerson AMS, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics	• HART • Enhanced EDD for SIMATIC PDM, Emerson AMS, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics

Gravimetric technology provides non-intrusive mass measurement.

Level by weight

With SIWAREX 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 WP231

SIWAREX WT231

	SIWAREX WT231	SIWAREX WP231	SIWAREX WP321	SIWAREX U
	Standalone	**S7-1200 integrated**	**ET 200SP integrated**	**S7-300 integrated**
Order No.	7MH4965-2AA01	7MH4960-2AA01	7MH4138-6AA00-0BA0	7MH4950-1AA01 (one channel) 7MH4950-2AA01 (two channel)
Typical applications	Fast basic weighing and force measuring tasks like platform, silo or hopper scales, built-in a rugged stand-alone solution.	Fast basic weighing and force measuring tasks like platform, silo or hopper scales, seamless integrated into SIMATIC S7-1200 environment.	Fast and accurate weight measurement applications.	Basic weighing and force measuring tasks, one or two channel modules available.
Automation system integration	• RS485 (Modbus RTU) • 0/4-20mA • Four digital outputs • Four digital inputs	• SIMATIC S7-1200 (directly via SIMATIC bus) • Operator panel • Automation systems from other manufacturers, via Ethernet (Modbus TCP/IP) or RS-485 (Modbus RTU)	• SIMATIC S7-400 • SIMATIC S7-300 • SIMATIC S7-1200 • SIMATIC S7-1500 via SIMATIC ET 200SP distributed IO	• SIMATIC S7-300 (directly or via SIMATIC ET 200M) • SIMATIC S7-400 (H) • SIMATIC PCS 7 (H) (via SIMATIC ET 200M)
Accuracy	0.05%			
SIMATIC PCS7 integration	–	–	Via SIMATIC PCS7 add-on software package including faceplate and function block	

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

Load cells for level weighing

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.

	SIWAREX WL230	SIWAREX WL230	SIWAREX WL250	SIWAREX WL260	SIWAREX WL270	SIWAREX WL270 K	SIWAREX WL280 RN
Type	**Shear beam**	**Bending beam**	**S-Type**	**Single point**	**Compression**	**Compression**	**Ring-torsion**
Order No.	7MH5107	7MH5106	7MH5105	7MH5118	7MH5108/10	7MH5114	7MH5113
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
Nominal load (Emax)	0.5 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 200 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)
Accuracy class and max. scale intervals	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	C3 to OIML R60; 3,000 intervals 200 t: 0.2 %	0.1%	C3, C4, C5 3,000...5,000
Degree of protection	IP68	IP68	IP67	IP68/IP69K	IP68	IP68	IP66/IP68

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

Vibratory and paddle switches

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

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? In addition to Siemens capacitance technology's immunity to buildup, rotating point level devices specialize in low bulk density applications, ensuring accurate readings even in dusty, turbulent, and vaporous environments.

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 requirement, Siemens has a switch solution.

SITRANS LVS100

SITRANS LVS200

SITRANS LVS300

SITRANS LVL100/200

SITRANS LPS200

	SITRANS LVS100	SITRANS LVS200	SITRANS LVS300	SITRANS LVL100/200	SITRANS LPS200
	Dry powder solids			**Non-sticky liquids and slurries**	**Extreme temperatures and buildup**
Order No.	7ML5735	7ML5731-4	7ML5736-8	7ML5745/ 7ML5746/ 7ML5747/ 7ML5748	7ML5725-8/7ML5730
	Vibrating point level switch for dry powder, fine grain, and granular bulk solids with densities starting at 30 g/l (1.9 lb/ft³).	Vibrating point level switch for dry powder, fine grain, and granular bulk solids with densities as low as 5 g/l (0.3 lb/ft³).	Vibrating point level switch for bulk solids with densities as low as 20 g/l (1.25 lb/ft³), including solids with some propensity for build-up and heavier materials requiring a durable probe.	Compact vibrating 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/ft³).
Range	Insertion length: 170 mm to 4 m (6.7" to 13 ft)	Insertion length: • Rigid extension 165 mm to 4 m (6.5" to 13 ft) • Extended model 700 mm to 20 m (27.5" to 65 ft)	Insertion length for rigid extension: 160 mm to 4000 mm (6.3" t to 13 ft)	Insertion length: 40 mm to 4000 mm (1.5" to 13 ft)	Insertion length: 100 mm to 10 m (4" to 30 ft)
Process temperature	-40 to 150 °C (-40 to 302 °F)	-40 to 150 °C (-40 to 302 °F)	-40 to 150 °C (-40 to 302 °F)	-196 to 450 °C (-321 to 842 °F)	-25 to 600 °C (-13 to 1112 °F)
Process pressure	Up to 10 bar g (145 psi g)	Up to 10 bar g (145 psi g) Pressure to 30 bar options available	Up to 16 bar g (232 psi g)	-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)
Key features	• High, low and demand level detection • Compact design • Replaceable electronics	• Interface model for solids in liquids • Best-in-industry lowest density measurement • Unaffected by external vibrations • Remote build-up monitoring	• Durable probe for heavier materials to prevent probe damage (bending) • Customer supplied pipe extensions for flexible installations • Able to handle build-up due to single rod design (no bridging)	• Test function including remote options • Fault monitoring for corrosion, loss of vibration, or line break to the piezo drive • Compact design for tight spaces • ½" process connections • SIL 2 and hygienic options • Options for extreme pressures and temperatures	• 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

Contact and non-contact universal material point level and interface detection.

RF Capacitance and ultrasonic switches

Our level switches offer superior performance while reducing maintenance, downtime, and equipment replacement cost. Their robust design lasts in harsh and abrasive environments, guaranteeing a long service life and low cost of ownership. They are easy to set up and connect to any alarm or control system.

Our unique inverse frequency shift approach to capacitance technology ensures accurate, reliable, and repeatable measurement, even in dusty, turbulent, and vaporous environments or in situations with product buildup. Because even a small level change creates a large and detectable change in frequency, Siemens Pointek CLS series provides excellent resolution while consistently outperforming conventional devices.

POINTEK CLS200 POINTEK CLS100

	Pointek CLS100	Pointek CLS200	Pointek CLS300	Pointek ULS200
	Compact universal switch	**Standard universal switch**	**Demanding conditions**	**Non-contact**
Order No.	7ML5501/7ML5610	7ML5630-4/7ML5640-4	7ML5650-2/7ML5660-2	7ML1510
	RF capacitance switch for level detection in constricted spaces, interfaces, solids, liquids, slurries, and foam.	RF capacitance switch with a high level of chemical resistance; level detection of interfaces, solids, liquids, slurries, foam, and simple pump control.	RF capacitance switch for detecting solids, liquids, slurries, and interface in demanding conditions: pressures, temperatures, corrosive and abrasive materials.	Ultrasonic non-contacting switch with two switch points for level detection of bulk solids, liquids, and slurries; ideal for sticky materials.
Range	100 mm (4") insertion	Rod: 100 mm to 5.5 m (4" to 18 ft) Cable: 1 to 30 m (3 to 98 ft)	Rod: 350 mm to 1 m (14 to 40") Cable: 1 to 25 m (3 to 82 ft)	Liquids: 0.25 m to 5 m (0.8 to 16 ft) Solids: 0.25 m to 3 m (0.8 to 10 ft)
Process temperature	-30 to 100 °C (-22 to 212 °F)	-40 to 125 °C (-40 to 257 °F) with thermal isolator	-40 to 400 °C (-40 to 752 °F) high temperature version	-40 to 60 °C (-40 to 140 °F) -20 to 60 °C (-5 to 140 °F) if mounted in metal threads
Process pressure	Up to 10 bar g (145 psi g)	Up to 25 bar g (365 psi g)	Up to 35 bar g (511 psi g)	Atmospheric
Key features	• Inverse frequency provides high resolution • Sensitivity adjustment • Adjustable sensitivity to handle build-up or non contact material detection • Level detection independent of tank wall/pipe • Multiple outputs • SensGuard for abrasive applications • PPS or PVDF probe options • IP68	• Inverse frequency provides high resolution • Multiple outputs • SensGuard for abrasive applications • PVDF probe options • IP68 • Display with local button configuration • PROFIBUS PA	• Inverse frequency provides high resolution • Active-shield for increased sensitivity and build-up protection • Multiple outputs • Five dip switches for special adjustments • IP68 • Display with local button • PROFIBUS PA	• Easy two button programming • Two switch outputs for alarms • Flange adapter • Sanitary mounting

Share critical information and provide control where it is needed.

Remote monitoring and displays

Ideal for remote monitoring applications including inventory levels, regulatory monitoring, remote maintenance alarming, or process and environmental monitoring, SITRANS RD500 remote data manager helps you stay connected and informed. SITRANS RD500 provides remote monitoring through datalogging, web access, and alarming.

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. There are times when information in the control room or on the instrument is not enough. Siemens' selection of displays gives you an inexpensive view into your processes.

SITRANS RD500

SITRANS RD150

SITRANS RD100

SITRANS RD200

	SITRANS RD100	SITRANS RD150	SITRANS RD200	SITRANS RD300	SITRANS RD500
	Loop powered	**Loop with HART**	**Universal**	**Full featured**	**Remote with web**
Order No.	7ML5741	7ML5742	7ML5740	7ML5744	7ML5750
	2-wire loop-powered enclosed remote digital display for process instrumentation.	2 wire 4 to 20 mA loop remote display with HART suitable for monitoring and adjustment of connected sensors' primary HART variables.	Universal input, panel mount, remote digital display for process instrumentation.	Dual-line, panel mount, remote digital display for process instrumentation.	Remote data manager for monitoring and data logging, web access, and alarming.
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	0 to 10 V, 0 (4) to 20 mA, RTD, TC, digital and Modbus (RS-485, RS-232)
Digits	3.5 digit display	5 digits	4 digit display	Dual-line 6 digit display	NA
Key features	• 2-wire loop-powered • Two-step configuration • Intrinsically Safe, non-incendive • Serviceability without loop interruption • Factory calibrated	• Remote display with sensor configuration via HART • Monitor extended data via HART • HART multidrop support • Flexible Field and panel mount options • Menu driven backlit display • Plastic, aluminum and stainless housing options	• 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	• 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	• 128 conventional I/O • Ethernet TCP/IP, HTML, Modbus TCP, FTP, email • Cellular support • Expandable 1GB memory (2GB optional)
Operating temperature	-40 to 85 °C (-40 to 185 °F)	• 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)	0 to 65 °C (32 to 149 °F)	-40 to 65 °C (-40 to 149 °F)	0 to 50 °C (32 to 122 °F)

Sales and support

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/automation/service&support

PI training

The Siemens Process Instrumentation training portfolio offers a broad range of training options from classroom courses to online videos for installation and operating instructions.

Training courses

Each of our courses includes the following learning techniques:

- Tutorial: Instructors provide background information crucial to understanding the system.
- Demonstration: Instructors demonstrate equipment displays and other information systems.
- Hands-on situations: Students spend 30-50% of class time operating equipment and troubleshooting real-world problems.

Visit the SITRAIN® Digital Industry Academy to browse the catalog by technology, location or industry and register for Process Instrumentation courses.

SITRAIN Learning Management System (LMS)

Totally integrated automation

Products from the controller level to the 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 enables 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)
- FDT Software via SITRANS DTM

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usa.siemens.com/pi

Siemens Process Instrumentation offers best-in-class measurement and seamless integration into your automation system. We are the total solution provider for flow, level, pressure, temperature, weighing, positioners and more.

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Alpharetta, GA 30005
1-800-365-8766
info.us@siemens.com

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