



LEVEL MEASUREMENT GUIDE

Level up. From measuring to mastering

usa.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 Insights Hub 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 and predictive 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



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.



Control

SITRANS LT500 MultiRanger / HydroRanger—pre-programmable control features, datalogging, extra inputs/outputs, full communication. For applications when you want more than strictly level measurements.

Or/and integrate into TIA portal, SIMATIC PCS 7/neo for further process visualization.



Level technology selector

- preferred
- condition dependent

Continuous level

Point level

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

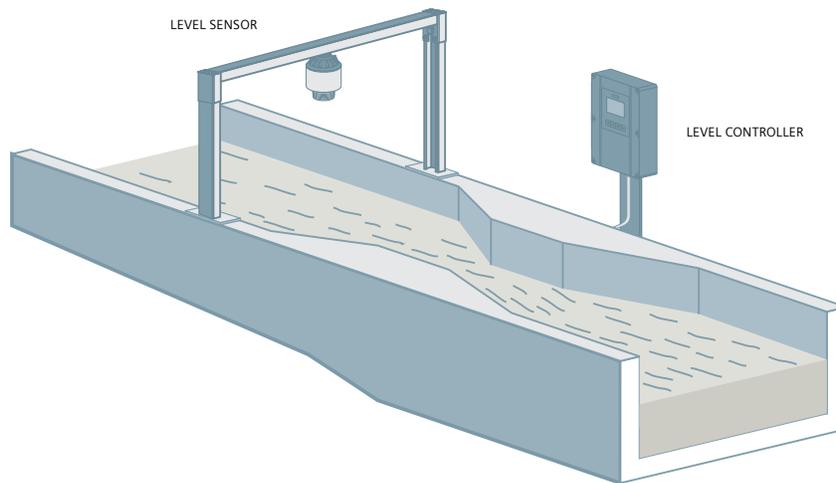
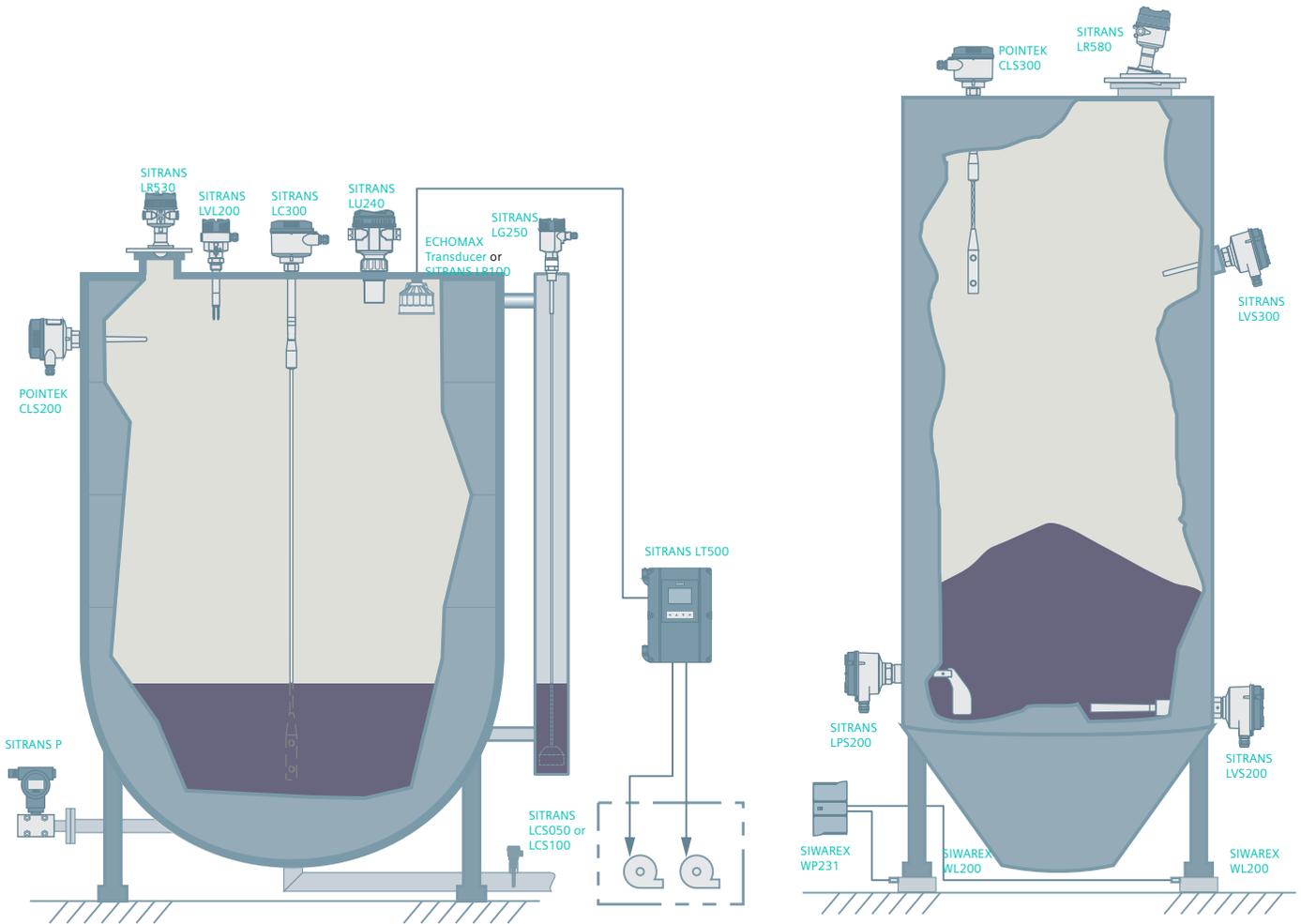
The right instrument for your application

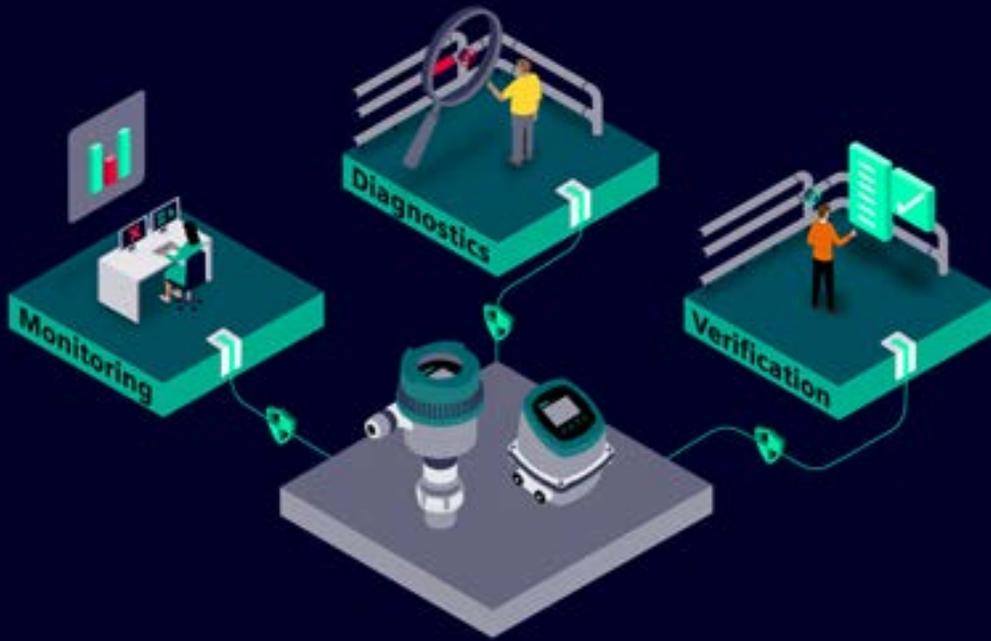
Siemens level measurement instruments let you get on with your day. Easy 4-button programming and graphical Quick Start Wizards deliver headache-free installation and setup. Advanced processing means that operators aren't spending valuable time repeatedly troubleshooting devices—instead they can be confident 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	Geared motors
Pressure	Motors
Temperature	Control systems
Positioning	Industrial communication
Power supplies	PLCs
Process protection	HMI's
Process controllers	Drives
Remote displays	Motion control
Process recorders	







Measure smarter with SITRANS IQ Guard

Device diagnostics status message according to Namur NE107

Device status	
	Failure
	Out of specification
	Function test
	Maintenance required

Verification

Support your QA system requirements with the verification report from SITRANS mobile IQ, which delivers the health status report directly from the App to your email.

Who can always keep control of field devices? You can. The SITRANS IQ Guard application suite adds diagnostics, monitoring, and verification to process instrumentation and analyzers—delivering health status, condition monitoring, and much more.

When is the right time for maintenance? How do I know my measured values are correct? SITRANS IQ Guard knows—ensuring that your processes run profitably and securely, with Process Intelligence and sustainability built right in.

Easy plug-and-play setup combines intelligent instruments with advanced analysis software. For example, painless access to verification reports for quality assurance, can be sent directly from the SITRANS mobile IQ app to your e-mail account from SITRANS LR100 series, SITRANS LR500 series, and SITRANS LU240. And, the diagnostics and monitoring features of the SITRANS LT500 MultiRanger / HydroRanger can connect to any 4-20 mA devices to provide even more details on a wide range of instrumentation.

[Find out more by visiting the SITRANS IQ Guard website](#)

Scaling sustainability with intelligent devices

Sustainability in action: industry is answering the call to accelerate the transformation to more efficient processes and products.

In addition to providing more EPD (Environmental Product Declaration) certificates on our products, the Siemens EcoTech environmental declaration label means you're getting full transparency on the performance of certified products across environmentally relevant criteria and KPIs. Beginning with a measuring instrument's raw material usage, packaging, repairability, and carbon footprint over its lifecycle, we take sustainability one step further.

That's because our 50-year evolution of valuable control algorithms—conceived of by Siemens regional global experts based on millions of applications worldwide—means boosting your energy efficiency, resource management, and environmental compliance. This long history of level controllers delivers demand-driven features with sustainability features baked right in.



Learn all about the details of the SITRANS LT500 MultiRanger / HydroRanger. Visit the [EcoTech website](#) to see a complete view of products with this designation.

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.

SITRANS LT500 MultiRanger / HydroRanger is the next evolution of level, flow, and pump controllers for radar and ultrasonic transmitters, transducers – or any 2-wire 4-20 mA devices—offers everything from basic level control to complex pumping routines. Easily retrofit older equipment with SITRANS LT500 MultiRanger / HydroRanger and see how improved system control delivers savings directly to your company's bottom line.

[siemens.com/sitransLT500](https://www.siemens.com/sitransLT500)





SITRANS LT500 MultiRanger / HydroRanger

SITRANS LT500 MultiRanger / HydroRanger advanced level controller offers the freedom of choice when selecting the sensor technology to best suit the application needs.

Technology	Ultrasonic, radar, 4-20 mA
Order No.	7ML60
Range	SITRANS LT500 MultiRanger / HydroRanger is a controller for level, volume, volume flow, and pump applications for ultrasonic transducers or radar and ultrasonic transmitters – or any other 2-wire 4 to 20 mA devices.
Key features	<p>Sensor dependent</p> <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, Siemens transducers, 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 • 15 language options • SITRANS IQ Guard with back-up level override • Time to spill • Peak value monitoring • Fail safe settings • Over 200 diagnostics • Signal quality monitoring and limit setting
Communications or outputs	HART, Modbus RTU, PROFINET, PROFIBUS DP or PROFIBUS PA options

ULTRASONIC

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/ultrasonic](https://www.siemens.com/ultrasonic)





SITRANS Probe LU240

2-wire transmitter with HART 7 communications

Echomax transducers

Full range of options for all application needs

Order No.	7ML511	7ML1106, 7ML1100, 7ML1105, 7ML1115, 7ML1118, 7ML1155, 7ML1171 and 7ML1123, 7ML1124, 7ML1121
	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.	<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	0.2 to 12 m (0.8 to 39 ft)	0.3 to 30 m (1 to 98 ft), model dependent
Process temperature	-40 to 80 °C (-40 to 176 °F)	-40 to 95 °C (-40 to 203 °F), model dependent
Process pressure	0.5 bar	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 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 MultiRanger / HydroRanger controller 	<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 LT500 MultiRanger / HydroRanger
Communications or outputs	HART 7	Controller dependent
Local HMI	•	
Continuous measurement	•	•
Extreme shock and vibration		•

RADAR

Wide range of process connections and antennas for liquids and solids applications

Simplified choices for radar level measurement is now a reality. Whether it is turbulent process vessels, hazardous chemicals, slurries with a tendency to build up or long distances, fluctuating temperature changes, and dusty environments – Siemens radar portfolio has a solution.

[siemens.com/sitransLR100](https://www.siemens.com/sitransLR100)

[siemens.com/sitransLR500](https://www.siemens.com/sitransLR500)

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. They also meet the needs of general solids applications, featuring a compact size, shorter ranges, and Bluetooth with SITRANS mobile IQ for easy installation and configuration.

For a more advanced functionality there is the SITRANS LR500 series: these transmitters offer a wider range of process connections, and wetted materials for compatibility to hazardous chemicals and installation flexibility. Designed for longer ranges, and higher temperatures and pressure conditions, most applications can take advantage of the advanced features– second line of defense, air purge connection and diagnostics including logging.





SITRANS LR100 series

SITRANS LR500 series

Order No.	Basic applications 7ML530, 531, 532, 533, 534	High demand applications, advanced diagnostics 7ML751, 7ML753, 7ML755, 7ML758
Versions	80 GHz compact radar transmitters SITRANS LR100 for basic measurement SITRANS LR110 with communication and hazardous approvals options SITRANS LR120 with communication and optional submergence shield for flooding protection SITRANS LR140 for basic measurement SITRANS LR150 versatile version with communication and hazardous approval options and optional HMI	80 GHz advanced radar SITRANS LR510 – threaded lens antenna for liquids SITRANS LR530 – flanged encapsulated antenna for extreme conditions SITRANS LR550 – polymeric horn antenna for solids and liquids SITRANS LR580 – lens antenna with integrated aiming flange for solids
Wetted materials	PVDF	Peek, 316L stainless, C22 alloy, PTFE, PP with FKM or EPDM seal
Range	SITRANS LR100 to 8 m (26 ft) SITRANS LR110 to 15 m (49 ft) SITRANS LR120 to 30 m (98 ft) SITRANS LR140 to 8 m (26 ft) SITRANS LR150 to 15 m (49 ft)	SITRANS LR510 10 -30 m SITRANS LR530 20 - 120 m SITRANS LR550 120 m SITRANS LR580 120 m
Process temperature	-40 to 80 °C (-40 to 176 °F)	-196 °C to 250 °C depending on seal type
Process pressure	-1 to 3 bar	Max 40 bar, depending on temperature
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 Bluetooth connectivity via SITRANS mobile IQ 	<ul style="list-style-type: none"> Wide variety of process connections and wetted materials High accuracy: 1 mm Bluetooth connectivity via SITRANS AW050 and SITRANS mobile IQ Gas and Dust Ex approval Advanced diagnostics including 100,000 points trend logging
Communications or outputs	<ul style="list-style-type: none"> HART or Modbus RTU Bluetooth 4.2 or higher 	HART
Extreme temperature/pressure		•
Extreme corrosion resistance		•
Long range		•
SITRANS LT500 MultiRanger / HydroRanger programmable	SITRANS LR110/120	

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

Liquids, solids, hygienic and extreme conditions

SITRANS LC300

General liquids or solids

Order No.	7ML5880, 7ML5881, 7ML5882, 7ML5883
	Guided wave radar transmitters for level, level/interface, and volume measurement of liquids and solids.
Versions	<p>SITRANS LG240 for hygienic applications</p> <p>SITRANS LG250 highly flexible solution for liquid level and interface applications</p> <p>SITRANS LG260 for solids applications</p> <p>SITRANS LG270 for extreme conditions including high temperature and high pressure applications</p>
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
Process temperature	-196 to 450 °C (-321 to 842 °F)
Process pressure	-1 to 400 bar / -100 to 4000 kPa
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
Communications or outputs	• HART, PROFIBUS PA, Modbus RTU, and Foundation Fieldbus
High pressure/temperature	•
Interface with emulsion	•
Clean interface	•
Bottom mount	•
Short range	•

	7ML5670-3
	Inverse frequency shift capacitance continuous level transmitter for liquids, solids and Interface detection for harsh conditions including buildup.
Versions	n/a
Range	<ul style="list-style-type: none"> • Rod: max. length 5.5 m (18 ft) • Cable: max. length 25 m (82 ft)
Process temperature	-40 to 200 °C (-40 to 392 °F)
Process pressure	-1 to 35 bar (-14.6 to 500 psig)
Key features	<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	4 to 20 mA
High pressure/temperature	•
Interface with emulsion	•
Clean interface	•
Bottom mount	•
Short range	•

POINT LEVEL

A point level 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 point level 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 point level 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 to 30 m (0.47 to 98 ft.) Rod: 300 mm to 5.5 m (12" 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
Communications	N/A	IO-Link	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 hydrostatic pressure transmitter
Order No.	7MF1572	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 • Easy installation • Intrinsically Safe • Cable length up to 100 m (328 ft) • Customized measuring ranges or cable lengths available 	<ul style="list-style-type: none"> • Applicable to harsh environmental conditions due to the piezoresistive ceramic sensor (Al₂₀₃, Sensor purity 99.6%) • Compact stainless steel enclosure • Intrinsically Safe • Easy installation • Different marine approvals • Different protective caps made of PPE, stainless steel or ETFE • Cable length up to 1000 m (3300 ft) • Customized measuring ranges or cable lengths available 	<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	4 to 20 mA	4 to 20 mA	4-20 mA, HART, PROFIBUS PA and FF
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) 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 • Automation systems from other manufacturers via ET 200SP MultiFieldbus (Prof-iNet, Ethernet/IP and Modbus/TCP) • Ready for use example project for Rockwell® Studio 5000 • SIMATIC PCS 7 integration via add-on software package including faceplate and function block 	SIMATIC S7-1500 (directly via SIMATIC bus)
Accuracy	0.05%	0.05%	0.05%	0.05%

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 WL270 CP-H SD



SIWAREX WL270



SIWAREX WL260



SIWAREX WL230



SIWAREX WL250



SIWAREX WL230

	SIWAREX WL230	SIWAREX WL250	SIWAREX WL260	SIWAREX WL270 CP-H SD	SIWAREX WL270	SIWAREX WL270 K	SIWAREX WL280 RN	SIWAREX WL290
Type	Shear beam Bending beam	S-Type	Single point	Hygienic compression	Compression	Compression	Ring-torsion	Double shear beam
Order No.	7MH5106 7MH5107, 21	7MH5105	7MH5118	7MH5134	7MH5108, 10	7MH5114	7MH5113	7MH5122
Typical applications	Container, overhead rail conveyor, and platform scales	Tank weighing, hybrid scales, or suspended container weighing	Small to medium platform scales and weighing machines, conveyor small scales	Hygienic applications, containers and hoppers	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)	10 kg to 5 t (22 lbs to 5.5 short tons)	50 kg to 10 t (110 lbs to 11 short tons)	10 to 500 kg (22 to 1102 lbs)	5 to 20t	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	C1	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	IP67	IP68/IP69K	IP68	IP68	IP68	IP66/IP68	IP67



SIWAREX DB

Order No. [7MH5001-0AD20](#)
[7MH5001-0AD01](#)

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



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)

Maximize your skills with **factory-certified training**

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

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:

- IO-Link
- PROFINET
- Modbus RTU
- SIMATIC PDM
- PROFIBUS
- HART
- FOUNDATION Fieldbus
- Emerson AMS and HART field communicator
- SmartLinx (cards are available for PROFIBUS DP, Modbus RTU, and DeviceNet)
- FDT Software via SITRANS DTM

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