Complete level solutions
A new level of experience in all of your applications.
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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</table>
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.

<table>
<thead>
<tr>
<th>Non-contacting technology</th>
<th>Ultrasonic</th>
<th>Radar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Always consider non-contacting technology first. SITRANS LU and SITRANS LR ultrasonic and radar technologies measure most level applications.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Minimal maintenance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No wear and tear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Easiest to commission and install</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contacting technology</th>
<th>Weighing</th>
<th>Guided wave radar</th>
<th>Pressure</th>
<th>Capacitance</th>
</tr>
</thead>
<tbody>
<tr>
<td>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:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Small process connections</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Interface detection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Extreme pressure and temperature applications</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety and assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
# Level technology selector

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Measurement</th>
<th>Level Application</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuous level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultrasonic</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>Radar</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>Guided wave radar</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>RF Capacitance</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>Gravimetric</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>Hydrostatic pressure</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td><strong>Point level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>Capacitance</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>Paddle</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
<tr>
<td>Ultrasonic</td>
<td><img src="image" alt="preferred" /></td>
<td><img src="image" alt="condition dependent" /></td>
</tr>
</tbody>
</table>

- **Level**
- **Interface (liquid/liquid)**
- **Interface (liquid/solid)**
- **Volume**
- **Mass**
- **Flow (open channel)**

- **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.*

---

*preferred

*condition dependent*
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
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**

- 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)

**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
- Optiona 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), 375i/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.
<table>
<thead>
<tr>
<th>SITRANS LR250</th>
<th>SITRANS LR200</th>
<th>SITRANS Probe LR</th>
<th>SITRANS LR560</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal applications</td>
<td>Severe process conditions</td>
<td>Low-cost basic applications</td>
<td>Sea and river level measurement</td>
</tr>
<tr>
<td>Order No.</td>
<td>7ML5431, 7ML5432, 7ML5433</td>
<td>7ML542x</td>
<td>7ML5430</td>
</tr>
<tr>
<td>2-wire, 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage/process vessels.</td>
<td>2-wire, 6 GHz pulse radar level transmitter for continuous monitoring of liquids. Ideally suited for complex, turbulent process vessels.</td>
<td>2-wire, 6 GHz pulse radar level transmitter for basic continuous monitoring of liquids in storage vessels.</td>
<td>2-wire, 78 GHz FMCW radar level transmitter for continuous monitoring of solids or liquids.</td>
</tr>
<tr>
<td>Range</td>
<td>20 m (66 ft)</td>
<td>-40 to 100 °C (-40 to 212 °F)</td>
<td>-40 to 100 °C (-40 to 212 °F)</td>
</tr>
<tr>
<td>Process temperature</td>
<td>-40 to 200 °C (-40 to 392 °F), process connection dependent</td>
<td>-40 to 80 °C (-40 to 176 °F)</td>
<td>Up to 3 bar g (43.5 psig) option</td>
</tr>
<tr>
<td>Process pressure</td>
<td>Up to 40 bar g (580 psi g), process connection dependent</td>
<td>Up to 40 bar g (580 psi g), process connection dependent</td>
<td>Up to 3 bar g (43.5 psi g)</td>
</tr>
<tr>
<td>Key features</td>
<td>• 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</td>
<td>• 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</td>
<td>• Process Intelligence – advanced echo processing for reliable performance • Hermetically sealed shielded polypropylene rod antenna with threaded process connection</td>
</tr>
<tr>
<td>Communications or outputs</td>
<td>• HART, PROFIBUS PA, or FOUNDATION Fieldbus • Enhanced EDD for SIMATIC PDM, Emerson AMS, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics</td>
<td>• HART or PROFIBUS PA • Enhanced EDD for SIMATIC PDM, Emerson AMS, SITRANS DTM (for PACTware), 375/475 handheld, for configuration and diagnostics</td>
<td>• HART • EDD for SIMATIC PDM for configuration and diagnostics</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>SITRANS LG240</th>
<th>SITRANS LG250</th>
<th>SITRANS LG260</th>
<th>SITRANS LG270</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liquids, solids and hygienic</strong></td>
<td><strong>Extreme conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Order No.</strong></td>
<td>7ML5880/7ML5881/7ML5882</td>
<td>7ML5883</td>
<td></td>
</tr>
</tbody>
</table>
| **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 | |
| **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 | |
| **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 |

### SITRANS LC300

<table>
<thead>
<tr>
<th><strong>General liquids</strong></th>
<th><strong>Order No.</strong></th>
<th>7ML5670-3</th>
</tr>
</thead>
</table>
| **Range** | • Rod: max. length 5.5 m (18 ft)  
• Cable: max. length 25 m (82 ft) | |
| **Communications or outputs** | 4 to 20 mA | |
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**

- High accuracy and data logging
- Differential measurement and six control relays

**MultiRanger100/200 HydroRanger200**

- HART 7 communications
- PROFIBUS PA communications

**SITRANS Probe LU240**

- Short range, simple measurements

<table>
<thead>
<tr>
<th>Key features</th>
<th>Communications or outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Digital receiver for high performance and reliability in noisy applications</td>
<td>• HART: EDDs for SIMATIC PDM, Emerson AMS Device Manager, and Field Communicator 375, plus SITRANS DTM for FDTs</td>
</tr>
<tr>
<td>• Intuitive ease of use</td>
<td>• RS-485 with Modbus RTU or ASCII</td>
</tr>
<tr>
<td>• Advanced pump, alarm, and flow control features with three relays</td>
<td>• Compatible with SIMATIC PDM via Modbus RTU, PROFINET, or PROFIBUS</td>
</tr>
<tr>
<td>• Integrated datalogger</td>
<td>• SmartLinx cards for PROFINET, Modbus TCP/IP, Ethernet/IP, PROFIBUS DP, DeviceNet</td>
</tr>
<tr>
<td>• Real time clock with daylight saving time and energy-saving algorithms</td>
<td>• HART 7</td>
</tr>
<tr>
<td></td>
<td>• EDD for SIMATIC PDM for remote configuration and diagnostics</td>
</tr>
<tr>
<td></td>
<td>• FDT such as PACTware or Fieldcare via SITRANS DTM</td>
</tr>
</tbody>
</table>

**SITRANS Probe LU**

- Superior functionality and plug-and-play performance
- Programming via PC software or infrared handheld programmer

**SITRANS LU150**

- Easy to install and maintain
- Easy two-button programming
- PVDF transducer for chemical compatibility
- -30 to 60 °C (-22 to 140 °F)
- IP68 rated

**Order No.**

<table>
<thead>
<tr>
<th>SITRANS LUT400</th>
<th>MultiRanger100/200 HydroRanger200</th>
<th>SITRANS Probe LU240</th>
<th>SITRANS Probe LU</th>
<th>SITRANS LU150</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5050</td>
<td>7ML5033/7ML5034</td>
<td>7ML511</td>
<td>7ML5221</td>
<td>7ML5201</td>
</tr>
</tbody>
</table>

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 monitors/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.
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.
<table>
<thead>
<tr>
<th></th>
<th>Echomax XRS-5</th>
<th>Echomax ST-H</th>
<th>Echomax XPS-10 (standard and F models*)</th>
<th>Echomax XPS-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flumes and weirs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation flexibility</td>
<td></td>
<td></td>
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<tr>
<td>Liquids, solids, slurries</td>
<td></td>
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</tr>
<tr>
<td>Deep wells and solids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Order No.</td>
<td>7ML1106</td>
<td>7ML1100</td>
<td>7ML1115, 7ML1118, 7ML1171</td>
<td>7ML1123</td>
</tr>
<tr>
<td>Max. range</td>
<td>8 m (26 ft)</td>
<td>10 m (33 ft)</td>
<td>XPS-10: 10 m (33 ft) XPS-15: 15 m (50 ft)</td>
<td>30 m (98 ft)</td>
</tr>
<tr>
<td>Min. range</td>
<td>0.3 m (1 ft)</td>
<td>0.3 m (1 ft)</td>
<td>0.3 m (1 ft)</td>
<td>0.6 m (2 ft)</td>
</tr>
</tbody>
</table>
| Enclosure | • PVDF copolymer and CSM face  
• IP66 rated  
• CPVC Flange  
• PTFE face with CPVC Flange  
• Submergence detection with shield | • ETFE  
• PVDF  
• IP66 rated  
• 2" and 1" process connections | • PVDF  
• IP66 rated  
• PVDF with CPVC Flange  
• PTFE face with CPVC Flange  
• Submergence detection with shield | • PVDF  
• IP66 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.
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.
<table>
<thead>
<tr>
<th></th>
<th>SITRANS LH100</th>
<th>SITRANS LH300</th>
<th>SITRANS P320/420</th>
<th>SITRANS P500</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Order No.</strong></td>
<td>7MF1570</td>
<td>7MF1575</td>
<td>7MF036</td>
<td>7MF56x</td>
</tr>
<tr>
<td><strong>Hydrostatic level transmitter</strong></td>
<td>Hydrostatic level transmitter for direct mounting in tanks and vessels.</td>
<td>Hydrostatic level transmitter for direct mounting in tanks and vessels</td>
<td>Hydrostatic level transmitter for mounting with remote seal on open or closed vessels with corrosive or non-corrosive liquids.</td>
<td>Hydrostatic level transmitter for mounting with remote seal on open or closed vessels with corrosive or non-corrosive liquids.</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>3 m to 20 m H₂O (9 ft to 60 ft H₂O)</td>
<td>1 m to 40 m H₂O (3 ft to 120 ft H₂O)</td>
<td>50m (167ft) H₂O</td>
<td>60m (210ft) H₂O</td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
<td>-10 to 80 °C (14 to 176 °F)</td>
<td>-10 to +80 °C (14 to 176 °F)</td>
<td>-40 to 100 °C (-40 to 212 °F)</td>
<td>-40 to 125 °C (-40 to 257 °F)</td>
</tr>
<tr>
<td><strong>Process pressure</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>depending on process connection</td>
<td>depending on process connection</td>
</tr>
</tbody>
</table>
| **Key features**     | • Compact stainless steel enclosure and sensor  
                        • Easy installation  
                        • Intrinsically Safe  
                        • Special measuring ranges: 0 to 3 mH₂O, 0 to 30 mH₂O  
                        • 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 to 1 mH₂O, 0 to 160 mH₂O  
                        • 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 |
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.
<table>
<thead>
<tr>
<th></th>
<th>SIWAREX WT231</th>
<th>SIWAREX WP231</th>
<th>SIWAREX WP321</th>
<th>SIWAREX U</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standalone</strong></td>
<td>S7-1200 integrated</td>
<td>ET 200SP integrated</td>
<td>S7-300 integrated</td>
<td></td>
</tr>
<tr>
<td><strong>Order No.</strong></td>
<td>7MH4965-2AA01</td>
<td>7MH4960-2AA01</td>
<td>7MH4138-6AA00-0BA0</td>
<td>7MH4950-1AA01 (one channel) 7MH4950-2AA01 (two channel)</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>Fast basic weighing and force measuring tasks like platform, silo or hopper scales, built-in a rugged stand-alone solution.</td>
<td>Fast basic weighing and force measuring tasks like platform, silo or hopper scales, seamless integrated into SIMATIC S7-1200 environment.</td>
<td>Fast and accurate weight measurement applications.</td>
<td>Basic weighing and force measuring tasks, one or two channel modules available.</td>
</tr>
</tbody>
</table>
| **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 |
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.
<table>
<thead>
<tr>
<th>Type</th>
<th>SIWAREX WL230</th>
<th>SIWAREX WL230</th>
<th>SIWAREX WL250</th>
<th>SIWAREX WL260</th>
<th>SIWAREX WL270</th>
<th>SIWAREX WL270 K</th>
<th>SIWAREX WL280 RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order No.</td>
<td>7MH5107</td>
<td>7MH5106</td>
<td>7MH5105</td>
<td>7MH5118</td>
<td>7MH5108/10</td>
<td>7MH5114</td>
<td>7MH5113</td>
</tr>
<tr>
<td>Typical applications</td>
<td>Container, overhead rail conveyor, and platform scales</td>
<td>Small scale containers and platform scales</td>
<td>Tank weighing, hybrid scales, or suspended container weighing</td>
<td>Small to medium platform scales and weighing machines, conveyor small scales</td>
<td>Containers, hoppers, and vehicle scales</td>
<td>Vehicle scales, overhead rail scales, container weighers</td>
<td>Container, conveyor, platform and roller table scales</td>
</tr>
<tr>
<td>Nominal load (Emax)</td>
<td>0.5 to 5 t (0.55 to 5.5 short tons)</td>
<td>10 to 500 kg (22 to 1102 lbs)</td>
<td>50 kg to 10 t (110 lbs to 11 short tons)</td>
<td>10 to 500 kg (22 to 1102 lbs)</td>
<td>100 to 200 t (11 to 220 short tons)</td>
<td>2.8 to 500 t (3 to 551 short tons)</td>
<td>60 kg to 60 t (132 lbs to 66 short tons)</td>
</tr>
<tr>
<td>Accuracy class and max. scale intervals</td>
<td>C3 to OIML R60; 3,000 intervals</td>
<td>C3 to OIML R60; 3,000 intervals</td>
<td>C3 to OIML R60; 3,000 intervals</td>
<td>C3 to OIML R60; 3,000 intervals</td>
<td>C3 to OIML R60; 3,000 intervals</td>
<td>C3 to OIML R60; 3,000 intervals</td>
<td>0.1%</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP68</td>
<td>IP68</td>
<td>IP67</td>
<td>IP68/IP69K</td>
<td>IP68</td>
<td>IP68</td>
<td>IP66/IP68</td>
</tr>
</tbody>
</table>
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.
<table>
<thead>
<tr>
<th>SITRANS LVS100</th>
<th>SITRANS LVS200</th>
<th>SITRANS LVS300</th>
<th>SITRANS LVL100/200</th>
<th>SITRANS LPS200</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dry powder solids</strong></td>
<td><strong>Non-sticky liquids and slurries</strong></td>
<td><strong>Extreme temperatures and buildup</strong></td>
<td><strong>Range</strong></td>
<td><strong>Process pressure</strong></td>
</tr>
<tr>
<td><strong>Order No.</strong></td>
<td>7ML5731-4</td>
<td>7ML5736-8</td>
<td>7ML5745/7ML5746/7ML5747/7ML5748</td>
<td>7ML5725-8/7ML5730</td>
</tr>
<tr>
<td>Vibrating point level switch for dry powder, fine grain, and granular bulk solids with densities starting at 30 g/l (1.9 lb/ft³).</td>
<td>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).</td>
<td>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.</td>
<td>Insertion length: 170 mm to 4 m (6.7&quot; to 13 ft) Insertion length for rigid extension: 165 mm to 4 m (6.5&quot; to 13 ft) Extended model 700 mm to 20 m (27.5&quot; to 65 ft)</td>
<td>Up to 10 bar g (145 psi g) Pressure to 30 bar options available</td>
</tr>
<tr>
<td>Insertion length: -40 to 150 °C (-40 to 302 °F)</td>
<td>Insertion length: -40 to 150 °C (-40 to 302 °F)</td>
<td>Insertion length: -196 to 450 °C (-321 to 842 °F)</td>
<td>Insertion length: 100 mm to 10 m (4&quot; to 30 ft)</td>
<td></td>
</tr>
<tr>
<td><strong>Process temperature</strong></td>
<td><strong>Key features</strong></td>
<td><strong>Key features</strong></td>
<td><strong>Key features</strong></td>
<td><strong>Key features</strong></td>
</tr>
<tr>
<td>Up to 16 bar g (232 psi g)</td>
<td>- High, low and demand level detection - Compact design - Replaceable electronics</td>
<td>- Interface model for solids in liquids - Best-in-industry lowest density measurement - Unaffected by external vibrations - Remote build-up monitoring</td>
<td>- 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)</td>
<td>- 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</td>
</tr>
<tr>
<td>Up to 160 bar (-14.5 to 2320 psi)</td>
<td>- Test function including remote options - Fault monitoring for corrosion, loss of vibration, or line break to the piezo drive - Compact design for tight spaces - 1/2” process connections - SIL 2 and hygienic options - Options for extreme pressures and temperatures</td>
<td>- Motor switches off during alarm for long service life - Friction clutch design prevents impact damage - Rotation failure monitoring</td>
<td>- 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</td>
<td>- Motor switches off during alarm for long service life - Friction clutch design prevents impact damage - Rotation failure monitoring</td>
</tr>
</tbody>
</table>
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.
<table>
<thead>
<tr>
<th>Order No.</th>
<th>Compact universal switch</th>
<th>Standard universal switch</th>
<th>Demanding conditions</th>
<th>Non-contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5501/7ML5610</td>
<td>Pointek CLS100</td>
<td>7ML5630-4/7ML5640-4</td>
<td>7ML5650-2/7ML5660-2</td>
<td>7ML1510</td>
</tr>
<tr>
<td></td>
<td>RF capacitance switch</td>
<td>RF capacitance switch</td>
<td>RF capacitance switch for detecting solids, liquids, slurries, and foam.</td>
<td>RF capacitance switch for detecting solids, liquids, slurries, and foam.</td>
</tr>
<tr>
<td></td>
<td>for level detection in constricted spaces, interfaces, solids, liquids, slurries, and foam.</td>
<td>with a high level of chemical resistance; level detection of interfaces, solids, liquids, slurries, foam, and simple pump control.</td>
<td>Ultrasonic non-contacting switch with two switch points for level detection of bulk solids, liquids, and slurries; ideal for sticky materials.</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>100 mm (4&quot;) insertion</td>
<td>Rod: 100 mm to 5.5 m (4&quot; to 18 ft) Cable: 1 to 30 m (3 to 98 ft) Rod: 350 mm to 1 m (14 to 40&quot;) 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)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process temperature</td>
<td>-30 to 100 °C (-22 to 212 °F)</td>
<td>-40 to 125 °C (-40 to 257 °F) with thermal isolator</td>
<td>-40 to 400 °C (-40 to 752 °F) high temperature version</td>
<td>-40 to 60 °C (-40 to 140 °F) -20 to 60 °C (-5 to 140 °F) if mounted in metal threads</td>
</tr>
<tr>
<td>Process pressure</td>
<td>Up to 10 bar g (145 psi g)</td>
<td>Up to 25 bar g (365 psi g)</td>
<td>Up to 35 bar g (511 psi g)</td>
<td>Atmospheric</td>
</tr>
</tbody>
</table>

**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
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.
<table>
<thead>
<tr>
<th><strong>Order No.</strong></th>
<th><strong>2-wire loop-powered</strong></th>
<th><strong>2 wire 4 to 20 mA loop</strong></th>
<th><strong>Universal input, panel</strong></th>
<th><strong>Remote data manager for</strong></th>
<th><strong>Remote with web</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SITRANS RD100</strong></td>
<td>7ML5741</td>
<td>Loop powered</td>
<td>And adjustment of connected sensors' primary variables.</td>
<td>Remote monitoring and data logging, web access, and alarming.</td>
<td>7ML5750</td>
</tr>
<tr>
<td><strong>SITRANS RD150</strong></td>
<td>7ML5742</td>
<td>Loop with HART</td>
<td>Universal digital display for process instrumentation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SITRANS RD200</strong></td>
<td>7ML5740</td>
<td>Universal</td>
<td>Dual-line, panel mount, remote digital display for process instrumentation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SITRANS RD300</strong></td>
<td>7ML5744</td>
<td>Full featured</td>
<td>Universal current, voltage, RTD, thermocouple</td>
<td>0 to 10 V, 0 (4) to 20 mA, RTD, TC, digital and Modbus (RS-485, RS-232)</td>
<td></td>
</tr>
<tr>
<td><strong>SITRANS RD500</strong></td>
<td>7ML5750</td>
<td>Remote with web</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Input types**
- **SITRANS RD100**: 4 to 20 mA
- **SITRANS RD150**: 4 to 20 mA and HART
- **SITRANS RD200**: Universal current, voltage, RTD, thermocouple
- **SITRANS RD300**: 4 to 20 mA, 0 to 10 V DC
- **SITRANS RD500**: 0 to 10 V, 0 (4) to 20 mA, RTD, TC, digital and Modbus (RS-485, RS-232)

**Digits**
- **SITRANS RD100**: 3.5 digit display
- **SITRANS RD150**: 5 digits
- **SITRANS RD200**: 4 digit display
- **SITRANS RD300**: Dual-line 6 digit display
- **SITRANS RD500**: NA

**Key features**
- **SITRANS RD100**:
  - 2-wire loop-powered
  - Two-step configuration
  - Intrinsically Safe, non-incendive
  - Serviceability without loop interruption
  - Factory calibrated
- **SITRANS RD150**:
  - 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
- **SITRANS RD200**:
  - 128 conventional I/O
  - Ethernet TCP/IP, HTML, Modbus TCP, FTP, email
  - Cellular support
  - Expandable 1GB memory (2GB optional)
- **SITRANS RD300**:
  - Without display and adjustment module
  - -40 to 85 °C (-40 to 185 °F)
  - With display and adjustment module
  - -40 to 70 °C (-4 to 158 °F)
- **SITRANS RD500**:
  - -40 to 50 °C (-4 to 122 °F)

**Operating temperature**
- **SITRANS RD100**: -40 to 85 °C (-40 to 185 °F)
- **SITRANS RD150**: -40 to 80 °C (-40 to 176 °F)
- **SITRANS RD200**: 0 to 65 °C (32 to 149 °F)
- **SITRANS RD300**: -40 to 149 °F
- **SITRANS RD500**: 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
Maximize your skills with factory-certified training
Siemens provides a full schedule of Process Instrumentation training opportunities for Siemens employees, channel partners, and customers. 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
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
Measuring everything that matters: siemens.com/processinstrumentation

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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youtube.com/siemens

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