SiloWeigh.Net

Online silo and vessel inventory system

By **SCALE-TRON**

Accurate, rugged & reliable. Easy to install & calibrate

SiloWeigh.Net

The online inventory, ordering and alarm system designed specifically for silos, tanks and other vessels

SiloWeigh.Net offers you the ability to measure, on-site and online, the weight of materials contained in remote vessels with unparalleled accuracy. SiloWeigh.Net streamlines your operational efficiency and enhances your resource management to make an immediate impact on your bottom line and give your business a long-term competitive advantage.

Different types of sensor for different applications

Installation of sensors on round silo legs using weld tabs

Load cell supports give highest accuracy

Never run out of material again

At the local level, hardware alarms can sound horns and light warning lamps. At the Internet level, you can program messages to be sent via email or SMS text at each of the alarm levels.

Eliminate the risk of overfilling

Local alarms warn refill operators by lights and horns. They can also be wired to automatic pinch-off valves to positively stop the flow of material, eliminating the risk of blown filters and subsequent environmental issues.

Check every delivery

History is graphed and saved; download the Excel file to check deliveries against the weight tickets to identify and eliminate shortages in deliveries.
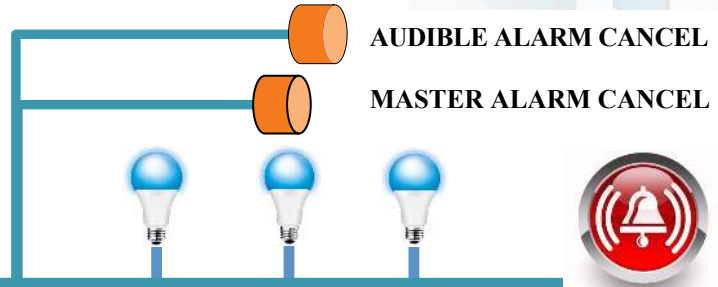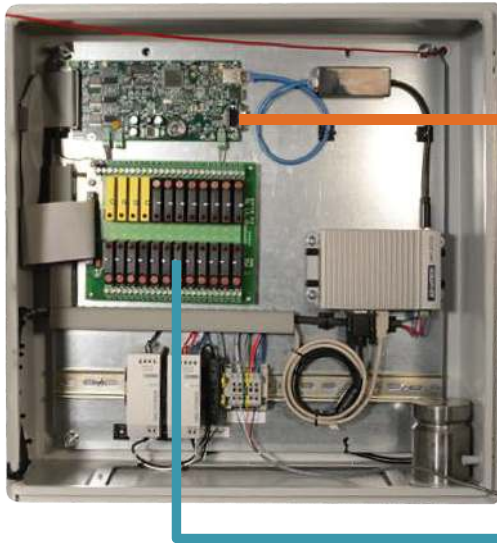
Why weight measurement is better

Level measurements drops by as much as 20% as the material packs, while weight is unchanged. Material can build up on one side of the vessel, creating further errors. Some sensors have moving parts that can get clogged or wear out, and all level sensors require you to climb the silo for installation and service, which has dangers. Our sensors are bolted to the vessel's legs or skirt, eliminating all these issues.

Digital signal transmission

The sensors of each vessel are connected to a digital transmitter which preserves full accuracy even with long cable runs. The transmitters for up to 32 vessels can be daisy-chained with a single multi-drop cable to the receiving location.

Digital silo transmitters

Silos connect to DAQ via hardwire or radio link
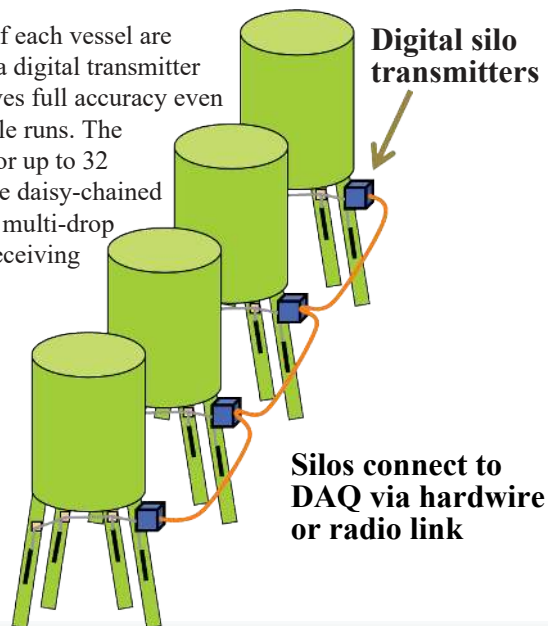
Data Acquisition (DAQ) Unit connects to local network & the cloud

AUDIBLE ALARM CANCEL

MASTER ALARM CANCEL

View vessels anywhere in local network

SiloWeigh.Net's local database is also a web server, allowing Internet pages to be generated and viewed on computers throughout the local network. Connection is through Ethernet network cable. Setup and calibration are easily done via password protected menu screens while data for all vessels is viewed in the same convenient way as shown in the screens below.

Optional Alarms

8 to 24 optional relay alarm setpoints can be programmed to light visible indicators, sound audible alarms or operate pinch-off valves to prevent overfill. Additionally, chosen inputs can accept alarm cancel buttons or overpressure switches to prevent filter blowout. Relays are `Opto-22`type.

Internet database gives company view

If the local network is connected to the Internet, all data can be transmitted to the SiloWeigh.Net central database. If an Internet connection is not available, Wi-Fi, wireless Ethernet and cellular services are available.

The Internet database is housed on a commercial server with professional maintenance and backup service to ensure your data is never lost, is secure from hacker attack and is available to every qualified user 24/7. The SiloWeigh.Net server is your source for silo data from all your companies, all divisions, all plants, all groups and all vessels.

Instant overview and graphic details

All vessels at each location are shown as graphics, plus the actual weight in tons or kilopounds. Vessel symbols change from green to yellow and red as alarm limits are passed, giving you a high visibility warning of impending problems.

The detail view shows the current vessel level and weight at the right, with a history trend graph to the left. The graph can be changed to show the last 24 hours, week or month, or you can select a date range for display. The graph shows the four alarm settings; Overfill, High, Reorder and Low, and an alarm log displays the most recent alarms.

Various useful metrics, such as average delay from refill alarm to refilling, are displayed as a further aid. You can also download the history data for use in Excel and other applications.

Automatic reordering

Any or all of the data are accessible by a remote database server, using TCP/IP protocol, enabling it to be combined with private company data on customers, products and orders. This allows suppliers to better organize their dispatching of deliveries or sales. Emergency low or high levels can also be programmed to send E-mails & SMS messages.

SYSTEM FEATURES

- Overview of each plant's vessels , with group totals for multiple vessels holding the same material
- History trend graphs for any silo in the company
- Viewable on computer, tablet and smartphone
- In-plant hard wired programmable alarms
- Software alarm log at plant and company level
- Email and SMS alerts to selected personnel
- Connection to supplier's dispatching database allows automatic re-ordering
- Load cells can replace sensors for higher accuracy
- Pressure transducers can be used for liquid tanks
- Digital transmission retains full accuracy and reduces wiring; single cable for all vessels
- Unlimited number of silos, groups and locations
- The only weighing system that handles divided and shared-frame silos
- Self-install kit or request our professional services

SYSTEM SPECIFICATIONS

Vessel size:	No limit, since measurement depends on stress in vessel supports. Successful applications range from 20 to 4000 ton.
Stress range:	10-100 Mpa (1500 to 15,000 lb/sq. in.)
Support type:	All leg types including skirted silos.
Number of silos:	32 digital transmitters (1 per silo) max for each DAQ.
Number of sensors	8 per transmitter, 48 max per DAQ.
DAQ output:	Ethernet to network. Data is stored in DAQ if link is broken.
Local software:	Resides on supplied embedded PC. Includes database, web server, setup and calibration software.
Power:	100-250 volt universal power supply.
Main Internet database:	Commercial database server with guaranteed uptime and data backup.
Data table:	Shows latest 20 readings. Data is downloadable as .csv file (for Excel) .
Email/SMS alerts:	Any number of clients receive messages based on selection of alarm type.

SENSOR TYPES

L-Strain or Silex extensometers uses metal film strain gauges to accurately measure the compression in the vessel's supports as it is loaded. With no moving parts, it performs reliably for many years. Fully compensated and can be used on steel, stainless steel or aluminum to give a stable signal with typical accuracy of 2% of full scale for legged silos and 5% for skirted silos, even when large daily swings in temperature are present.
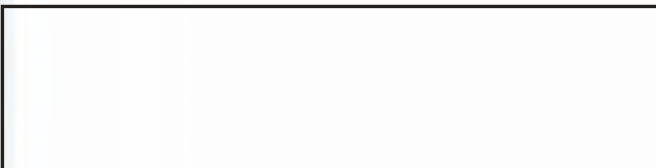
Load cells can be used when accuracy of 0.1% is required.

Pressure sensors can be used in liquid tank applications. These measure the head of liquid, which can be displayed in volumetric units for vertically symmetrical tanks.

Vessel support methods vary immensely. Our engineers are always available to advise on what is possible and what should not be attempted. We welcome your calls until you are confident in your own knowledge.

OPTIONS

Installation kits for L-Strain sensors:	Through-hole (for H-beam etc.) Tapped hole (large "O" section) Weld tabs. All kits contain template, punch, drill bits, sufficient for 8 sensors.
Local alarm I/O:	8, or 24 "Opto-22" style replaceable solid state relays, 120VAC standard.
Embedded PC:	With software pre-loaded and configured, in steel 20" x 20" (500 mm x 500 mm) NEMA-4 enclosure.
Built-in touch screen:	15" color XGA, NEMA-4 rated, in embedded computer cabinet, with replaceable plastic screen protector
Alternative communications:	Radio connection is available between vessels and DAQ; WiFi between DAQ and local network. For remote locations, cellular modems connect directly from embedded PC to central database.

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