



SITRANS LUT400, Echomax XPS-15, SITRANS LR560

Modern level measurement for a centuries-old site



300 years. Since the days of Sir Isaac Newton and Benjamin Franklin, people have been digging clay at Sibelco's site in North Devon, UK.

From hand-cut clay transported by horse and wagon to today's automated extraction techniques, Sibelco's production has increased over these centuries to 200,000 tons of materials shipped out each year.

Along the way, Siemens process instrumentation helps this modern company keep production moving from the clay quarry to finished product load out.

From the ground to your kitchen tile

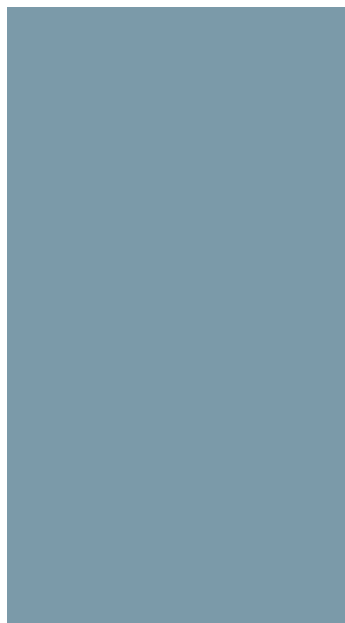
Imagine a room in a Spanish villa – open and airy, decorated with light-colored ceramic tile.

Sibelco ships much of its clays to Spain and Germany. Since the clay extracted at the North Devon site is cream or ivory colored, most of it finds its way into modern-looking tile styles.

The clay has very few impurities, so is also desirable to other clay extraction sites to help improve the quality of their materials.



The Echomax transducer (left) relays continuous level readings to the controller, while the SITRANS ULS200 (right) provides a high-level alarm if clay reaches a certain point above the shredder.



SITRANS LUT400 ultrasonic controller reliably monitors levels of clay moving from the intake belt conveyor to the shredder.

Front-end loaders fill lorries with 30 tons of clay from the 25-meter open cast quarry. Lorries travel out of the quarry and dump massive pieces of clay onto the unloading conveyor.

As materials slowly move up the conveyor towards the shredder, a Siemens SITRANS LUT400 ultrasonic controller and Echomax XPS-15 transducer monitor levels above the shredder feed.

The level measurement system is connected to the control of conveyor speed driven by hydraulic motor – when level or feed increases into the shredder, the conveyor speed slows down. And vice versa – when level or feed decreases in the shredder, the conveyor speed increases to maintain an efficient, uninterrupted shredding process.

Accurate and reliable measurement is crucial in this spot early in the production process. Although the heavy-duty steel shredder has tungsten-tipped teeth and spins at 70 revolutions per minute, operators do not want the shredder to become overloaded with clay.

SITRANS LUT400, the world's most accurate level controller, keeps reliable measurements of materials in the shredder. Operators installed and programmed the controller themselves using the device's Quick Start Wizard, without requiring help from a technician or factory support.

The Echomax transducer mounted above the shredder is fit for this type of rugged application, even with stones and large pieces of clay moving below it.

Sibelco also uses a SITRANS ULS200 ultrasonic level switch as a high-level alarm in case a large rock or some other obstruction blocks the hopper. The SITRANS ULS200 ultrasonic level switch acts a backup safety function to the process.

From large to potato-sized to 40-millimeter pieces

The shredder's teeth take large pieces of clay down to what Kevin Bennett, Site Quality Controller, describes as "potato-sized" pieces, and then eventually down to 40-millimeter finished pieces of shredded clay. Once materials are sized correctly, they move to a transfer conveyor, which is also controlled to run at the same speed as the shredder intake belt.

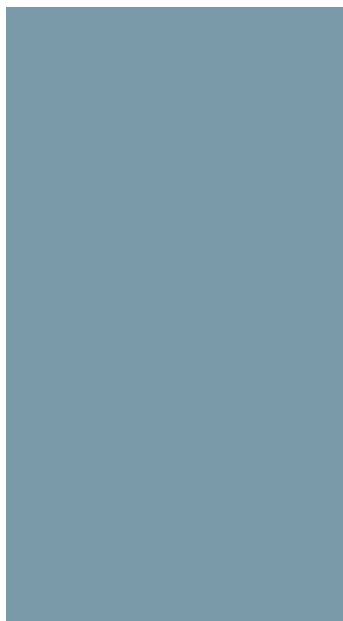
A giant magnet positioned above the conveyor extracts any metal pieces from the newly sized clay as it moves upwards towards Sibelco's storage bays.

Each bay stores clay of different grades, particle sizes, and colors, depending on each customer's specifications. From very sandy to clay with greater plasticity, Sibelco fulfills a large variety of customer requests.

Above the row of 12 bays moves a shuttle conveyor with a SITRANS LR560 radar level measurement transmitter mounted on it. The transmitter monitors material levels in each storage bay, and when the bay is full, the device sends a signal telling the shuttle conveyor operator to move to the next storage bay and begin filling.



The 78 GHz SITRANS LR560 radar transmitter, mounted on this shuttle conveyor, gives precise level readings of finished clay in the storage bays.



Sibelco markets a variety of shades and types of clay from their open cast quarry.

These storage bay levels are also displayed outside the processing building for lorry drivers to monitor. To keep Sibelco's high production efficiency, it is important for lorry drivers to know how much of each clay grade is in each storage bay.

The high-frequency 78 GHz SITRANS LR560 measures reliably even in this difficult environment. Its flush-mounted antenna can tolerate more material buildup than can a lower-frequency device, which is a benefit when dealing with clay. Important in this application are SITRANS LR560's open air approvals, suitable for Sibelco's open storage bays.

From hand extraction to modern automation

All those centuries ago, this type of clay earned the name "ball clay," as workers cut cubes of it from the ground by hand and stacked them on a horse-drawn wagon. When customers received the clay, often its sharp corners were rounded during transportation, and what had been cubes then resembled balls.

Now an automated facility, Sibelco focuses on health and safety for its workers and improving production efficiencies. As Richard Davey, Project Engineer at Sibelco, says, "Siemens level measurement equipment benefits us every day. Easy to install and maintain, we depend on it."

From the past to present, Sibelco's clay continues to be produced to the highest standards, desired by customers worldwide.

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