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intelliRock Precast Industry Temperature Loggers

The precast concrete industry has unique challenges and needs. Engius recognizes this distinction and has tailored an intelliRock product specifically for the needs of precast plants. Now precast operations have a convenient and cost-effective tool for monitoring concrete temperatures- the intelliRock PCL system.

Precast Concrete Temperature Monitoring

It has become commonplace for precast customers, such as DOT's, to require the measurement and reporting of concrete temperatures during the curing process. Documented maximum and minimum temperatures, often at several places in a piece, are often required before an element will be accepted. While the precast industry has been aware of the benefits of the intelliRock system for measuring and reporting concrete temperatures, the dependability and convenience of the system has been monetarily out of reach.

PCL System Configuration

While other intelliRock configurations embed sophisticated electronics in the concrete placement for protection against accidents, vandalism, and theft, this level of security is usually not needed at a secured precast facility which is a much more controlled working environment. Therefore the precast version of intelliRock only embeds the temperature sensor inside the concrete, allowing the other components of the system to be reused. This means that only a low-cost temperature sensing wire is consumed at each measurement point. The result is the economics of a thermocouple meter, with the accuracy, power, and convenience of the industry leading intelliRock system.

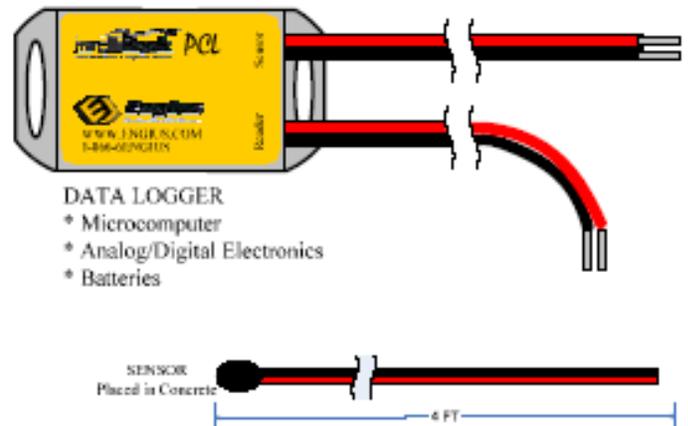
System Components Reader

The intelliRock reader is used to activate loggers to begin recording temperature information. Once complete, temperature data is downloaded from the loggers into the reader which shuttles the information to a PC for report generation.

- **Loggers:** The reusable loggers are mounted on the precast line to record temperature information.
- **Sensors:** Low-cost intelliRock PCL sensors with 4 ft leads are placed in the concrete at points of interest and attached to PCL loggers with wire nuts.
- **Software:** intelliRock software reports minimum and maximum temperatures, graphs temperature history, and reports other critical information.

PCL Logger boxes can be placed at convenient locations on formwork/beds.

- Cables may be extended using standard copper wire to bring information back to a central point
- Sensors are connected to the logger boxes using standard wire nuts.
- A single reader can operate all PCL logger boxes at a plant



Q&A

What is the accuracy of the system?

The total system accuracy is +/- 1 degC

How often and how long is data logged?

Several configurations are available. Each logger configuration is identified in the part number. A "1H3D50X" logs every hour for 3 days, and can be re-used 50 times.

Can the communication wires be extended to bring the data back to a central point?

The wires that connect the reader may be extended by using copper wires up to 150 feet. Soldered connections or waterproof wire nuts are recommended. Contact Papworths for extension kits.

Can the sensor wires be extended?

Yes, they can be extended with a minimum of 22 GA wire up to 10FT. Under no circumstances should wire junctions (splice points) be placed inside the concrete.

Is the system compatible with other intelliRock products?

Yes, all intelliRock products are interchangeable including temperature, maturity, and humidity loggers.



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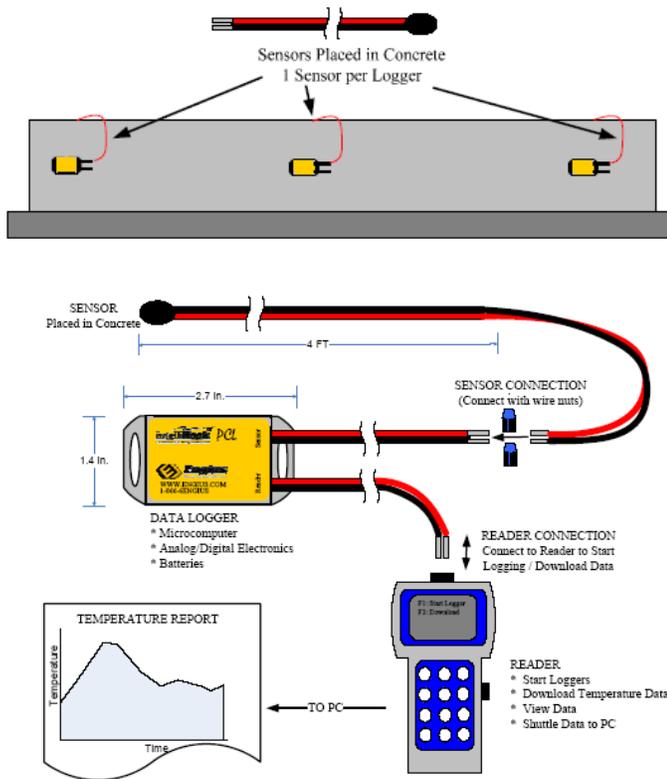
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Where should the sensors be placed?

Specific sensor placement is dictated by various specifications. Generally, a sensor should be placed at the hottest and coldest point in the precast element.

How many logger runs can be downloaded in to one reader?

Up to 1000 runs can be downloaded into a reader before it must be downloaded to PC.

How does the reader connect to the PC?

The Intelli-Rock II reader connects to a PC by a USB connection

How many readers are needed?

For most operations, a single reader will suffice. However, it may be logistically beneficial for large plants to have multiple readers.

The Intelli-Rock range of Loggers

Type	Code	Operation	Re-use
Maturity	MAT-02-15M28D-8FT	Maturity and Temp Logged every 15min for 28 days	No
	MAT-02-30M28D-8FT	Maturity and Temp Logged every 30min for 28 days	No
Temp	TPL-02-1H180D-4FT	Temp logged every hour for 180 days	No
Precast	PCL-02-3H7D-50X	External Logging box for Precast Sensor Logs every 3hrs for 7days	50 times
	PCL-S4	Precast Sensor	No
Humidity	HML-02-1H3D25XS	Logs Humidity every Hour for 3days of until stability	25 times
	HML-02-1H7D15X	Logs Humidity every hour for 7days	15 times
Re-usable	TRL-02-1H2D-15X-4FT	Logs temp every hour for 2 days	15 times
	TRL-02-3H3D-15X-4FT	Logs temp every 3hours for 3days	15 times

How often must data be downloaded from the loggers to the reader?

All data will be lost when the logger is reset for the next run. Therefore, data should be downloaded into the reader after EACH logger run.

Is the system waterproof?

The loggers are designed to be weather resistant. No part of the system should be submerged, however normal environmental conditions (rain, snow, etc) will not harm the system.

How many times can the “sensor” be used?

The sensors are embedded in the concrete and are not re-usable.

What information can be used to identify logged data?

Each run has a unique serial number and you may enter a jobsite name and location name to identify each run. The date and time are also automatically stored for future reference.

What data is logged?

Temperature data is logged in deg C or deg F with resolution of 1degC. The system also automatically records and time stamps the maximum and minimum temperature measured by the system with a 1 minute resolution.