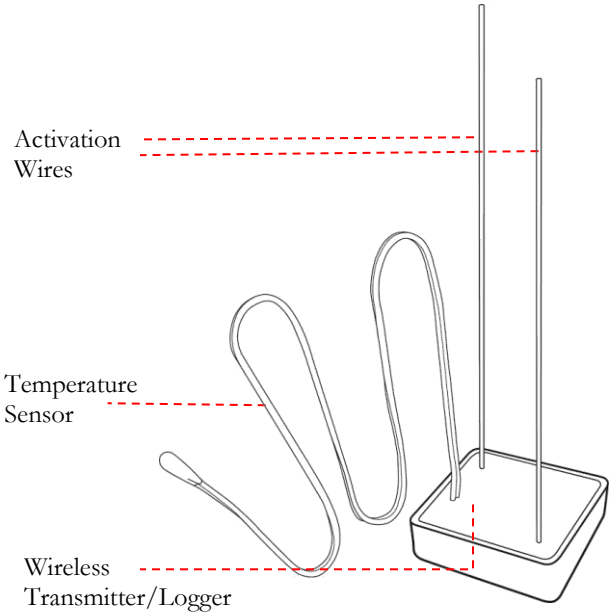
Smart Concrete Testing Technologies™

User Guide

SmartRock2™

Wireless Concrete Quality Control

SmartRock2™ | Parts



Caution

Giatec SmartRock2™ sensor is designed to record the temperature history of concrete in situ. The mobile application designed for this sensor could be used to estimate strength of concrete based on the ASTM C 1074 standard specification. It should be noted that the strength estimation is made based on a calibrated maturity-strength correlation for a specific concrete mixture. If the mix design, water content, cement source, etc. is changed, a new calibration should be performed. Moreover, as per Section 9 in ASTM C 1074, it is required that the strength estimated by the maturity method (using the SmartRock2™ mobile app) is verified by other test methods before performing any critical operations. As per ASTM C 1074 (Section 9.5.4), it is required to cast field-molded cylinders and subject them to standard curing condition in order to compare the maturity index and strength of these specimens with those estimated in the field. If the difference consistently more than 10%, a new strength-maturity correlation should be developed.

Caution

Using Giatec SmartRock2™ sensor in manners or conditions other than specified in this manual, may cause damage to the sensor, compromise its safety or performance.

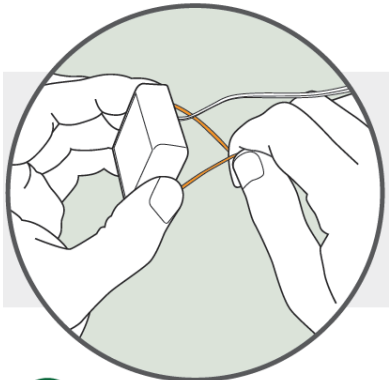
1 Download and Install the App

- From the Google Play™ or the Apple App Store, search for Giatec SmartRock2. Download and install the latest version of the app on your device.

- After the installation is complete, click on the Giatec SmartRock2™ icon to launch the app.

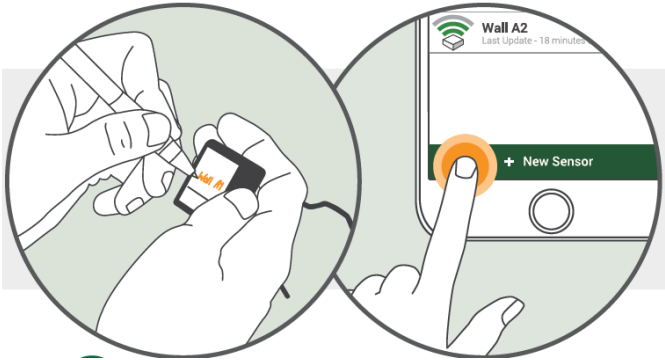
Note: If you have previously installed the app, skip to the next step.

2 Turn-On the Sensor



- Twist the two exposed metal wires (Activation wires) sticking out on the bottom side of the sensor to turn-on the sensor.

3 Tag Sensors



- From the app, scan for available sensors and add the sensor to a section (i.e. a Floor, column, wall etc.)
- Write the name of the sensor on the label before installing it in concrete.
- Disconnect the Activation wires after tagging to save the battery and increase the operating life of the sensor.

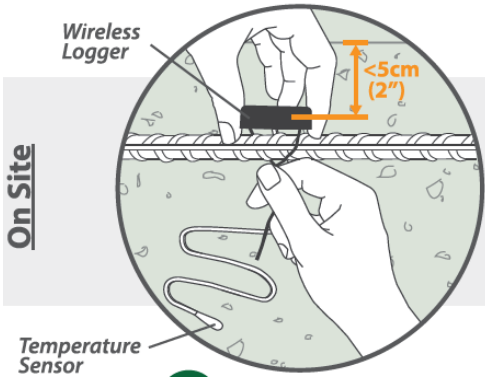
Note: For more details on how to tag a sensor, please refer to the "Tag a Sensor" tutorial inside the mobile application on your smart phone.

3 Tag Sensors-Continued

Tip 1: You should tag all the SmartRock™ sensors in the office before using them in concrete. For this, you need to connect/disconnect them one by one (in the office) and tag them on the app as they appear on the screen separately. You can write the tag name on the sensor label in order to make the field installation process easier.

Tip 2: Connection wires are delicate. Please handle with care when connecting/disconnecting these wires.

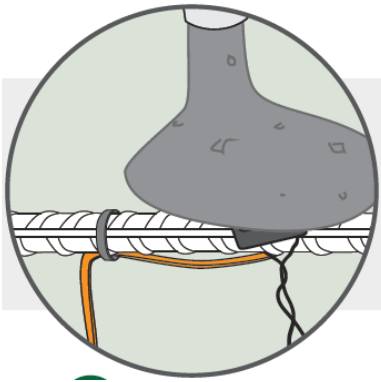
4 Install Sensors



- Tightly twist the two Activation wires around the rebar and ensure the sensor is securely installed.

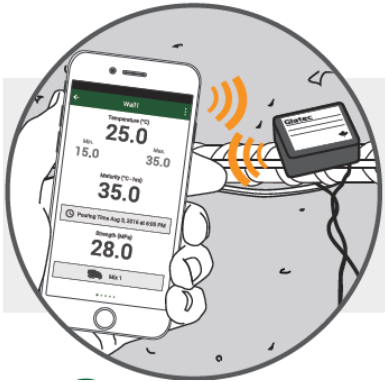
Note: In order to maximize the wireless antenna range, do not place wireless transmitter more than 2" (5 cm) from the concrete surface. This will increase the range of sensor visibility (especially in the early age).

4 Install Sensors-Continued



Note: Before pouring concrete, secure the Temperature sensor wire under the rebar to protect it from potential physical damage.

5 Retrieve Sensor data



- Using your smartphone, connect to sensors within the app to view Real-Time Temperature, Maturity* and Strength* data and graphs.
- Sensors can transmit data wirelessly up to 8 meters (26 feet)** when embedded within 5cm (2”) from the surface.

*: Maturity and Strength data requires providing concrete mix calibration information by the users.
**: Several factors could affect the operating range of the sensors including but not limited to, type of smartphone used, curing state of the concrete, physical installation location, depth and surrounding obstacles.

5 Retrieve Sensor data-Continued

Note: For more details on how to connect to sensors and retrieve their data, please refer to Tutorial section of the mobile application on your smartphone.

Technical Specification

Operating Temperature • Transmitter/Logger • Temperate sensor	 -20˚~60˚ C -4˚ ~140˚ F -30˚~85˚ C -22˚~185˚ F
Measurement accuracy	±1˚ C ±1.8˚ F
Wireless operating range*	6~8 m 20~26 ft
Logging Interval	30 minutes
Memory Capacity	1500 Samples (31 Days of Data)
Dimensions	38 x 38 x 12 mm 1.5 x 1.5 x 0.5 in 30 gr
Temperature Sensor cable length	Regular Version: 40 cm (16 inches) Long Version: 3 meters (10 feet)
Voltage Rating	3VDC, 0.2W

*: Several factors could affect the operating range of the sensors including but not limited to, type of smartphone used, curing state of the concrete, physical installation location, depth and surrounding obstacles.

Terms and Conditions

By using the SmartRock2™ concrete sensor and the SmartRock2™ mobile application, you agree to the active 'Terms and Conditions of Sales' and 'The End User License Agreement' available on the Giatec website at:
http://www.giatecscientific.com/terms-and-conditions

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