



Customer Requirements

A newly poured concrete structure does not reach full strength for some years. After 28 days however, the full strength is closely represented so at this time the holding capacity of the structure can be established. A concrete supplier wishes to predict this 28-day strength as soon as possible to determine when new structures can be loaded without the risk of damage. To do this, the customer requires a rugged solution which can measure the progress of the curing of poured concrete.

dataTaker DT80

- 1 A cost effective data logger expandable to 100 channels, 200 isolated or 300 single-ended analog inputs
- 2 Built-in web and FTP server allows for remote access to logged data, configuration and diagnostics
- 3 Modbus slave and master functionality allows connection to Modbus sensors and devices and to SCADA systems
- 4 Smart serial sensor channels capable of interfacing to RS232, RS485, RS422 and SDI-12 sensors
- 5 Rugged design and construction provides reliable operation under extreme conditions
- 6 Includes USB memory stick support for easy data and program transfer



Curing concrete: Freshly poured concrete foundations must be left to cure until strong enough to support a newly built structure.

dataTaker Solution

Equipment

dataTaker DT80 data logger
Portable Enclosure

Sensors

Thermocouples

Implementation Notes

dataTaker DT80 data loggers can be used to monitor the exothermic heat generated by curing concrete. This heat is representative of the curing strength of the concrete. Thermocouple wires can be cast into the concrete to sense temperature and to sense the localized effects of air temperature and of reinforcing which acts as a heat sink. This information cannot be determined by traditional sampling procedures. The data loggers can also be housed in portable rugged weatherproof enclosures for use on site.

Once the data is collected, a software algorithm can be used to calculate and display the progressive development of the strength of the concrete and predict the 28-day strength after only 24 hours of curing.

Up to 15 thermocouples can be used simultaneously with the DT80 alone. If paired with Channel Expansion Modules (CEM20) the number of thermocouple inputs can increase to 300.