

Application Note Improved concrete testing and reduced construction times by duplicating real world conditions.

Customer Requirements

CSIRO Manufacturing & Infrastructure Technology (CMIT) was asked to develop a best practice method for testing the cure and strength of structural concrete in the field. Ideally, test samples should be cured under the same conditions as the structure in the field. The aim being to allow for formwork to be removed and construction advanced at the earliest possible time, as soon as the concrete has reached adequate strength. Normal testing requires large margins for error due to variations in ambient conditions between test and field site locations.

Equipment

DT800
DT50
DeLogger™
PSTN Modem
DSM Modem
Water Bath
Heating and Cooling System



Sensors

Thermocouples

Datataker Solution

The poured concrete structure uses thermocouples and a *dataTaker DT50* to record actual field temperatures, the *DT50* is connected to a GSM modem. After each concrete pour, a number of test samples are transported to the CMIT laboratory for immersion in a water bath. The temperature of this bath is monitored and controlled by the *DT800*. Reference temperature setpoints are obtained from the remote *DT50* via a PSTN modem connected to the *DT800*'s Serial Sensor Channel and the GSM modem connected to the *DT50*. At regular intervals the *DT800* contacts the *DT50* and unloads measured data from the last period. This data is checked for errors by the *dataTaker* data logger program and then used to set the temperature of the water bath holding the test samples. DeLogger 4 is used to chart the field and test sample temperatures for reference in the laboratory. The process adopted gives accurate replication of site conditions and provides data suitable for improving management of the curing process.

If you need more detail on this application please contact joyce.reid@datataker.com.au

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