HUMBOLDT

Concrete Maturity Meters

H-2682, H-2680 and H-2670A

Humboldt Maturity Meters provide a predictable strength determination of cast-in-place concrete based on ASTM Standard C1074-98 (Estimating Concrete Strength by the Maturity Meter Method). These units utilize inexpensive, disposable, T-type thermocouple wire with quick-connect jacks, which can be embedded directly into a concrete structure to measure temperature at timed intervals. These readings can then be used to document the maturity process within the structure in order to:

- predict the time for form and shoring removal;
- estimate loading and post-tensioning time;
- control winter heating/insulation requirements, and
- reduce construction time and costs through accurate maturity readings.

The H-2670A is a single-channel unit, which will simultaneously display concrete temperature and maturity number. Its rechargeable battery allows up to 2-1/2 months of continuous operation.

The H-2680 and H-2682 are four-channel models, which provide the maturity number calculation, instant readout and temperature history on a menu-driven alphanumeric display. A communications port allows information to be transferred from the meter to another meter, printer or computer. The H-2682 provides the use of a rechargeable. nickel-cadmium battery, which can be used to enhance performance in cold weather applications.

Applicable Standards

Meets ASTM Standard Test Method C1074 and C198.

Specifications

Thermocouple Wire: . . . . .Type T (Omega "flat pin" miniature)

Sensor Measurement Range (± 1°C):
H-2680, H-2682 . . . . . .-10°C to 90°C
H-2670A . . . . . .-10°C to 70°C

Unit Environmental Range (± 1°C): . . . . . .-10°C to 60°C

Data Record (H-2680, H-2682):

Memory Capacity: 32K

Data Capacity: . . . . . .10 months x 4 channels

Recording Interval: . . .Every 1/2-hr. to 48 hrs., then every hr.

Data Record (H-2670A):

Data Capacity: . . . . . .
Records temperature data at 1 minute intervals until an accumulated time-temperature value of 32677°C-HR is reached.

Power (Battery):
H-2680 . . . . .9V Lithium (U9VL) or Alkaline Transistor-type
H-2682 . . . . . .9.6V NiCad with recharger or AC
H-2670A . . . . . .6V-7amp/hr Rechargeable Lead Acid

Enclosure: . . . . . .Impact and Splash Resistant

Case Materials: . . . . . .Polycarbonate

Dimensions: . . . . . .7.8"(20cm) x 4.7"(12cm) x 2.9"(7cm)

Weight:
H-2680, H-2682 . . . . . .1.75 lbs (.8Kg)
H-2670A . . . . . .3.5 lbs (1.6Kg)

Communications (H-2680 and H-2682 only):

I/O Port . . . . . .Serial RS-232C

Handshaking . . . . . .XON/XOFF

Data Format . . . . . .ASCII

Baud Rates . . . . . .Up to 9600–selectable

Maturity Value Calculations (H-2680 and H-2682):

Constant Programmable Range
Datum Temperature: . . . . . .-20°C to 40°C
Equivalent Age Temperature: . . . . . .0°C to -40°C
Activation Energy Constant: . . . . . .0°K to $2x10^{40}$K
Maximum Maturity Values Displayed:
Temperature/Time Factor: . . . . . .99999°C hours
Equivalent Age Factor: . . . . . .9999 hours

Maturity Value Calculations (H-2670A):

Maximum Maturity Values Displayed:
Temperature/Time Factor: . . . . . .32677°C-hours

Specifications may change without notice

Ordering Information

H-2680—Multi-channel Maturity Meter Set

Includes:
(4) Type-T thermocouple wire and connectors

RS-232 communications cable

Plastic carrying case and user manual

H-2682—Multi-channel Maturity Meter Set, rechargeable

Includes: all the above,

and comes with a rechargeable nickel-cadmium battery and a 120V battery charger/AC adapter

H-2670A—Single-channel Maturity Meter Set

Includes:
(1) Type-T thermocouple wire and connector

Plastic carrying case and user guide
AC charger
Magnet

Optional Accessories

H-2670.1—Thermocouple wire, 24 gauge, sold per foot (std.)

H-2670.IT—Thermocouple wire, 20 gauge, sold per foot (heavy-duty)

H-2680P—Plug for thermocouple wire to meter

H-2684—Printer (Serial Port, Epson LX300, with H-2685 cable)

H-2682BP—9.6V Rechargeable Ni-cad Battery Pack

H-2686—Maturity meter to PC serial cable, 9-pin

H-2685—Maturity meter to printer serial cable, 25-pin

H-2680B—9V Lithium battery

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