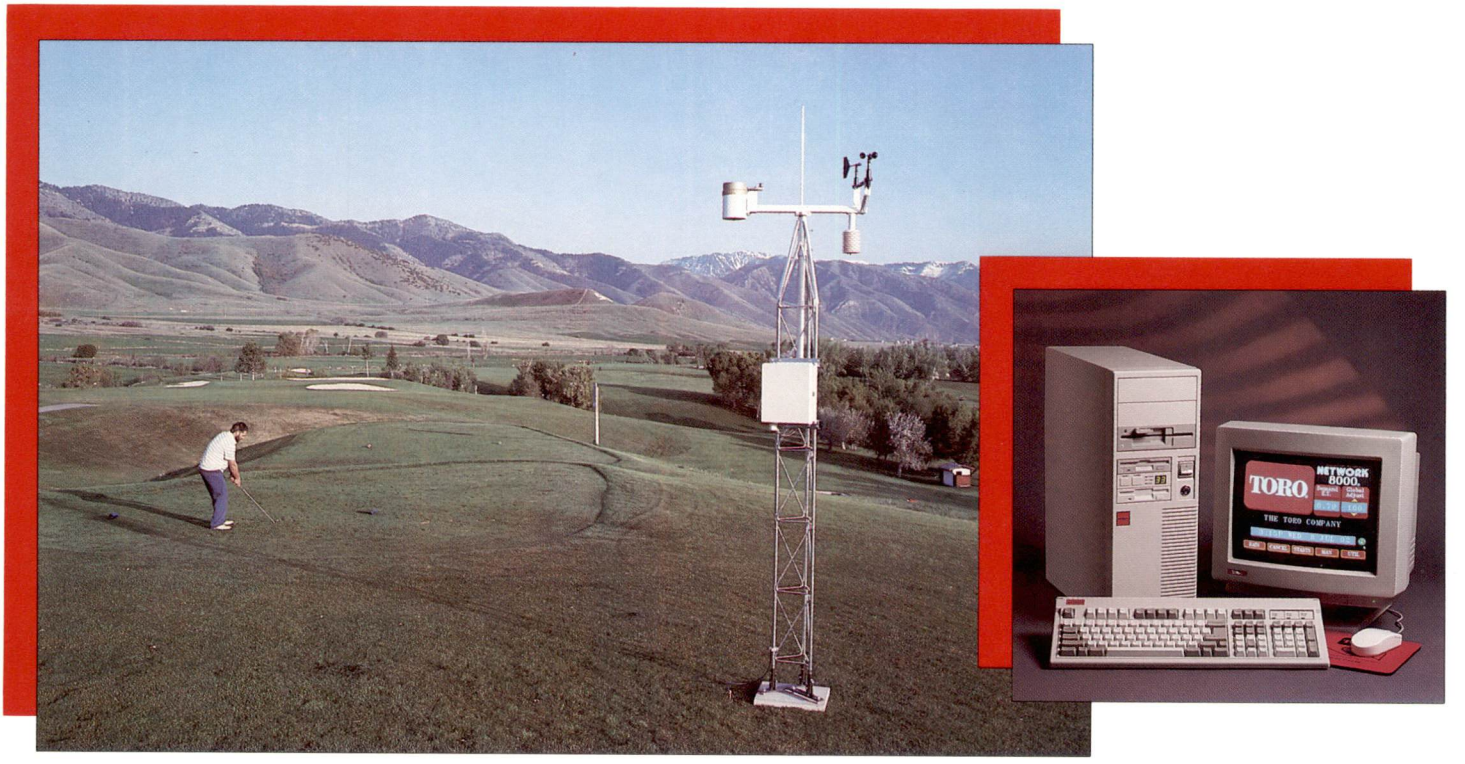
TORO Weather Station

Model NW8002



Turf grass water management is automated with Campbell Scientific's NW8002 Weather Station and Toro's Central Irrigation and Control Systems.*
The weather station automatically monitors meteorological conditions that affect turf grass water consumption. This information is used by the Central Irrigation System to analyze current irrigation requirements.

The weather station continuously monitors the following meteorological parameters:

- Solar radiation
- Temperature
- Relative humidity
- Wind speed
- Wind direction
- Rainfall

These parameters (excluding wind direction) are inputs for a modified Penman-Monteith equation that calculates evapotranspiration (ET).

Phone or "short haul" modems are used to transfer hourly weather data between the weather station and a central computer. The central computer calculates ET and programs each controlling "satellite" with the appropriate irrigation cycles.

The NW8002 Weather Station incorporates the Campbell Scientific CR10 Measurement and Control Module to measure sensors, process and store data, and communicate with the central computer. Simple specifications for the CR10 and sensors are listed on the back of this page.

**Information on TORO Irrigation Systems is available from your local TORO distributor.*

CAMPBELL SCIENTIFIC, INC.
815 W. 1800 N. • Logan, Utah 84321-1784 • (801) 753-2342 • FAX (801) 752-3268

Sensor Specifications

6908 Wind Speed

Sensor: 3-cup anemometer
Temperature range: -50 to +50°C
Operating range: 0-112 mph, gust survival 134 mph
Threshold: 1.1 mph
Distance constant (63% recovery): 7.5 ft.

6909 Wind Direction

Range: 360° mechanical, 355° electrical
Threshold: 1.8 mph at 10° displacement, ~4.0 mph at 5° displacement
Damping ratio: 0.2
Delay distance (50% recovery): 1.6 ft.

6910 Solar Radiation

Sensor: Silicon photocell
Sensitivity: Typically 80 µA/1000 W/m^2

6911 Temperature and Relative Humidity

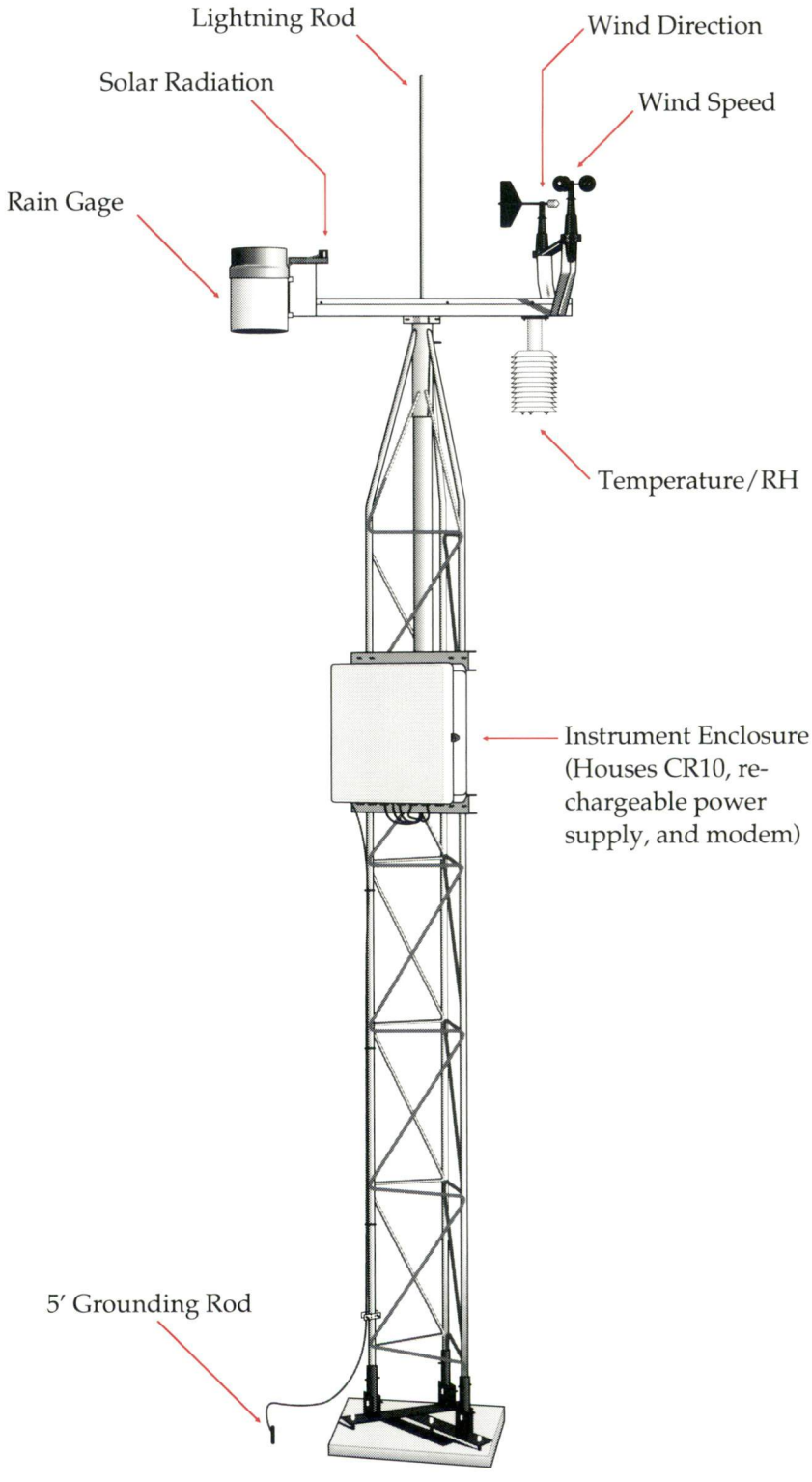
Sensor: Thermistor
Range: -33 to +48°C
Accuracy: Typically ± 0.2°C
HUMICAP H-sensor
RH range: 0-100% RH
RH accuracy (at 20°C) :
± 2% RH at 0-90% RH
± 3% RH at 90-100% RH

6912 Rain Gage

Sensor: Magnetic switch
Orifice: 6.04" diameter
Sensitivity: 1 tip per 0.01"
Accuracy: 1.0% at 2 inch/hour or less

CR10 Specifications

Temperature range: -25° to 50°C
Accuracy of voltage measurement:
±0.1% of FSR, ±0.05% of FSR, (0 to 40°C)
Data storage: 29,900 data values (2 months)
System power requirements:
Voltage: 9.6 to 16 volts
Average system current drain: 1.5 mA



Tower height is 8′; an extendable 3′ mast allows adjustment of sensor measurement heights. Optional solar panel is not shown.

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