



DATA LOGGER AND SOFTWARE

The GroWeatherLink/Et Data Logger contains a microprocessor, ROM, and 32K RAM. The data logger:

- ▲ Calculates Evapotranspiration (ET) for display on the GroWeather console.

When used with the GroWeatherLink software, the data logger also:

- ▲ Makes current sensor output data available for real-time "bulletin" display on the computer.
- ▲ Logs weather data for subsequent transfer to the computer.
- ▲ Enables user to set and clear data in the GroWeatherLink console (time and date, highs and lows, alarm thresholds, calibration numbers, Alarm Output Module bits, etc.) from the computer.
- ▲ Manages data communication with the computer.

Details of data formatting and content are contained in the Programmer's Reference Library (#7864, available upon request); the contents of the Library may be downloaded from the Davis website (<http://www.davisnet.com/support/download>).

The GroWeatherLink software provides a wide range of numeric and graphical display features.

GROWEATHERLINK/ET DATA LOGGER PRODUCT INFORMATION

Evapotranspiration

ET is calculated from measured values of air temperature, relative humidity, wind speed, and solar radiation. The calculation is discussed in the GroWeather console (#7450/#7455) data sheet.

Current Data

Current data are contained in a 30-byte "sensor image" which is available to be transmitted to the computer for real-time "bulletin" display.

Sensor Image Data	Soil Temperature	Air Temperature	Wind Direction (0°-360°)
	Wind Speed	Wind Run	Solar Energy Total
	Solar Radiation Intensity	Rainfall Total	Rate of Rainfall
	Degree-Day Total	Relative Humidity	Barometer
	Barometric Trend	ET Total	Station Power Status
	Alarm Status	Alarm Output Module Communication Status	
Transmission Interval	Once per second (approximately)		

Data Logging

Weather data are stored in 30-byte archive records. The records are contained in the 32K "archive" (1016 records) which may be transferred to the computer using the software. Maxima, minima, and averages are taken over the archive interval.

Archive Record Data	Soil Temperature (avg.)	Air Temperature (avg.)	Maximum Air Temperature
	Minimum Air Temperature	Wind Direction (dominant)	Wind Speed (avg.)
	Maximum Wind Speed	Wind Run (increment)	Solar Energy (increment)
	Solar Radiation (avg.)	Rainfall (increment)	Maximum Rate of Rainfall
	Degree-Days (increment)	Relative Humidity (last)	Barometric Pressure (last)
	ET (increment)	ET Computation Flags	Time/Date of Record
	Battery Voltage (last)		

Archive Interval User-selectable from the following intervals (in minutes): 1, 5, 10, 15, 30, 60, or 120

Storage Capacity (the amount of time before the archive is completely filled)

1 Minute Archive Interval	16:56 hours
5 Minute Archive Interval	3.5 days
10 Minute Archive Interval	7 days
15 Minute Archive Interval	10.5 days
30 Minute Archive Interval	21 days
60 Minute Archive Interval	42 days
120 Minute Archive Interval	84 days

Communication Protocol (See Programmer's Reference Disk)

Data Channel Characteristics	1200 or 2400 baud (switch-selectable), RS-232, half-duplex, data only (no CTS or RTS)
Error Checking	CRC error-checking performed on all transmissions in both directions.
Isolation	Ground isolation is provided by photo-couplers in the Link Isolator (included with the GroWeatherLink software).

GROWEATHERLINK SOFTWARE PRODUCT INFORMATION

General Description

The GroWeatherLink software enables transfer of data from the GroWeatherLink/ET Data Logger to your computer for creation of a permanent weather database. Once stored in the database, the information may be used in the generation of a wide variety of numerical reports and graphical displays.

System Requirements

Computer running Windows™ 3.1, NT, 95, or 98 with at least 4MB of RAM, one free serial port, and 5 MB of free disk space. The amount of disk space necessary for the data files depends on the archive interval. Database files containing data stored at a 30-minute archive interval require approximately 64K of disk space per month of data. The file size changes in a linear fashion depending on the archive interval. For example, data stored at a 1-minute interval requires approximately 1.92 MB/month, while the data stored at a 2-hour interval requires approximately 16K/month. For phone modem connections, the following additional hardware is required: One external modem to connect to the WeatherLink and one internal modem or external modem connected to your computer (modems must be Hayes compatible and run at either 1200 or 2400 baud), and Telephone Modem Adapter (#7870).

Data Display Options

Real-Time Displays (these displays update in real-time)

- Graphical Bulletin Displays current conditions, highs and lows, and barometric trend.
- Text-Based Summary Displays current conditions and highs and lows along with the time at which they occurred.
- Text-Based Status Displays the status of the station's alarms (including the two Alarm Output Module user-controlled bits) and power voltages.

Plotting Displays

- Plot Window Enables graphing of all database information (multiple variables may be plotted on a single graph) over any of the following spans (1 hr, 4 hr, 8 hr, 12 hr, 1 day, 3 days, Week, Month, Year).
- Strip Charts Four stacked line graphs (multiple variables may be plotted on a single graph), which update at the time of each archive interval. Strip charts may use any of the following spans (1 hr, 4 hr, 8 hr, 12 hr, 1 day, 3 days, Week, Month, Year).

Crop Water Management

Tracks, graphs, and prints crop-specific EvapoTranspiration and irrigation information. Irrigation amounts and crop-specific K-factors entered by user.

Growing Degree-Days

Tracks degree-days and progress towards development for an unlimited number of crops/pests; base and upper development thresholds and development totals entered by user.

Reports (generated using sensor data)

- | | | |
|-------------------|--------------------------|----------------------------|
| Hours of Daylight | Soil Temperature Hours | Temperature/Humidity Hours |
| Leaf Wet Hours | Total EvapoTranspiration | Sunrise & Sunset Times |
| Chilling Hours | NOAA Monthly Summary | NOAA Yearly Summary |

Control

The user may exercise a number of control functions via the GroWeatherLink.

Control Functions Available

- | | | |
|--|-------------------------|-------------------------------|
| Set Archive Interval | Set Calibration Numbers | Set Alarm Thresholds and Time |
| Clear Total Values | Set Time and Date | Set Degree-Day Thresholds |
| Control Two Outputs of the Alarm Output Module | | |

TYPICAL INSTALLATIONS

