

FieldStation

FEATURES

- Easy installation
- Plug & Play operation
- LCD display
- 250 channel capacity
- Universal software
- Scientific accuracy
- Virtual sensors
- Communication options
- Modular and expandable
- Plain text data format
- Full range of plant & soil science sensors

APPLICATIONS

- Agricultural research
- Forestry research
- Horticulture research
- Soil physics research
- Viticulture research
- EPA monitoring
- Pollution monitoring
- Water quality monitoring
- Landslide early warning systems
- Farm management

The FieldStation is a complete and fully customisable logging solution for both soils and plant research. The basic components of the system are an SL5 Smart Logger, logger housing, solar panel, lower mast and freestanding base. The user then customises the system to suit the specific project by selecting a suite of environmental sensors to measure parameters such as plant water relations, soil moisture, or water quality.



Modular and expandable

The FieldStation™ is a modular system with the capacity to be expanded to a full 250 environmental sensors. All Smart Sensors output a serial data packet of information that is transported to the Smart Logger via a DataBus which is an expansion port module. How many DataBuses are required depends on the total number of sensors to be connected. DataBuses can be continually daisy-chained together to provide the desired sensor capacity. The FieldStation system is designed to be expanded by the user. The sensors are connected to the spare ports on the DataBus and with the press of two buttons the system is reconfigured, reprogrammed and logging is commenced.

Design your own system

Using the basic components of the FieldStation extremely flexible and highly specialised, custom systems can be designed by the end user. A FieldStation can consist of any quantity or combination of environmental parameters such as: HRM sapflow sensors for large trees, Dynagages for sapflow of crop plants, Dendrometers for measuring stem & fruit size growth, Stem Hygrometers for logging plant water potential, Fredlund Thermal Conductivity sensors for logging soil water potential, MP406 or ECHO sensors for measuring volumetric soil moisture contents, Jet Fill Tensiometers or Gypsum Blocks for soil tension, soil salinity sensors or even water quality variables like pH, EC, turbidity and water level. All of these sensors would be connected to the Smart Logger and powered from an external 12 V battery via the DataBus.

Unlike traditional analogue sensors that require a single extension cable for each sensor, Smart Sensors can be grouped in clumps or experimental blocks and data transferred hundreds of metres via a single extension cable back to the Smart Logger.



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Sensor compatibility

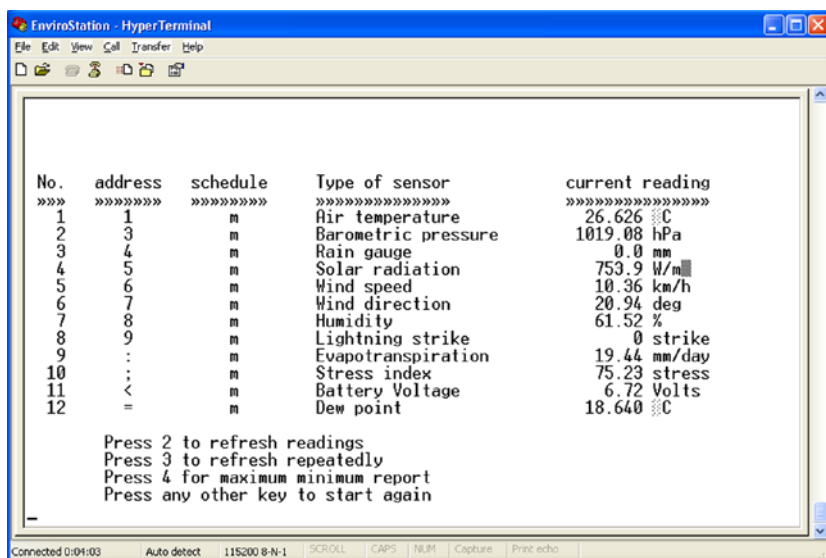
The FieldStation is compatible with all Smart Sensors offering full Plug & Play functionality; 16 bit resolution; integrated, independent voltage regulation and advanced automatic data processing. For users who have existing analogue sensors ICT offers smart interfaces that can convert the analogue signal to a serial output making it a Smart Sensor, offering all the functionality and making them fully compatible with the Smart Logger and FieldStation.

Software

The FieldStation™ does not require any special software or programming as each sensor contains all the required information to allow autonomous operation. However, this does not mean rigid inflexibility.

A simple menu system gives complete control over each individual sensor's set-up. With communication via HyperTerminal, compatibility is guaranteed between FieldStation™ and any PC using Microsoft Windows operating systems from Windows 3.11 to XP.

Compatibility with Macintosh computers is also possible using the terminal emulator ZTerm. The plain text data file can be easily analysed in any spreadsheet program or more sophisticated statistical packages.



No.	address	schedule	Type of sensor	current reading
1	1	m	Air temperature	26.626 °C
2	3	m	Barometric pressure	1019.08 hPa
3	4	m	Rain gauge	0.0 mm
4	5	m	Solar radiation	753.9 W/m ²
5	6	m	Wind speed	10.36 km/h
6	7	m	Wind direction	20.94 deg
7	8	m	Humidity	61.52 %
8	9	m	Lightning strike	0 strike
9	:	m	Evapotranspiration	19.44 mm/day
10	:	m	Stress index	75.23 stress
11	<	m	Battery Voltage	6.72 Volts
12	=	m	Dew point	18.640 °C

Press 2 to refresh readings
Press 3 to refresh repeatedly
Press 4 for maximum minimum report
Press any other key to start again

Communications options

RS232 serial communications is standard for downloading data from the FieldStation™; however, a full range of communications options are available. These include a memory module or data shuttle for manually transferring data from the field without the need for a laptop, land-line telephone modems, wireless GSM and CDMA modems, and unlicensed radio telemetry packages.

Installation

Installation consists of assembling the freestanding base and attaching the logger housing to the lower mast. The FieldStation can then either be pegged into level ground for temporary installations or permanently bolted to a concrete base.

Pressing the search button automatically registers the new sensors and completes the FieldStation™ set-up. Instantaneous readings from sensors can be viewed on the logger's display directly in the field without the need for a laptop or other equipment — there is no guesswork.

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SPECIFICATIONS

Datalogger:

Operating Range: -20 to + 60°C

Accuracy: ± 1%

Resolution: 16-bit

Number of Channels: 250

Memory: Flash memory with capacity for 500,000 measurements, fully date/time stamped (to one second), high resolution (16 bit), including measurement units and sensor type and serial number.

Power Supply:

Solar Panel:

10 W 12 V with mounting kit

Battery Type Required:

12 V 85 amp hour deep cycle battery - SUPPLIED BY USER

Enclosure:

IP Rating:

IP65 fully enclosed and environmentally protected

Mounting apparatus:

Lower Mast: 900 mm x 50 mm x 50 mm tubular steel

Base: 50 mm x 50 mm tubular steel freestanding base

System packing:

Dimensions:

1,000 mm x 460 mm x 520 mm

Weight: 12.5 kg

AVAILABLE SENSORS:

Plant Science:

SAPFLOW

HRM Sapflow
Dynagage Sapflow
TDP Sap Velocity

PLANT WATER POTENTIAL

Stem Hygrometer
Leaf Psychrometer

DENDROMETERS

DEX Dendrometers

Soil Science:

SOIL MOISTURE

MP406 Volumetric Soil Water %
ECH₂O Volumetric Soil Water %

SOIL TENSION

Gypsum Blocks
Jet Fill Tensiometers
Fredlund Thermal Matrix
CS229 Thermal Matrix

SOIL SALINITY

5000SSA Soil Salinity