

## Micro Weather Pro™

### Featuring Plug & Measure™ Technology

Mesotech's Micro Weather Pro™ is a light-weight, portable weather station designed for a wide range of applications. It comes preconfigured for a standard set of sensors. Data can be collected at customized time intervals, and collected data can be fed into standard display software or our *Weather Advisor®* graphical display program. The Micro Weather Pro™ can be used for either temporary data collection, or for long-term data collection.

The complete collection system can be transported in a sturdy weather-proof case weighing approximately 20 pounds. The sensors and data acquisition unit can be mounted on our lightweight 9' aluminum tripod, a 1-3m tripod, or 30' aluminum tower.

It can be deployed by one man in less than 5 minutes without the need for tools. Sensors are pre-wired for quick setup. Once the sensors are connected, just turn on the power and data collection has started.

The Micro Weather Pro™ is built to last in even the harshest conditions. It offers high performance in a very compact and lightweight design.



*The Micro Weather Pro™ can be deployed using this lightweight 9' aluminum tripod, a 3m steel tripod, or a 30' tower. Anchoring stakes are available for tripod stability.*



*Hand Held Display and MicroDCP™ in Enclosure Box*



# Data Acquisition and Control

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The heart of the Micro Weather Pro™ is our popular MicroDCP™. Our MicroDCP™ is a compact data acquisition and control device ideally suited for collecting meteorological data. This data logger has been in the field for over 10 years. It has such high reliability and performance that no other data loggers compare.

The MicroDCP™ comes in our compact, weather proof enclosure and is pre-wired to connect to the Micro Weather Pro™ sensors. Data collection can be confirmed using the Hand Held Display, or through an RS-232 connection to your computer.

The Micro Weather Pro™ MicroDCP™ can be ordered with the following memory configurations:

Part Number	Memory Size	Data Points (approx.)
20250020	128K RAM	53,000
20250025	640K RAM	315,000

The MicroDCP™ comes with embedded software that makes it easy for you to set your collection criteria and collection intervals. Setup is a snap.

The MicroDCP™ is highly efficient when it comes to power consumption. It is designed for low current draw from unregulated power sources. It can be powered by a battery, solar or AC generator, or AC/DC power supply.

## Sensors

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The following is a list of the standard sensors available with the Micro Weather Pro™. These sensors can be mounted on our portable 9' tripod or a fixed base platform. The sensors come in kits with the necessary connectors and cabling included.

### ***Sensor Set 1 – Wind Speed and Direction***



#### **Combination Ultrasonic Wind Sensor Kit\* - PN 29000045 Gill MetPak\***

The Gill MetPak is a compact and lightweight multi-sensor instrument that measures the most essential weather parameters. It has a built in ultrasonic instrument, the *Windsonic*, which measures wind speed and direction. Temperature and relative humidity are measured using industry standard probes housed in a naturally aspirated radiation shield.

It is an ultrasonic wind sensor made from white thermoplastic UV-stabilized for long term weather resistance. Output options include units of measure, parameters, and frequency of output. Anemometer: range 0 to 60 m/s; accuracy  $\pm 2\%$ . Vane: 360°; accuracy  $\pm 3^\circ$ ; resolution  $< 1^\circ$ . This kit includes all the cables, connectors, and mounting hardware required to fit your tripod or tower. You can order either the TP50Y or the HC100 RH and Temp probes to be installed within this sensor.



#### **Economical General Purpose Wind Sensor Kit – PN 29000016 NovaLynx WeatherPort (200-WS-02)\***

The WeatherPort anemometer and vane are economical sensors suitable for a wide range of wind measurement applications.

It is a three cup anemometer and vane made from a combination of molded thermoplastic, anodized aluminum, and stainless steel parts. It provides reliable operation in adverse environments. Anemometer: range 0 to 99 mph; threshold 0.8 mph, accuracy 0.5mph or  $\pm 3\%$ . Vane: 360° mechanical and 355° electrical; threshold 1.2mph, azimuth accuracy  $\pm 3^\circ$ ; damping ratio 0.4, resolution  $< 1^\circ$ . This kit includes all the cables, connectors, and mounting hardware required to fit your tripod or tower.



**Economical All Metal Wind Sensor Kit – PN 29000025**  
**Met One Model 034B**

The Model 034B Wind Sensor is an economical all metal wind speed and direction sensor. The 034B Winds Sensor install in minutes and will provide accurate, long term, continuous monitoring in hostile environments.

It is a three cup anemometer and vane made from aluminum and stainless steel. Anemometer: range 0 to 167 mph; threshold 0.9 mph, accuracy  $\pm 1.1\%$  of true. Vane: 360° mechanical and 356° electrical; threshold 0.9mph, azimuth accuracy  $\pm 4^\circ$ ; damping ratio 0.25, resolution  $< .5^\circ$ . This kit includes all the cables, connectors, and mounting hardware required to fit your tripod or tower.



**Economical Professional Quality Wind Sensor Kit\* - PN 29000028**  
**R.M. Young Wind Sentry (3002)**

The Wind Sentry anemometer and vane are economical sensors suitable for a wide range of wind measurement applications. They provide excellent corrosion resistance, are light weight, and have minimal parts for easy maintenance.

It is a three cup anemometer and vane. Anemometer: range 0 to 112 mph; threshold 2.5 mph, accuracy 1.1mph. Vane: 360° mechanical and 352° electrical; threshold 2.9mph, azimuth accuracy  $\pm 5^\circ$ ; damping ratio 0.2, resolution  $< 1^\circ$ . This kit includes all the cables, connectors, and mounting hardware required to fit your tripod or tower.



**High Performance Wind Sensor Kit – PN 29000029**  
**R.M. Young Wind Monitor (5103)**

The Wind Monitor is a high resolution, rugged wind sensor. Its simplicity and corrosion resistant construction make it well suited for a wide range of wind measuring applications.

It consists of a four blade heliocoid propeller and vane made using a combination of UV stabilized plastic, anodized aluminum fittings, and precision grade stainless steel ball bearings. Anemometer: range 0 to 134 mph; accuracy  $\pm 3$  m/s. Vane: 360° mechanical and 355° electrical; azimuth accuracy  $\pm 3\%$ ; damping ratio 0.3. This kit includes all the cables, connectors, and mounting hardware required to fit your tripod or tower.

## ***Sensor Set 2 – Temperature and Relative Humidity***



**Economical Temperature and Humidity Probe Kit\* - PN 29000014**  
**HMP50YAC (TP50Y)**

This sensor option measures humidity and temperature in a simple and cost effective manner. Temperature accuracy is  $\pm 0.6^\circ$  C at  $+20^\circ$  C. Relative Humidity accuracy is  $\pm 3\%$  RH 0..90% RH @  $20^\circ$  C and  $\pm 5\%$  RH 90..98% RH @  $20^\circ$  C. Because of its very low current consumption and short power-up time, it is well suited for battery-powered applications. This kit includes a 6 plate radiation shield, a cable, connectors, and mounting hardware for your tripod or tower.



**Performance Temperature and Humidity Probe Kit\* - PN 29000023**  
**HygroClip S3 (HC100)**

This sensor option measures humidity with the Rotronic Hygromer® capacitive humidity sensor. Air temperature accuracy is  $\pm 0.2^\circ$  C. RH accuracy is  $\pm 1.5\%$  RH. This kit includes a 6 plate radiation shield, a cable, connectors, and mounting hardware for your tripod or tower.



#### **Air Temperature Sensor Kit\* - PN 29000041**

This sensor measures air temperature with a 10K ohm NTC thermistor. Temperature accuracy is  $\pm 0.1^{\circ}\text{C}$ . The thermistor is housed in a stainless steel sheath. This kit includes a 6 plate radiation shield, a cable, connectors, and mounting hardware for your tripod or tower.



#### **Soil/Water Temperature Sensor Kit\* - PN 29000042**

This sensor measures soil or water temperature with a 10K ohm NTC thermistor. Temperature accuracy is  $\pm 0.1^{\circ}\text{C}$ . Both the sensor and cable are in a neoprene sheath. This kit includes a cable and connectors.

Note: When configuring the temperature sensors options, please be aware that you can have only two thermistor probes. Therefore, if you select the RH probe which also collects air temperature, you can then have two additional temperature sensors. For example, you can have RH (which also measures air temperature), soil, and water temperature probes, or RH, and two soil temperature probes. In all cases, the maximum number of thermistor probes is 2.

### ***Sensor Set 3 – Barometric Pressure***



#### **Economical Barometric Pressure Transducer Kit\* - PN 29000018 NovaLynx (WS-18BP)**

This barometer is a low cost option for recording changes in barometric pressure. The pressure range is 28.25 to 30.75 in Hg. Absolute accuracy is 0.05 in Hg. This sensor can be mounted inside the enclosure. The kit includes the cables and connectors.



#### **Precision Barometric Pressure Transducer Kit\* - PN 29000024 Setra 276 (PTB276)**

This barometer is a very accurate and small pressure transducer at an economical price. The sensor is ideal for automatic weather stations using solar or battery power. FS accuracy is  $\pm 0.25\%$ . Pressure range is 600 to 1100hPa or 800 to 1100 hPa. This sensor can be mounted inside the enclosure. The kit includes the cables and connectors.



#### **Precision, Wide Temperature Range Barometer Kit\* - PN 29000030 Setra 278 (PTB278)**

A precise pressure transducer. Total accuracy is  $\pm 2.0$  hPa. Pressure range is 600 to 1100hPa. This sensor is mounted inside the enclosure and the kit includes the cables and connectors.

### ***Sensor Set 4 – Precipitation***



#### **Economical Tipping Bucket Rain Gauge Kit – PN 29000033 NovaLynx 8” Rain Gauge - 2501 (0.01” per tip)**

The series 2501 tipping bucket rain gauge is a dependable instrument used for measuring precipitation. This gauge is made of anodized and powder coated aluminum. Accuracy is  $\pm 2\%$  for  $< 2$ "/hr. A bubble level is located on the base for correct positioning. The funnel has a screen to prevent debris from entering the gauge. Mounting brackets, leveling adjustments, cable, and connectors are included.



**Compact Tipping Bucket Rain Gauge Kit – PN 29000039**  
**Texas Electronics 6” Rain Gauge – TR-525i (0.01” per tip)**

The TR-525i series was designed to meet the need for a rugged and reliable rain gauge tipping bucket with high accuracy and low cost. This gauge is made of anodized and powder coated aluminum. Accuracy is  $\pm 1\%$  for  $< 2''/hr$ . A bubble level is located on the base for correct positioning. The funnel has a screen to prevent debris from entering the gauge. This rain gauge can be mounted on a tripod. Mounting brackets, leveling adjustments, cable, and connectors are included.



**Quality Tipping Bucket Rain Gauge Kit – PN 29000036**  
**NovaLynx 8” Rain Gauge - 2500 (0.01” per tip)**

The series 2500 tipping bucket rain gauge is a dependable instrument used for measuring precipitation. This gauge is made of anodized and powder coated aluminum. Accuracy is  $\pm 1\%$  for  $< 2''/hr$ . A bubble level is located on the base for correct positioning. The funnel has a screen to prevent debris from entering the gauge. Mounting brackets, leveling adjustments, cable, and connectors are included.

**Sensor Set 5 – Solar Radiation**



**Economical High Performance Pyranometer Kit\* - PN 29000012**  
**LI-COR Silicon Pyranometer (LI-200SZ)**

The LI-200 Pyranometer is designed for field measurement of global solar radiation in agricultural, meteorological, and solar energy studies. It compares favorably with first class thermopile types, but is priced at a fraction of the cost.

It uses a silicon photocell with 400-1100 nm waveband,  $0.2 \text{ kW m}^{-2} \text{ mV}^{-1}$  typical sensitivity,  $\pm 3\%$  error under natural daylight conditions, maximum  $\pm 3\%$  error typical. It has a fixed multiplier. It is not calibrated for use under vegetation or artificial lights. Operating temperature range,  $-40^\circ$  to  $+65^\circ\text{C}$ ; 0 to 100% RH. The kit includes connectors, a cable, a mast mount, and a mounting and leveling fixture.



**Professional Silicon Pyranometer Kit\* - PN 29000021**  
**Kipp & Zonen SP-LITE (SP-LITE)**

The SP-LITE is an instrument for measuring global solar radiation under all weather conditions. It uses a silicon photo detector with a spectral range of 400 -1100 nm,  $100\mu\text{V/Wm}^{-2}$  sensitivity, and a directional error of  $\pm 5\%$  up to  $80^\circ$ . Operating temperature range is  $-30^\circ$  to  $+70^\circ \text{C}$ . The kit includes connectors, a cable, a mast mount, and a mounting and leveling fixture.

*Note: Sensors with an "\*" after them can be transported in our carrying case.*

**Power**

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**40500033**

**AC Power Supply**

The MWP can be powered using this 110 VAC/18VDC, 1.1 Amp wall transformer. A 6 foot cord is included.

**40500031**

**Waterproof AC Adapter/Battery Charger Kit**

This waterproof AC wall adapter and charger comes with a rechargeable battery. The MWP can be operated while the charger is connected or directly off the charged battery. This charge controller is external to the enclosure. A 6 foot cord is included.

**40500035 AC Adapter/Battery Charger Kit**

This AC wall adapter and charger comes with a rechargeable battery. The MWP can be operated while the charger is connected or directly off the charged battery. This charge controller is external to the enclosure. A 6 foot cord is included.

**40000006 5W Solar Panel and Charge Controller Kit**

This 5W solar panel system can be used to power the MWP. A rechargeable battery is included to provide power for operation between dusk and dawn. The charge controller and mounting bracket are included.

**39000008 Sealed Rechargeable Battery**

The Micro Weather Pro™ can be ordered with a rechargeable battery mounted inside the enclosure. The battery can be recharged either through an AC wall charger or using a solar panel. Select this option if you will be using your own charger system.

## Viewing Options

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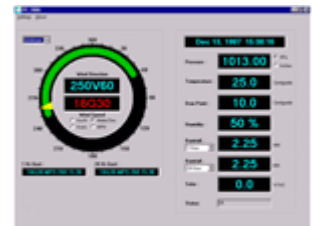
HyperTerminal™ interface is standard with the MicroDCP™ data logger. The HyperTerminal™ interface can be used to setup the logging parameters as well as to view and collect data. In addition to our standard format, ALOHA or CAMEO output formats can be specified. Options for additional interfaces include:

**24500009 Hand Held Display**

The hand held display will read data output from a range of 6' to 50'. The hand held display can be used to verify the sensor input and data output to complete your installation. It can also be used to view data on the spot without needing a laptop or computer connection. The RS-232 cable to connect the HDD to the Micro Weather Pro™ is ordered separately.

**20500031 Weather Advisor Graphical User Interface Software**

The *Weather Advisor™* software is an easy to use program for weather observation and reporting. The software runs on Windows® XP and 2003 computers. It is designed to work with Mesotech's advanced sensors and data acquisition platforms.



## Communications

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The MicroDCP™ comes with an RS-232 connection on the outside of the enclosure. This connection can be used with your laptop or PC or our Hand Held Display. Alternatively, you can order an RS-422 or RS-485 output option. If you order either alternative output option you may also want to order a converter and cable to complete the connection.

**60000060 Local RS-232 cable for connection to a PC**

This 8 foot cable connects your PC or laptop to the built-in RS-232 port on the MicroDCP™.

- 60000081 Local RS-232 cable for connection of the HHD**  
This 8 foot RS-232 cable will connect the Hand Held Display to the built-in RS-232 port on the MicroDCP™.
- 60000093 RS-422 Output Option**  
This option provides RS-422 output from the MicroDCP™.
- 19000004 RS-422 Converter**  
The RS-422 converter is attached to your PC to accept the RS-422 cable.
- 60000093 Local RS-422 cable for PC Connection**  
This is a 100 foot cable that can be used with the RS-422 output option.
- 19000082 RF Radio Kit**  
Includes Base station receiver , remote transmitter spread spectrum radio, and a 900MHz Omni Antenna (2db) mounted with the MicroDCP for transmission of SS radio signal. A second antenna and power supply is provided at the base station for signal reception.

## Mounting Options

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The Micro Weather Pro™ can be deployed using our lightweight 9 ft. aluminum tripod, a 1-9 ft. fixed platform, or a 30 ft. tower.

- 25000055 9 ft. Aluminum Tripod**  
Our lightweight aluminum tripod can take measurements at 9'. There is a built-in mount for the wind speed and direction sensors. Kits are available for grounding, lightning rod, and ties downs. A carrying case is also available.
- 25000073 1- 3 ft. Steel Tripod for 1 – 10 ft. Mast**  
This low cost tripod is excellent for permanent mounting on the ground or a rooftop. It is designed to accept a user supplied mast (1 – 1½ " pipe).
- 25000144 Vehicle Mount Kit**  
This kit includes vehicle mount hardware and a mast for the weather station.
- 25000075 30 ft. Aluminum Tower**  
This is a high quality free standing aluminum tower. It is lightweight, rust free, easy to assemble yet very rugged. This tower will support a 4 sq. ft. surface in 80 mph winds and a 1.5 sq. ft. surface in 110 mph winds.
- 25000076 30 ft. Aluminum Tower (high wind tolerance)**  
This is a high quality free standing aluminum tower. It is lightweight, rust free, easy to assemble yet very rugged. This tower supports a 9 sq. ft. surface in 80 mph winds and a 5 sq. ft. surface in 110 mph winds.

# Mounting Accessories

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Mesotech provides all the mounting and staking options you might need. If your installation requires an option not listed here, call with your specifications.

- 25000061 Enclosure Mount**  
Most deployments require the MicroDCP™ data logger be securely mounted above the ground. The mounting bracket will secure the enclosure box to either a tripod pole or a tower.
- 25000077 Grounding Kit**  
The grounding kit provides protection from excess electrical surges caused by lightning. The kit consists of a grounding rod, a cable, and clamps & connectors.
- 25000078 Lightning Rod Kit**  
The lightning kit provides protection from lightning strikes. The kit consists of a lightning rod, grounding rod, a cable, and clamps & connectors.
- 25000060 Tie-down Kit for 9' Tripod**  
The tie-down kit is used to stabilize the 9' aluminum tripod. It contains 3 clamps, 3 stakes, and 3 wood screws. The tripod can be secured to a ground surface or a wood surface.
- 25000079 Mounting Stake for Soil Temperature**  
This stake is used where the soil temperature probe needs to be secured in the ground. It contains a stake and ties to affix the probe to the stake.

# Carrying Cases

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- 25000056 Tripod Carrying Bag**  
The 9' aluminum tripod can be conveniently carried in this rugged nylon carrying bag. It has two wide handles designed to make carrying easy and comfortable.
- 25000080 Enclosure and Sensor Carrying Case**  
This is a hard shell carrying case that is designed to hold the MicroDCP™ and certain sensors. The sensors indicated by an asterisk, "\*", on the order worksheet will fit in the carrying case.



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