

MicroDCP™

Miniature Data Collection Platform for Automatic Met-Hydro Station

Features:

- Compact & affordable acquisition and control device
- Suited for portable, tactical, or permanent stations
- Highly reliable – newer smart sensors supported
- Broad range of communications options
- Local or remote data storage
- Easy to use menu driven software – no programming required to add sensors
- Built-in intelligent battery management
- Seamless integration with industry software
- Easily expanded or customized



Our MicroDCP™ is being used in both agricultural monitoring and research.



An intelligent system - with all the features and functionality of larger data loggers in a compact and easy to use package.

Systems and Applications

Here are some examples of systems using our *MicroDCP™*:

- Airport Weather Advisor (AWOS)
- Agriculture
- Ag Research
- ETo Weather Monitoring
- HazMat and First Responder
- Meteorology
- SCADA
- Soil Water Content
- Storm Water Monitoring
- Transportation Weather Planning
- Water Level and Flow Monitoring

Easy to Use

The *MicroDCP™* comes with leading edge software making it simple to get started. Users follow a simple set of menus. Setup can be accomplished in minutes with no need for programming.

Software Interfacing

The *MicroDCP™* works seamlessly with many weather reporting systems. For example, the *MicroDCP™* interfaces with the CAMEO®/ALOHA® software used in fire management and plume control.

Plug & Measure™ support for the following sensors - no programming needed:

Analog & digital wind sensors
Air, soil, & water temperature
Soil moisture
Relative humidity
Analog & digital pressure sensors
Tipping & weighing rain gauges
Precipitation detector
Evaporation sensors
Water level & flow
Pyranometers and radiometers
Cloud ceilometers
Present weather & Precip ID
Visibility and visual range sensors
Lightning detector
Ice Accretion
Ambient light & luminance
Voltage sensors
Current sensors

You can use our Weather Advisor™ software or any software of your choice to view weather reporting. The MicroDCP™ can be used to collect measurements for any commercial weather reporting software.

Data Collection

The MicroDCP™ connects directly to analog and digital sensors without the need for external interface components or special programming. Sensor data are sampled and logged at intervals selected by the user.

The MicroDCP™ outputs data in your choice of units, for example, wind speed can be reported in miles per hour, meters per second, or knots.

The MicroDCP™ also calculates data using sensor inputs. Examples of data that can be

calculated are: averages, standard deviation, min/max, dew point, evapotranspiration, and wind (vector average, scalar speed, standard deviation, peak wind, instantaneous, and running average.)

The non-volatile data memory can store 64,000 data values, or up to 500,000 values with the expanded memory options. The internal microprocessor determines weather parameters, generates standard reports, handles local and network communications, and performs self-diagnostic tests.

Users can set alarm thresholds to trigger either manual or automatic response to the identified conditions.

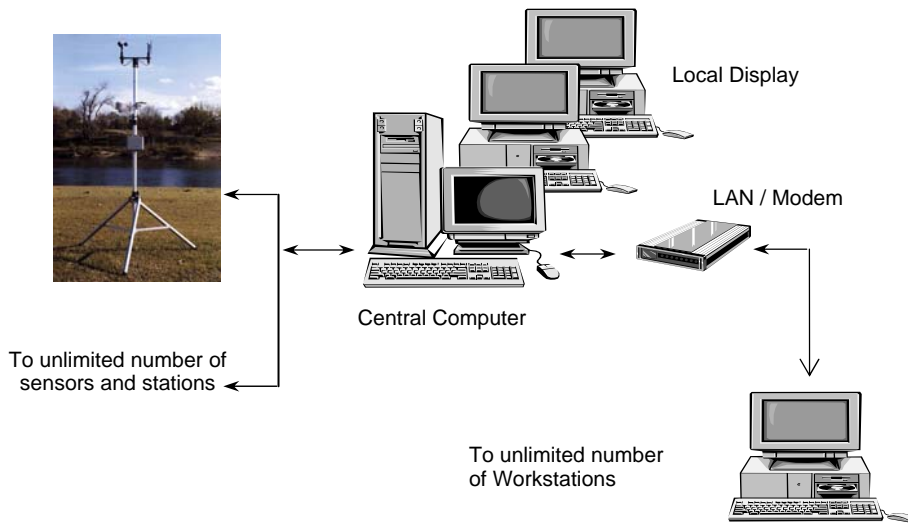


The MicroDCP™ is a reliable yet cost-effective component of our HazMat and First Responder stations.

Viewing & Distributing Data

In a network configuration or as a remote processor, the MicroDCP™ can interface with almost any telemetry, terminal, or display needed. The MicroDCP™ RS-232 and RS-485 serial ports are easily configured to meet your needs. Communication options include the latest technology: LAN/WAN, USB, Bluetooth, satellite, cellular, radio telemetry, fiber optic, and telephone modem.

The unit is equipped with an external weather-proof connector for off-loading data, viewing real-time data, or for maintenance activities. Mesotech offers a hand held terminal that can be used to view or verify measurements on site. Data can be stored locally and/or transmitted real-time to a weather reporting system.



Only the MicroDCP™ can accommodate a system that grows from one station to a networked system. Our technology allows for unlimited meteorological stations and unlimited workstations.



www.mesotech.com

Power Supply Options

The *MicroDCP*TM 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. With a 12 VDC supply, the standby current drain is less than 0.5 mA and the active mode drain is less than 55 mA. Only the *MicroDCP*TM has the built-in intelligence to automatically determine optimal battery use. Once your sensors are selected, our power-saving mode will determine and implement an on/off cycle that optimizes battery life.

Reliable in Harsh Environments

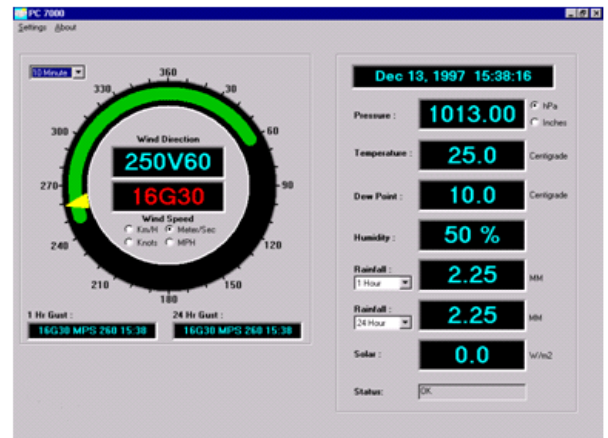
The *MicroDCP*TM is a completely self-contained data collector and processor for automatic stations. It is designed for exposed and severe outdoor weather conditions. All

components are contained in a rugged weatherproof enclosure with sealed cable glands or circular MIL connectors.

All exposed surfaces are treated to prevent corrosion. Internal circuit boards have surface mounted components for improved reliability. Three-stages of lightning and transient protection are included on all signal and power connections.

Custom Systems

Mesotech can design the station or network of stations that best suits your requirements. Our systems are being used around the world and are known for their reliability, accuracy and ease of use.

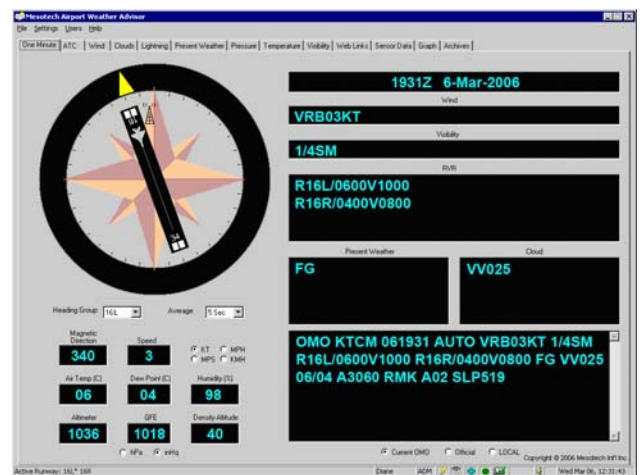


*Our Weather Advisor*TM Software can be used for a visual presentation of your weather data. *Weather Advisor*TM allows users to see critical information at a glance.

*The MicroDCP*TM is an integral component of our Airport Weather Advisor[®] System.



With over 20 years experience deploying large-scale instrumentation projects in the weather measurement business, our engineers can help you design, develop, and deliver the most cost-effective solution that meets your needs. In delivering these services, our personnel perform with a thoroughness, professionalism, and integrity few companies can match.



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Technical Specifications

Analog Inputs

Number of channels:	11 voltage inputs, 5 current inputs with 250 ohm internal shunt resistor, 3 inputs for RTD or thermistor transducers
Input ranges:	100 mV, 1.0 V, 2.0 V, 5.0 V
Accuracy:	0.02% FS, 5 V range (-40 to 85 °C) 0.1% FS for current measurements
Sample rate:	10 kHz maximum
Input noise threshold:	37 nV/Hz
Common mode rejection:	>140 dB
Input current:	1 fA
Input resistance:	> 10 teraohms

Voltage Outputs

Analog signal outputs:	8 channels optional, 0 to 5 V continuous, 12-bit resolution, 0.1% accuracy
Excitation voltages:	5 switched and continuous, independently controlled
Excitation power:	5 V @ 50 mA, 0.1% accuracy 5 V @ 1A max, 12 V @ 1A max

Digital Inputs/Outputs

Frequency inputs:	3 counters, 16-bit, each independent of processor
Maximum count rate:	1.4 KHz
Input modes:	High speed inputs for sine wave, square wave, or contact closure
Digital I/O port:	8 binary inputs - control outputs optional
Alarm outputs:	2 open collector @ 2 A max. for high or low threshold events

Serial Channels

RS-232E ports:	2 ports std, 4 or up to 12 ports optional. Hardware and software handshaking, baud rates 110 bps to 115 Kbps, various protocols
Maintenance port:	RS-232 with external weatherproof connector for real-time data access and off-loading data memory
RS-485 port:	1 port with multi-drop capability, includes impedance termination

Processor Functions

Configuration parameters:	Stored in non-volatile EEPROM
Data memory:	128 KB internal SRAM with battery backup std, up to 1 MB optional, 128 KB internal Flash PROM std, up to 1 MB optional
Calendar clock:	Date, time, leap year, 2 time of day alarms, accuracy ± 30 sec/month Synchronized with time source
Backup battery:	For memory and clock, 10-year life
Local display:	Hand held display unit

Power Requirements

Input voltage:	+7 to 40 VDC
Operating current:	< 55 mA @ 12 VDC
Standby current:	< 0.5 mA @ 12 VDC
Input protection:	Dual fuse surge protection, reverse polarity, and over-voltage
Supply sources:	Battery, solar power, unregulated DC, and regulated DC

Environmental Characteristics

Operating temperature:	-50 to 85 °C (MIL-STD-801D, 501.2 & 502.2)
Humidity:	0 to 100 %RH (MIL-STD-801D, 507.2)
Vibration:	10 – 500 Hz, to 2 G (IEC-68-2-6)
Waterproofing:	NEMA4X (IP66)
Salt-fog withstand:	MIL-STD-810D, 509.3
EMI and ESD protection:	MIL-STD461, IEC 801

Construction

Circuit boards:	Surface mounted components, internal power & ground planes, and built-in EMI & ESD protection
Lightning protection:	Minimum 3 stages of protection devices on all signal and power lines. Includes spark gaps, MOV's, transzorb, and tuned impedance.
Weatherproof enclosure:	NEMA4X (IP66) weatherproof rated
Connections:	Up to 11 connections, options include: <ul style="list-style-type: none">• cable glands (SS)• MIL circular connectors• internal screw terminals• circular connector for local RS-232 port Bolt for lightning grounding cable
Dimensions:	7" x 5" x 2.5" (18 x 14 x 7 mm)
Weight:	3.5 lbs (1.7 kg)

