



Control Module CM-1B™

Wireless, Solar-Powered Weather Station Control Module

DATA SHEET



FEATURE SUMMARY

- Modbus (Host) sensor inputs
- 2 x 24-bit analog inputs
- Counter input
- Integrated solar charge controller
- 7-day autonomous operation
- USB interface for configuration utility
- Integrated LTE cell phone
- SMS reports, status, and configuration
- No programming required
- Multiple configuration methods
- Free configuration utility
- Non-volatile logging memory
- Smart-Fan™ aspiration fan output (optional)
- Modbus slave port
- Easy to use
- Upload to real-time web portal, Dyacon.net

DESCRIPTION

Dyacon Control Module CM-1B™ is a revised version of the field-proven CM-1™, an integrated weather instrumentation interface that combines ease of use with a full complement of sensor and data I/O options.

The weather station controller may be installed, configured, and maintained by the end user. No specialized technical skills or programming is required.

Dyacon CM-1B™ transmits weather reports to users via cell phone SMS text messages. Device debugging and configuration can also be performed remotely through text messaging.

CM-1B uploads data to DyaconLive™ real-time web portal with user access control, historical charts, reports, and many other features required for maintaining a professional weather station network.

CM-1B is compatible with Weather Underground, providing a free web portal weather information site to users.

CM-1B™ is available individually or as part of a pre-configured weather station.

CM-1B™ may also be used as a cable-connected weather station. The Modbus RTU port is compatible with PLC, SCADA, BAS, and DCS systems, and Wee WX software.

Dyacon Weather Display™ and Weather Connect™ software offers a convenient computer interface with data logging, DyaconLive upload, and Modbus TCP capability.

Sensors may be added, removed, or changed in the field; no reprogramming required.

Plug-in terminal blocks are easy to use and can be reconfigure in case of field faults.

KEY FEATURES

Wind and Air Sensors: Industry-standard Modbus (RS-485) digital interface ensures signal integrity over long cable runs.

Analog Input: 0 V to 2.5 V, 24-bit analog input for pyranometers, soil moisture sensors, and thermistors. Slope and offset values provide conversion values on the device.

Counter Input: 0.01" or 0.2 mm tipping bucket rain gauge measurements are accumulated over a seven-day period.

Wireless: CM-1B may be loaded with an embedded LTE cell phone, Wi-Fi module, or an GSM/HSPA phone.

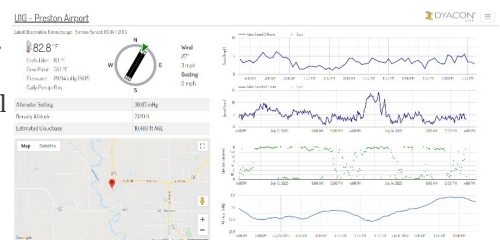
SMS Messages: Bounce-back weather reports, as well as periodic and alarm messages, are provided to authorized users. Control and status messages are accessible to the control operator.

Onboard Logging: 2 MB non-volatile flash memory retains over 49,000 records for download or wireless data transfer.

Smart-Fan™: Fan power control for aspiration option for air sensor optimizes power while minimizing solar heating.

Modbus Slave: Host control module interface available in place of cell phone.

DyaconLive: Real-time weather webportal with system operational data.



MODBUS SENSOR INPUT

Ports	2 Host
Protocol	RS485, 9600, N, 8, 1
Notes	Refer to individual sensors for measurement specifications.
Sensor Compatibility	Dyacon WSD-1, TPH-1, UA-1, and more.

ANALOG INPUTS

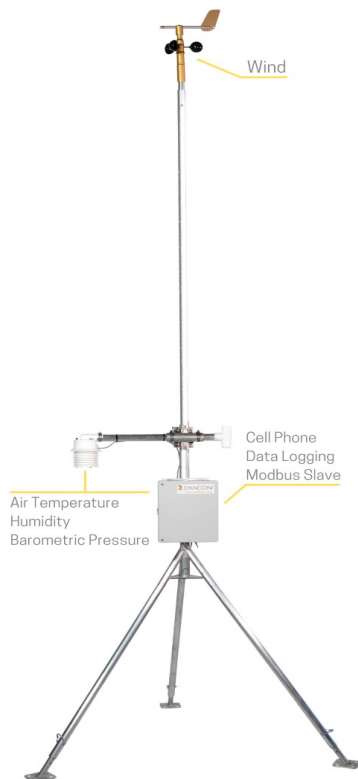
Ports	2
Input Voltage	0 V to 2.5 V, 12 V tolerant
A/D Resolution	24-bit, 0.149 μ V/bit
Measurement Resolution	50 μ V
Accuracy	18-bit effective
Sensor Compatibility	Apogee Instruments SP-110 Meter Group EC-5 Soil Moisture Dyacon Submersible Thermistor Dyacon Globe Temperature Sensor

COUNTER INPUT

Type	Switch detect with debounce. Internal pull-up.
Max Rate	150 Hz
Sensor Compatibility	Tipping bucket rain gauges, 0.01", 0.254 mm, and 0.1 mm

DATA LOGGING

Technology	Flash
Capacity	2 Mbyte, >49,000 records



CM-1 as part of MS-120.

CELL PHONE

Type	LTE Worldwide Global GSM/HSPA available as needed.
Antenna	Combination with antenna diversity.
Data Transmission	DyaconLive, FTP, email, SMS, and other

MODBUS SLAVE

Ports	1
Protocol	Modbus RTU, RS485, 9600, N, 8, 1
Compatibility	PLC, DCS, SCADA, HMI Displays, and other Modbus hosts.

ELECTRICAL

Power Input	12 V to 25 VDC – 12 Vnom solar panel Integrated Solar Charge Controller
Current	25 mAavg @ 12 VDC (excluding battery recharging)
Battery	7 to 9 Ah, 12 VDC, VRSLA

SMART-FAN™ OUTPUT**

Technology	Solar detection aspiration fan control.
Output	5 V, 200 mAmax (12 V option)
Compatibility	Dyacon Fan Aspiration Kit

USER INTERFACE

Wireless	Cell phone SMS text
Local	2 x 20 Character LCD, 4 buttons
PC Utility	CM Utility (USB)

CONFIGURATION AND UPDATES

On-site	LCD and 4-button PC with CM Utility (through USB port)
Remote	SMS text message commands.
Firmware Updates	Over-the-air firmware update CM Utility

MECHANICAL

Enclosure Material	Fiberglass
Overall (HxWxD)	10.14 x 8.26 x 6.13 (257 x 210 x 156)
Mounting	Wall or pole
Cable Pass-Through	Dyacon proprietary EZ Cable Lock

ENVIRONMENTAL

Operating Temperature	-30°C to 60°C
Storage Temperature	-40°C to 80°C
Humidity / Precipitation	Direct environmental exposure with cover in place.
Sealing	Designed and field tested to IP 53.

**Accessory required.