CM-1
Control Module
Utility Manual

57-6068 Rev A

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CONTENTS

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Manufacturer

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USA

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1.0 CM-1 Introduction

1.1 Scope

Dyacon meteorological (met) stations are based on a control unit, or data logger, that acts as the "brains" of the weather station. All sensors, power, and I/O devices connect to the control module (CM).

CM-1 is a component of MS-120, MS-130, MS-140, MS-150, and variants. These stations differ principally by the sensors that are pre-configured with the control module. Users may add, remove, or replace sensors as their needs change.

This manual covers the operation and configuration of CM-1 using the CM-1 Control Module Utility, a Windows PC program. Detailed sensor information is provided in the respective sensor manuals.

1.2 Technical Support

1.2.1 Contact Information

Dyacon, Inc.

1770 Research Park Way
Suite 168
Logan, UT 84341-1959

Phone: (435) 753-1002

Email: support@dyacon.com

Internet: www.Dyacon.com

Normal business hours are from 9:00 am to 5:00 pm. (Mountain Time Zone, UTC -7)

1.2.2 Phone / Email Support

If you need technical support via the phone or email, please have the following information ready:

Product name, model number, and serial number.

2.0 CONTROL MODULE UTILITY

CM-1 Control Module may be configured using SMS text message commands, Control Module Utility (computer software), or with the LCD interface on the unit.

Control Module Utility (CMU) provides and easy-to-use method for configuring weather stations, saving and restoring configuration, updating firmware, and downloading data log files.

2.1 Hardware Requirements

Computer running Windows XP or later with USB port

USB A to USB B cable

2.2 Overview

Control Module Utility is an easy, fast method for changing, backing up, and duplicating weather station configuration. All sensor parameters, units, calibration, WeatherUnderground configuration, and log file email and ftp can be done using the simple utility.
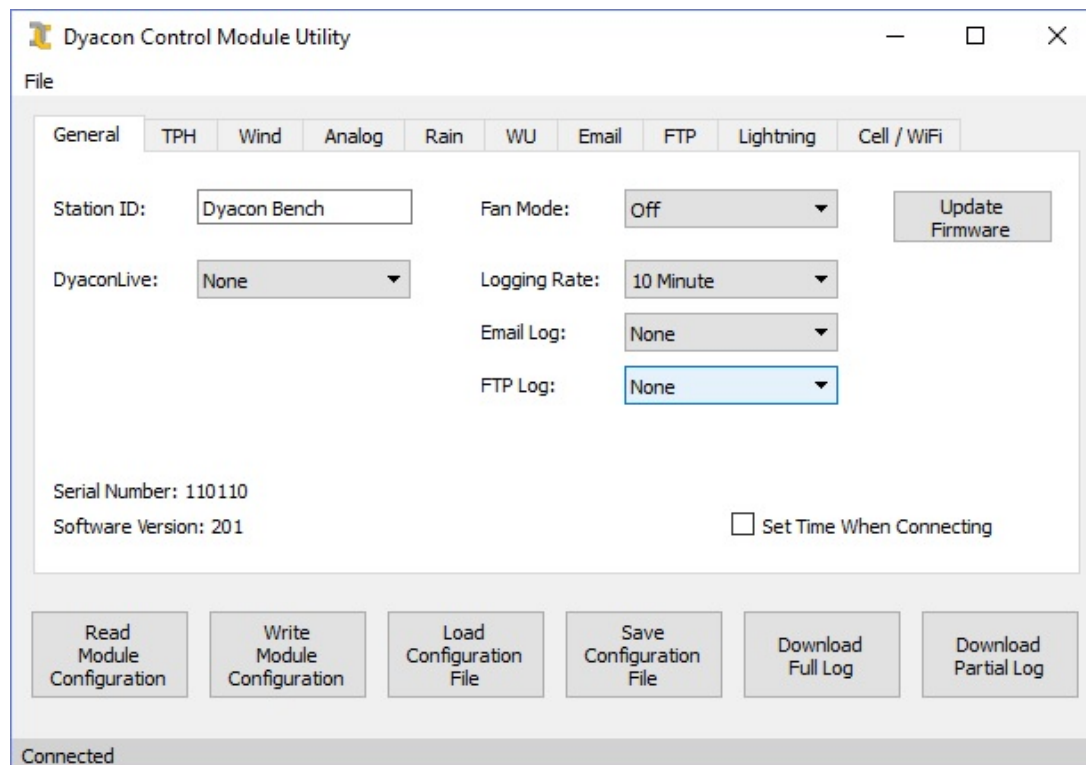
The utility will automatically "Connect" when a CM-1 Control Module is plugged into a USB port.

2.2.1 Primary Buttons

Set Time When Connecting – See the following section for more information.

Read Module Configuration – Downloads all of CM-1 settings.

Write Module Configuration – Uploads the current configuration to the connected CM-1.

Load Configuration File – Loads a previously saved configuration file so that it can be changed or uploaded to a connected CM-1.

Save Configuration File – Saves the current configuration to a file on the computer. The file can be used to restore or duplicate configuration settings.

Download Full Log – All data log memory is downloaded. Two log files are created, a measurement log file and a "Syslog" file, which contains any system messages.

Download Partial Log – This is the primary log download method. This method downloads only those entries which have not yet been downloaded. (See the Log Download section below.)

2.3 Set Time When Connecting

Weather station controllers with a built-in cell phone will automatically pull the time from the cell phone network. However, "cabled" versions, such as MS-120, do not have an embedded cell phone. Consequently, the time must be set externally.

Users of cabled weather stations may occasionally plug into the USB port to download system logs. When the "Set Time When Connecting" check box is enabled, CM Utility will automatically update the weather station controller with the computer time.

Weather stations that include a cell phone will need to use this method if the cell phone is disabled.

2.4 Log Download

Download Partial Log will retrieve the data that has not yet been downloaded using the USB port method. The first line of the file will be the oldest data.

Once you have used the USB port to download the data, a memory flag for the data record set, indicating that it has already been downloaded. The records are still in the flash memory, but they only be downloaded again by using the **Download Full Log** button.

Download Full Log will download all of the 2 MB memory. It pulls all of the data from the beginning of the memory (address zero). It is in date order, but the latest data will start somewhere within the log file. This is due to the circular memory structure that is used.

When the download is started, you will be prompted for a location to save the files. Two log files will be created, the measurement data log and the system log. The system log contains operational information regarding the cell phone errors, system resets, clock updates, and other messages.

Both logs use the same memory space. For this reason it is important to ensure that the phone is disabled, otherwise the controller will use up some of the memory with unnecessary cell phone errors.

The data log format is explained in the user manual section 12.

More information regarding the log is contained in the CM-1 Control Module Utility Manual.

3.0 Detailed Information

3.1 General Tab

Station ID

Name of weather station. 25 characters allowed.

This is not the same as the Weather Underground station ID. It can be unique.

Station ID is used in the heading of text messages and as the sender name of log file emails.

Station ID

DyaconLive

DyaconLive is a real-time weather station web portal for Dyacon weather stations. We designed it to be easy to use, clean, and provide useful diagnostic information for users.

The drop-down list shows a list if time intervals for uploading data to DyaconLive. The **10 min rate is the standard** and should be used for most situations.

Note: Faster rates may incur additional cell phone charges.

Fan Mode

The aspirator fan mode should be set to **None** if it is not installed, **Daylight** if the station is running on solar power, or **On** if the station is line powered.

Logging Rate

Dyacon CM-1 weather station controller logs instrument and system operational data. The data log is stored onboard. The logging rate is set using this drop-down list.

A 10 min rate is the default and will store approximately 10 months of data.

Refer to CM-1 manual for more information on data logging.

Email Log

The log can be transmitted periodically, according to the value set.

The email is sent using the user name and server configured on the Email tab. The log is attached to the email as a CSV file.

Transmitted data is retained on the controller, it is not erased.

FTP Log

The log can be transmitted periodically, according to the value set.

The CSV log file is transmitted using the FTP user name and server configured on the FTP tab.

Transmitted data is retained on the controller, it is not erased.

Update Firmware

CM-1 firmware can be updated using this function. The user must have the .bin file saved on their computer before beginning this process.

Contact Dyacon or check the dyacon.com website for the latest .bin file.

Set Time When Connecting

Note: This is only to be used for systems that do not use cell phone or WiFi.

Selecting this box will cause CM-1 time to be updated using the system time on the computer.

3.2 TPH Tab

The TPH sensor provides three parameters, temperature, humidity and barometric pressure. All three parameters are configured from the TPH tab.

3.2.1 Temperature

Display Units

Select temperature units to be used for the LCD values and SMS text messages.

This does not control the DyaconLive or the log units.

Slope and Offset

Users may calibrate or adjust the instrument value using a slope and offset values (Slope*measurement+offset). The mathematical operation is applied before the value is used anywhere.

Humidity

Humidity is only shown as a percent.

Slope and Offset

See above.

Pressure

Display Units

Select units to be used for the LCD and SMS text messages.

This does not affect log units or DyaconLive.

Altitude

Set altitude of the station in meters.

Slope and Offset

See above.

3.3 Wind Tab
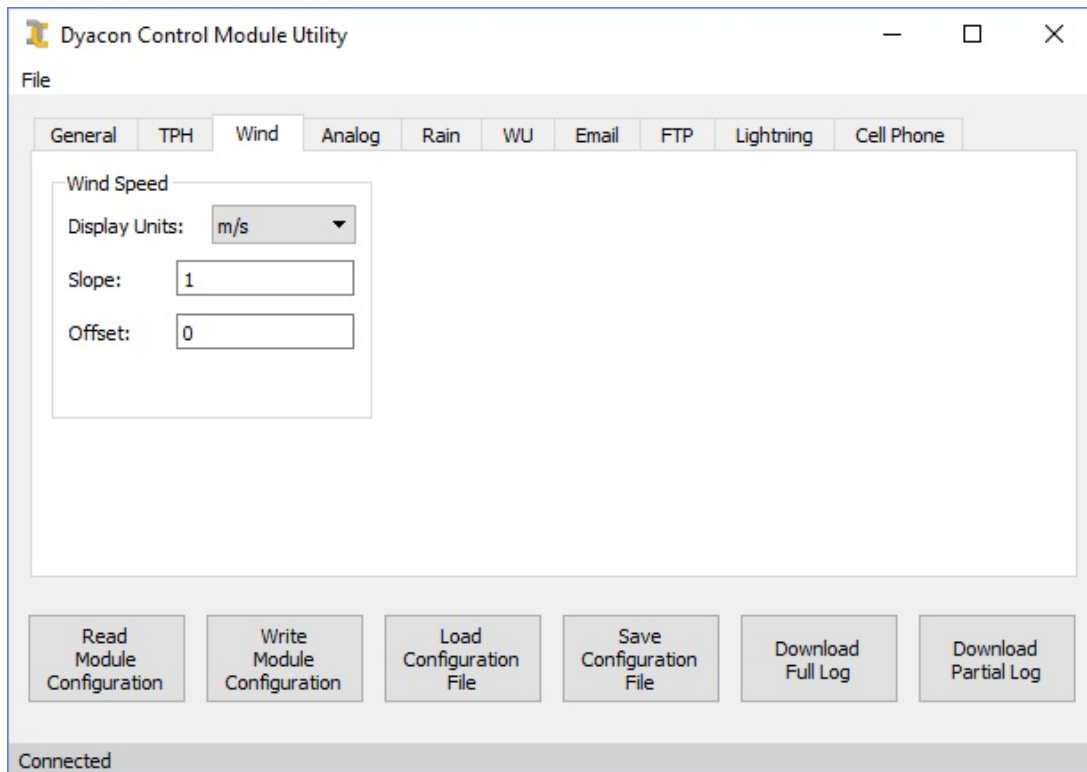
Display Units

Select wind speed units to be used for the LCD and SMS text messages.

Slope and Offset

See explanation under the TPH tab.

3.4 Analog Tab

Type – Solar Radiation

Display Units

The only units available for the Solar Radiation sensor are Watts/meter^2.

Slope and Offset

Slope and offset values are pre-set for the Dyacon PSP-110. This can be changed by the user if needed.

Type – Soil Temperature

Display Units

Celsius or Fahrenheit units can be selected.

A-Ref

These values are used in the Hart-Steinhart equation for converting the thermistor values to a temperature. These values should only be changed if a known thermistor is used.

Type – Soil Moisture

Display Units

Percent only.

Slope and Offset

Preconfigured for SMEC-5. Not change is required unless the user has specific calibration values.

Type – Globe Temperature

Display Units

Celsius or Fahrenheit units can be selected.

A-Ref

These values are used in the Hart-Steinhart equation for converting the thermistor values to a temperature. These values should only be changed if a known thermistor is used.

Type – Custom

Users may configure the units, slope, and offset fields for any analog sensor that is electrically compatible with Dyacon CM-1.

3.5 Rain Tab
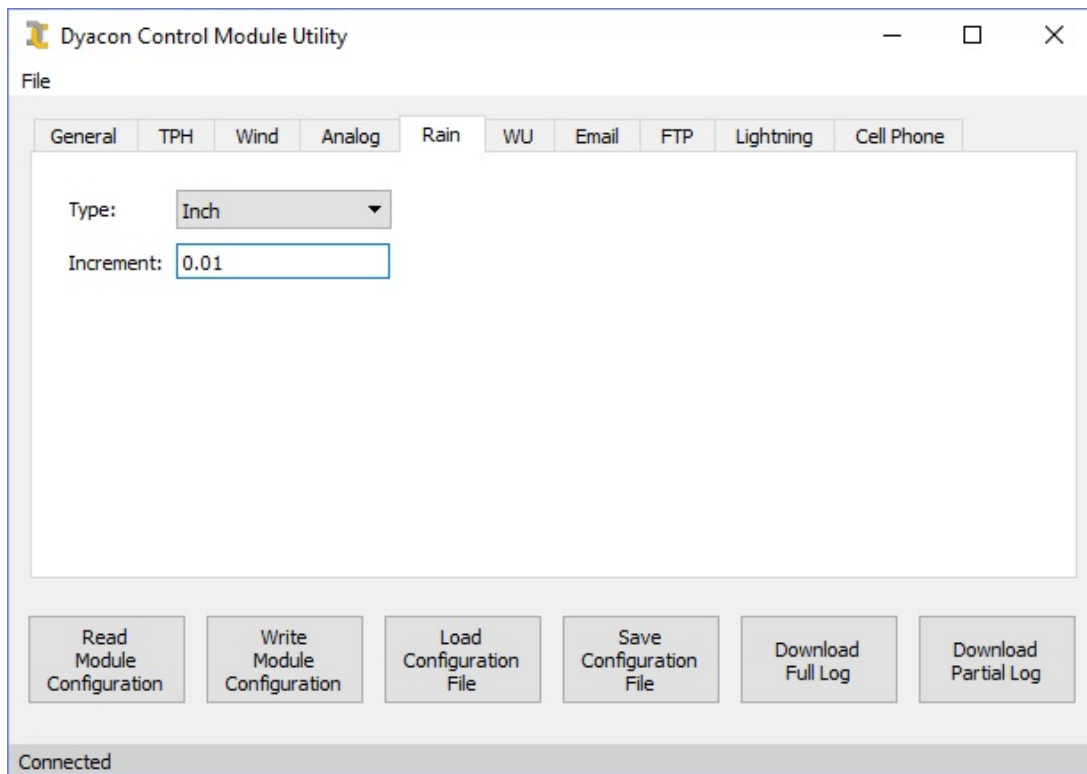
Type

Specify the units for each rain gauge tip.

Increment

Each tip of the rain gauge mechanism will register a specific volume of water.

A rain gauge calibrated for 0.01" can be configured as:

Type: Inch
Increment: 0.01

The same rain gauge can be configured as:

Type: mm
Increment: 0.254

3.6 WU (Weather Underground) Tab

Update Rate

Uploads to WeatherUnderground.com will occur at the specified rate.

User Name
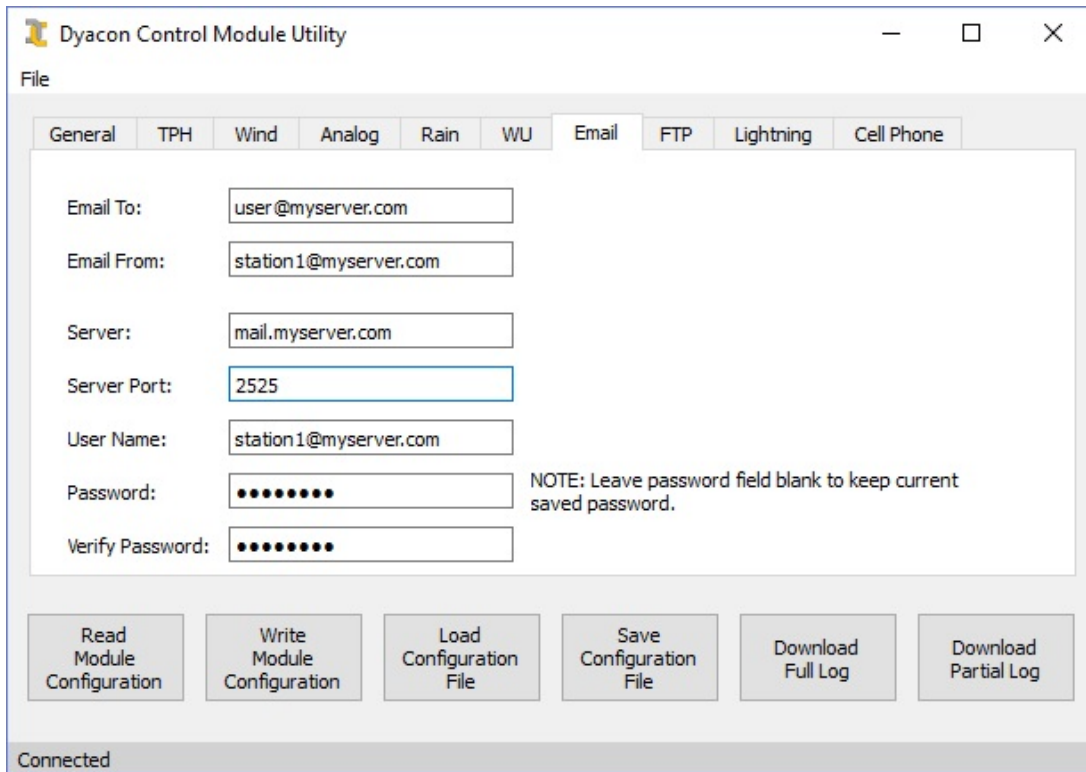
The weather station operator must create a user account on Weather Underground and then add a Personal Weather Station (PWS) to their network.

Once a PWS is added to the Weather Underground account, their system will generate a PWS identifier. This ID will be recorded in the User Name field. (Yeah, we know. It isn't technically correct.)

Password

Enter the password used for the Weather Underground user login.

3.7 Email Tab

Email To

Email for the account that will receive the log files.

Email From

Email address used by the weather station.

Server, Server Port
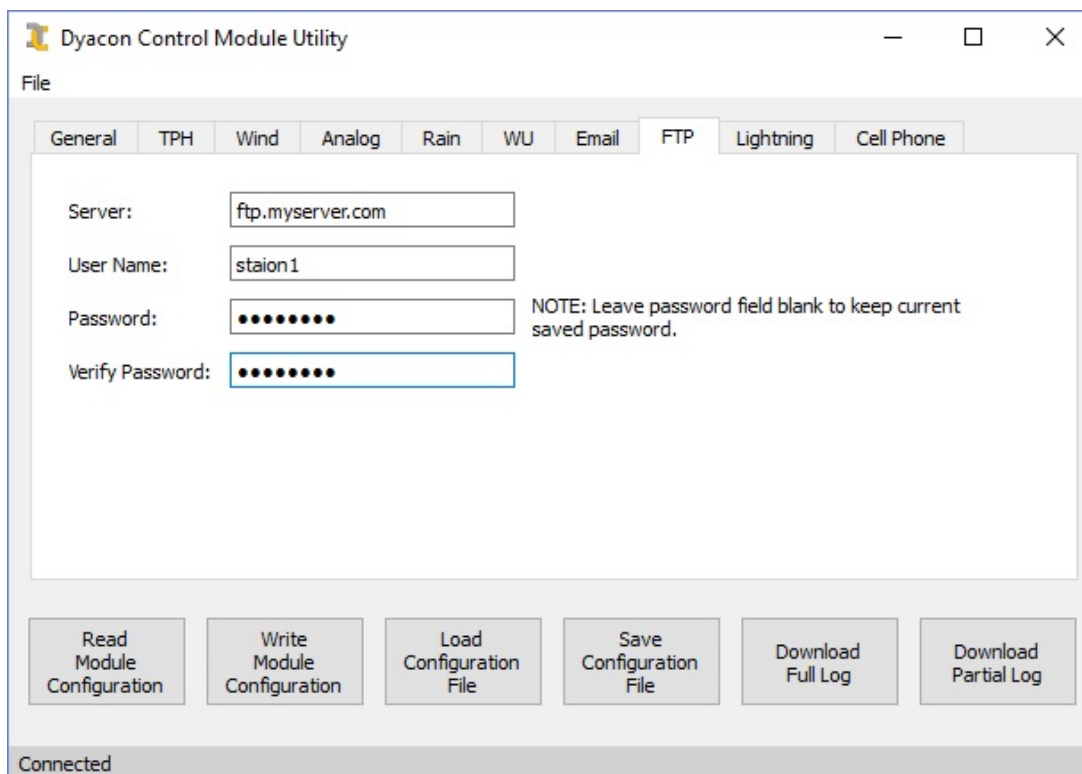
Email server values.

Dyacon CM-1 cannot send encrypted emails.

User Name, Password

Login for the email account.

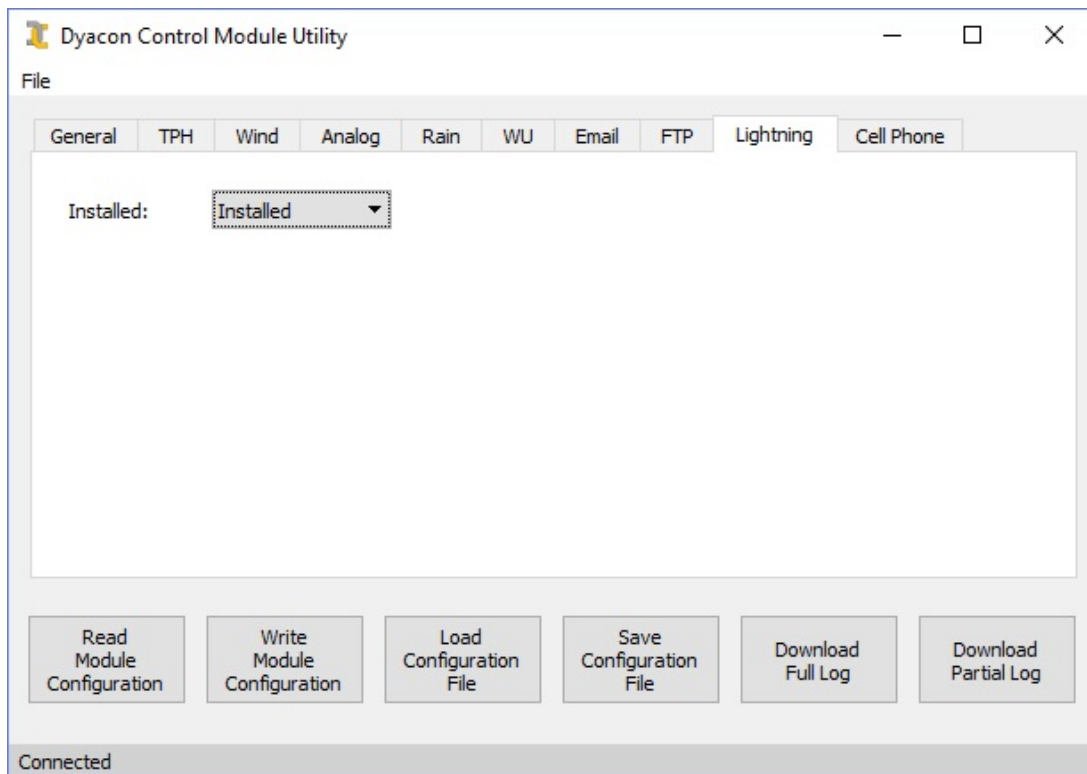## 3.8 FTP Tab

Server

FTP server name.

User Name

Login name for the server.

Password

Username password.

3.9 Lightning Tab

Installed

Select **Installed** or **Not Installed**

3.10 Cell Phone and WiFi Tab

Service Technician Cell Phone

Enter a cell phone number for the service technician that will receive low battery alerts and lightning alerts (if installed).

The format should include the international code. A phone number for the US would include a leading 1. Example: 14357531002.

Cell APN (GSM Only)

Typically, this field is left blank, indicating that it should be downloaded automatically from the cell phone network.

If CME Error 133 is reported when a DyaconLive connection or other data connection is attempted by the weather station controller, the APN will need to be set manually.

This value is available from the cell phone network customer support or sales office.

Enable/Disable Cell

If a cell phone is not installed or not provisioned, it should be disabled to avoid creating unnecessary system log entries.

WiFi Access Point

If a WiFi module is installed in place of a cell phone, the 802.11b/g/n access point network name (SSID) is entered in this field.

WiFi Password

The password for the access point is entered in this field.

4.0 FIRMWARE COMPATIBILITY

While every practical effort is made to maintain compatibility between CM Utility and the CM-1 firmware, feature changes expansion of the weather station controller, CM-1, require updates to CM Utility.

The following is a brief list of cross compatibility.

CM Utility Version	CM Utility Change Description	CM-1 Firmware Version
0.7.2		up to v86
0.7.6		v87 to v96
0.7.7	Add system time update when CM Utility is connected to a CM-1	v97 to v112
0.7.8	Corrected email settings error.	v97 to v112
0.7.9	Allow for hourly transmission of email and FTP log transmission.	v113 to v120
0.8.0	Add USB firmware update capability.	v121 to v124
0.8.2	Add lightning sensor enable/disable.	v126 to v145
0.8.4	Add DyaconLive supported Add Cell phone enable/disable Add APN configuration	v146 to v147
0.9.0	Added WiFi feature	v131 to Current

5.0 DOCUMENT REVISION HISTORY

Rev	Description	Author	Date
A	First release. Applicable to firmware version v0.9	E. Bodrero	11 Jul 2018