CM50 Quick Start Guide

Thank you for purchasing a Pythia Technologies CM50. This guide describes how to install and configure your unit.

PYTHIA TECHNOLOGIES
data transformation solutions

175 S. Sandusky Street, Suite 321 Delaware OH 43015 Tel. 740-936-5362 Fax 740.693.8409
Sales@pythiatech.com www.pythiatech.com

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Installation Supplies

Included with the CM50
CM50 device
Network cable
USB cable; USB mini B to USB A 5V
USB wall wart

Also available, sold separately
Temperature sensors
Temperature/humidity sensors
Conductive fluid or chemical sensing cable, plus leader cable kit and EOL terminator
1U rack mount kit

Network Communications Information

Consult your IT administrator and determine the following network settings for your CM50:

- IP Address _____
- Subnet Mask _____
- Default Gateway _____

** Wire all connections, sensors, and power to the CM50 first - then access the web interface to configure the device and designate parameters and notification methods for your wired sensors, inputs, and relays.

CM50: Front Connections, Silence/Reset Button, and LED

1-Wire Sensor Connections

Plug in your temperature and temperature/humidity sensors. They click into place in the sensor ports on the front of the unit.

Power Connection

The CM50 is powered through its mini USB port. Using the included cable, plug the mini end of the USB cable into the power jack on the CM50. Plug the enclosed USB wall charger into a standard wall outlet and plug the UBS cable into it. The CM50 can also be powered by a USB connection on a server or another computer - just be sure the computer is plugged into a wall outlet, preferably one protected by a UPS.

Network Connection

Plug the network cable into an available network port and then into the network connection on the CM50.

Through DHCP, the CM50 can be set up to communicate on your network. **Please NOTE: If DHCP is not available on your network, the CM50 will default to an IP address of 10.0.0.188.

Status LED

There are a variety of alarm and alert patterns and colors programmed for the CM50's LED. Use the following chart to determine which alarms are active.

Blink Pattern	Description
Solid Green	Normal
Lt Blue / Blue	Alarm - Leak detection cable break
Lt Blue / Off	Alarm - Leak detected
Red / Off	Alarm - Temperature
Red / Blue	Alarm - Humidity
Magenta / Off	Alarm - Digital Input
Yellow / Off	No network connection
Yellow / Magenta	Debug connection is active
Yellow / Lt Blue	Configuration mode is active
White / Off	Unit is Booting **
Mixed	Firmware update is executing **
Red / Magenta	Internal error - call PTech

** DO NOT access or configure the CM50 while these alerts are active

Alarm Silence/Reset Button

If the audible alarm is active, push this button to silence it. Use the web interface or LED to determine the alarm condition. Advanced functions may also assigned to this button.

CM50: Rear Connections and Configuration Button

Digital Inputs

The CM50 can monitor eight digital inputs, each of which connects to the CM50 through a 2-wire connection on the back of the unit. When you're looking at the back of the unit, note that input 1 is on the right side of the terminal blocks and input 8 is on the left side of the terminal blocks.

To connect your digital inputs to the CM50, loosen the screws on the appropriate slots on the terminal block connector and insert the two wires from your digital input - one in each slot. Tighten the screws to secure the connections.

Leak Detection Sensing Cable

Since leak detection sensing cable cannot connect directly to a controller, leader cable is used to connect leak detection cable to the CM50.

1. Remove the 4-pin terminal block connector from the back of the unit.
2. Insert the four stripped wires of the leader cable into the appropriate slots in the terminal block connector - from left to right: white, black, green, and red. Tighten the screws on the terminal block connector to secure the leader cable. Plug the connector - with the wires in the correct order - into the leak detection leader cable connection.
3. Unscrew the EOL from the end of the leader cable.
4. Attach the length of sensing cable to the leader cable.
5. Route the sensing cable according to your cable layout diagram.
6. Secure the EOL to the unoccupied end of the sensing cable.

Relay Output

The CM50 has one relay output - use this to control an external device in the event of an alarm condition. Loosen the screws on the appropriate slots on the terminal block connector and insert the wires for your relay output into the correct slots - NC-NO-C. Tighten the screws to secure the connections.

Configuration Button

The configuration button is located on the back of the unit and is used for advanced troubleshooting.

Mount the Controller

Once all connections have been wired to the CM50, mount the device in an appropriate location. Pythia Technologies recommends a secure mounting option, through either the keyhole cutouts on the enclosure or through the optional 1U rack mount kit.

Web Interface

Dashboard

The Dashboard is your main point of contact for the CM50. Accessible from any web browser or mobile device, the Dashboard display includes the status of all sensors, digital inputs, and sensing cables connected to the CM50.

As you connect sensors to the CM50, their information appears on the Dashboard. If you have a leak detection sensing cable connected to the CM50, you will need to us the Inputs tab on the setup menu to enable the leak detection monitoring. Then it too will appear on the Dashboard. Other items that can be configured to display on the Dashboard include digital inputs, a button to control the relay output, and displays from IP web cameras. Configure these items on the Sensors, Inputs, and Reporting tabs of the web interface.

Setup Menus

Use the menus in the Setup tab to configure your CM50. When you begin typing changes into any of the fields, they will turn either green to indicate your changes are acceptable, or red, to indicate your changes cannot be submitted. If a field turns red, you've likely typed more characters than the field can accept, or you've entered a character that can't be used in that field. Once you delete the excess or offending character, the field will turn green again.

When you edit a section, a Save Settings button appears at the bottom of that section. Click this button to save your changes. **Changes will neither be saved nor implemented until you click the Save Settings button.**

Network

Use the network tab for settings including the device name, NetBios name, IP address, primary DNS, and NTP server.

The NetBios name is used to identify resources on a local network. The default NetBios name is the CM50's serial number. The CM50's NetBios name can also be used - only on a local network - to quickly access the CM50's web interface. Edit the NetBios name as you'd like - it must be 15 characters or less, in all capital letters. Save your changes.

You can choose to use DHCP to obtain an IP address, or to assign the CM50 a static IP. If you choose static IP, fill in the blanks with information provided by your network administrator and remember to save your settings.

Sensors

Use the sensors tab to configure information, alarm parameters, and alarm notification (email, audible, activate relay output, etc.) for each 1-wire sensor that is currently connected to the CM50.

Inputs

Leak Detection

The CM50 monitors up to 200 feet of leak detection cable, configured in a single zone. **If you have the leak detection cable connected to the CM50 you will need to use this menu to enable the leak detection monitoring.** Once leak detection is enabled, the leak detection cable icon will appear on the CM50's Dashboard.

Use the input tab to set the sensitivity for the cable – if you select high sensitivity, the CM50 will alarm when it contacts a smaller amount of water. If you select low sensitivity, the CM50 will need to come in contact with a larger amount of water before it issues an alarm. Then establish notification parameters for a detected leak or cable break and save your changes.

Digital Inputs

Use the inputs tab to name your digital inputs and to configure alarm and notification parameters (email, audible, enable relay output, etc.) for each input.

Keep in mind the "When" box will tell the CM50 when to send an alarm. For instance, if your digital input is normally open, the CM50 should generate an alarm when that contact is closed. So for that input, you'd select "Closed" in the When drop down, and then decide what notification action the CM50 should take.

Network Cameras

Want to view your remote facility any time, from anywhere? Use a web camera.
Once you have one installed and running in your facility, you can link to it from the CM50. Enable the webcam capabilities and use the fields to name the camera and direct the CM50 to its streaming image. You can also enter a URL that will take users directly to the webcam. The CM50 can provide views to four cameras. Once each camera is enabled, it will appear on the CM50's Dashboard.

Reporting

Email Notifications

Use this feature to send email alerts when the CM50 goes into alarm. Enable email notifications and enter the email addresses in the Recipients box. Recipients will receive all email alerts generated by the CM50.

Once you save any changes made within this section, a test email button appears. Send a test email to ensure that proper notifications are sent.

Dashboard Options

Use the Reporting tab to designate English (Fahrenheit) or metric (Celsius) units.

Relay Output

When you enable the relay output, a button to control the relay output appears on the Dashboard. The button allows approved users to open and close the relay output from the CM50's Dashboard. Use the options to configure the button's labels.

> **Any alarm condition that is configured to change the state of the relay output will override the manual button control of the relay. If an alarm is active, you cannot turn off the alarm with the manual relay control button.**

Trending and Logging

Once trending is enabled, a graph will appear on the Dashboard. To examine the points on the graph in greater detail, use your mouse to highlight a section of the graph and zoom into it, or use the slider bars beneath the graph to adjust the range of the graph. Double click anywhere on the graph to return to the default view.

The sample period designates the amount of time that passes between logged data points on the trending graph, and can be set from one second to one day. The CM50 records up to 86,400 points - a shorter sample period records more closely grouped points for a shorter overall period of time, while a larger sample period charts data points spaced farther apart, but over a greater overall period of time. The trending log is downloadable as a CSV file.

Enabling event logging generates a table on the Dashboard that logs all major alarm events with a date and time stamp, as well as the return to normal date and time for each event.

SNMPv2 and Modbus TCP

The CM50 can be configured to communicate via SNMPv2 and Modbus TCP. If you wish to use this functionality, configure the settings on this page. Note that links in these headings allow you to download the SNMPv2 MIB file and to view the current readings of all the CM50's Modbus TCP registers.

Admin

System Controls

The reboot button allows users to remotely reboot the CM50. Use the Identify button to make the unit's LED flash and its audible alarm to sound. This helps users connect a web interface with an actual physical unit.

Users

Two types of users can be configured on the CM50. Up to eight usernames can be configured in each of the two categories. Each username can be used by only one user at a time. **It is very important for each user to have their own username:**

- Admin User - Admin Users can view and edit the CM50's Setup screens.
- Normal User - Normal (Read Only) Users can only view the CM50's Dashboard.

There are three login configurations:

- Never - Users are never required to log in. Anyone can view the Dashboard and Setup screens, and anyone can change the CM50's configuration through the Setup screens.
- To Change Settings - A login is NOT required to view the Dashboard. Only users logged in as Admin Users can view and edit the Setup screens.
- Always - All users are required to log in. Normal Users can only view the Dashboard. Admin Users can also view and edit Setup screens.

A relay control checkbox is also located on this page. If you check this checkbox, only Admin users will be able to operate the Relay button on the Dashboard.

Logout

If you're logged in to the CM50 and have finished your configuration work, click this link. It will log you out of the device and return the view via your workstation back to its read-only state.