

COMMAND Center System User Guide



**COMMAND
CENTER**
CONCRETE TEMPERATURE & MATURITY SYSTEM

COMMAND Center Technical Support
www.COMMANDCenterconcrete.com

Contents

The COMMAND Center System Intro	4
How to Use the COMMAND Center System.....	5
Download the COMMAND Center Concrete 4.0 App	5
Open the App	5
Sign in... to your Cloud account.....	5
Create a project	5
Share the project with other users.....	7
Meanwhile – the invited user experiences	7
Create a placement and enter inputs for Specifications for temperature monitoring only	8
Add sensors to the placement.....	9
Scan Label.....	9
Scan SRM.....	9
Enter Sensor Details.....	9
Set up in the field	10
For Wireless Bluetooth Option:	10
AutoCollect Option.....	10
Update sensors.....	12
Via wireless Bluetooth option:	12
Via Wireless AutoCollect Option:	14
Set alerts	15
Disable a sensor from alerts:	15
Turn off alerts:.....	15
View data	16
Create reports.....	16



List of Figures

Figure 1. COMMAND Center Concrete 4.0 App in the iOS Store	5
Figure 2. Structure of the COMMAND Center Concrete 4.0 App.....	6
Figure 3. Updating Sensors via Wireless Bluetooth Option.....	12
Figure 4. Updating Sensors via Wireless AutoCollect Option.....	14



The COMMAND Center System Intro

COMMAND Center is a concrete temperature and maturity system used to measure and log temperature history, calculate maturity, and estimate in-place strength. Construction teams use COMMAND Center as a tool to satisfy project requirements for temperature monitoring and to estimate in-place concrete strength as it cures. Data redundancy, intuitive and powerful software, portable equipment, and data collection options that fit almost any budget, environment, and project-specific need make COMMAND Center reliable, easy to use, and one of the most affordable tools of its kind.

COMMAND Center is reliable, easy to use, and affordable.

- Reliable:
 - Built-in data redundancy
 - Download alternatives
 - You own your data; we do not use it without explicit permission
- Easy to Use:
 - Intuitive software
 - Portable equipment
 - Dependable customer support
- Affordable
 - Options for any budget
 - Options for any environment

The COMMAND Center System includes:

- COMMAND Center sensors
- COMMAND Center download options
 1. Wireless Bluetooth option
 2. Wireless AutoCollect option
 3. Wired option

How to Use the COMMAND Center System

Download the COMMAND Center Concrete 4.0 App



Figure 1. COMMAND Center Concrete 4.0 App in the iOS Store

If you are currently a customer that uses the COMMAND Center Concrete v3 App, consider starting your next project or placement in 4.0. You can have COMMAND Center Concrete v3 and COMMAND Center Concrete v4 on your device at the same time. The 3.0 and 4.0 Apps are completely independent of each other. Data created in 3.0 cannot be viewed or transferred into 3.0 and vice versa. You will use the same Cloud account credentials, however, to sync with the COMMAND Center Clloud no matter which version of the App you are using.

Open the App

1. The first time you open the app, you will be faced with intro screens to click through.
2. The Project screen is the “Home” screen.

Sign in... to your Cloud account

1. Tap on Sign In in the top right of the screen.
2. If you are a new user, create a Cloud account by tapping Sign Up. Then, enter your email and create a password.
3. If you already have a Cloud account, enter your email and password. Then, tap Sign In.

Create a project

1. Designate the Owner on your team.
2. That one person creates a project and shares it with other users to give them access.
3. Tap on the plus icon at the bottom right of the Projects screen.
4. Name your project and tap Done.
5. The Placements screen will immediately appear.

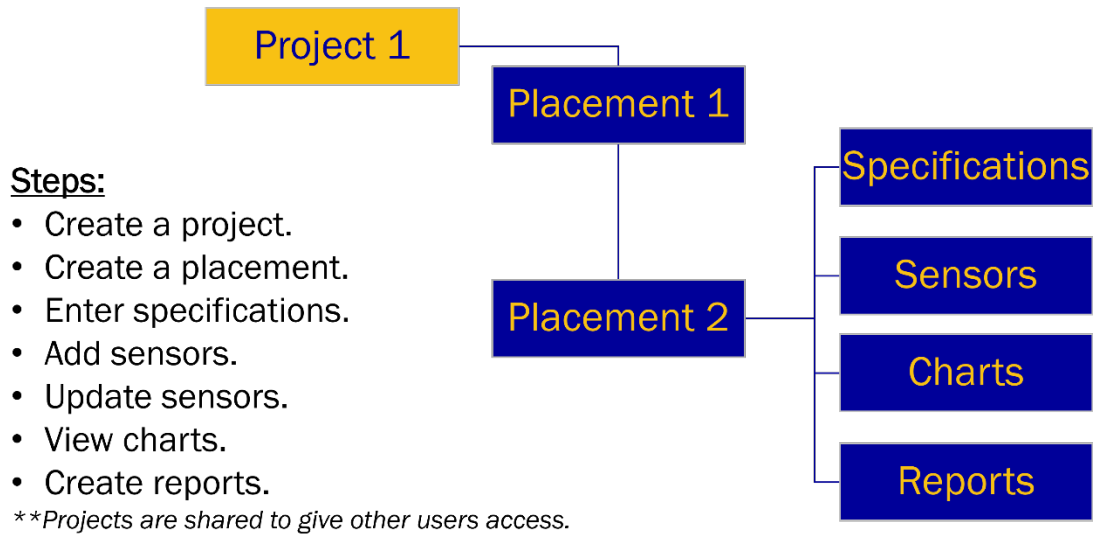


Figure 2. Structure of the COMMAND Center Concrete 4.0 App

Share the project with other users

1. Shared users have access to all placements in the project.
2. Projects can be shared with other COMMAND Center Concrete users that have Cloud accounts by sending an invitation.
3. Owners and Full Access users can share the project at any point after the project is created.
4. Shared users have access to all placements in the project.
5. Share projects with others in the Project Settings screen.
6. Tap on the settings icon in the top right of the Placements screen to open the Project Settings.
7. In Project Settings, tap on the plus to add participants.
8. By adding participant, you are sending an invite to share the project with that user.
9. The invitation screen will appear.
10. Enter the email for the person you want to invite and with whom you want to share the project. Use the email they used for their Cloud account.
11. You must turn on Full Access if the shared user should be allowed to:
 - 11.1. Create placements
 - 11.2. Edit placements' Specifications
 - 11.3. Create reports
 - 11.4. Share the project with others
 - 11.5. ****Any access user can add, update, and delete sensors.**
12. Tap Invite to alert shared users they can accept your invitation and access the project.
13. Tap done to go back to the Placement screen and create a Placement.

Meanwhile – the invited user experiences

14. An email will be sent to the user you are inviting.
15. When the invited user opens their app, they will see a red dot over the envelope indicating a project has been shared with them.
16. The invited user must tap on the envelope and accept the project. The project will get listed on the Projects screen and can now be accessed.
17. Tap the X to exit

Create a placement and enter inputs for Specifications for temperature monitoring only

1. On the Placement screen, tap the plus icon.
2. The Specifications screen appears.
3. Give the placement a name.
4. The time zone will be set to where the owner's location.
5. You must enter a temperature unit. You can view temperature in a different unit than maturity (i.e., F and C-hrs).
6. Minimum, Maximum, and Temp Difference inputs are for monitoring concrete temperatures. Project specifications or thermal control plans identify the required values for these inputs. If you do not have requirements for concrete max, min, or difference temperatures, you can leave these inputs blank.
7. Leave Maturity Method disabled for temperature monitoring only. If you are collecting temperature history data to build a maturity curve, leave this disabled.
8. If you plan to monitor maturity only, you must
 - 8.1. select the maturity equation, units for maturity, and equation constants that were used to generate the maturity curve. You should be able to find these values on your Maturity Curve Report.
 - 8.2. Leave Curve-Fit disabled.
9. If you plan to monitor maturity and estimate in-place strength, you must
 - 9.1. Select the maturity equation, units for maturity, and equation constants that were used to generate the maturity curve, and
 - 9.2. Select the curve-fit equation used for the best-fit line that relates maturity to strength on your Maturity Curve report. You should be able to find these values on your Maturity Curve Report.
10. Tap Done and the Sensors screen appears.

Add sensors to the placement

1. On the Sensors screen, tap the plus icon.
2. Select how to add the sensor: Scan Label or Scan SRM

Scan Label

3. Tap Scan label.
4. The camera appears for you to hover over the code and wait for the Sensor Details window to appear.
5. The Sensor Details window appears as soon as the code is recognized.
 - 5.1. See Enter Sensor Details section for details.
6. Once you add the sensor, you will see it in the list on the Sensors screen, BUT THERE IS NO DATA yet.
 - 6.1. NOTE: scanning the label of a sensor will add the sensor details to the placement but will not bring in any data for you to view immediately for that sensor. You must update the sensor via the Bluetooth option or by connecting it via the AutoCollect setup to transmit sensor data into the App.

Scan SRM

3. Tap Scan SRMs.
4. Tap on the sensor you want to add to the placement.
 - 4.1. If you have more than one sensor connected to the same SRM, they both will appear. You must know the serial number of the sensor you want to add. Look on the label.
 - 4.2. If you are within range of other sensors that are connected to SRMs and they appear on your list, you will need to know the serial number of the sensor you want to add. Look on the label.
5. Stay within range of the sensor you are trying to add while the App makes a connection, and you enter sensor details.
6. The Sensor Details screen will pop up. See the [Enter Sensor Details](#) for more information.

Enter Sensor Details

7. When the Sensor Details screen pops up, add inputs as necessary and be sure to enter a placement date and time that corresponds to when concrete covers the sensor.
 - 7.1. To update or change any data in the Sensor Details screen, tap on the sensor to open the Sensor Details screen.
8. When finished, tap Add to Placement.
9. The sensor will be added to the list on the Sensors screen.
10. A timestamp and data for the last point collected will be shown along with the name of the sensor.
11. If you do not see a timestamp, be sure that you entered a placement date and time that is correct.
 - 11.1. To check the placement date and time, tap on the sensor to open the Sensor Details screen.
12. Tap in the colored circle to the left to activate the sensor and see data in the Chart.

Set up in the field

For Wireless Bluetooth Option:

1. Secure sensors in place with zip ties or tie wire.
2. If you can, wait to secure SRMs until concrete is placed over sensors in the structure.
3. Decide if you are leaving SRMs in place.
***Note: SRMS DO NOT have to stay continuously connected to the sensor. If you are using the wireless Bluetooth option, you do not have to leave the SRM in place and connected to the sensors. You only have to connect the SRM when you are ready to collect all of the data that is stored on the sensors so that you can view, analyze, and report it.*

You can choose to leave the SRM in place and continuously connected when sensors are in hard to reach or hazardous locations if you can stand within 20-30 ft to collect the data. Attach and secure SRMs after concrete is placed.

4. If you are not leaving SRMs in place, you will be taking one SRM from location to location:
 - 4.1. Make sure sensor cables are up and out of the concrete in a way that minimizes damage during placement.
 - 4.2. Remember you can always cut back on the cable to expose new ends if the sensor cable is damaged during construction.
5. If you are leaving multiple SRMs continuously connected in place:
 - 5.1. Make sure sensor cables are up and out of the concrete in a way that minimizes damage during placement.
 - 5.2. After concrete is placed, connect the sensor to the SRM: black cable to black clip and red cable to red clip.
6. Be sure you have two AA-cell batteries in the SRM battery holder.
7. Turn on the SRM - the light will flash green, yellow, or red to indicate battery life.
8. Secure it in place.
9. This can be done after concrete is placed to minimize the potential for damage during the placement.

AutoCollect Option

1. Secure sensors in place with zip ties or tie wire.
2. If you can, wait to secure SRMs and AutoCollectors until concrete is placed over sensors in the structure.
3. You must be able to have a cellular connection on site.
4. Secure AutoCollector in place on site.
5. Connect any sensors directly to the AutoCollector.
 - 5.1. Thread sensors through the ports from the outside in. You do not have to remove the screws, just loosen them. Be sure to keep the grommets in place.
 - 5.2. DO NOT remove the grommets inside of the port.
 - 5.3. For ports that you will not use, be sure you secure a stopper in the port to prevent moisture ingress.

- 5.4. Have just enough cable inside of the AutoCollector box so that when you open the lid, it does not pull on the cables.
- 5.5. Unscrew the red and black knobs for each port.
- 5.6. Thread the end of the cable through the hole under the knob: black to black, red to red.
- 5.7. Tighten the knob to secure the cable connection.
- 5.8. Close the lid.
6. Turn on the AutoCollector.
 - 6.1. Be sure you have 4 D-cell batteries in the AutoCollector: two batteries into each holder.
 - 6.2. Turn the AutoCollector on by pressing in the red button. Watch the LED light by the on button and follow the legend. Be sure you get green lights.
 - 6.3. Data is now flowing automatically from the sensor through the AutoCollector up to the Cloud and out to all shared users.
7. Connect sensors to SRMs secured within range of AutoCollector.
 - 7.1. Connect a maximum of two sensors to each of the SRMs you plan to use.
 - 7.2. Connect black cable to black clip and red cable to red clip.
 - 7.3. Be sure you have two AA-cell batteries in the SRM battery holder.
 - 7.4. Turn on the SRM - the light will flash green, yellow, or red to indicate battery life.
 - 7.5. Close the SRM and secure it in place.
 - 7.6. SRMs must be secured in place and within 100 yards of an AutoCollector.
 - 7.7. Data is now flowing automatically from the sensor through the SRM to the AutoCollector up to the Cloud and out to all shared users.
 - 7.8. The AutoCollector light will flash to let users know what is going on - see the Legend.

Update sensors

Via wireless Bluetooth option:

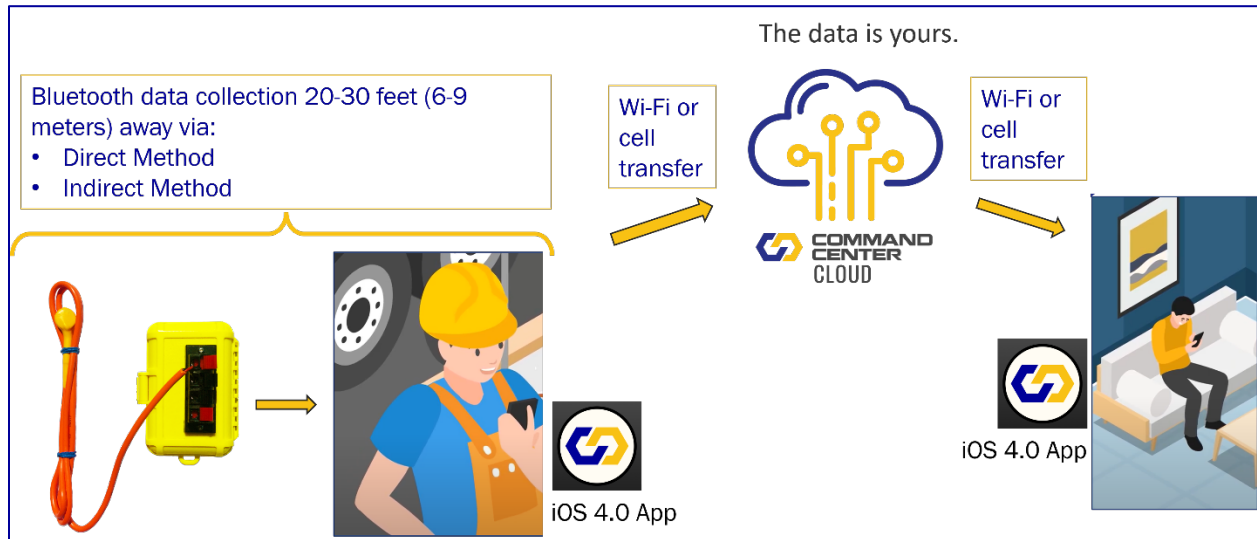


Figure 3. Updating Sensors via Wireless Bluetooth Option

If you have on SRM and are going from one sensor location to another, you can use the Direct or Indirect Method for collecting data:

1. Direct Method

- 1.1. Connect one or more sensors to the SRM: black cable to black clip and red cable to red clip.
- 1.2. Stand within 20-30 ft of the SRM while it is connected to update.
- 1.3. Be sure you have two AA-cell batteries in the SRM battery holder.
- 1.4. Turn on the SRM - the light will flash green, yellow, or red to indicate battery life.
- 1.5. Do not press the Save button on the SRM in this process.
- 1.6. Open the project, tap on the placement, and see the Sensors screen.
- 1.7. In the top right corner of the Sensors screen, tap Update Samples.
- 1.8. Wait as the App looks for the SRMs within range and the sensors connected to the SRMs.
 - 1.8.1. If the placement has multiple sensors that have been added, when you update sensors, the App will try to find all sensors.
 - 1.8.2. If only one or a few of all sensors are connected to SRMs within range when the Update Samples icon is tapped, you will see a note that asks if you are missing sensors.
- 1.9. Tap Update All to update all sensors at once.
- 1.10. Tap the circle to the left of each sensor name to select it and then tap Update Selected to update only selected sensors.
- 1.11. Be sure the timestamps for all sensors update as expected.

2. Indirect Method

- 2.1. Connect one or more sensors to the SRM: black cable to black clip and red cable to red clip.

- 2.2. Be sure you have two AA-cell batteries in the SRM battery holder.
- 2.3. Turn on the SRM - the light will flash green, yellow, or red to indicate battery life.
- 2.4. Press the Save button on the SRM in this process. A green light should flash.
 - 2.4.1. If a red light flashes, make sure you are connected correctly and try to press Save again.
 - 2.4.2. If the red light persists, call for support.
- 2.5. Wait until the green light stops flashing and then, disconnect the sensors.
- 2.6. Continue the previous two steps until all sensor data is collected on the SRM.
- 2.7. Make sure all sensors are disconnected from the SRM and that you are not within range of any other SRMs that are on and connected to sensors.
- 2.8. In the App, open the placement with sensors you want to update and tap Update Samples.
- 2.9. Tap Update All to update all sensors at once.
- 2.10. Tap the circle to the left of each sensor name to select it and then tap Update Selected to update only selected sensors.
- 2.11. If you have more sensors to update in other placements, close the placement and open the next one. Tap Update Samples and repeat one of the previous two steps.
- 2.12. Be sure the timestamps for all sensors update as expected.

If you left SRMs continuously connected and in place:

You can only collect data via the Direct Method.

1. Direct Method

- 1.1. Connect one or more sensors to the SRM: black cable to black clip and red cable to red clip.
- 1.2. Stand within 20-30 ft of the SRM while it is connected to update.
- 1.3. Be sure you have two AA-cell batteries in the SRM battery holder.
- 1.4. Turn on the SRM - the light will flash green, yellow, or red to indicate battery life.
- 1.5. Do not press the Save button on the SRM in this process.
- 1.6. Open the project, tap on the placement, and see the Sensors screen.
- 1.7. In the top right corner of the Sensors screen, tap Update Samples.
- 1.8. Wait as the App looks for the SRMs within range and the sensors connected to the SRMs.
 - 1.8.1. If the placement has multiple sensors that have been added, when you update sensors, the App will try to find all sensors.
 - 1.8.2. If only one or a few of all sensors are connected to SRMs within range when the Update Samples icon is tapped, you will see a note that asks if you are missing sensors.
- 1.9. Tap Update All to update all sensors at once.
- 1.10. Tap the circle to the left of each sensor name to select it and then tap Update Selected to update only selected sensors.
- 1.11. Be sure the timestamps for all sensors update as expected.

Via Wireless AutoCollect Option:

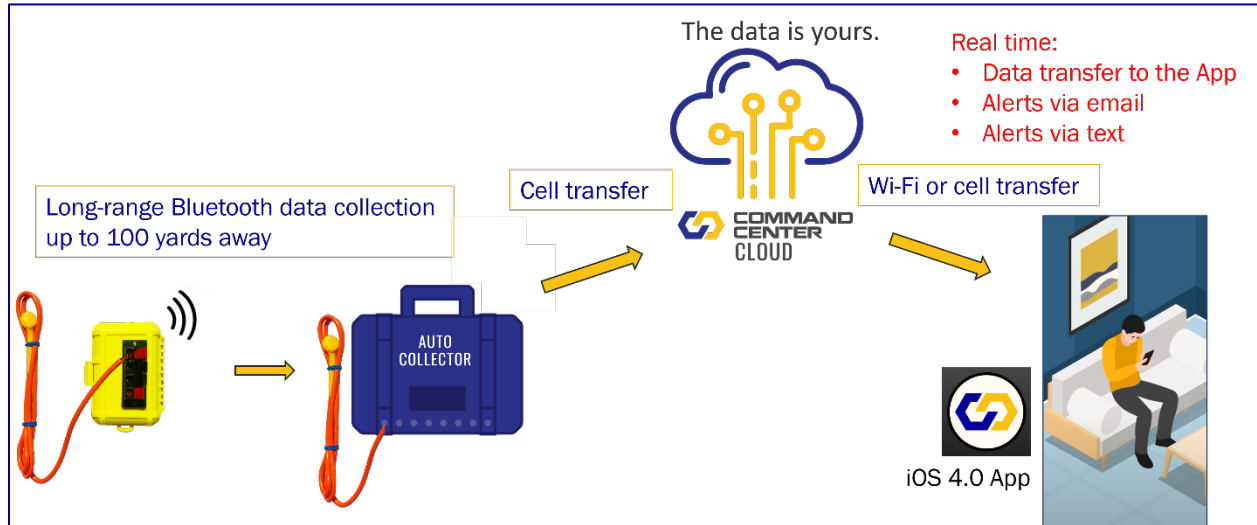


Figure 4. Updating Sensors via Wireless AutoCollect Option

1. Just watch sensor data update every time the App syncs with the Cloud.
2. Do not tap Update Samples.
3. Timestamp and value for last data point should show most recent data point collected by sensor.
4. You may need to force sync in the App if you left it open in the background:
 - 4.1. Pull down from the center of the list of sensors, or
 - 4.2. Close out of the placement and open it again.

Set alerts

Once a placement has been created, you can go back into the specifications screen and the alerts field will be active. Alerts are emails or text messages that are sent to recipients telling them data for a sensor in a placement has achieved or surpassed alerts values.

1. Open a project.
2. Open a placement.
3. Tap on the settings icon in the top right corner.
4. Alerts is now active; tap it.
5. Choose which alerts you want to set and slide the slider to the right.
6. Add an approach warning if you would like to add one.
7. Tap Recipients.
8. Add the contact information for who will receive the alert and decide if they will get an email or a text.

Disable a sensor from alerts:

Disable a sensor means you do not want to include it in calculations that will trigger alerts.

1. Open a project.
2. Open a placement.
3. Tap on the sensor to open the Sensor Details.
4. Slide the slider for 'Alerts Enabled' or 'Notifications Enabled' to the right to disable.
***REMEMBER: disabling this field only affects alerts. Be sure to deselect the sensor when graphing multiple sensors on a chart and when graphing the temperature differential.*

Turn off alerts:

Stop alerts from being sent to a specific user by removing them from the Recipient list:

1. Open a project.
2. Open a placement.
3. Tap on the settings icon to open Specifications.
4. Tap on Alerts.
5. Tap on Recipients.
6. Remove the user from the list to stop alert messages.



View data

1. Open a placement.
2. Select which sensors you want to graph on the Sensors screen by tapping in the colored circle to the left of the sensor name.
3. If you are using an iPhone, tap Chart to see the data for each sensor graphed.
4. If you selected only one sensor to graph in a chart, you will see the Temperature History chart.
5. If you select more than one sensor to graph, you will see the Temperature History chart and the Temperature Differential chart below it.
***The Temperature Differential chart shows the absolute maximum difference for all sensors selected for the same moment in time. Beware of including sensors that are monitoring curing temperatures.*
6. If Maturity and Curve-Fit inputs were entered in the placement's Specifications, you will be able to toggle between temperature, maturity, and strength charts.
7. Maximum, Minimum, Temp Diff, and any goals entered as inputs will appear on the charts as horizontal dashed lines.
8. Pinch and spread over the chart to zoom in to data.
9. Swipe left or right to move along data in the horizontal direction.
***Colors of the lines are fixed.*

Create reports

To create a report in COMMAND Center 4.0:

1. Open the project.
2. Open the placement.
3. Tap on the export icon.
4. Select the report to generate.

Using the Web Portal