

USER MANUAL

A step-by-step user guide to getting started on the EM3



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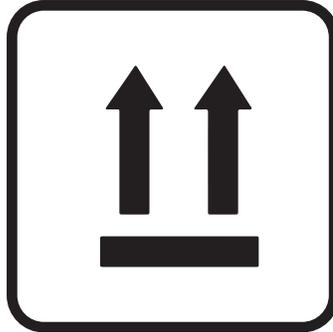
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1.0 SAFETY INFORMATION WARNINGS

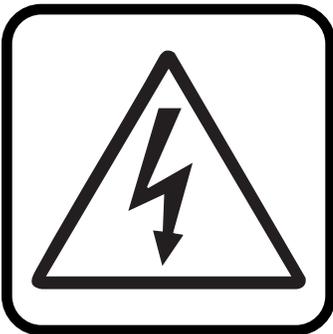
1.1 Safety Warnings



Team lift, weight over 60 kg (132 lbs).



Keep upright at all times.



Electrocution risk: unplug the machine from power before removing the top cover.



Hot surface warning: do not touch the back of the machine when in use.



Do not insert objects into any fans on the machine.

1.2 Usage Warnings



Designed for indoor use

The EM3 is not weather sealed and is intended for indoor usage. Damage to the machine may occur if subjected to external conditions such as rain, winds and snow.



High temperature oven

Do not heat flammable substances in the chamber. Beware of material or chemical risks when placing substances into the chamber. Do not leave the door open during operation.



Debris build up

Do not allow debris to build up along fan covers.



Overloading

Overpacking the EM3 can block airflow from the heater and fans. This may result in overheating and damage to the machine.



Ventilation clearance

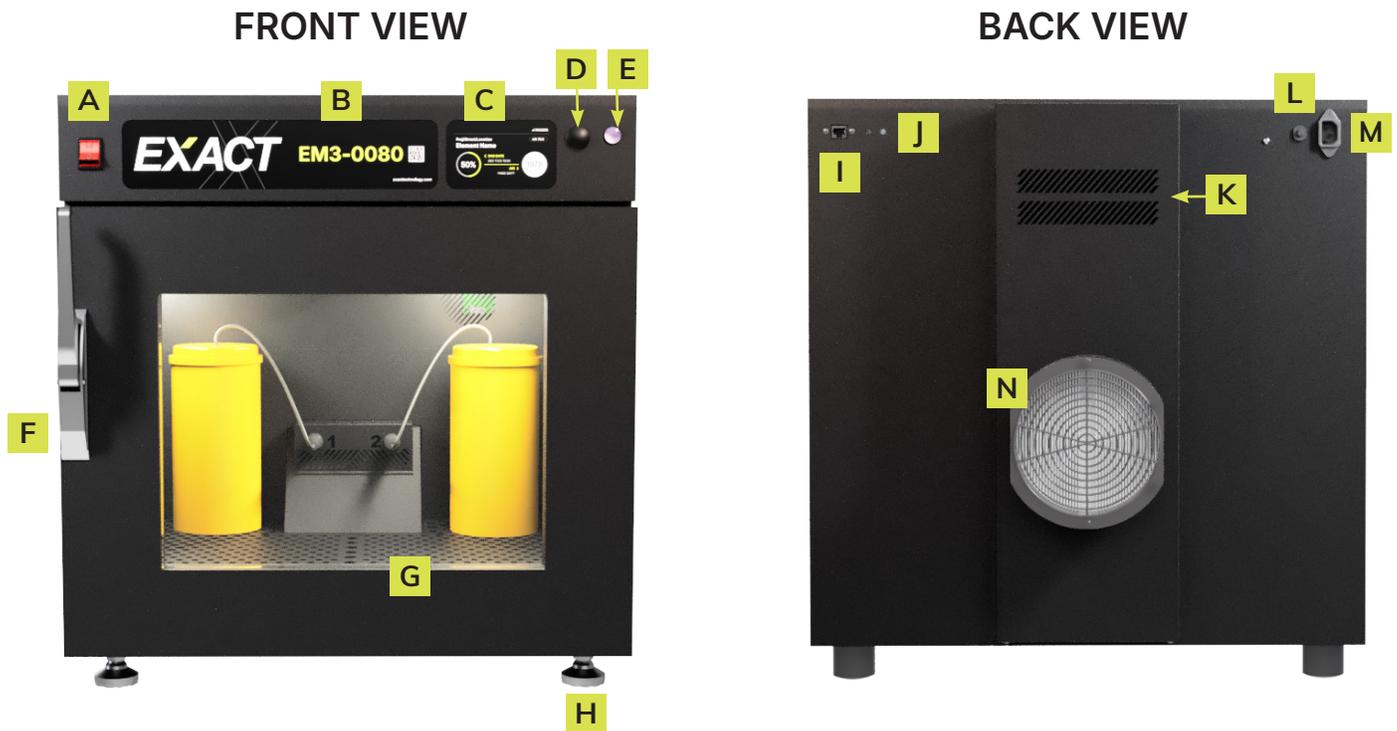
Do not block external air vents. Lack of ventilation may result in overheating and damage to the EM3.



Voltage compatibility

EM3s come in 120V and 240V variants. Check the voltage rating of the unit before plugging into an outlet.

2.0 HARDWARE WALKTHROUGH



A - Power Switch: Turns the EM3 on and off. The switch will be lighted if the EM3 is plugged in and has power.

B - Device ID: The identifying Device Number used to find the device on the EXACT Portal. Alternatively, scanning the QR code will take you directly to the device page.

C - LCD: Displays element information, current temperature, maturity and troubleshooting information.

D - Button: Navigates the LCD and cycles through available screens for more information.

E - Status LED: Indicates the status of the device, such as whether there is an active Element running.

F - Door Latch

G - Viewing Window

H - Adjustable Leveling Feet

I - Ethernet Port: Provides an alternative internet connection to Wireless Connection and LTE.

J - External antenna ports: Installation point for external antennas for wireless connectivity.

K - Cover for the Cooling System

L - Breaker switch: User resettable breaker, press to reset.

M - Power cord port: Power input for the EM3. Connect to AC power.

N - Outer Fan: Circulates air through the Cooling System.

INTERNAL CHAMBER



INTERNAL CHAMBER WITH PLATFORM REMOVED



A - Removable platform: Raises cylinders in the chamber to enable optimal airflow for temperature regulation. Remove during maintenance to clear debris.

B - Cylinder Probe Inputs: EXACT temperature probes connected to either input can be used to read concrete temperatures inside cylinder moulds. The EM3 will regulate air temperatures to match cylinder temperatures to the set temperature.

C - Heater inside metal enclosure: Provides heat for the internal chamber.

D - Upper Fan: Circulates air through the chamber for temperature regulation.

E - Bottom Fan: Circulates air through the chamber for temperature regulation.

3.0 GETTING STARTED

This section walks through everything needed to start using the EM3. This includes positioning, installing hardware and how to control the EM3 on the EXACT Portal.

3.1 Moving the EM3

The EM3 weighs over 60 kg (132 lbs) and a team lift of 2-4 people are recommended when moving the machine.

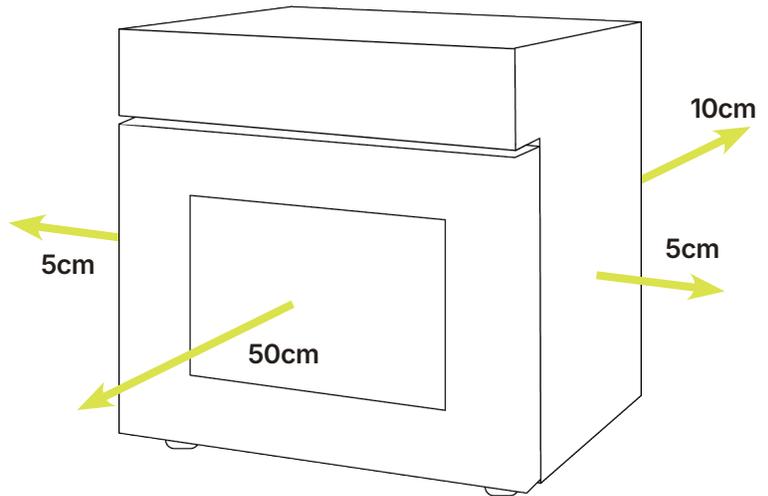
- For distances of more than 1 m (3 ft), use a dolly
- If moving between one or more flights of stairs, use an elevator

3.2 Space requirements

Ensure the space for the EM3 has the following clearance:

- At least 10 cm (4 in) clearance from the back to allow for air flow.
- At least 50 cm (20 in) clearance from the front for the door to open.
- At least 5 cm (2 in) clearance from the left and right for air flow.

Use the adjustable feet on the EM3 to level the machine.



3.3 Before turning the unit on

3.3.1 Install the Cellular Antenna

1. Identify the Cellular Antenna in the accessories box.
2. Identify the Cellular Antenna plug on the back of the EM3.
3. Screw the Cellular Antenna into the plug.
4. Bend the Cellular Antenna so it points upwards.



3.3.2 Attach the power cord

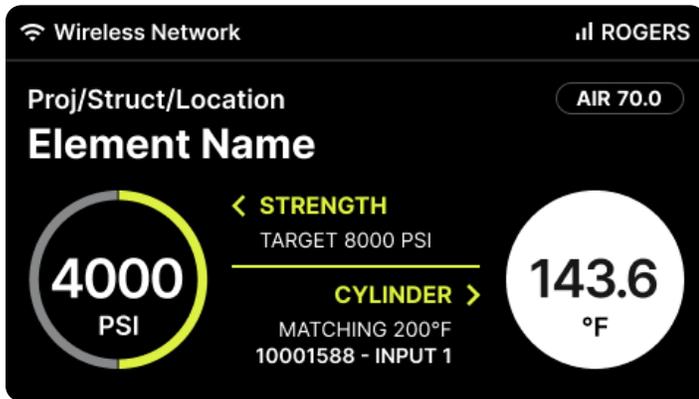
Locate the provided EM3 power cord in the accessories box.

1. Plug the female connector of the power cord into the back of the EM3.
2. Plug the male connector of the power cord into a wall outlet.

Note: To avoid accidental breaker trips, place no more than two EM3 units on a single 120VAC/15A breaker.



3.4 Booting up and Network Connectivity



The EM3 can be connected to the cloud via Cellular, a Wireless Network or a Wired Network (Ethernet). When turned on, the top bar of the EM3 screen displays the connectivity methods the EM3 is currently connected to and highlights the actual communication method being used.

Note: If Ethernet is being used, the Ethernet information will be displayed instead of the Wireless Network information.

The EM3 comes pre-installed with Cellular Connection and will connect to the strongest available Cellular Network in the area. If the Cellular Signal is typically weak or unstable in your area, EXACT recommends connecting the EM3 to a wireless (WiFi) or wired (Ethernet) network.

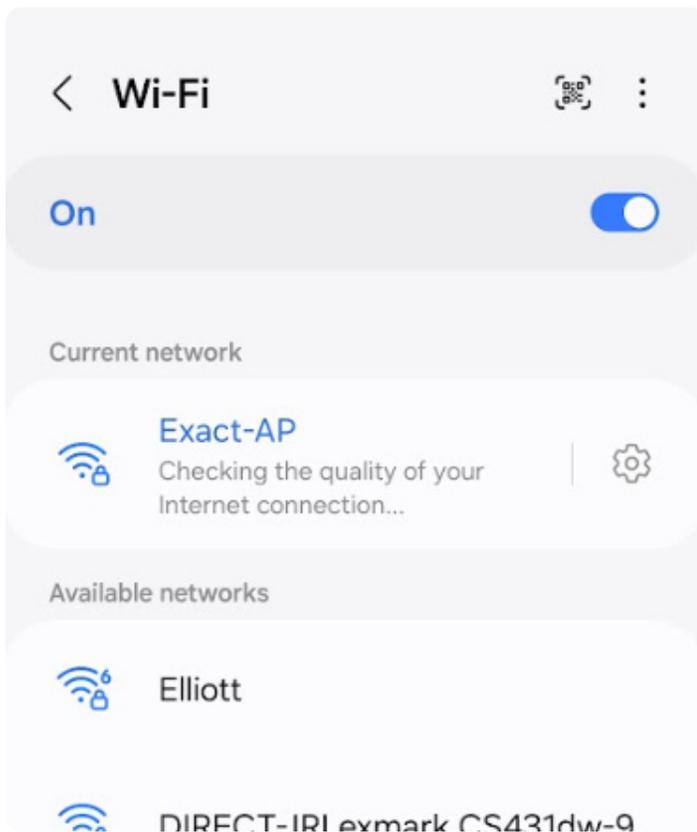
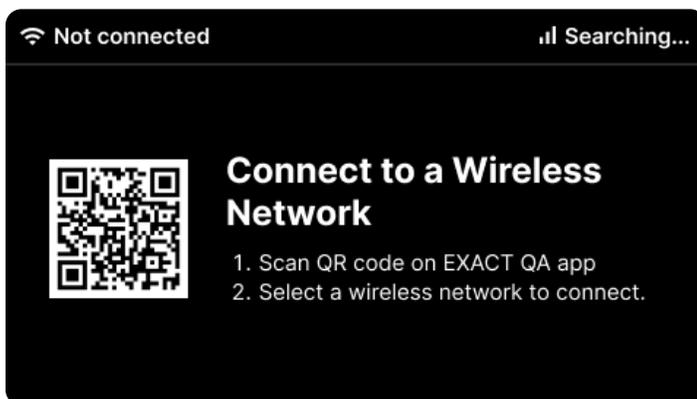
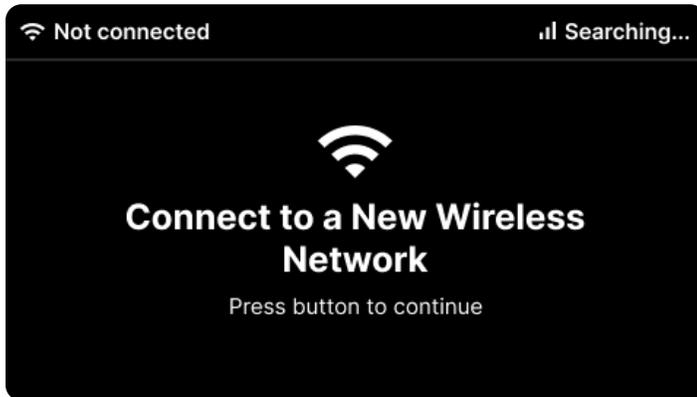


If all communication methods are available, the EM3 will prioritise using Wired Networks, and then Wireless Networks, and then Cellular Networks. The active connectivity method will be displayed in white while the remaining method will be in grey.

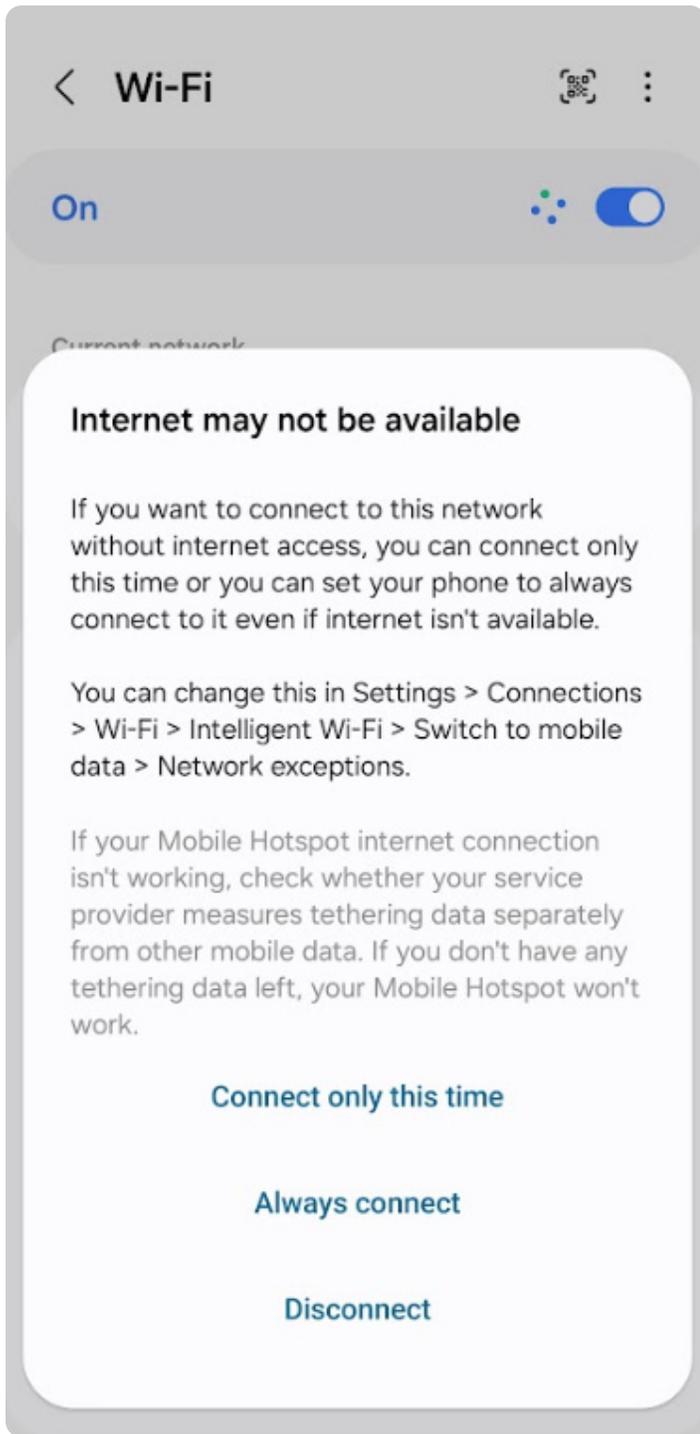
3.5 Connecting the EM3 to a Wireless Network

Wireless Network connections can be set up by following the instructions on the EM3 screen on start up.

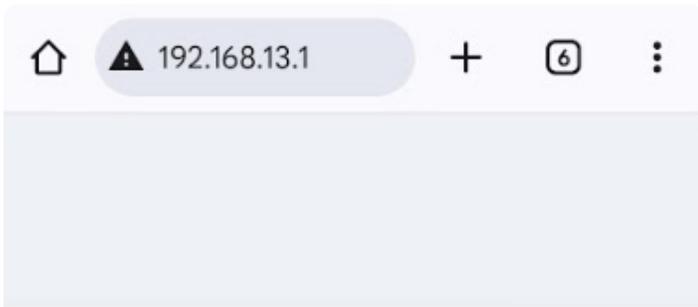
Note: If using a RUT provided by EXACT, the EM3 will arrive with Wireless Connection already set up to the RUT and this step may be skipped. Instead, follow the instructions provided with the RUT to set up the Wireless Network.



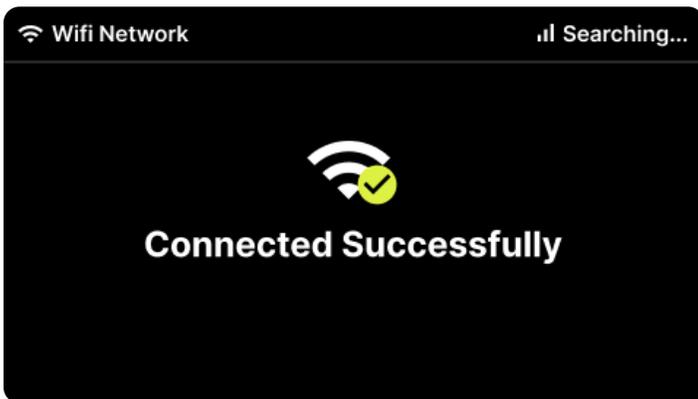
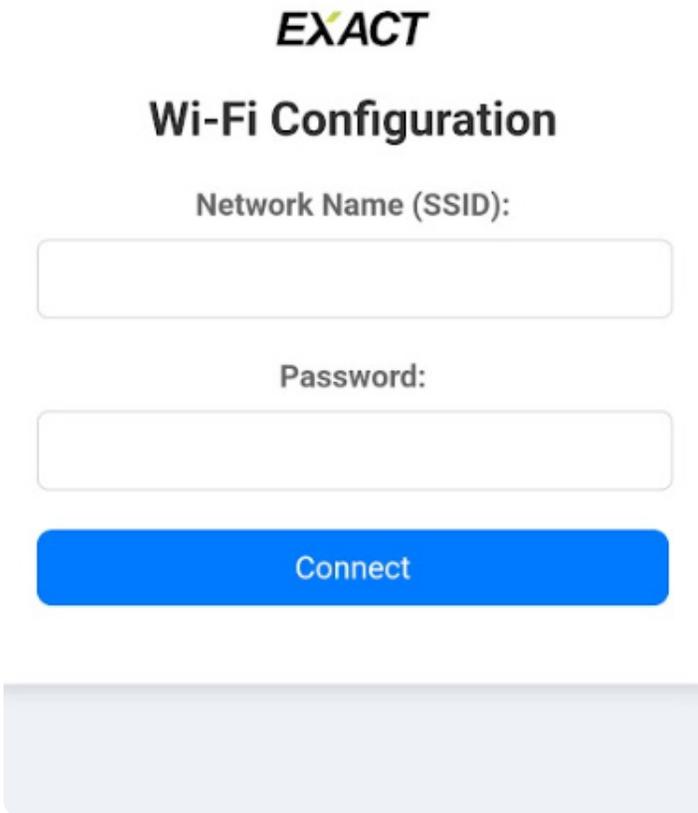
1. Turn on the EM3 using the power switch.
2. On start up, the EM3 will provide the option to connect to a Wireless Network.
3. If the EM3 has not been connected to the Wireless Network or the EM3 needs to be connected to a new network, press the button next to the LCD.
4. Scan the QR code on the EM3 with a phone or mobile device to connect to the device.
5. Once the QR code is scanned, the mobile device will be connected to the EM3 (EXACT-AP). Ensure the Wi-Fi setting on the device is connected to EXACT-AP.



Note: The mobile device may display an “Internet not available” notice. Select “Connect only this time” to continue connecting to the EM3.



6. Open an internet browser on the mobile device and enter 192.168.13.1 into the address bar to reach the Wireless Network Configuration screen.
7. Enter the Network Name and Password of the Wireless Network.
8. Click Connect.



9. Confirm on the EM3 screen that the connection was successful.

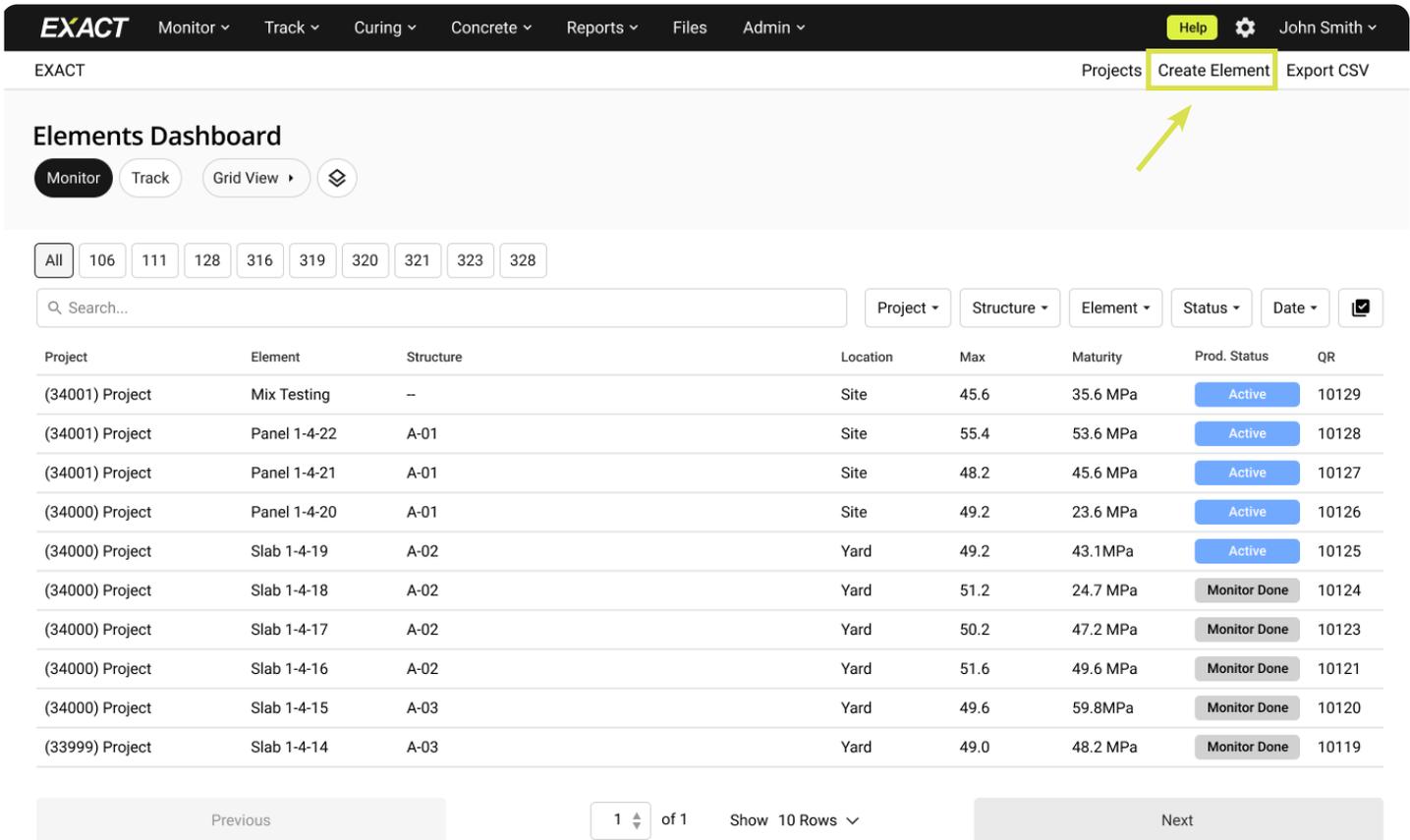
3.6 Creating Your First Match Cure Element

Creating a Match Cure Element can be done in 3 easy steps:

1. Set up the basics of an Element
2. Add the EM3 to cure your concrete cylinders
3. Configure the Set Temperature to match to

3.6.1 Set up the basics of an Element

To control and run the EM3, Elements must be created in the EXACT Portal. To create an Element, navigate to the Element Dashboard and select "Create Element".



The screenshot shows the EXACT Portal interface. The top navigation bar includes the EXACT logo and menu items: Monitor, Track, Curing, Concrete, Reports, Files, Admin, Help, and John Smith. The main navigation area has 'Projects', 'Create Element' (highlighted with a yellow box and a yellow arrow), and 'Export CSV'. Below this is the 'Elements Dashboard' with tabs for 'Monitor', 'Track', and 'Grid View'. A filter bar contains buttons for 'All', '106', '111', '128', '316', '319', '320', '321', '323', and '328'. A search bar is labeled 'Search...'. Below the search bar are filters for 'Project', 'Structure', 'Element', 'Status', and 'Date'. The main content is a table with the following data:

Project	Element	Structure	Location	Max	Maturity	Prod. Status	QR
(34001) Project	Mix Testing	--	Site	45.6	35.6 MPa	Active	10129
(34001) Project	Panel 1-4-22	A-01	Site	55.4	53.6 MPa	Active	10128
(34001) Project	Panel 1-4-21	A-01	Site	48.2	45.6 MPa	Active	10127
(34000) Project	Panel 1-4-20	A-01	Site	49.2	23.6 MPa	Active	10126
(34000) Project	Slab 1-4-19	A-02	Yard	49.2	43.1MPa	Active	10125
(34000) Project	Slab 1-4-18	A-02	Yard	51.2	24.7 MPa	Monitor Done	10124
(34000) Project	Slab 1-4-17	A-02	Yard	50.2	47.2 MPa	Monitor Done	10123
(34000) Project	Slab 1-4-16	A-02	Yard	51.6	49.6 MPa	Monitor Done	10121
(34000) Project	Slab 1-4-15	A-03	Yard	49.6	59.8MPa	Monitor Done	10120
(33999) Project	Slab 1-4-14	A-03	Yard	49.0	48.2 MPa	Monitor Done	10119

At the bottom of the table, there are navigation buttons: 'Previous', '1 of 1', 'Show 10 Rows', and 'Next'.

The Information tab contains the basics of the Element:

- **Element Name:** The identifier for your concrete element
- **Project/Structure/Location:** Organise elements within your project hierarchy
- **Monitoring Period:** Set start and end dates/times
 - ◆ **Note:** This should correspond to the pour time, in order to ensure all temperature data for the concrete as it cures is collected

ETC Test Account / Monitor / Create

Create New Element



Import ▾

Information Hardware Equations Differentials Graphs

General Information

Element Name (required)

Project (required)

ADDITIONAL DETAILS

Bed Position

Control Number

Weight (lb)

Weight (kg)

Cast Date

Line #

Groups & Filters

Structure

Location

Customer

Dates

Monitor Start (pour)

12/18/2025



12:06

Now

Duration (required - will be applied as Monitoring Period)

1 Day



3.6.2 Add the EM3 to cure your concrete cylinders

The Hardware tab allows Loggers and Match devices to be linked to the Element. Linking devices to the Element will allow the Element to record and display the temperature data collected by the hardware device.

Adding the EM3 to your element can be done in a few simple steps.

1. Switch to the hardware tab
2. Click the 'Add Device' button
3. Select the EXACT Match device type and find your EM3
 - The EM3 Device ID can be found at the front of the machine, in the format of EM3-XXXX

ETC Test Account / Monitor / Create

Create New Element

EXACT

Import ▾

Information **Hardware** Equations Differentials Graphs

Hardware

Add devices and select which inputs to display. We always store data for all installed probes.

+ Add Device

▾ No Input Labels Selected

+

Create New Element

EXACT

Import ▾

Information **Hardware** Equations Differentials Graphs**Hardware**

Add devices and select which inputs to display. We always store data for all installed probes.

+ Add Device

▾ No Input Labels Selected

EM3-0080
EM3
✕

Inputs

Show	Input Label
<input checked="" type="checkbox"/>	EM3-0080 - Air
<input checked="" type="checkbox"/>	EM3-0080 - Set
<input checked="" type="checkbox"/>	EM3-0080 - C1
<input checked="" type="checkbox"/>	EM3-0080 - C2

Options

Mode

Probe

Manual

Fixed

Match Element

This Element ▾

Match Input

Select... ▾

Different Start/End Time

Remove

↻ Switch

Once the EM3 is added, select the inputs to be displayed on the Element graph. The following inputs are available:

- **Air:** Displays the temperature of the air in the EM3 chamber. If cylinder probes are not used, the air temperature will be matched to the set temperature.
- **Set:** The temperature the EM3 is matching to.
- **C1 and C2:** The inputs to show the temperature from Cylinder Probes.

What's the difference between Air matching and Cylinder matching?

The EM3 allows you to match the temperature of your concrete cylinders to the in-situ concrete using two methods: Air Matching or Cylinder Matching using the C1/C2 ports.

Air Matching: The EM3 controls the air temperature circulating around the cylinders to match the in-situ temperature of the concrete element. This method is simple, requires no probes, and still delivers accurate matching results.

Cylinder Matching: For closer alignment to in-situ conditions, the EM3 can match the temperature of the concrete inside the cylinders. Because concrete takes longer to heat than air, the chamber air may need to run slightly hotter to bring the cylinder temperature up to match the element. Cylinder Matching requires inserting a Cylinder Probe (C1/C2) into the concrete cylinder. If both probes are used, the EM3 will use the average of the two temperatures to regulate the circulating air.

3.6.3 Configure the set temperature to match to

When Match Curing, the EXACT Match (EM3) will heat up concrete cylinders to the same temperature as a reference temperature. There are 3 modes available for temperature matching:

- **Probe:** Match to the temperatures recorded by a Logger. This will allow Match Curing to a live concrete element.
- **Manual:** Add a table of temperatures to control how the EXACT Match will heat up. This is often used to recreate the average temperature profiles from a field cure.
- **Fixed:** Input a single temperature and the EXACT Match will stay at that temperature for the duration of the Element

For a more detailed walkthrough of element creation or to learn about Alerts, Maturity Calibrations and tracking Differentials, visit the EXACT Help Center at help.exacttechnology.com

Show Input Label

- EM-150 - Air
- EM-150 - Set
- EM-150 - C1
- EM-150 - C2
- EM-150 - Left Wall
- EM-150 - Right Wall
- EM-150 - Controller

Options

Mode

Probe Manual Fixed

Match Element

This Element

Match Input

Select...

Different Start/End Time

Remove Switch

Mode

Probe Manual Fixed

Match temps manually using custom inputs

Add 5 rows Add 50 rows

Time Elapsed	Temperature
<input checked="" type="checkbox"/> Hrs	<input type="text"/> °C
<input checked="" type="checkbox"/> Hrs	<input type="text"/> °C
<input checked="" type="checkbox"/> Hrs	<input type="text"/> °C
<input checked="" type="checkbox"/> Hrs	<input type="text"/> °C
<input checked="" type="checkbox"/> Hrs	<input type="text"/> °C

Different Start/End Time

Remove Switch

Save Next > Cancel

Show Input Label

- EM-150 - Air
- EM-150 - Set
- EM-150 - C1
- EM-150 - C2
- EM-150 - Left Wall
- EM-150 - Right Wall
- EM-150 - Controller

Options

Mode

Probe Manual Fixed

Fixed Temperature

Different Start/End Time

Remove Switch

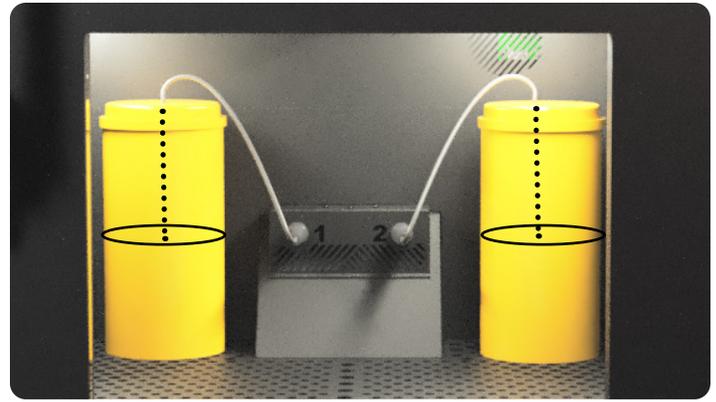
Save Next > Cancel

3.7 Starting your first Element

3.7.1 Installing the Cylinder Probes

If using Cylinder Probes, the probe must be installed into the concrete cylinder. Simply insert the probe into your cylinder of fresh concrete. The probe should be positioned in the middle of the cylinder and inserted half-way deep to best represent the temperature of the cylinder.

Once ready to place the cylinders in the EM3, plug the connector end of the Cylinder Probe into the 1 or 2 ports in the EM3 chamber. Follow the configuration set up in your Element - make sure the correct port is used if only using 1 Cylinder Probe.



3.7.2 Positioning your concrete cylinders

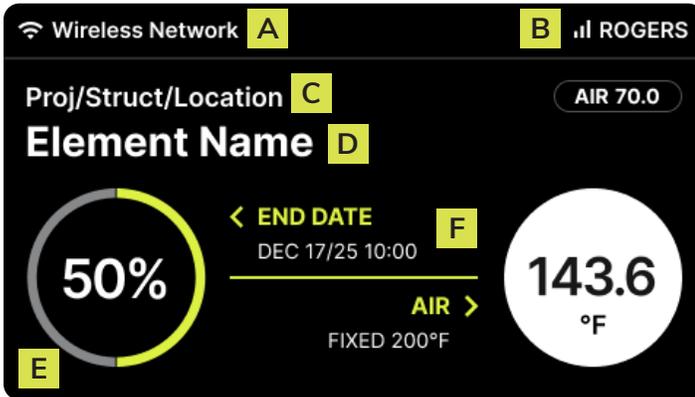
The EM3 chamber can fit up to 10 cylinders at 4 × 8 in and 5 cylinders at 6 × 12 in. To fit 6 × 12 in cylinders, remove the platform in the chamber.



4.0 SCREENS AND USER INTERFACE

4.1 LCD Screens

Element without Strength Equation



A - Wireless Network or Wired Ethernet signal strength and name

B - Cellular signal strength and name

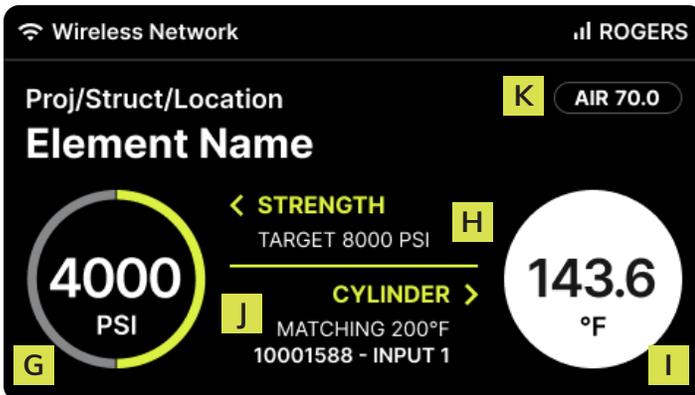
C - Element location: Displays the Location field entered when creating the Element.

D - Element name: Displays the Element Name of the active or next scheduled Element.

E - Element progress percentage: The completion percentage of the active Element, based on the runtime and end date.

F - End date: Displays the end date and time of the active Element, which the progress percentage is calculated from.

Element with Strength Equation



G - Calculated strength: Based on the inputted strength and maturity equation.

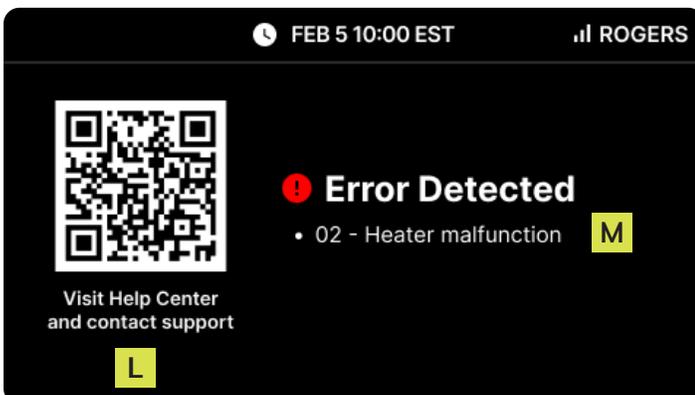
H - Strength target

I - Temperature: Displays the temperature in the EM3 chamber. The default temperature is the internal Air Temperature. If Cylinder Probes are used, the Cylinder Probe temperatures will be displayed instead.

J - Set Input Information: Displays the temperature being shown (Air or Cylinder), the set temperature the EM3 is matching to and the Input providing the set temperature (Probe Name or Manual).

K - Air Temperature: Displays the temperature of the air in the chamber, if Cylinder Probes are being used.

Error Screen



L - QR code to the help center: Visit the EXACT help center to find troubleshooting guides for any errors detected.

M - List of any/all errors detected

Machine Readings Screen

.il ROGERS			
Machine Readings			
MAC Address	mac:DC5475D0C6FC		
Controller	24.1 °C	Inner Heatsink	22.5 °C
Air 1	24.1 °C	Outer Heatsink	22.5 °C
Air 2	50.2 °C	Inner Fan	2800 RPM
Cylinder 1	24.1 °C	Outer Fan	2800 RPM
Cylinder 2	24.1 °C	Top Fan	2800 RPM

N - Machine Readings: Displays the readings of sensors throughout the EM3.

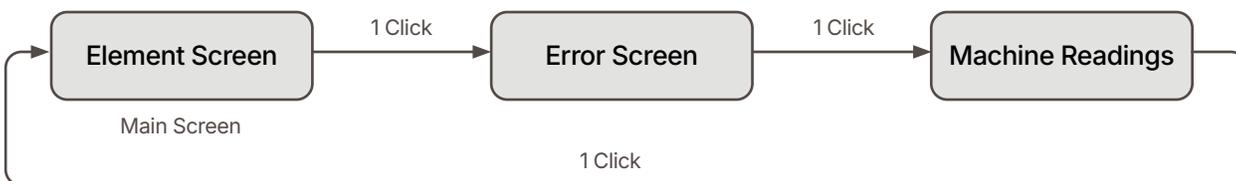
O - MAC Address

4.2 Status LED

Status LED Patterns	
<input type="radio"/> Off	<p>EM3 is off</p> <p>or</p> <p>Standby - no Element is running and no Element is scheduled within the next 8 hours</p>
<input checked="" type="radio"/> Solid light	<p>Active - an Element is running and the machine is actively heating or cooling</p>
<input type="radio"/> Breathing light	<p>Pending - an Element is scheduled to start within the next 8 hours</p>
<input type="radio"/> Blinking light	<p>Error detected - the EM3 needs attention and the Element is running incorrectly (e.g. no set point detected or there is a machine error)</p>

4.3 User Button Functions

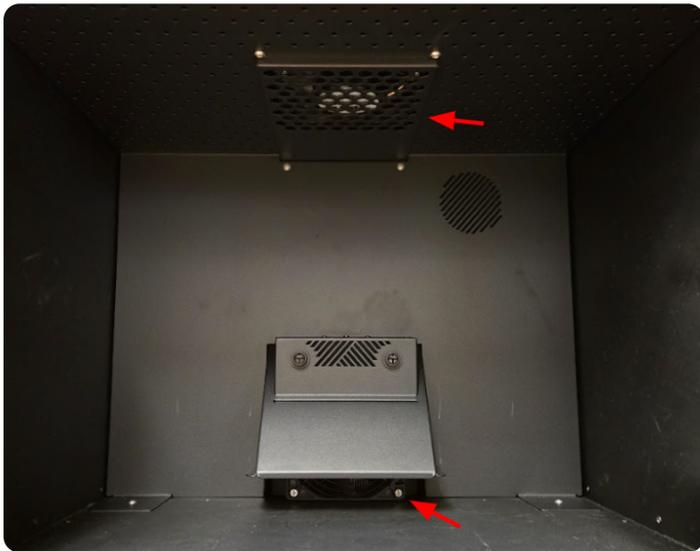
The user button cycles through EM3 screens as follows:



The EM3 will revert back to the main screen after 1 minute of inactivity on any other screen.

5.0 RECOMMENDED MAINTENANCE STEPS

To maintain optimal temperature performance, the inner chamber of the EM3 should be regularly wiped down with a damp cloth. In particular, the airflow holes on the removable platform and metal enclosure must be kept free of debris, as well as the two inner fans. Do not spray water into the inner chamber.



6.0 ERROR CODES

The EM3 will recognise and notify users of a number of issues, both on the screen of the machine and on the EXACT Portal.

6.1 Performance and Safety Errors

The following errors will impact the performance and safety of the machine as a result, the EM3 will stop running Elements if these errors occur.

Error Name	Issue
The chamber temperature is overheating.	The chamber temperature has exceeded EXACT's safety limit of 95 C / 203 F.
The cooling system's outer sensor is disconnected.	A critical sensor in the cooling system is not sending data. This prevents the machine from properly controlling the cooling system.
The cooling system's inner sensor is disconnected.	
The cooling system's heat differential is over allowed limits.	The temperature limit for the safe operation of the cooling unit has been reached.
No setpoint was sent to the device.	The machine has an active Element but the EXACT Portal has no setpoint to send to the machine. As a result, there is no temperature for the machine to match to.
Cannot read temperature sensors.	No temperature sensor in the machine chamber is providing temperature data. The machine is unable to control or regulate temperatures.
Bottom fan is running at an unexpected speed.	The bottom fan and outer fan are critical components in maintaining temperatures in the EM3. A failure in either of these components can cause overheating and failure in other components of the machine.
Outer fan is running at an unexpected speed.	

For troubleshooting instructions, please refer to the EM3 Error Guides section of the EXACT Help Center at help.exacttechnology.com/em3-error-codes

6.2 Device Errors

Device Errors have the potential to affect machine performance but the EM3 will continue to run Elements if these errors occur. To keep your machine in top condition, these issues should be addressed at your earliest convenience.

Error Name	Issue
No connection.	<p>The machine has not been able to connect to the cloud in the last 15 minutes.</p> <p>This may impact the active Element if new set temperatures cannot be received. The machine will continue to use the last recorded set temperature until the end of the Element.</p>
Cannot read air sensor 1.	<p>One of the two air temperature sensors in the chamber is not working. This results in less accurate temperature readings in the chamber.</p>
Cannot read air sensor 2.	
Top fan is running at an unexpected speed.	<p>The top fan is not reaching speeds expected by the machine. This impacts air flow and can result in poorer heating performance.</p>
The device is leaning forward.	<p>The machine is leaning more than 15 degrees in one or more directions.</p>
The device is leaning backwards.	<p>The machine should be kept level to ensure uniform density and strength in the curing concrete cylinders.</p>
The device is leaning to the left.	
The device is leaning to the right.	
There is an issue with the SIM card.	<p>SIM card information cannot be read by the machine. The EM3 is unable to connect to Cellular data.</p>

For troubleshooting instructions, please refer to the EM3 Error Guides section of the EXACT Help Center at [help.exacttechnology.com/em3-error-codes](https://exacttechnology.com/em3-error-codes)

7.0 TECHNICAL SPECIFICATIONS

Internal Match Temperature Range	Min: 10°C below ambient temperature Max: 85°C (185°F)
Ambient Operating Temperature Range	5°C to 40°C (40°F to 104°F)
Capacity	10 cylinders @ 4 × 8 in (10.1 × 20.3 cm) 5 cylinders @ 6 × 12 in (15.2 × 30.4 cm)
Sensing Accuracy	±0.5°C (±0.9°F)
Average Matching Accuracy	±2°C (±4°F) typical
Voltage	100-240VAC, 50/60Hz
Current	10 A (Peak) / 6.4 A (Continuous)
WiFi	Frequency: 2.4 GHz Output Power: 20 dBm
Ethernet	Yes
Cellular Technology	LTE Cat M1 NAmer: Bands 2,4,12 (1900/1700/700 MHz) Europe: Bands 3,8,20 (1800/900/800 MHz) Australia: Bands 28 (700 MHz)
Country Compatibility	Models available for 120V and 240V
External Dimensions	58 cm (L) x 55 cm (W) x 60 cm (H) (22.83 in x 21.65 in x 23.62 in)
Internal Dimensions	50 cm (L) x 35 cm (W) x 27 cm (H) (19.68 in x 13.77 in x 10.62 in)
Weight	60 kg (132 lbs)
Overvoltage Category	CAT II and Pollution Degree 2

SUPPORT

Phone

Canada: +1-647-812-0248

USA: +1-302-485-0810

Australia: +61-480-088-924

Email

support@exacttechnology.com

Help center

<https://help.exacttechnology.com/>

Submit a request ticket for support [here](#).

Resources

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