

**Version**

**2**

# **LDAR**tools

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Cal5.0 Manual

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To confirm that this is the most current version, please go to [www.LDARtools.com/#support](http://www.LDARtools.com/#support), then check the Resources section.

OR

Go to the Customer Support Portal and Open the “Docs” section.

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## Settings

### Cylinder Set-up and Management

NOTE: A Cal5.0 Parameter Form is available for you to use to develop and document your Calibration Settings. See [LDARtools.com](http://LDARtools.com)>Support>Resources.

1. Add a Cylinder:
  - a. Tap Menu (the “hamburger” icon).
  - b. Tap Manage Cylinders.
  - c. Tap Add Cylinder.
  - d. Fill in the fields appropriate to your cylinder:
    - i. Certification day – The day your cylinder was certified
    - ii. Expiration date – The day the certification on the cylinder will expire
    - iii. Manufacturer’s or Cylinder Serial Number – The ID you want to use to refer to this cylinder
    - iv. Actual PPM – The actual PPM of the cylinder
    - v. Target PPM – The target PPM or the Leak Definition associated with this cylinder
  - e. Tick the following checkboxes that apply:
    - i. The Calibration checkbox means that this cylinder will be used for Daily and Precision.
    - ii. The Drift checkbox means that this cylinder will be used for all drifts.
    - i. Continue adding cylinders until finished. (NOTE: At this point, Cal5.0 will automatically assign the ports from least to greatest concentrations.)

- ii. Verify that each cylinder's port number corresponds to the port number its gas line is connected to in the back. (The Port number is in the top left corner of every cylinder.)
  - iii. Tap Done.
- 2. Deleting a Cylinder
  - f. Tap the Delete button next to cylinder.
- 3. Temporarily Suspending the use of a Cylinder.
  - g. Uncheck the Calibration and Drift checkboxes.
  - h. Tap Done.
- 4. Adding Technicians:
  - a. Tap Menu.
  - b. Tap Manage Technicians.
  - c. Tap the textbox and enter the Technician's name.
  - d. Tap Add.
  - e. Tap Done.
- 5. Removing Technicians:
  - a. Tap Menu.
  - b. Tap Manage Technicians.
  - c. Tap the X next to a technician's name.
  - d. Tap Done.

### Extension Probes

In order to calibrate extension probes on a SpanBox5 you will need to contact [support@ldartools.com](mailto:support@ldartools.com) for instructions on modifying the box settings.

NOTE: The response time of the phx42 with an extension probe exceeds the cut-off for the default settings and may result in the units being assigned to the wrong port during calibration.

## Daily Calibration

1. Confirm that you have been certified according to the Cal5.0 Mastery Document.
2. For the initial use of the SpanBox5, a best practice is to “assign” each phx42 to a specific port on the SpanBox5. You should label each port with the serial number of the phx42 that you will use on that port for all Daily and Precision Calibration and Drifts.
3. Ignite the phx42 using the 3-button-press ignition before attaching the device to the SpanBox5.

NOTE: Throughout the calibration process, avoid kinking, bending, or blocking probes at any time!

4. Check the Probe Flow of all your units and record the results for later entry into Cal5.0. Do this before you attach the phx42s to the SpanBox5.
5. Tap Daily Calibration.
6. Select phx42(s) on Connection screen, then tap Next.

If connection or firmware error appears, tap Yes to Retry Connection.

After a successful Connection, Self-check will begin

If there are any Self-check issues, acknowledge them by marking the associated Check Boxes. Then tap OK.

7. Tap Next.
8. Verify that the cylinder information is correct, then tap Next on the Cylinders screen. Otherwise, tap Manage Cylinder to remove or add cylinders.

At the four-minute mark of the warm-up, the Hunting process will administer gases through each port and ID the phx42 that “recognizes” that gas has been released. This will confirm which port each phx42 is on.

Once the warm-up period is over, the unit will start calibrating the assigned cylinders.

Afterwards, the calibration confirmation process will verify if the unit is calibrated to each gas correctly.

Once the units pass or fail Calibration, the Maintenance Report screen will appear.

9. Select your Tech Name from the dropdown and sign, then tap Next.
10. Check the box next to any non-critical self-check issues that may have occurred.
11. Select Tech Name from the dropdown list, sign, then tap Next.

12. Tap OK.

### 13. Daily Calibration of Filter Detection

Immediately after the last step of your calibration/confirmation process or right before your phx42 goes out into the field:

1. Remove the probe filter.
2. Wait 5 seconds (the pumps will shut off).
3. Replace the same probe filter and continue with your work day.

REMINDER: If you do not do this within 30 minutes of calibration you will receive ERROR CODE 24.

## Drift

1. Make sure that the phx42 is ignited and warmed-up before attaching it to the SpanBox5.
2. Make sure that the phx42 is attached to its assigned port: THE SAME PORT with which it was calibrated earlier in the day.
3. Tap the Drift box on the Home Screen.

Analyzers that have a Daily Calibration from today will appear.

On the right of each analyzer, the latest EOD and Noon drift results will be shown.

4. Check the boxes next to the analyzers to be drifted:

If the analyzer can't be discovered, it will be greyed out.

If the analyzer is in range, wait a minute for the SpanBox5 to discover and connect.

5. Check either Noon or End of Day at the bottom.
6. Tap Next.

If a drift of the same type (Noon or EOD) has already been performed on a unit, it will prompt you to confirm that the previous drift will be overwritten. Only do this if you are an experienced user and understand the consequence.

7. If the Cylinder information is correct, tap Next. Otherwise, tap Manage Cylinders.

The Drift process will begin.

Units will be drifted to the selected cylinders that were assigned.

If you are running a standard drift, each gas will be applied once.

If you are running a VVa, each gas will be applied 3 times.

If a unit fails on one gas, it will continue testing any other gases you might have selected.

8. Once complete, select a Tech from dropdown, sign, then tap OK.

## Precision Calibration

1. Make sure that each phx42 is attached to its assigned port: THE SAME PORT with which it was calibrated earlier in the day.
2. Tap the Precision Calibration box on the Home screen.

Analyzers that have a Daily Calibration from today will show.

On the right of each analyzer, the latest Precision Calibration result will be shown.

3. Check the boxes next to the analyzers to be Precision Calibrated.

If analyzer cannot be discovered, it will be greyed out.

4. Tap Next.

REMINDER: If you ever run an extra Precision Calibration on the same day, you will be warned that you will be overwriting the previous record for that day. Only do this if you are an experienced user and understand the consequence.

The Calibration Precision process will automatically begin.

Each gas response time will be tested 3 times each.

If a unit fails at any time, it will be skipped for the remainder of the tests but remain on-screen. The other units will continue.

A notice at the end of the Precision Cal will display the phx42 number and what gas it failed at on the Cal Precision Report screen.

5. Select Tech from dropdown, sign, and tap OK.

## Exporting Calibration Records via USB

1. Insert a USB drive into SpanBox5.
2. On the Home Screen, tap Export Records.
3. Select the desired date range.
4. Tap OK.
5. Wait until the “Successfully exported records to USB” prompt appears.
6. Tap OK.
7. Remove the USB from SpanBox5 and connect it to a computer.

The Record files can be found in the Cal5 Records folder with either of these filename formats:

- Cal5 Record DD.MM.YYYY-DD.MM.YYYY
- Cal5 Record DD.MM.YYYY

## Automatic wireless export of Calibration Records

Cal5.0 can be scheduled to transmit your calibration records to your LTI Desktop Manager or Chateau database daily at a time of your choosing.

Please contact [support@ldartools.com](mailto:support@ldartools.com) for sync credentials and setup instructions.

## Manual wireless export of Calibration Records

Cal5.0 can manually transmit calibration records to your LTI Desktop Manager or Chateau database if sync credentials have been enabled.

Obtain your credentials from your Site Supervisor or contact [support@ldartools.com](mailto:support@ldartools.com) to enable this feature.

1. On the Home screen, tap Reports.
2. Tap Manual Sync.
3. Select the desired date range.
4. Tap OK.
5. Once upload process is complete, tap OK.

## Managing Updates

### Update Cal5.0

1. Tap Menu.
2. Tap Update Cal5.0.

If a newer version is available, it will show a prompt to download the update.

3. Tap OK.

Once the download is complete, it will automatically update and restart Cal5.0.

### Update the Device Settings

1. Email [support@ldartools.com](mailto:support@ldartools.com) with the desired change.  
LDARtools Technical Support will complete the change.
2. Once you are notified of the change, tap Menu.
3. Tap Settings.
4. Wait, then once the updated prompt appears, tap OK.
5. Tap Menu.
6. Tap Home.
7. Tap OK to close the prompt.

### Update License

1. Tap Menu.
2. Tap License.
3. Tap Update Online.

4. Once the Success prompt appears, tap OK.
5. Tap Done.

## Changing Wireless Network

1. Request the Super-Secret Password from [support@ldartools.com](mailto:support@ldartools.com).
2. Tap Menu.
3. Tap Manage Networks.
4. Enter the Super-Secret Password.
5. Tap OK.
6. Tap Search.
7. Select the Wi-Fi name.
8. Enter the password, then tap Connect.
9. Tap Test Connection.
10. Once successful, tap Done.

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## Troubleshooting

### Responding to Errors

<p>Error: Could not get Unit and product settings from support portal or database cache.</p>	<p>Two things are happening:</p> <ul style="list-style-type: none"> <li>• This phx42 is not being calibrated on its assigned SpanBox5.</li> <li>• This SpanBox5 can't communicate with the LDARtools Support Portal to download settings.</li> </ul> <ol style="list-style-type: none"> <li>1. Check if the SpanBox5 can grab settings from the Support Portal:             <ol style="list-style-type: none"> <li>a. Tap Menu.</li> <li>b. Tap Settings.</li> <li>c. Wait, then do either:                 <ul style="list-style-type: none"> <li>• <u>If a successful prompt appears</u>, tap OK. Try calibrating again, there may have been a temporary loss of network connection.</li> <li>• <u>If you do not get a successful prompt</u>, then proceed to next step.</li> </ul> </li> </ol> </li> <li>2. Verify that the SpanBox5 is connected to a wireless network:             <ol style="list-style-type: none"> <li>a. Follow Steps 1-8 of the Changing Wireless Network section. Once the wireless network is selected and a Disconnect button appears, then the network is connected</li> <li>b. Tap Test Connection to verify that the connection is good.</li> <li>c. Do either:                 <ul style="list-style-type: none"> <li>• <u>If successful</u>, navigate to the Home screen, then start Daily Calibration.</li> <li>• <u>If unsuccessful</u>, submit a software support ticket and be sure to attach the Cal5.0 logs.</li> </ul> </li> </ol> </li> </ol>
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<p>Error: No phx mapped to port</p>	<ol style="list-style-type: none"> <li>1. Contact Support if you do not use 10k ppm gas. This is the first step!</li> <li>2. Check the gas lines. Verify that all gases going from left to right (when facing the back of the SpanBox5) are arranged in order of least to greatest concentration. REMINDER: SpanBox5 uses the highest span g to determine the phx42 port assignment.</li> <li>3. Verify that the gases selected in the Manage Cylinders screen are the ones connected to the SpanBox5: <ol style="list-style-type: none"> <li>a. Open the Manage Cylinders screen. The Port number is in the top left corner of every cylinder.</li> <li>b. Verify that each cylinder's port number corresponds to the port number its gas line is connected to in the back.</li> </ol> </li> <li>4. <u>If these are correct and the problem persists</u>, submit a software support ticket and be sure to attach the Cal5.0 Logs.</li> </ol>
<p>Critical Self-check Issues</p> <p>Critical Self-check issues prevent the calibration process.</p>	<ol style="list-style-type: none"> <li>1. <u>If the problem is a Sample Pump Shutdown error:</u> <ol style="list-style-type: none"> <li>a. Check for tears and leaks in the probe.</li> <li>b. Perform Probe Integrity test.</li> <li>c. <u>If there is a probe problem</u>, Submit a Hardware support ticket. (Do not use the 42App to report this issue.) Describe the problem in the comment field.</li> </ol> </li> <li>2. <u>If problem is an HPH2 error:</u> <ol style="list-style-type: none"> <li>a. Fill the analyzer with Hydrogen and rerun the Daily Calibration.</li> <li>b. <u>If the problem persists</u>, connect with the 42App.</li> <li>c. Run the Self-check and Report an Issue on the Support Portal.</li> <li>d. Attach the phx42 logs from the SpanBox5 to the Support ticket.</li> </ol> </li> <li>3. <u>If the problem is neither of the above:</u> <ol style="list-style-type: none"> <li>a. Connect with the 42App.</li> <li>b. Run the Self-check and Report an Issue on the Support Portal.</li> <li>c. Attach the phx42 logs from the SpanBox5 to the Support ticket.</li> </ol> </li> </ol>

Non-Critical Self-Check Issues	<ol style="list-style-type: none"> <li>1. <u>If this is a Charge or Battery issue:</u> <ol style="list-style-type: none"> <li>a. Make sure the units are on chargers overnight.</li> <li>b. <u>If the battery shows “uncharged” after 12 hours on the charger</u>, connect to the 42App.</li> <li>c. Run the Self-check and Report an Issue on the Support Portal.</li> <li>d. Attach the phx42 logs from the SpanBox5 to the Support ticket.</li> </ol> </li> <li>2. <u>If this is a Heater issue:</u> <ol style="list-style-type: none"> <li>a. Connect with the 42App.</li> <li>b. Run the Self-check and Report an Issue on the Support Portal.</li> <li>c. Attach the phx42 logs from the SpanBox5 to the Support ticket.</li> </ol> </li> </ol>
Failed Connection / Signal Strength Problems	<ol style="list-style-type: none"> <li>1. <u>If Bluetooth strength is not OK after 60 seconds</u>, go back to the Home screen, then continue.</li> <li>2. <u>If that does not resolve it</u>, submit a software support ticket and be sure to attach the Cal5.0 Logs.</li> </ol>
Flame-out or ignition problems during warm-up	<ol style="list-style-type: none"> <li>1. Connect with the 42App.</li> <li>2. Run the Self-check.</li> <li>3. Do either: <ul style="list-style-type: none"> <li>• <u>If it passes</u>, put it back on the SpanBox5 and calibrate.</li> <li>• <u>If it fails</u>, Report an Issue on the Support Portal.</li> </ul> </li> </ol>

## Reporting an Issue

1. Tap Menu.
2. Tap Report an Issue.
3. Enter Support Portal Credentials.
4. Select type of issue:
  - a. Cal5.0 issue
  - b. Analyzer issue
5. If Analyzer issue, select serial number from dropdown.
6. Select Date of issue.

7. In the Issue text box, enter a description of the issue.
8. Tap submit.

## Exporting Logs

**NOTE:** When reporting an issue through Cal5.0, logs will automatically be attached. Only use the steps below if you are submitting updated logs for an existing support case.

1. Tap Menu.
2. Tap Copy Log files to USB.
3. Wait until the “Successfully exported logs to USB” popup appears.
4. Tap OK.
5. Remove the USB from SpanBox5 and connect it to a computer.
6. On the computer’s File Explorer, navigate to the USB drive.

The logs can be found in the Logs folder. The file name includes the phx42 serial number followed up by the type of Log file and the date.

## Shutdown/Restart

Note: Only shutdown the SpanBox5 when instructed to do so by LDARtools support or when preparing to move the unit.

1. Tap Menu.
2. Scroll down Menu.
3. Tap Shutdown/Restart.