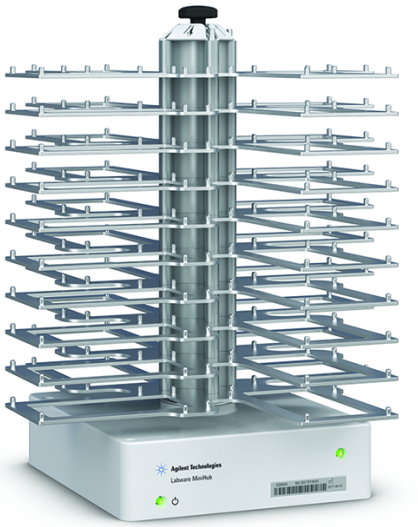
G5584A Labware MiniHub

Quick Guide



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Original Instructions

About this guide

This guide summarizes the operator instructions in the *G5584A Labware MiniHub User Guide*.

This guide assumes the following:

- The G5584A Labware MiniHub is installed correctly. For installation instructions, see the *G5584A Labware MiniHub Safety and Installation Guide*.
- The device profile for the specific Labware MiniHub configuration is already created and the teachpoints are already set. For setup instructions, see the *G5584A Labware MiniHub User Guide*.
- You are familiar with the VWorks Automation Control software. See the *VWorks Automation Control Quick Start*. For detailed instructions, see the *VWorks Automation Control User Guide*.

  If you are using another laboratory automation control software, see the user documentation for that software.

For user information about related automation products, you can search the product knowledge base or download the latest version of a PDF file from https://automation.help.agilent.com/.

Safety information

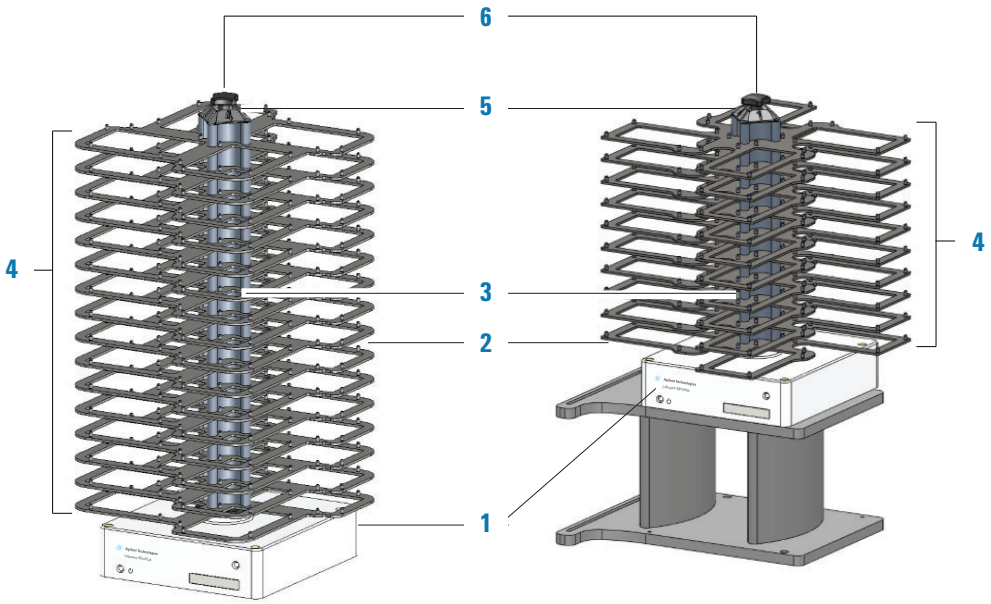
Before you operate the G5584A Labware MiniHub, ensure you have read the following guides and are trained in the safe operation of the device.

- *Automation Solutions Products General Safety Guide*
- *G5584A Labware MiniHub Safety and Installation Guide*

Hardware components

The following figure and table describe the main components of the Labware MiniHub.

Figure Main components: Integration Configuration (left) and BenchCel Configuration (right)

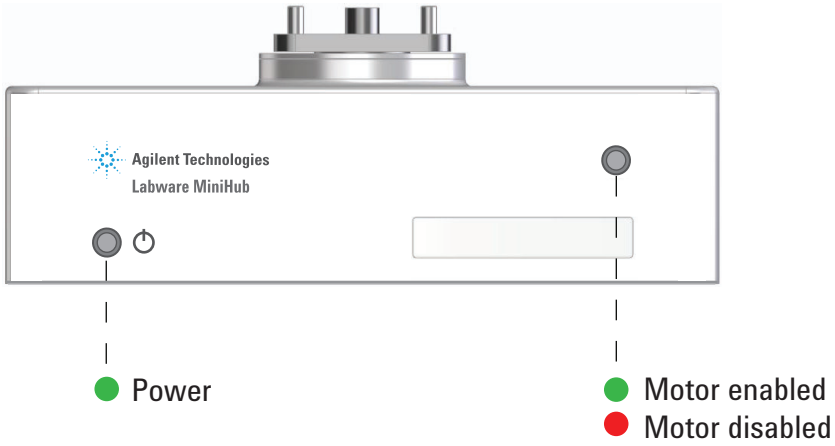


Item	Name	Description
1	Base	White structure at the bottom of the G5584A Labware MiniHub that attaches the device to the target surface. The base contains the electronics and hosts the connection panel and the status lights. For the BenchCel Workstation, the G5584A Labware MiniHub base attaches to an integration-plate assembly (iKit). Typically, the integration-plate is on risers, as the figure shows, for integration with the BenchCel device on risers. However, if the BenchCel device is not on risers, the G5584A Labware MiniHub cannot be on risers.
2	Shelves	Flat area on which you can place labware. Locating pins at the edges of the shelves hold the labware securely in place.

Item	Name	Description
3	Spacers	Metal spacing blocks that you can add to or remove from the center rod of the G5584A Labware MiniHub to adjust the distance between shelves. Two types of spacers are available: • *25.1-mm spacers*. Stacked between shelves to accommodate different labware heights. • *8.4-mm spacers*. Stacked above the top-most shelf to fill the space between the top-most 25.1-mm spacer and the cassette cap. These spacers ensure a tight assembly and are only necessary when a subset of the shelves are used.
4	Cassettes	Columns of shelves. The G5584A Labware MiniHub consists of four cassettes, each identified by the number on the cassette cap.
5	Cassette cap	Metal label with numerical identification of each cassette. The numbers are used in the VWorks software and in G5584A Labware MiniHub Diagnostics.
6	Black knob	Component at the top of the G5584A Labware MiniHub that locks the spacers and shelves in place.

Indicator lights

At the base of the Labware MiniHub are two indicator lights, as the following figure shows.



Indicator light	Description
Power	Indicates whether the power is on or off. When the green light is on, the power is on. When the green light is off, the power is off.
Status	Indicates whether the motor is enabled or disabled. • Red light indicates the motor is disabled. • Green light indicates that the motor is enabled.

Turning on and turning off the Labware MiniHub

The following procedures describe how to turn on and turn off the Labware MiniHub. For instructions on how to turn on and turn off a Labware MiniHub that is part of a workstation, see the workstation user documentation.

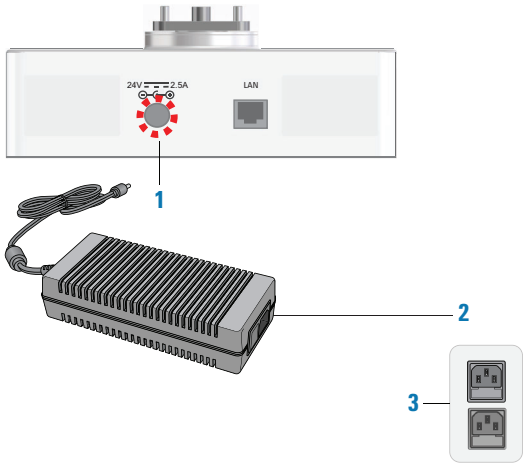
Turning on the Labware MiniHub

CAUTION **The Labware MiniHub will rotate during the startup process. Obstructing the Labware MiniHub while it is rotating will cause an error.**

To turn on the Labware MiniHub:

1 Ensure that the power supply is connected:

- **a** The power supply cable connects to the **24V** port (1) on the MiniHub base, as the following figure shows.
- **b** The power cord connects to the AC power entry on the (2) power supply on one end and to a (3) power source with grounded circuit on the other end.



2 On the power supply, press the power switch to the **on (I)** position.

On the G5584A Labware MiniHub base, the green power light ( ) turns on.

Turning off the Labware MiniHub

To turn off the Labware MiniHub:

On the power supply, press the power switch to the **off (o)** position. On the G5584A Labware MiniHub base, the green power light ( ) turns off.

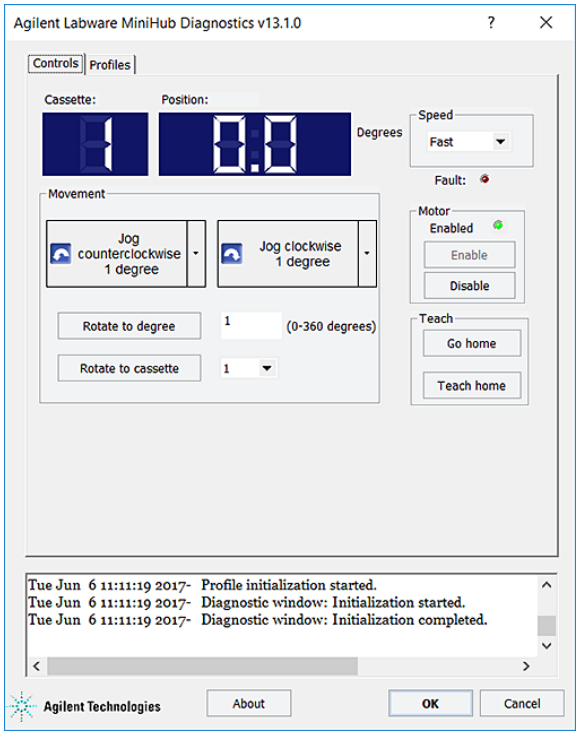
Using Labware MiniHub Diagnostics in the VWorks software

This topic explains how to control the Labware MiniHub using Diagnostics in the VWorks software.

About Labware MiniHub Diagnostics

The Labware MiniHub Diagnostics software has two tabs: Controls and Profiles. You use the commands in the Profiles tab to establish communication with the Labware MiniHub. You can use the commands and parameters available in the Controls tab to control or move the device.

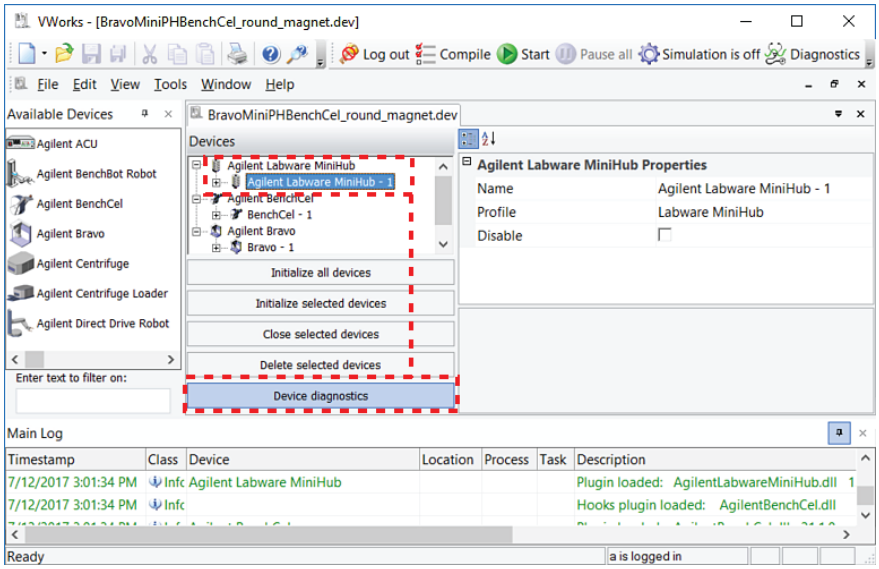
Figure Controls tab in Labware MiniHub Diagnostics



If you are using automation control software other than the VWorks Software, call the Labware MiniHub ActiveX ShowDiagsDialog method to open Labware MiniHub Diagnositics. For details, see the *G5584A Labware MiniHub User Guide*.

Opening Labware MiniHub Diagnostics

In the VWorks software **Devices** area, select the Labware MiniHub name, and then click **Device diagnostics.**



Initializing the Labware MiniHub in Diagnostics

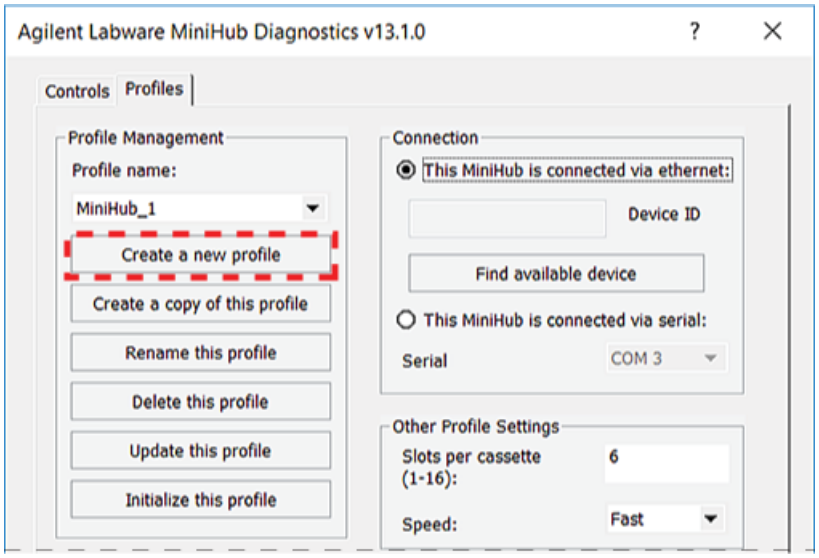
Before you use Labware MiniHub Diagnostics to operate the Labware MiniHub, you must initialize an appropriate MiniHub profile to do the following:

- Establish communication with the Labware MiniHub.
- Load the profile information.

CAUTION **The Labware MiniHub will rotate during the initialization process. Obstructing the Labware MiniHub while it is rotating will cause an error.**

To initialize a profile in Labware MiniHub Diagnostics:

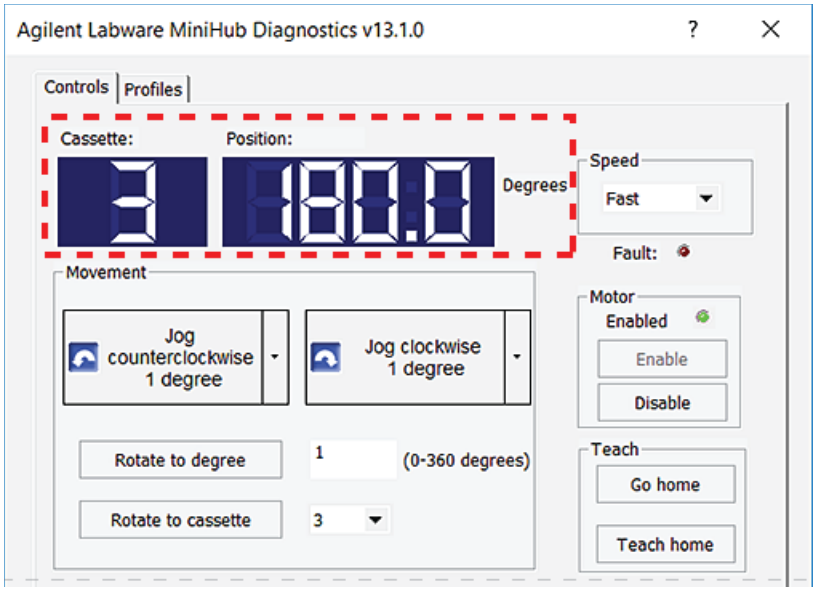
1. In the **Profiles** tab, select the desired profile in the **Profile name** list.
2. Click **Initialize this profile** to establish communication with the Labware MiniHub and load the profile information.



Checking the MiniHub's current position

To check the current position of the Labware MiniHub:

In the **Controls** tab, check the values in the **Cassette** and **Position** boxes.

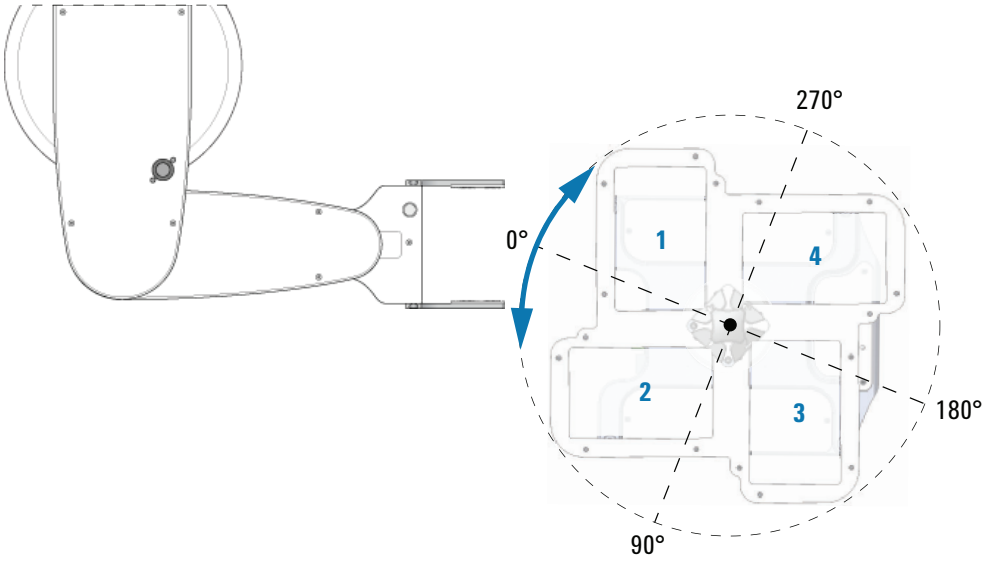


- **Cassette**. Indicates which cassette is currently facing the robot. For example, a Cassette value of 3 indicates that cassette 3 is facing the robot. A dash (—) indicates that the Labware MiniHub is between cassette positions.
- **Position**. Indicates the position of the Labware MiniHub relative to its home position. Position values range from 0° to 360°, counterclockwise from the home position.

The Cassette values correspond to the following position values:

Cassette	Position
1 (home)	0°
2	90°
3	180°
4	270°

If the Labware MiniHub is between cassette positions, other position values will be displayed. For example, if the Labware MiniHub is exactly between cassette 1 (0°) and cassette 2 (90°), the Position value is 45°.



Enabling and disabling the motor

Disabling the MiniHub motor allows you to rotate the Labware MiniHub by hand. You might want to do this when you:

- Set the home position.
- Want to remove labware from specific shelves after a run error occurs.

After setting the home position or fixing the error, you can enable the Labware MiniHub motor to resume operation.

CAUTION **The Labware MiniHub might rotate slightly when you enable the motor. Obstructing the Labware MiniHub while it is rotating will cause an error.**

To disable the Labware MiniHub motor:

In the **Controls** tab, click **Disable.** In the **Motor** area, the green **Enabled** light turns off.

On the Labware MiniHub base, the motor status light turns red.

Figure Motor area in the Controls tab

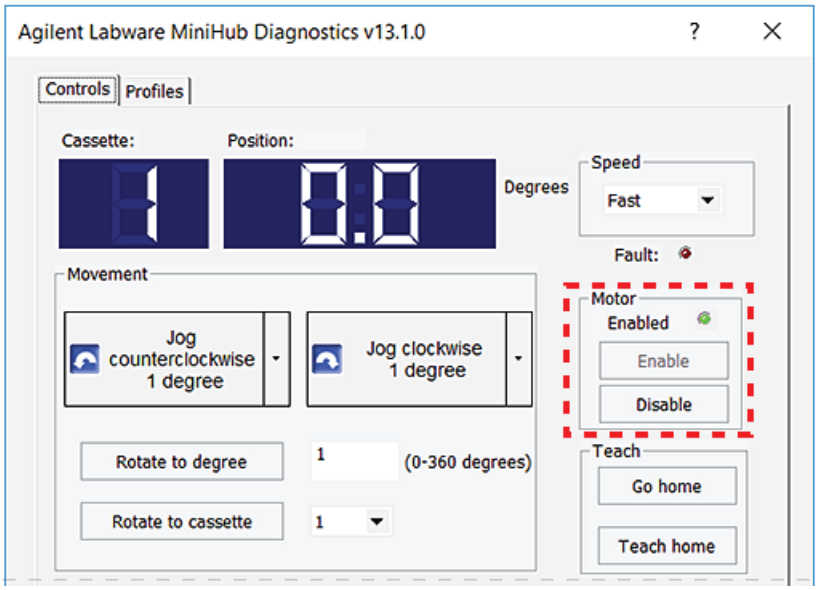
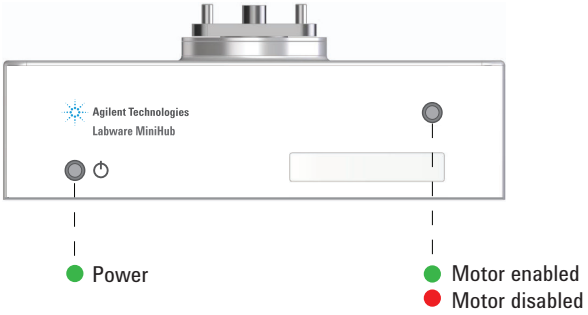


Figure Status lights on G5584A Labware MiniHub base (front view)



To enable the Labware MiniHub motor:

In the **Controls** tab, click **Enable.** In the **Motor** area, the green **Enabled** light turns on.

On the Labware MiniHub base, the motor status light turns green.

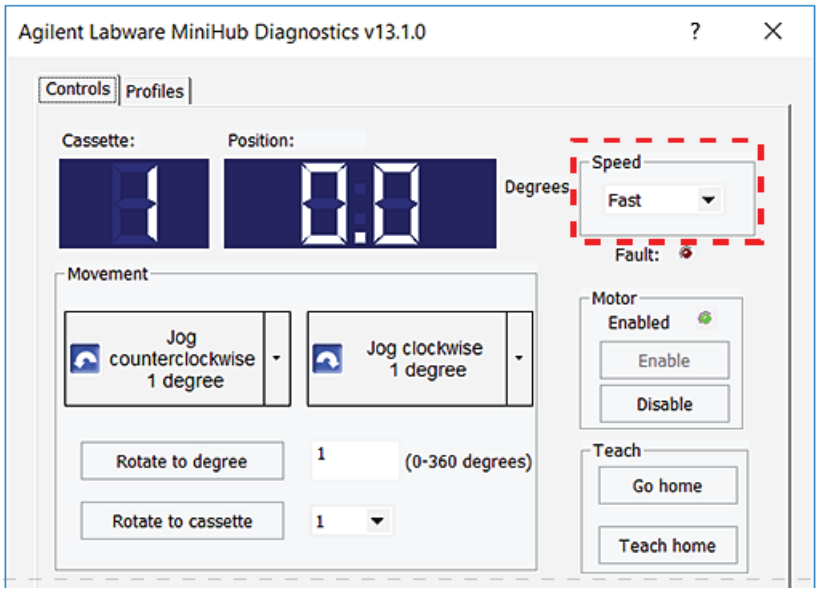
Changing the rotation speed

You can select the speed at which the Labware MiniHub turns while you are making adjustments in Labware MiniHub Diagnostics. For example, you can select the Slow speed when you are setting up or troubleshooting the hub.

Note: To set the rotation speed for protocol runs, use the Speed selection in the Profiles tab.

To select the diagnostic rotation speed:

In the **Controls** tab, select one of the following speeds from the **Speed** list:



Speed	Description
Slow	Rotates the MiniHub at 25% of the factory-set maximum speed.
Medium	Rotates the MiniHub at 50% of the factory-set maximum speed.
Fast	Rotates the MiniHub at 100% of the factory-set maximum speed.

Rotating the MiniHub to a specific position

You can rotate the Labware MiniHub using one of the following methods:

- Rotating to a specific cassette
- Rotating the MiniHub in set increments
- Rotating the MiniHub to a specific position relative to home

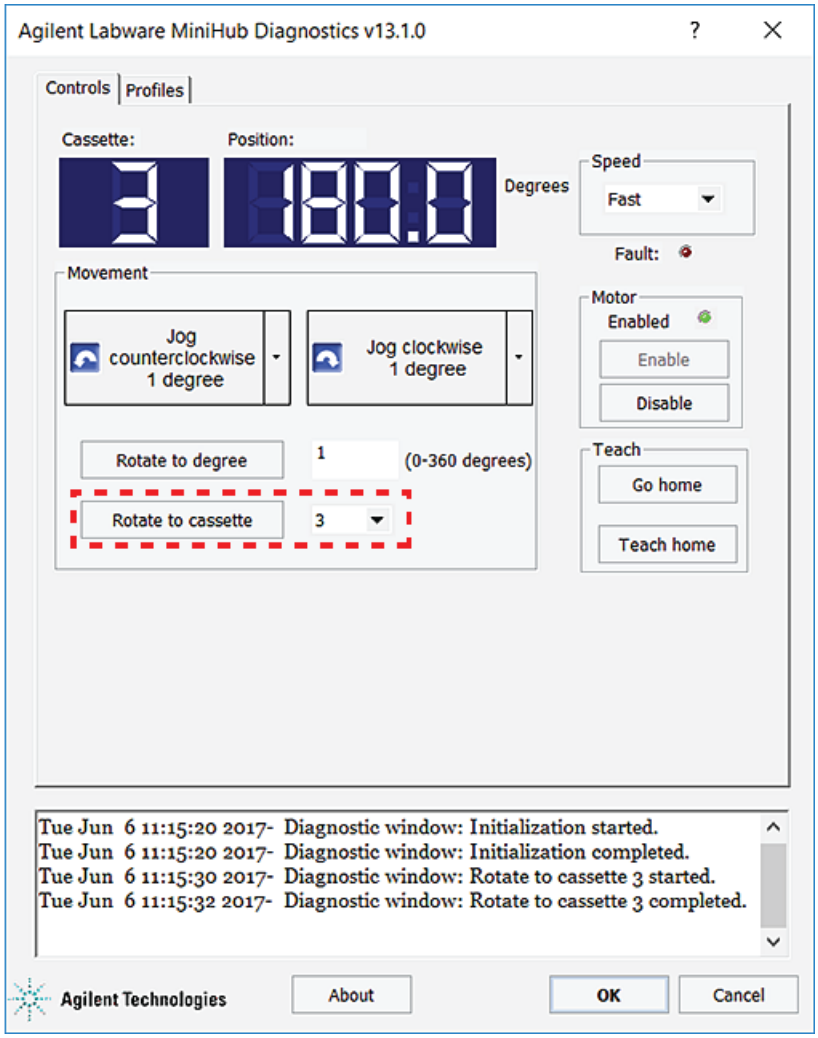
CAUTION **Obstructing the Labware MiniHub while it is rotating will cause an error. Remove any obstacle that might prevent the Labware MiniHub from rotating.**

Rotating to a specific cassette

You can rotate the Labware MiniHub so that the desired cassette is facing the robot.

To rotate to a specific cassette:

1 In the **Controls** tab, select the desired cassette from the **Rotate to cassette** list, and then click **Rotate to cassette.** The Labware MiniHub rotates until the desired cassette faces the robot. The Cassette and Position boxes display the current cassette and position.



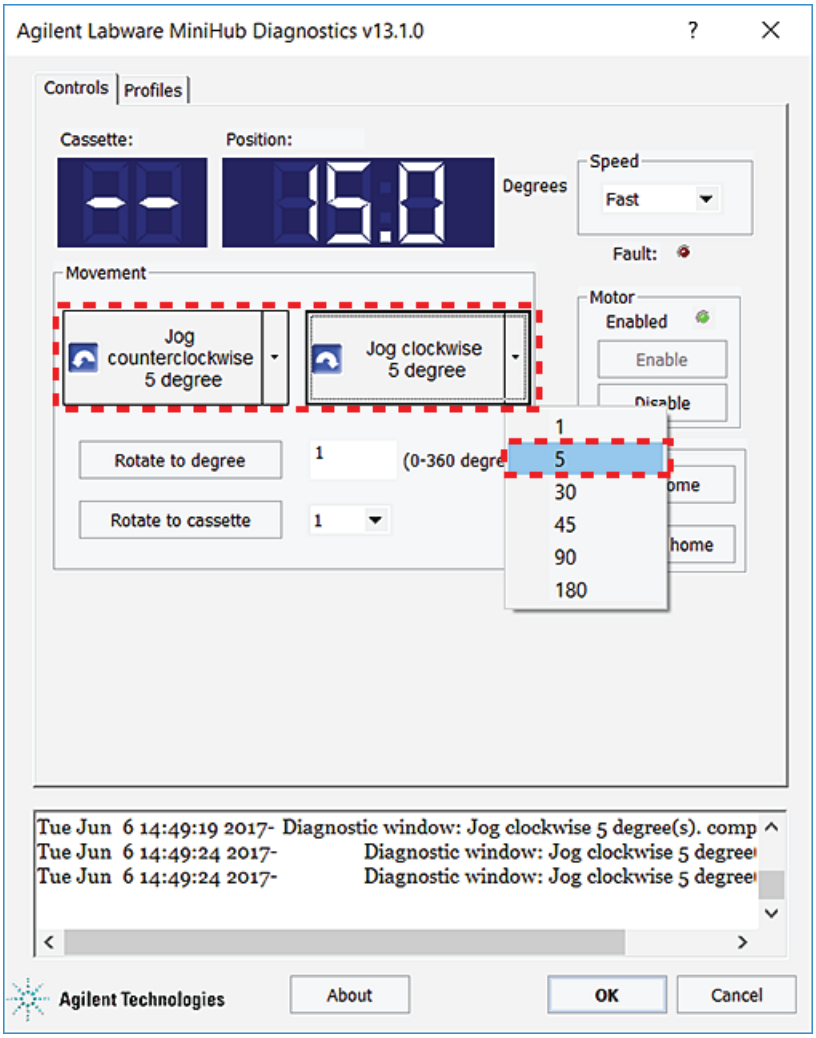
Rotating the MiniHub in set increments

To rotate the MiniHub in set increments:

1 In the **Controls** tab, under **Movement**, click the arrow on the right of either **Jog** button, and then click the jog increment (degrees).

2 Click the **Jog** button to jog the Labware MiniHub in the corresponding direction:

Command	Description
Jog counterclockwise	Rotates the MiniHub counterclockwise by the displayed degrees relative to its current position.
Jog clockwise	Rotates the MiniHub clockwise by the displayed degrees relative to its current position.



3 Click the **Jog counterclockwise** or **Jog clockwise** button again to rotate the MiniHub the specified number of degrees.

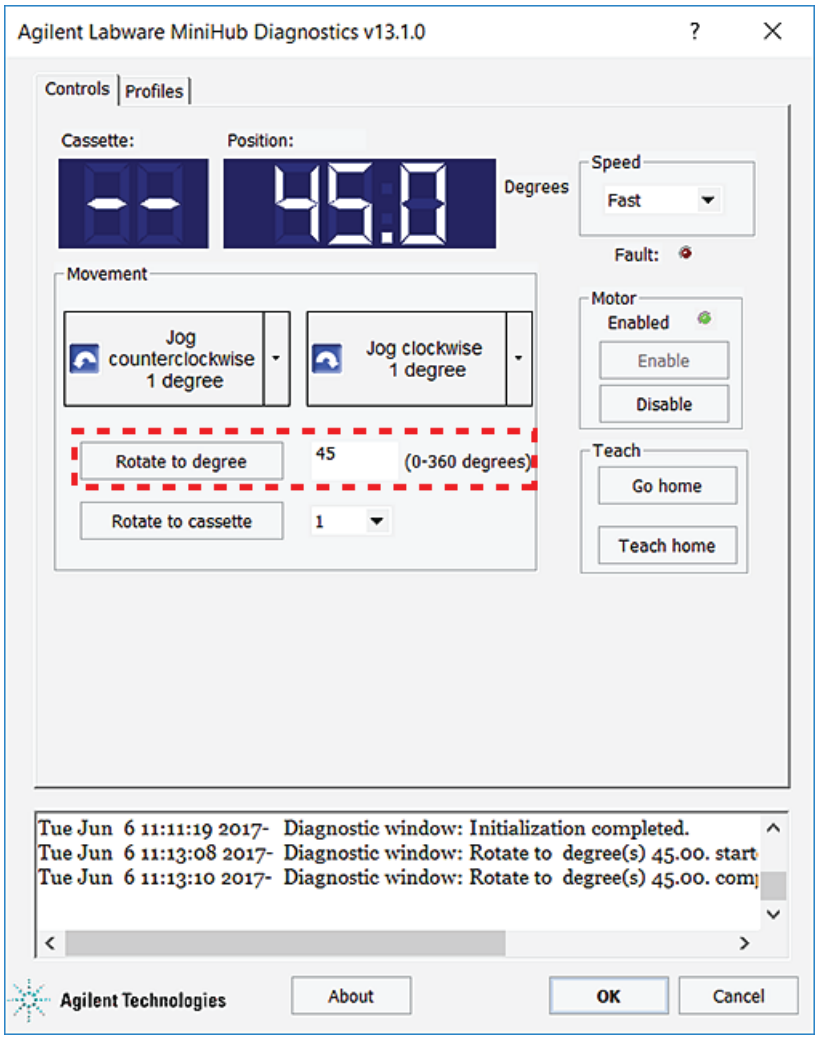
Rotating the MiniHub to a specific position relative to home

You can rotate the stage so that cassette 1 is at a specified number of degrees from the home position, 0°.

To rotate the MiniHub a specific number of degrees:

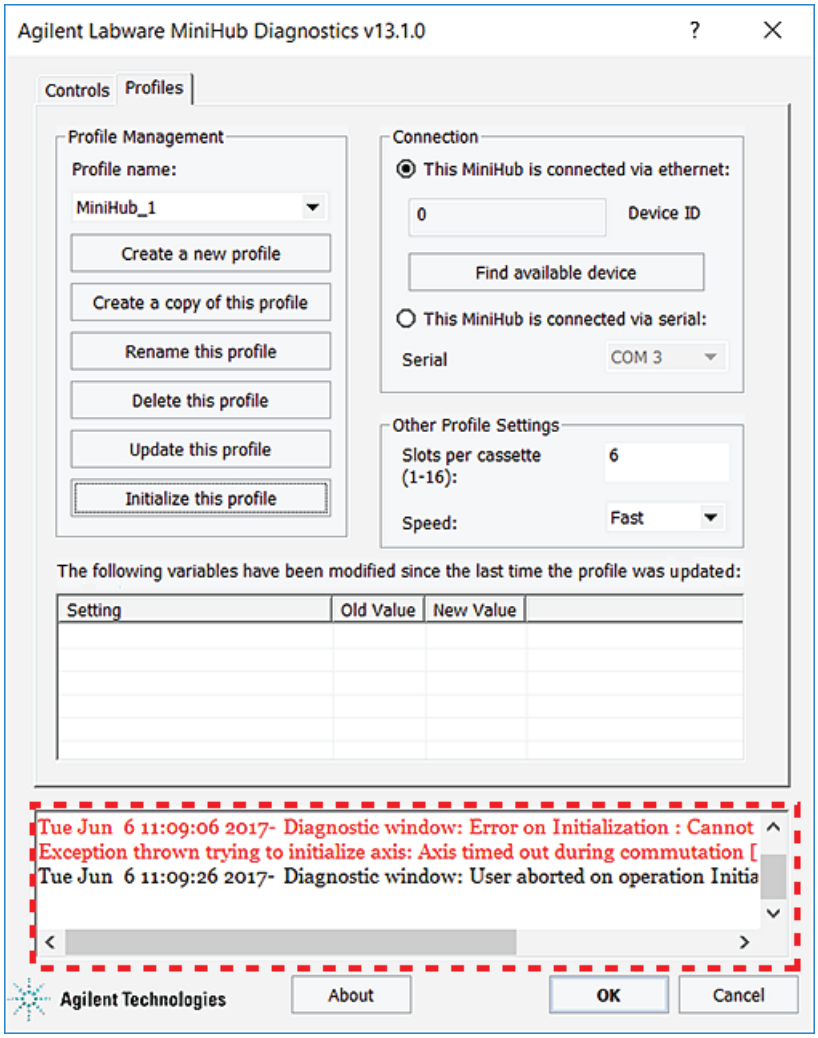
1 In the **Controls** tab, type the number of degrees in the **Rotate to degree** box, and then click **Rotate to degree.**

If you specified an angle between 1° and 180°, the software will rotate the MiniHub clockwise. If you specified an angle greater 180°, the software will rotate the MiniHub counterclockwise.



Viewing the log area

The log area displays all of the commands issued and the status of the actions while you are working in the dialog box. Error conditions are displayed in red text.



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