G5584A
Labware MiniHub

Safety and Installation Guide

For Research Use Only. Not for use in diagnostic procedures.

Original Instructions

Agilent Technologies

Notices

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A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

Contents

Preface

This preface contains the following topics:

About this guide

Who should read this guide

This guide is for people with the following job roles:

Job role	Responsibilities
Installer	Unpacks, installs, and tests the G5584A Labware MiniHub before it is used.
Integrator	Writes software and configures hardware.
Lab manager, administrator, or technician	• Manages the automation system that contains the Labware MiniHub • Develops the applications that are run on the system • Develops training materials and standard operating procedures for operators
Operator	Performs the daily production work on the system that contains the Labware MiniHub and solves routine problems.

Installers, integrators, lab managers, and administrators are users who must have technical expertise. In addition, lab managers and administrators are individuals or groups responsible for the use and maintenance of the Labware MiniHub and for ensuring that operators are adequately trained.

What this guide covers

This guide describes the following:

- Potential safety hazards of the Labware MiniHub and how to avoid them.
- Specifications and site requirements for the Labware MiniHub. Use this information to plan the space for the Labware MiniHub. Make sure your site meets the requirements outlined in this guide before installing the Labware MiniHub.
- Installation instructions for the Labware MiniHub.

For general safety information, see the *Automation Solutions Products General Safety Guide*

Related guides

The *Labware MiniHub Safety and Installation Guide* should be used in conjunction with the following guides:

- *Automation Solutions Products General Safety Guide*. Describes the general safety precautions, intended product use, and the list of safety labels for the Automation Solutions products.
- *G5584A Labware MiniHub User Guide*. Explains how to set up and operate the Labware MiniHub.

- *G5584A Labware MiniHub Quick Guide*. Summarizes the operator instructions in the *G5584A Labware MiniHub User Guide*.
- *VWorks Automation Control Setup Guide*. Explains how to define labware, track labware, and manage users.
- *VWorks Automation Control User Guide*. Explains how to use the software including how to add devices, create protocols, and set task parameters for each device in the system.
- *VWorks Software Quick Start*. Provides an overview of how to use the VWorks Automation Control software.

Accessing Agilent Technologies Automation Solutions user guides

You can search the online knowledge base or download the latest version of any PDF file from the Agilent website at www.agilent.com/chem/askb.

Safety information for the Agilent Technologies devices appears in the corresponding device safety guide or user guide. You can also search the knowledge base or the PDF files for safety information.

Related topics

For information about...	See...
Reporting problems	"Reporting problems" on page viii
Safety precautions	"Safety guidelines" on page 1
Site requirements and robot specifications	"Laboratory setup requirements" on page 9
Installation instructions	"Installing the Labware MiniHub" on page 21

Reporting problems

Contacting Automation Solutions Technical Support

If you find a problem with the Labware MiniHub, contact Agilent Automation Solutions Technical Support. For contact information, see Notices on the back of the title page.

Reporting hardware problems

When contacting Agilent Technologies, make sure you have the serial number of the device ready. You can locate the serial number on the base.

Reporting software problems

When you contact Automation Solutions Technical Support, make sure you provide the following:

- Short description of the problem
- Relevant software version number (for example, automation control software, diagnostics software, ActiveX control software, and firmware)
- Error message text (or screen capture of the error message dialog box)
- Relevant files, such as log files

Reporting user guide problems

If you find a problem with this user guide or have suggestions for improvement, send your comments in an email to documentation.automation@agilent.com.

Related topics

For information about...	See...
Safety precautions	“Safety guidelines” on page 1
Site requirements and product specifications	“Laboratory setup requirements” on page 9
Installation	“Installing the Labware MiniHub” on page 21

1 Safety guidelines

This chapter contains the following topics:

General safety information

Before installing and using the Labware MiniHub

Before installing and using the Labware MiniHub, make sure you are aware of the potential hazards and understand how to avoid being exposed to them. You must be properly trained in the correct and safe installation and operation of the device. For the intended product use statement and safety label descriptions, see the *Automation Solutions Products General Safety Guide*.

WARNING **Do not remove the Labware MiniHub exterior covers or otherwise disassemble the system or device. Doing so can cause injuries and damage the Labware MiniHub.**

Related information

For information about...	See...
Safety and regulatory certifications	"Safety and regulatory compliance" on page 3
Emergency stop	"Emergency stop" on page 5
Electrical hazards	*Automation Solutions Products General Safety Guide*
Mechanical hazards	"Mechanical hazards" on page 7

Safety and regulatory compliance

The Labware MiniHub complies with the applicable EU Directives and bears the CE marking. See the Declaration of Conformity or Declaration of Incorporation, as applicable, for details. The Labware MiniHub is designed to comply with the regulations and standards listed in the following table.

Regulatory Compliance	Standard
EMC	
European Union	EMC Directive 2014/30/EU
	IEC 61326-1:2012 / EN 61326-1:2013
Canada	ICES/NMB-001:2006
Australia/New Zealand	AS/NZS CISPR 11:2011
RoHS	
European Union	RoHS Directive 2011/65/EU
Safety	
European Union	Machinery Directive 2006/42/EC
	Low Voltage Directive 2014/35/EU
	IEC 61010-1:2001 / EN61010-1:2001 IEC 61010-2-081:2001+A1:2003 / EN 61010-2-081:2002+A1:2003
Canada	CAN/CSA-C22.2 No. 61010-1-04 CAN/CSA-C22.2 No. 61010-2-081-04
USA	ANSI/UL 61010-1:2004

Electromagnetic compatibility

If the Labware MiniHub causes interference with radio or television reception, which can be determined by turning the device off and on, try one or more of the following measures:

- Relocate the radio or television antenna.
- Move the device away from the radio or television.
- Plug the device into a different electrical outlet, so that the device and the radio or television are on separate electrical circuits.
- Make sure that all peripheral devices are also certified.
- Make sure that appropriate cables are used to connect the device to peripheral equipment.
- Consult your equipment dealer, Agilent Technologies, or an experienced technician for assistance.

Changes or modifications not expressly approved by Agilent Technologies could void the user's authority to operate the equipment.

Sound emission declaration

Sound pressure: Lp < 70 dB according to EN ISO 779:2010.

Schalldruckpegel: Lp < 70 dB nach EN ISO 779:2010.

South Korea EMC Declaration

The following EMC declaration applies to:

1. All models that were registered on or after 7 December 2016, but
2. Not to models included in a product family or series that was registered before 7 December 2016 (even if the model was added to the product family or series on or after 7 December 2016).

EMC declaration for South Korea

This equipment has been evaluated for its suitability for use in a commercial environment. When used in a domestic environment, there is a risk of radio interference.

EMC 선언

다음 EMC 선언은

1 2016년 12월 7일 자 또는 이후에 등록된 모든 모델은,
2 2016년 12월 7일 이전에 등록된 제품군 또는 시리즈를 포함한 모델은 2016년 12월 7일 자 또는 이후에 제품군 또는 시리즈에 추가되었을지라도 적용 되지 않습니다

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Related information

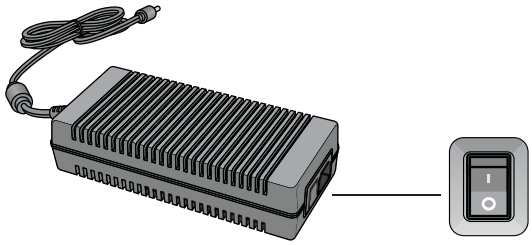
For information about...	See...
General safety information	“General safety information” on page 2
Emergency stop	“Emergency stop” on page 5
Safety interlock	“Mechanical hazards” on page 7
Electrical hazards	*Automation Solutions Products General Safety Guide*
Mechanical hazards	“Mechanical hazards” on page 7

Emergency stop

Emergency stop mechanisms

In an emergency, press the power supply on/off switch to the **off (o)** position.

Figure Labware MiniHub power supply on/off switch



Alternatively, you can disconnect the AC power cord from the power source to stop the Labware MiniHub motor immediately.

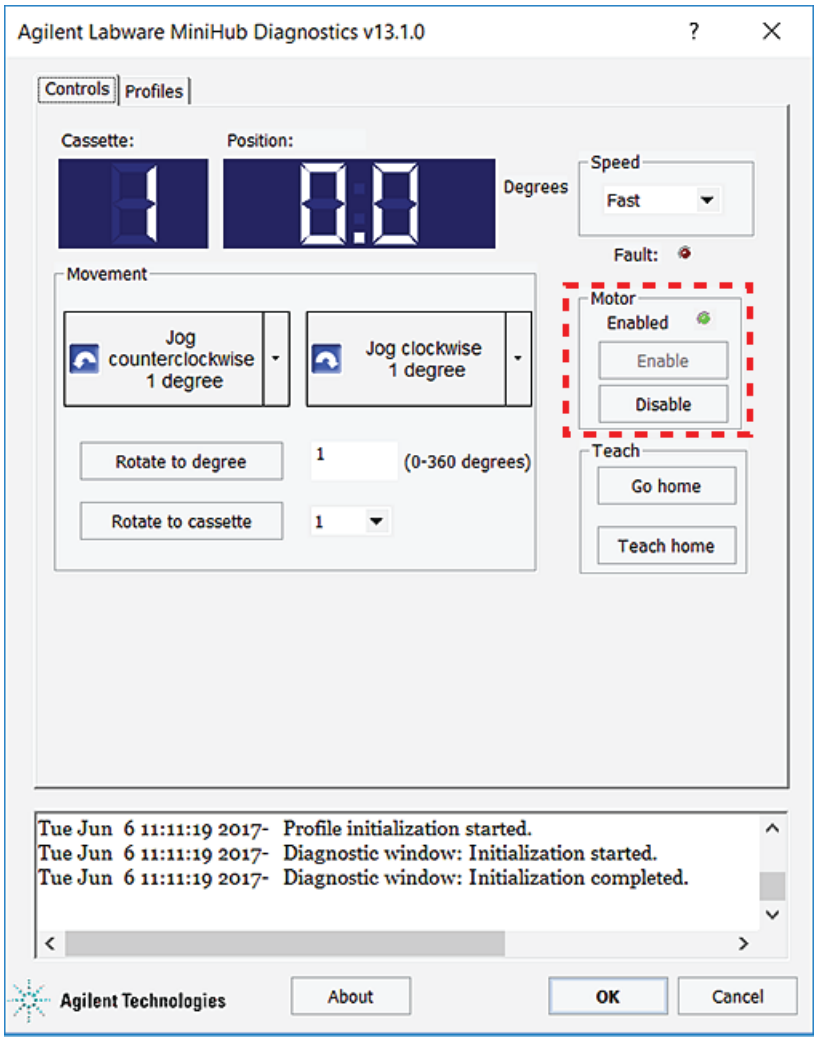
On the Labware MiniHub base, the green power light ( ) turns off.

Figure Power light on Labware MiniHub base (front view)

Disabling the motor using software controls

When using the VWorks software under normal operating conditions, the Labware MiniHub motor is disabled automatically when a collision occurs. You can also use the Disable command in MiniHub Diagnostics to stop the motor when setting the Labware MiniHub home position or when retrieving labware after a run error occurs. For information, see the *G5584A Labware MiniHub User Guide*.

Figure Motor Disable button in Labware MiniHub Diagnostics



If you are using third-party automation software instead of the VWorks software, call the DisableMotor ActiveX method to disable the Labware MiniHub motor. For more information about the MiniHub ActiveX Control, see the *G5584A Labware MiniHub User Guide*.

Related information

For information about...	See...
General safety information	"General safety information" on page 2
Safety and regulatory certifications	"Safety and regulatory compliance" on page 3
Safety interlock and mechanical hazards	"Mechanical hazards" on page 7
Electrical hazards	*Automation Solutions Products General Safety Guide*

Mechanical hazards

Moving parts and pinch hazards

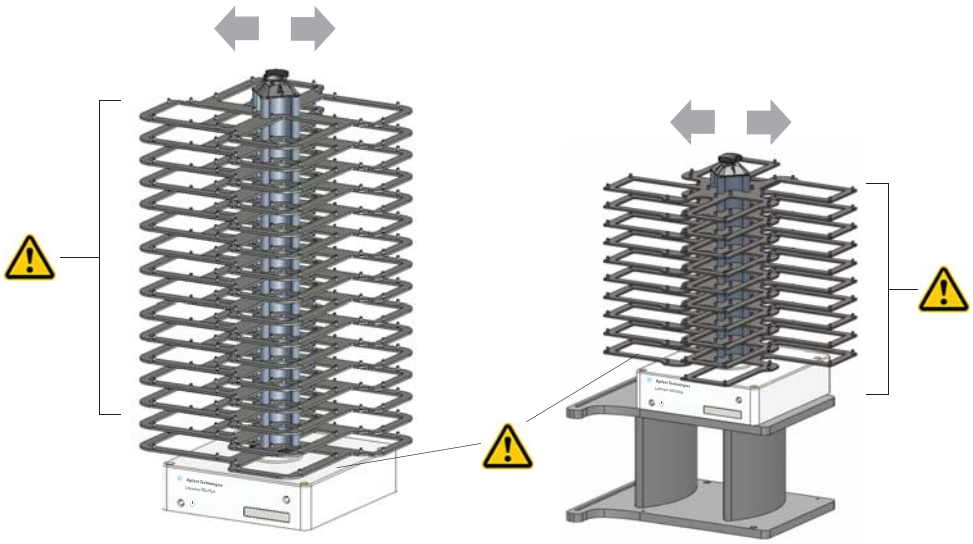
The Labware MiniHub is an automated device that can rotate left or right unexpectedly. You cannot anticipate the movement of the device with certainty, because the software determines when to move the device to achieve the highest throughput.

The Labware MiniHub is designed with many safety features. The shelves on the device have blunt edges, and the rotation speed and force are inherently limited. In addition, the Labware MiniHub is designed to stop its movement when it comes in contact with an obstacle. Because of these safety features, moving parts are not able to crush, cut, pierce, or severely pinch operators, and you are very unlikely to be injured if you obstruct the Labware MiniHub while it is in motion.

CAUTION Obstructing the Labware MiniHub will cause an error that requires operator attention. Do not touch any of the moving parts or attempt to move labware from the Labware MiniHub while it is in operation.

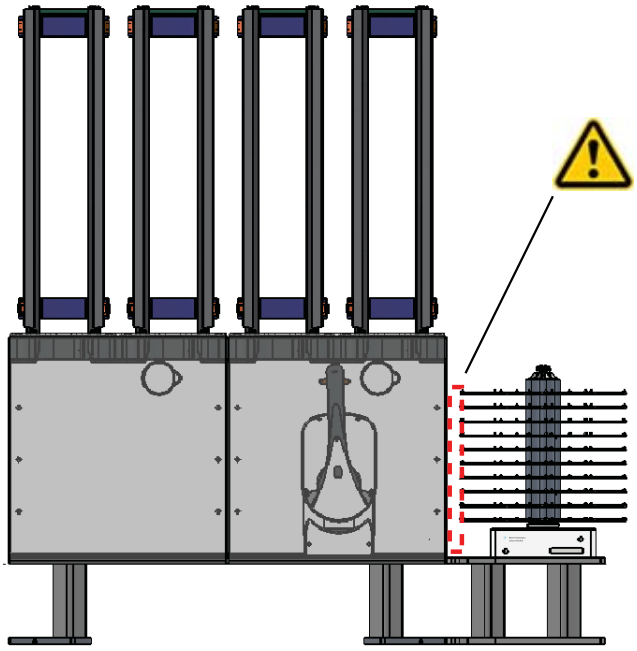
WARNING **Pinch hazard! Be careful to keep your fingers out of the path of the shelves. Keep your fingers out of the area between the bottom-most shelves and the base.**

Figure Labware MiniHub moving parts and potential pinch hazards



WARNING **Pinch hazard! In the BenchCel Workstation, keep your fingers out of the narrow gap between the workstation and the Labware MiniHub shelves.**

Figure Labware MiniHub potential pinch hazard in a BenchCel Workstation



Related information

For information about...	See...
General safety information	"General safety information" on page 2
Safety and regulatory certifications	"Safety and regulatory compliance" on page 3
Safety symbols and labels	*Automation Solutions Products General Safety Guide*
Emergency stop	"Emergency stop" on page 5
Safety interlock	"Mechanical hazards" on page 7
Electrical hazards	*Automation Solutions Products General Safety Guide*

2
Laboratory setup requirements

This chapter contains the following topics:

Physical dimensions

About this topic

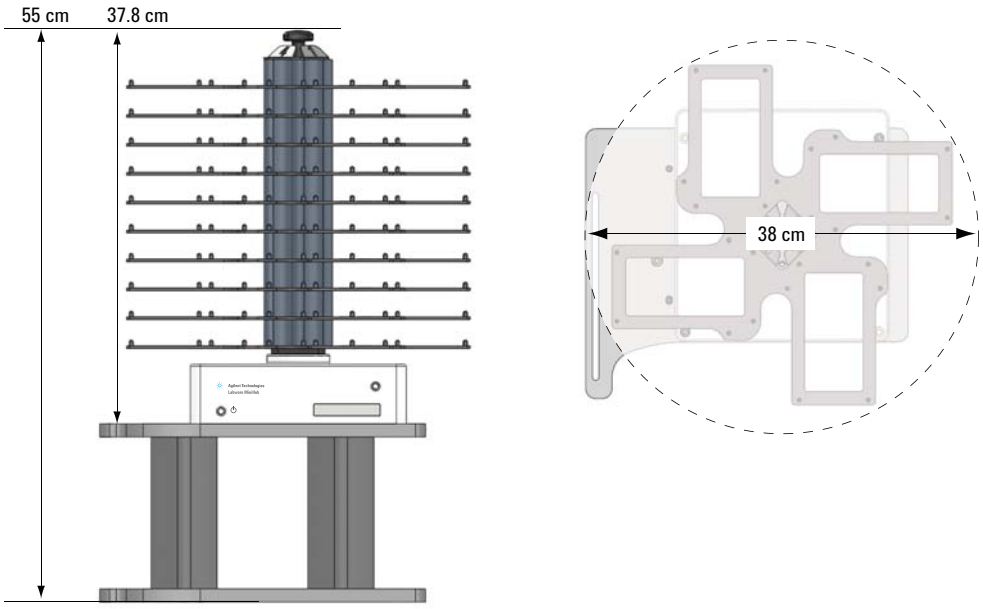
This topic presents the physical dimensions of the G5584A Labware MiniHub:

- MiniHub option 010–BenchCel Configuration
- MiniHub option 020–Integration Configuration
- Power supply

MiniHub option 010—BenchCel Configuration

The BenchCel Configuration is typically installed on a riser assembly, as the following figure shows.

Figure BenchCel Configuration on risers front view (left) and top view (right)



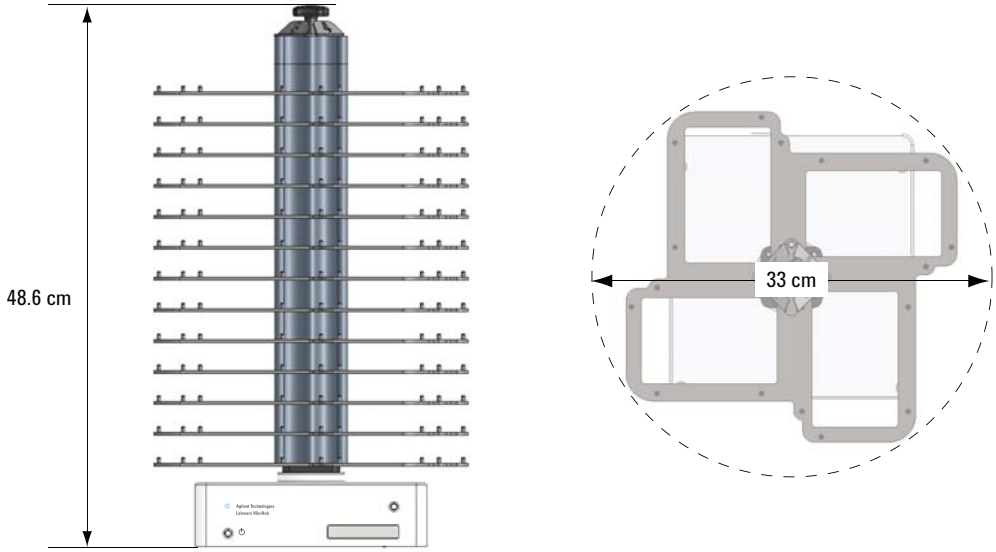
Dimension	Value
Height (without risers) Height (with risers)	37.8 cm (14.9 in) 55.0 cm (21.7 in)
Diameter	38 cm (15 in)
Weight (without risers)	10.8 kg (23.9 lb)

MiniHub option 020—Integration Configuration

The Integration Configuration includes 16 shelves and rods of different heights to allow integration with different robotic arms. The following figures and tables show the dimensions for the integration configurations with the BenchBot Robot and the Direct Drive Robot (DDR).

BenchBot configuration with 13 shelves

Figure BenchBot configuration front view (left) and top view (right)

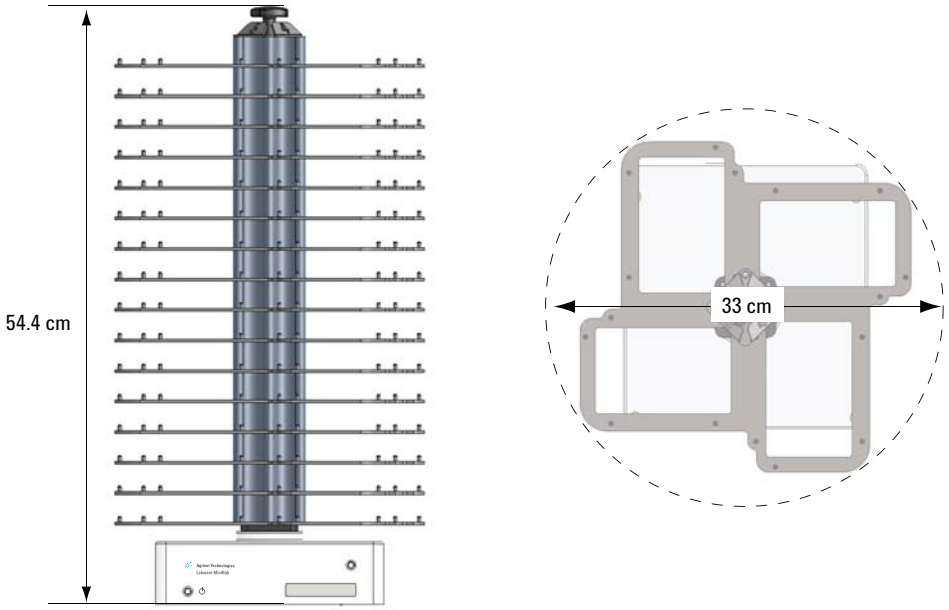


Dimension	Value
Height	48.6 cm (19.1 in)
Diameter	33 cm (13 in)
Weight*	11.6 kg (25.6 lb)

*The weight includes 13 shelves, 13 spacers, and the 41-cm threaded rod.

DDR configuration with 16 shelves

Figure DDR configuration front view (left) and top view (right)



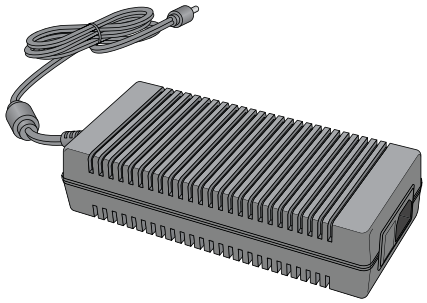
Dimension	Value
Height	54.4 cm (21.4 in)
Diameter	33 cm (13 in)
Weight*	13.3 kg (29.4 lb)

*The weight includes 16 shelves, 16 spacers, and the 46.6-cm threaded rod.

Power supply

The following figure shows the power supply.

Figure Power supply



Dimension	Value
Depth	8.5 cm (3.3 in)
Height	4.5 cm (1.8 in)
Width	18.5 cm (7.3 in)

Power cord: 1.82 m (6.0 ft)
Power supply cord: 1.82 m (6.0 ft)

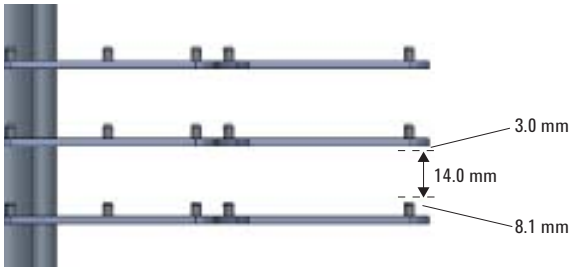
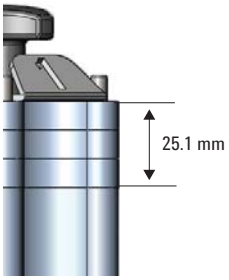
Communication cable

Ethernet cable: 4.3 m (14.1 ft)

Related information

For information about...	See...
Labware specifications	“Labware and shelf pitch specifications” on page 14
Performance specifications	“Performance specifications” on page 18
Electrical requirements	“Electrical requirements” on page 18
Environmental requirements	“Environmental requirements” on page 19
Computer requirements	“Computer requirements” on page 20

Labware and shelf pitch specifications

Item	Specification
Maximum number of shelves:	
BenchCel Configuration	10 shelves
Integration Configuration:	
BenchBot Robot	13 shelves
Direct Drive Robot	16 shelves
Distance between shelves	14.0 mm with single 25.1-mm spacers 39.1 mm with two 25.1-mm spacers 64.2 mm with three 25.1-mm spacers **IMPORTANT** Actual height of a single spacer is 25.1 mm. However, for optimal performance, 8.1 mm is required to clear the locating pins and 3.0 mm is required beneath the shelf above.  The 8.4-mm spacers are used primarily at the top of the Labware MiniHub to fill the gap between the last 25.1-mm spacer and the cassette cap. The stacking heights are as follows: 8.4 mm with a single 8.4-mm spacer 16.7 mm with two 8.4-mm spacers 25.1 mm with three 8.4-mm spacers 
Labware types	ANSI 1-2004 through 4-2004 labware standards, including, microplates, deep-well microplates, tube racks, vial racks, pipette tip boxes, and some common filter plates)

Item	Specification
Robot access:	
BenchCel Configuration	Portrait
Integration Configuration	Landscape or portrait

Related information

For information about...	See...
Physical dimensions	“Physical dimensions” on page 10
Performance specifications	“Performance specifications” on page 18
Electrical requirements	“Electrical requirements” on page 18
Environmental requirements	“Environmental requirements” on page 19
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Base mounting specifications

Attachment surface

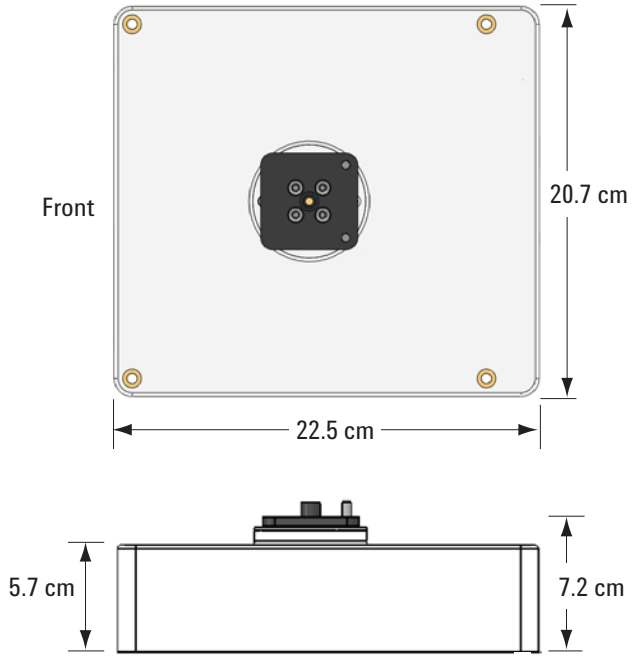
The Labware MiniHub must be installed vertically on a level, stiff surface that is stable. A deformable and non-stable support will greatly reduce the Labware MiniHub’s speed and accuracy, and possibly cause errors.

EU installations only. The stable surface recommendation is required so that the Labware MiniHub installation is compliant with the provisions of the Machinery Directive 2006/42/EC. See Annex 1 of the Machinery Directive for the list of the Essential Health and Safety Requirements (EHSR) that must be met.

Base dimensions

The following figure shows the overall dimensions of the base.

Figure Dimensions of Labware MiniHub base (top and side views)



Mounting holes

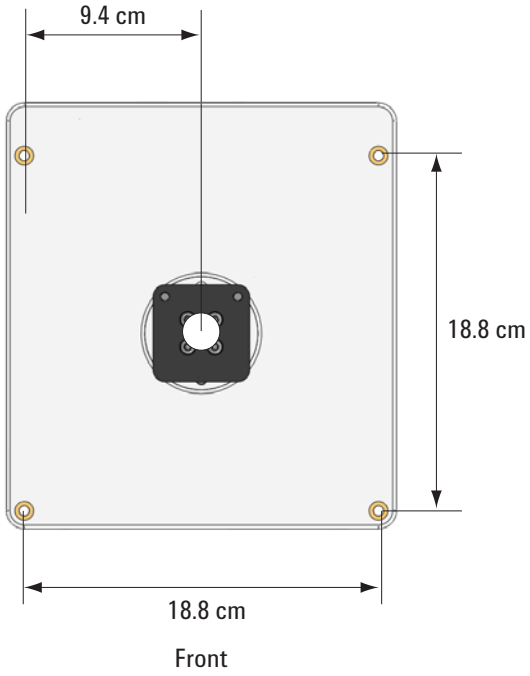
The base has four screw holes for M5 socket-head cap screws (supplied).

Figure Screw holes on Labware MiniHub base (top view)

Mounting requirement	Measurement
Screw type	M5 x 60 (corners)
Number of screws	4 (corners)

The following figure shows the spacing of the screw holes on the base.

Figure Spacing of screw holes on Labware MiniHub base (top view)



Related information

For information about...	See...
Physical dimensions	“Physical dimensions” on page 10
Performance specifications	“Performance specifications” on page 18
Electrical requirements	“Electrical requirements” on page 18
Environmental requirements	“Environmental requirements” on page 19
Computer requirements	“Computer requirements” on page 20

Performance specifications

Performance	Value
Turn 180° any direction	< 5 s
Payload, maximum:	
• Per labware	200 g
• Option 010–BenchCel Configuration (10 shelves with 40 labware)	8000 g
• Option 020–Integration Configuration	
– BenchBot (13 shelves with 52 labware)	10 400 g
– DDR (16 shelves with 64 labware)	12 800 g
Accuracy of position after turn or when stationary	±0.05°

Electrical requirements

Requirement	Value
Voltage	100–240 V~
Frequency	50/60 Hz
Current	1.2 A
Power consumption, maximum	150 VA
Chassis plug	IEC 60320 C14

Related information

For information about...	See...
Physical dimensions	“Physical dimensions” on page 10
Labware specifications	“Labware and shelf pitch specifications” on page 14
Performance specifications	“Performance specifications” on page 18
Environmental requirements	“Environmental requirements” on page 19
Computer requirements	“Computer requirements” on page 20

Environmental requirements

Ambient environment

The Labware MiniHub is for indoor use only. The following table lists the operating and storage specifications.

IMPORTANT The Labware MiniHub must operate within the temperature and humidity specifications stated in the following table. If the Labware MiniHub is integrated with other devices, your system might require additional cooling, depending on the number and types of integrated devices.

Operating	Specification
Pollution degree	2
Installation category	II
Temperature	4–40 °C
Humidity	20–90% RH, non-condensing
Altitude	0–2000 m
Storage (non-operating)	**Recommended range**
Temperature	-20–50 °C
Humidity	0–90% RH, non-condensing
Altitude	0–2000 m

Related information

For information about...	See...
Physical dimensions	“Physical dimensions” on page 10
Labware specifications	“Labware and shelf pitch specifications” on page 14
Performance specifications	“Performance specifications” on page 18
Electrical requirements	“Electrical requirements” on page 18
Computer requirements	“Computer requirements” on page 20

Computer requirements

Software requirements

The G5584A Labware MiniHub requires the following software versions at a minimum:

- Microsoft Windows 10 64-bit operating system
- VWorks Automation Control software v13.1 or VWorks ActiveX control v13.1

The requirements of the controlling computer depend on the lab automation software you are using. For VWorks software computer requirements, see the VWorks software release notes or the Automation Solutions Knowledge Base at www.agilent.com/chem/askb. For third-party automation software, see the user documentation supplied with the product.

Communications interface

The computer must have a dedicated 10BaseT or faster Ethernet card for connecting the MiniHub to a dedicated local area network (LAN). The Agilent-configured computer is already set up to communicate with the MiniHub. No change to the network card IP address is required.

If you are using a computer other than an Agilent-configured computer, make sure the value of the network card IP address and subnet mask are as follows:

- IP address: 192.168.0.1
- Subnet mask: 255.255.255.0

If your computer will be connected to your LAN, make sure the computer has a second network card. The second network card can have a dynamic IP address.

Related information

For information about...	See...
Physical dimensions	“Physical dimensions” on page 10
Labware specifications	“Labware and shelf pitch specifications” on page 14
Performance specifications	“Performance specifications” on page 18
Electrical requirements	“Electrical requirements” on page 18
Environmental requirements	“Environmental requirements” on page 19

3 Installing the Labware MiniHub

This chapter contains the following topics:

Installation workflow

Workflow

The following table presents the steps for installing the Labware MiniHub.

Step	For this task...	See...
1	Install the Labware MiniHub base.	One of the following: • "Installing the Labware MiniHub in a system" on page 23 • "Integrating the Labware MiniHub in a BenchCel Workstation" on page 24
2	Connect the power supply and the cables.	"Connecting the communication cable and power supply" on page 25
3	Assemble the shelves.	"Assembling and disassembling the Labware MiniHub shelves" on page 27

Related information

For information about...	See...
Installing the VWorks software	VWorks software release notes
Integrating Labware MiniHub ActiveX control in a third-party lab automation software	*G5584A Labware MiniHub User Guide*
Turning on the Labware MiniHub	*G5584A Labware MiniHub User Guide*
Setting up the Labware MiniHub in the VWorks software	*G5584A Labware MiniHub User Guide*

Installing the Labware MiniHub in a system

You can install the Integration Configuration (option 020) for the DDR or BenchBot in an automation system.

Before you start

Make sure you have the following:

- M5 socket-head cap screws, 4 (supplied)
- 4-mm hex wrench (not supplied)

Installing the Labware MiniHub base

When you install the Labware MiniHub, you first attach the Labware MiniHub base to a stable and flat surface, then connect the power and communication cables.

To attach the Labware MiniHub base:

1 Position the Labware MiniHub base on the attachment surface so that the screw holes at the four corners align over the mounting holes in the attachment surface.

Figure Mounting holes on Labware MiniHub base (top view)

Front

2 Use the 4-mm hex wrench to install the four screws.

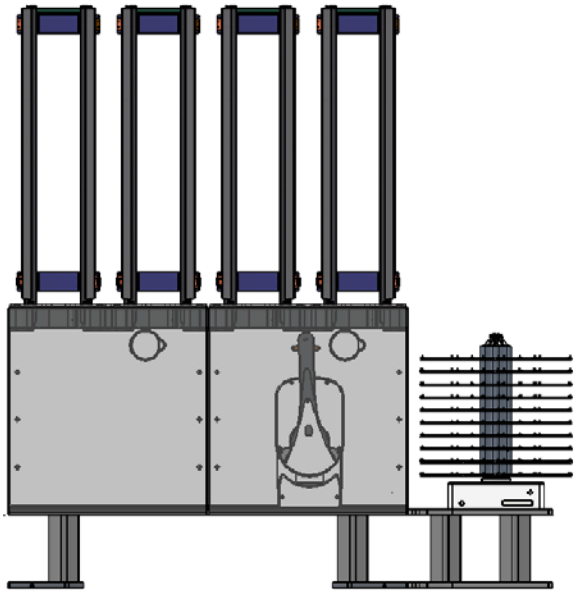
Related information

For information about...	See...
Installing the power supply	"Connecting the communication cable and power supply" on page 25
Reconfiguring the Labware MiniHub shelves	"Assembling and disassembling the Labware MiniHub shelves" on page 27
Turning on the Labware MiniHub	*G5584A Labware MiniHub User Guide*

Integrating the Labware MiniHub in a BenchCel Workstation

You can integrate the BenchCel Configuration (option 010) on either the left side or right side of the BenchCel device.

Figure BenchCel 4R on risers with Labware MiniHub installed on the right side

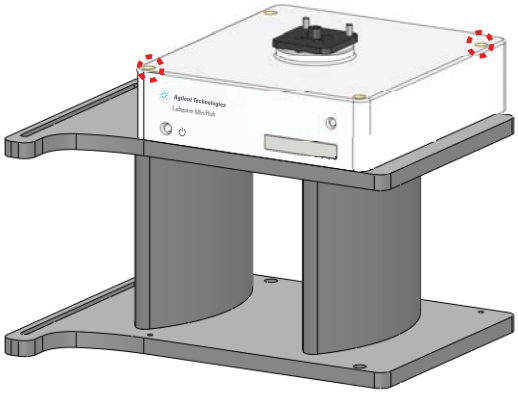


Integrating the MiniHub with the BenchCel Microplate Handler

To integrate the Labware MiniHub in a workstation:

1. Place the MiniHub base on the MiniHub riser assembly or the integration plate, aligning the screw holes in the base with the screw over the mounting holes in the riser assembly or integration plate.
2. Install two screws in diagonally opposing corners to secure the MiniHub base in position.

Figure MiniHub base installed on riser assembly



3 Connect the MiniHub and the BenchCel integration features. For instructions, see the following:

- Installation guide for the BenchCel workstation
- *BenchCel Microplate Handler User Guide*

Related information

For information about...	See...
Integrating the Labware MiniHub in a BenchCel Workstation	*BenchCel Microplate Handler User Guide*
Reconfiguring the Labware MiniHub shelves	"Assembling and disassembling the Labware MiniHub shelves" on page 27
Turning on the Labware MiniHub	*G5584A Labware MiniHub User Guide*

Connecting the communication cable and power supply

Before you start

Make sure you have the following supplied materials:

- Power supply power cord (part number varies by country)
- Labware MiniHub power supply
- Ethernet cable and Ethernet switch

Connecting the Labware MiniHub to the computer and power supply

WARNING **Use only the supplied power cord to connect the Labware MiniHub to the power source. Using other power cords can cause damage to the device or injury to the user during operation.**

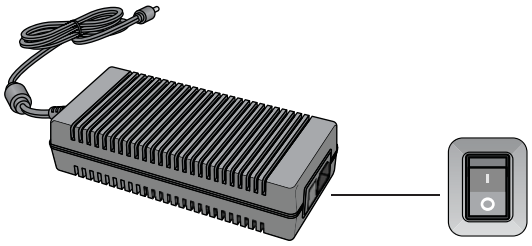
To connect the Labware MiniHub:

1 Use the supplied Ethernet cable to connect the LAN port on the Labware MiniHub to the controlling computer. Use one of the following methods:

- Connect the Labware MiniHub to the controlling computer directly.
- Connect the Labware MiniHub to the controlling computer through an Ethernet switch.

Figure LAN port on Labware MiniHub base (rear view)

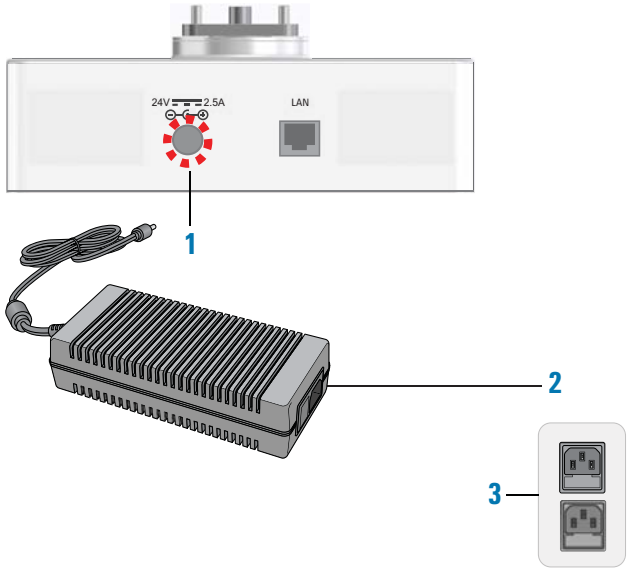
2 Set the power supply on a stable, flat surface. Make sure the on/off switch on the power supply is set to the **off (o)** position.



3 Connect the power supply as follows:

a Connect the power supply cable to the (1) **24V 2.5A** port on the MiniHub base.

b Use the supplied power cord to connect the (2) power supply to a (3) grounded AC power source.



Related information

For information about...	See...
Turning on the Labware MiniHub	*G5584A Labware MiniHub User Guide*

For information about...	See...
Setting up the Labware MiniHub	*G5584A Labware MiniHub User Guide*

Assembling and disassembling the Labware MiniHub shelves

About this topic

The Labware MiniHub is shipped to your laboratory disassembled. This topic explains how to assemble the Labware MiniHub.

You can also use the procedures in this topic to reconfigure the shelves to meet your application needs or to disassemble the shelves for shipping or storage.

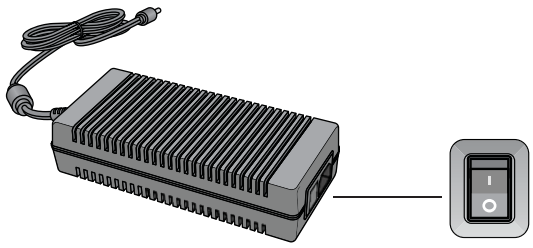
Before you start

WARNING **Always turn off the Labware MiniHub and shut down the system before reconfiguring the Labware MiniHub.**

WARNING **Always disconnect the power cord from the Labware MiniHub power supply before reconfiguring the Labware MiniHub.**

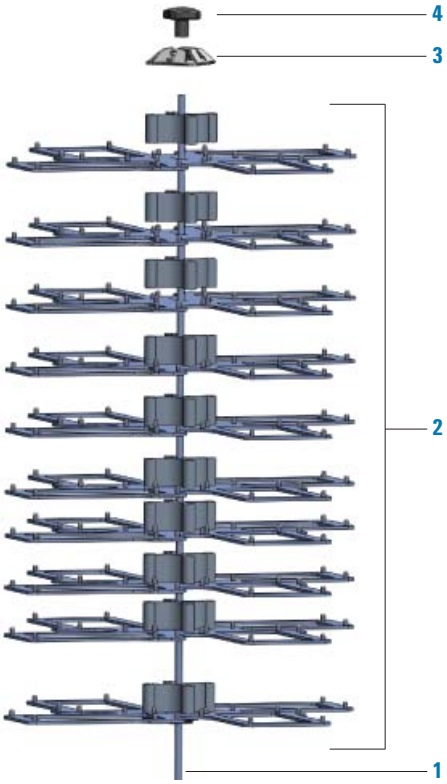
If you are reconfiguring the shelves after the Labware MiniHub has already been in operation:

1. Turn off the automation system or workstation. See the automation system or workstation user guide for instructions.
2. Ensure that the on/off switch on the power supply is set to the **off (o)** position.



Assembling the shelves

To assemble the shelves:



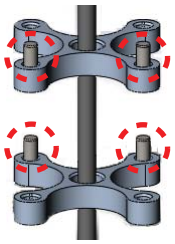
Item	Name
1	Rod
2	Shelves and spacers
3	Cassette cap
4	Black knob

1 Insert the rod into the base of the MiniHub and turn clockwise to tighten.

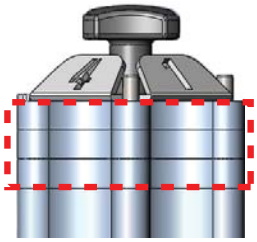
2 Add shelves and spacers according to your requirements.

When adding the shelves and spacers, make sure:

- A shelf sits at the bottom of the assembly.
- The spacer alignment pins are at opposing positions with each layer, as shown.



- The shelves are correctly aligned and seated securely. Use the spacer alignment pins to ensure correct alignment.
- If you are using a subset of the shelves, you can add the 8.4-mm spacers at the top of the assembly to fill the space between the top-most 25.1-mm spacer and the cassette. (You do not need to add the 8.4-mm spacers if all of the shelves are used.)



You can add two or more 25.1-mm spacers between shelves to accommodate tall labware. (In this case, some shelves will not be used.) The highest shelf you can install depends on the maximum access height of the automation system robot and the MiniHub model.

3 Place the cassette cap at the top of the rod.

4 Add the black knob at the top of the rod and turn clockwise to tighten it.

To reconfigure the shelves:

1 Turn the black knob at the top of the Labware MiniHub counterclockwise and remove it.

2 Lift and remove the cassette cap.

3 Lift and remove the spacers and shelves from the rod.

4 If you are replacing the threaded rod:

   a Turn the rod counterclockwise to remove it from the base.

   b Insert the new rod at the center of the base and turn it clockwise to tighten it.

5 Add spacers and shelves according to your requirements.

6 Place the cassette cap at the top of the rod.

7 Place the black knob at the top of the rod and turn clockwise to tighten it.

To disassemble the shelves:

1. Turn the black knob at the top of the Labware MiniHub counterclockwise and remove it.
2. Lift and remove the cassette cap.
3. Lift and remove the spacers and shelves from the rod.
4. Turn the rod counter-clockwise in the base and remove it.
5. Pack the shelves, spacers, rod, cassette cap, and black knob in their original shipping containers.

Related information

For information about...	See...
Turning on the Labware MiniHub	*G5584A Labware MiniHub User Guide*
Setting up the Labware MiniHub	*G5584A Labware MiniHub User Guide*

Agilent Technologies

Safety and Installation Guide

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