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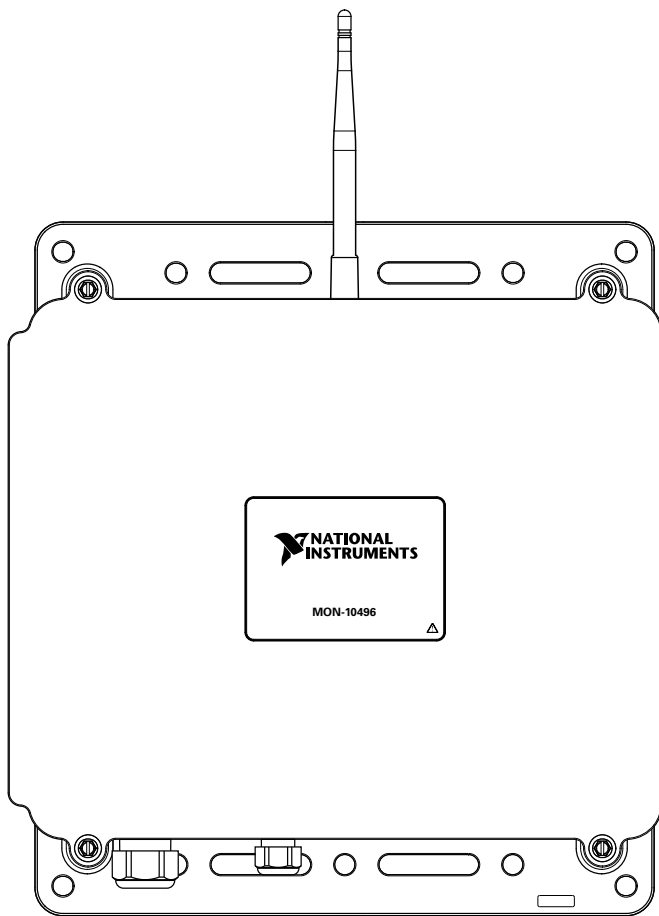
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sbRIO-9607

USER GUIDE

MON-10496

Wireless Monitoring Gateway



Note Read the *MON-10496 Safety, Environmental, and Regulatory Information* document on ni.com/manuals before installing.



Note The guidelines in this document are specific to the MON-10496. The other components in the system might not meet the same safety ratings. Refer to the documentation for each component in the system to determine the safety and EMC ratings for the entire system.

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Related Documentation

The following documents contain information about the MON-10496. To view them, go to ni.com/manuals.

- *MON-10496 Safety, Environmental, and Regulatory Information*
- *MON-10496 Specifications*

For help using your device in NI InsightCM™, refer to the NI InsightCM Help in software or online at ni.com/r/insightcmhelp.

Unpacking



Notice Electrostatic Discharge (ESD) can damage the device. To prevent damage, use industry-standard ESD prevention measures during unpacking, installation, maintenance, and operation.



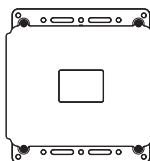
Notice Never touch exposed signal terminals, power terminals, or antenna connector.

Remove the device from the package and inspect it for loose components or any other signs of damage. Notify NI if the device appears damaged in any way. Do not install a damaged device.

Kit Contents

Kit Contents

①



②



③



④



⑤



⑥



1. MON-10496
2. MON-10496 Safety, Environmental, and Regulatory Information
3. NI Monitoring Devices Card

4. 1 Antenna with weather-protective boot
5. 1 M16 Gland
6. 1 PG16 Gland

What You Need to Get Started

Hardware needed:

- M6 to M8 bolts and nuts or 1/4 in. to 5/16 in. bolts and nuts
- Washers (recommended)
- M16 gland (supplied by NI)
- PG16 gland (supplied by NI) or 0.5 in. conduit fitting
- 2 mm to 8 mm diameter CAT5e Ethernet cable with a smooth, round jacket
- 5 mm to 9 mm diameter power cable with a smooth, round jacket and individual conductors up to 12 AWG that comply with your local electrical code
- RJ45 connector

Tools needed:

- 2.5 mm flat-blade screwdriver (your own or NI part number 786911-01)
- 19 mm deep socket or wrench
- 22 mm socket or wrench
- 27 mm deep socket
- 30 mm socket or wrench
- 24 mm socket or wrench
- Ethernet termination tool
- (Optional) 19 mm gland dome nut tightening tool (SEALCON part number S-1900-WR)
- (Optional) 24 mm gland dome nut tightening tool (SEALCON part number S-2400-WR)

Safety



Caution Observe all instructions and cautions in the user documentation. Using the model in a manner not specified can damage the model and compromise the built-in safety protection. Return damaged models to NI for repair.



Attention Suivez toutes les instructions et respectez toutes les mises en garde de la documentation utilisateur. L'utilisation d'un modèle de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée. Renvoyez les modèles endommagés à NI pour réparation.



Caution The protection provided by the MON-10496 can be impaired if it is used in a manner not described in the user documentation.



Attention La protection apportée par le MON-10496 risque d'être endommagée s'il est utilisé d'une autre façon que celle décrite dans la documentation utilisateur.



Caution An external circuit breaker box must be installed according to applicable electrical codes by trained personnel to serve as the power disconnect when installing the MON-10496. The circuit breaker box must be easy to reach and marked as the power disconnect for the device.



Attention Un boîtier de disjoncteur externe doit être installé, conformément au code électrique applicable, par du personnel qualifié pour servir de dispositif de coupure de courant lors de l'installation du MON-10496. Le boîtier du disjoncteur doit être facilement accessible et marqué en tant que dispositif de coupure de courant pour l'appareil.



Caution Before opening the MON-10496 for service, you must turn off the external power to the device and use the external breaker box to completely remove mains power.



Attention Avant d'ouvrir le MON-10496 pour l'entretien, vous devez couper l'alimentation externe de l'appareil et utiliser le boîtier de disjoncteur externe pour supprimer complètement l'alimentation secteur.



Caution All wiring must be insulated for the highest voltage used.



Attention Tout le câblage doit être isolé pour la plus haute tension utilisée.



Caution Conduit or gland fittings must be installed by trained personnel according to applicable electrical standards and the torque specified by the manufacturer.



Attention Les raccords de conduits ou presse-étoupe doivent être installés par du personnel qualifié conformément aux normes électriques applicables et au couple spécifié par le fabricant.



Caution Ensure that hazardous voltage wiring is performed only by qualified personnel adhering to local electrical standards.



Attention Les raccords de conduits ou presse-étoupe doivent être installés par du personnel qualifié conformément aux normes électriques applicables et au couple spécifié par le fabricant.

EMC Notices

Refer to the following notices for cables, accessories, and prevention measures necessary to ensure the specified EMC performance.



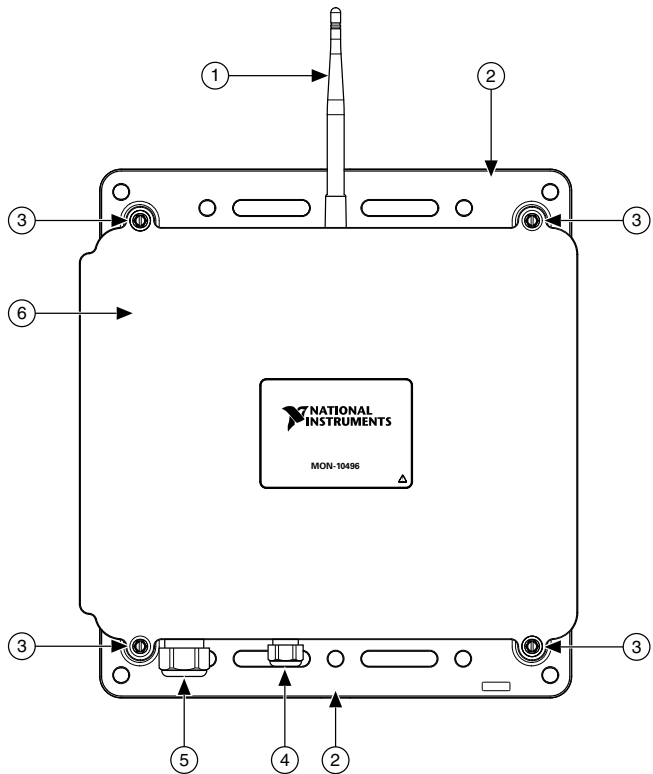
Notice For EMC declarations and certifications, and additional information, refer to the [Product Certifications and Declarations](#) section.



Notice Changes or modifications to the product not expressly approved by NI could void your authority to operate the product under your local regulatory rules.

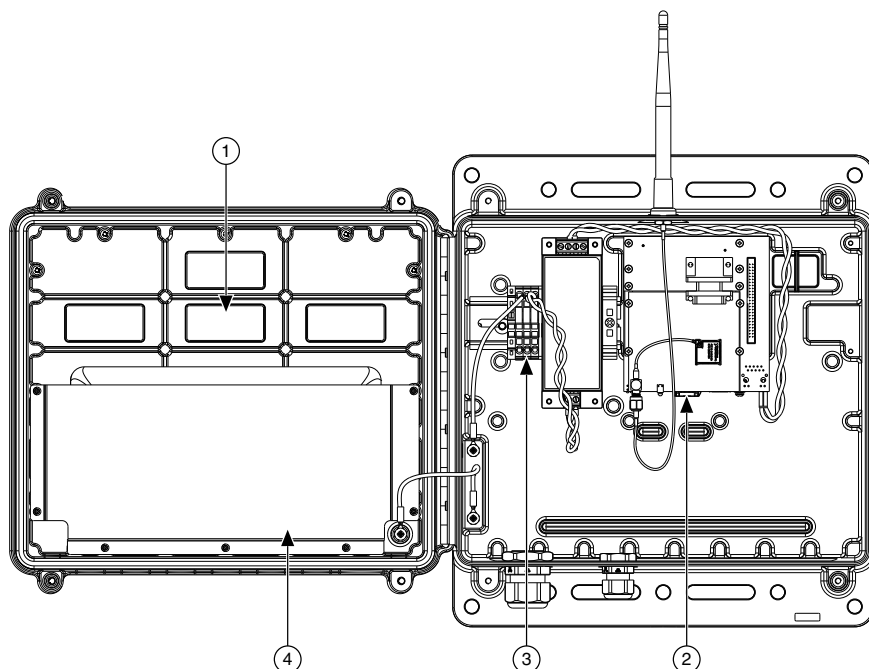
Parts Diagrams

Exterior Parts Diagram



- | | |
|---------------------|---------------------------------|
| 1. Antenna | 4. M16 gland for Ethernet cable |
| 2. Mounting flanges | 5. PG16 gland for power cable |
| 3. Captive screws | 6. Door |

Interior Parts Diagram



- 1. Serial number label
- 2. Ethernet port

- 3. AC power input terminals
- 4. Door pocket for desiccant pack

Internal Real-Time Clock (RTC)

The system clock of the MON-10496 gets the date and time from the internal RTC at startup. This synchronization provides timestamp data to the device.

Real-Time Clock (RTC) Battery

The MON-10496 contains an RTC battery, which is a lithium cell battery that stores the system clock information when the MON-10496 is powered off. Only a slight drain on the RTC battery occurs when power is applied to the MON-10496 power connector. The rate at which the RTC battery drains when power is disconnected depends on the ambient storage temperature. For longer battery life, store the MON-10496 at a cooler temperature and apply power to the power connector. Refer to the *MON-10496 Specifications* on ni.com/manuals for the expected battery lifetime.

Refer to [Battery Replacement and Disposal](#) on page 16 for more information about replacing the battery.

Opening and Closing the Door



Caution Before opening the MON-10496 for service, you must turn off the external power to the device and use the external breaker box to completely remove mains power.



Attention Avant d'ouvrir le MON-10496 pour l'entretien, vous devez couper l'alimentation externe de l'appareil et utiliser le boîtier de disjoncteur externe pour supprimer complètement l'alimentation secteur.



Notice Do not put a load on the device door while it is open.

Complete the following steps to open and close the door of the MON-10496.

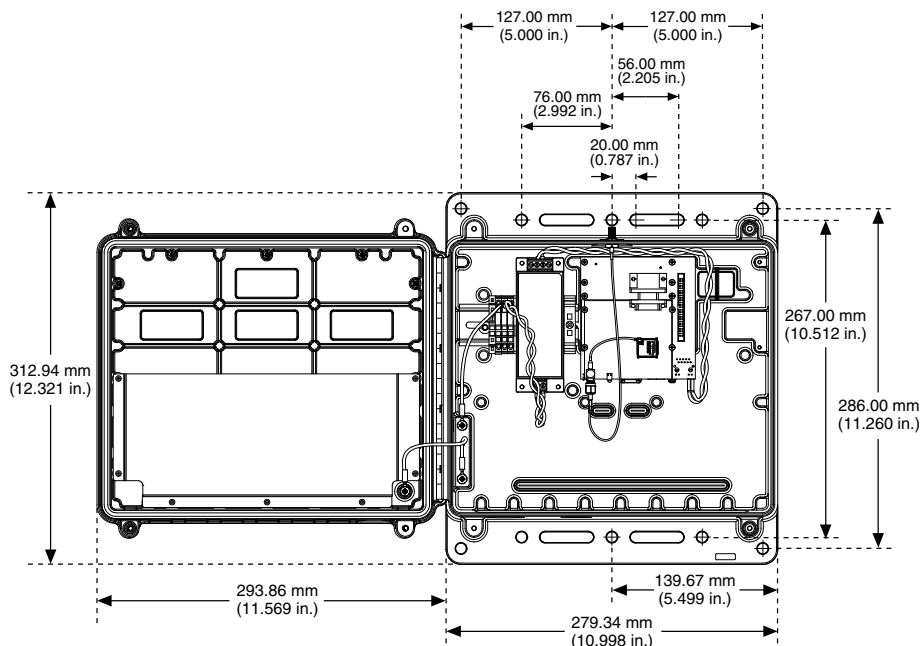
1. Loosen the four captive screws on the door of the device with a 1/4 in. socket or 6 mm (1/4 in.) flat-blade screwdriver.
2. Open the door of the device slowly.
3. Clean the gasket and gasket mating surface with a dry or damp cloth prior to closing the device door.
4. Close the door slowly.
5. Tighten the four captive screws on the door of the device to 1.3 N · m (11.5 lb · in.).

Mounting

The MON-10496 must be mounted upright to a rigid surface such as a wall, panel, strut channel, or metal post. For installations that may experience vibration, NI recommends using a thread locking compound or lock nuts.

Each flange has several bolt locations as shown in the following figure. The flanges are 4 mm (0.157 in.) thick. The V-notch on the rear facilitates mounting to a round surface such as a pipe or pole using a pipe clamp bracket.

Figure 1. Mounting Dimensions



Hardware needed:

- M6 to M8 bolts and nuts or 1/4 in. to 5/16 in. bolts and nuts
- Washers (recommended)

Complete the following steps to mount the MON-10496.

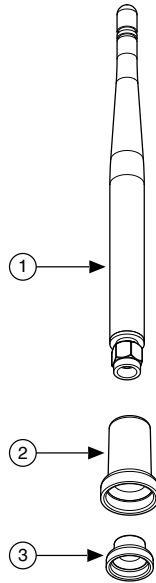
1. Place the device against the surface on which you want to mount it.
2. Insert bolts into the mounting holes, placing at least two bolts on each flange. You must use at least four bolts in total to secure the device, but may use more than four for additional security.
3. (Optional) place washers between the bolt and the flange and/or between the mounting structure and nuts as needed.
4. Place nuts onto the bolts and tighten to secure them.

Installing the Antenna and Boot



Notice Never apply power or operate the MON-10496 without the antenna installed. Doing so may damage the device.

Figure 2. Antenna and Boot Parts



1. Antenna
2. Large boot
3. Small boot

Complete the following steps to install the antenna.

1. Slide the large boot over the base of the antenna.
2. Place the small boot over the RP-SMA connector.
3. Attach the antenna to the device and tighten to a torque of $0.45 \text{ N} \cdot \text{m}$ ($4 \text{ lb} \cdot \text{in.}$).
4. Slide the large boot down the antenna to the base.
5. Press the large boot into place to create a snug seal.

Connecting

Wiring Guidelines

Adhere to the following guidelines when wiring the MON-10496.



Caution Before opening the MON-10496 for service, you must turn off the external power to the device and use the external breaker box to completely remove mains power.



Attention Avant d'ouvrir le MON-10496 pour l'entretien, vous devez couper l'alimentation externe de l'appareil et utiliser le boîtier de disjoncteur externe pour supprimer complètement l'alimentation secteur.



Notice Refer to the *MON-10496 Specifications* on ni.com/manuals to make sure that any devices you connect to the MON-10496 are compatible.

Connecting the Ethernet Cable

Figure 3. CAT5e Ethernet Port Pinout

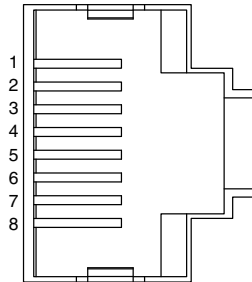


Table 1. Signal Descriptions

Pin	Fast Ethernet Signal	Gigabit Ethernet Signal
1	TX+	TX_A+
2	TX-	TX_A-
3	RX+	RX_B+
4	No Connect	TX_C+
5	No Connect	TX_C-
6	RX-	RX_B-
7	No Connect	RX_D+
8	No Connect	RX_D-

Hardware needed:

- CAT5e Ethernet cable
- RJ45 connector
- M16 gland (supplied by NI)

Tools needed:

- 19 mm deep socket or wrench
- 22 mm socket or wrench
- Ethernet termination tool
- (Optional) 19 mm gland dome nut tightening tool (SEALCON part number S-1900-WR)

Complete the following steps to connect an Ethernet cable to the MON-10496.



Note The RJ45 connector will not fit through the gland, so you must first pass the Ethernet cable without the connector attached through the gland then terminate the connector to the cable.

1. Thread the M16 gland into the device enclosure.
2. Tighten the gland body to a torque of $3.16 \text{ N} \cdot \text{m}$ ($28 \text{ lb} \cdot \text{in.}$).
3. Install the backing nut onto the M16 gland and tighten to a torque of $2.5 \text{ N} \cdot \text{m}$ ($22.1 \text{ lb} \cdot \text{in.}$).
4. If you are using a cable that has external metal armor or braid, terminate the external armor or braid so that it does not pass through the gland grommet to ensure that the gland can seal properly around the smooth, round inner cable jacket.
5. Insert the Ethernet cable through the gland using the appropriately sized grommet for your cable.

The M16 gland comes with a pre-installed gray 2 mm to 6 mm grommet and an additional black 4 mm to 8 mm grommet. For optimum sealing and strain relief, only use wiring with a round, circular, and smooth exterior cable jacket.

6. Terminate the RJ45 connector to the Ethernet cable and plug it into the Ethernet port.
7. Tighten the M16 dome nut to a torque of $2.5 \text{ N} \cdot \text{m}$ ($22.1 \text{ lb} \cdot \text{in.}$) to provide strain relief and weather resistance for the cable.

Connecting Power and Ground



Caution Before opening the MON-10496 for service, you must turn off the external power to the device and use the external breaker box to completely remove mains power.



Attention Avant d'ouvrir le MON-10496 pour l'entretien, vous devez couper l'alimentation externe de l'appareil et utiliser le boîtier de disjoncteur externe pour supprimer complètement l'alimentation secteur.

Hardware needed:

- PG16 gland (supplied by NI) or 0.5 in. conduit fitting
- 5 mm to 9 mm diameter power cable with a smooth, round jacket and individual conductors up to 12 AWG that comply with your local electrical code

Tools needed:

- 2.5 mm flat-blade screwdriver (your own or NI part number 786911-01)
- 27 mm deep socket
- 30 mm socket or wrench
- 24 mm socket or wrench
- (Optional) 24 mm gland dome nut tightening tool (SEALCON part number S-2400-WR)

Complete the following steps to connect power and ground.

1. Confirm that the external power to the MON-10496 has been turned off.
2. Install the PG16 gland on the device enclosure.

You may use the gland provided by NI or your own gland. Check the *MON-10496 Specifications* on ni.com/manuals for the required gland specifications.



Note If you are using an alternative gland or fitting, ensure that it is rated for Type 3 or greater and install according to the manufacturer's instructions.

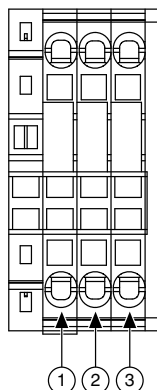
- a) Insert the PG16 gland through the hole on the enclosure.
 - b) Install the backing nut on the PG16 gland and tighten the nut with a 30 mm socket or wrench to a torque of 5 N · m (44.2 lb · in.) while holding the gland body with a 27 mm deep socket.
3. If you are using a cable that has external metal armor or braid, terminate the external armor or braid so that it does not pass through the gland grommet to ensure that the gland can seal properly around the smooth, round inner cable jacket.
 4. Insert the cable through the PG16 gland.

The PG16 gland comes with a 5 mm to 9 mm grommet.

5. Open the AC power input spring terminals by inserting a 2.5 mm flat-blade screwdriver and pressing the lever.
6. Connect the line, neutral, and protective earth ground connections by inserting wires into the spring terminals on the AC power input terminals. Refer to the pinout below.

The AC power input terminals work with wiring up to 12 AWG. Use wiring that meets your applicable electrical codes. You do not need to use ferrules.

Figure 4. DIN Terminal Block Pinout



1. Protective earth
 2. Line
 3. Neutral
-
7. Ensure that the protective earth wire is connected to the green/yellow terminal and has more slack than the power wires so that the grounding terminal always disconnects last.
 8. Tighten the PG16 dome nut with a 24 mm socket or wrench to a torque of $3.33 \text{ N} \cdot \text{m}$ ($29.5 \text{ lb} \cdot \text{in.}$) to provide strain relief and weather resistance for the cable.

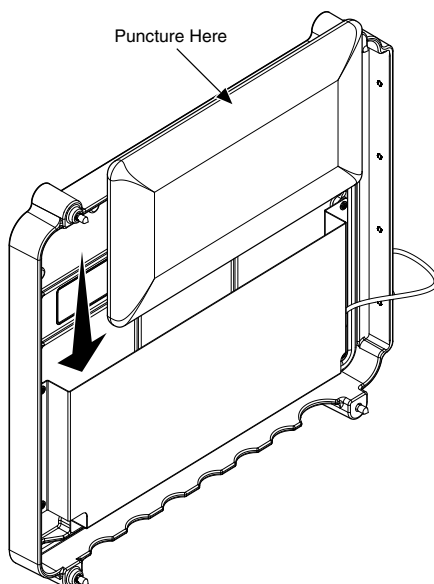
Using the Desiccant Kit

If your application is outdoors (non-weather-protected according to IEC 60721-3-4), or if the device might be directly exposed to an outdoor climate (partially weather-protected according to IEC 60721-3-3, 3K4 or greater), you must use a desiccant pack from the desiccant kit (part number 787006-10) to meet the humidity specifications. Replace the desiccant kit after two years of use.



Notice Do not put a load on the device door while it is open.

Figure 5. Puncturing and Inserting the Desiccant Pack



Complete the following steps.

1. Confirm that the power to the device has been turned off.
2. Loosen the four captive screws on the door of the device.
3. Open the door of the device slowly.
4. Activate the desiccant pack by piercing the Mylar outer bag with the provided 1/16 in. punch. See the figure above for where to puncture the desiccant pack.
5. Place the desiccant in the clear pocket so that the pierced hole is not blocked by the pocket, door, or Mylar folding on itself.
6. Clean the gasket and gasket mating surface prior to closing the device door.
7. Close the door slowly.
8. Tighten the four captive screws on the door of the device to $1.3 \text{ N} \cdot \text{m}$ (11.5 lb · in.).

Network Connection

The first time you power up the MON-10496, it attempts to initiate a DHCP network connection. If the MON-10496 cannot initiate a DHCP connection, it connects to the network with a link-local IP address with the form `169.254.x.x`. Refer to the NI InsightCM Help in software or online at ni.com/r/insightcmhelp for more information on finding and adding a device to NI InsightCM.

Troubleshooting Network Communication

If the MON-10496 does not connect to NI InsightCM with a status of Online, try the following troubleshooting tips:

- Check the Ethernet cable connections on the MON-10496, server, and router.
- If you have network firewalls or other security software enabled, try temporarily turning them off. You might also need to add an exception for NI InsightCM by completing the following steps:
 1. Navigate to the standard Microsoft Windows Control Panel utility for managing firewall settings.
 2. Click **Allow a program or feature through Windows Firewall**.
 3. Click **Allow another program**.
 4. Select NI InsightCM and click **Add**.
 5. Click **OK** and close the firewall settings.
- Ensure that the ports are open to communication on the server. If you are using an intelligent switch on the network, ensure that the switch is not disabling these ports. Refer to the *NI InsightCM Readme* on ni.com/manuals for more information about server ports.
- If you have multiple network cards on the server, ensure that you use the Windows Control Panel to disable all other network adapters, such as wireless adapters. Turning off the wireless antenna is insufficient.

Battery Replacement and Disposal



Note The following information applies to the internal sbRIO-9607.

This device contains a long-life coin cell battery for the RTC. If you need to replace the battery or return the device to NI, use the Return Material Authorization (RMA) process or contact an authorized NI service representative. Go to ni.com/r/10496battery for more information about replacing the battery. If you return the device to NI, you shall also be responsible for using sufficient protective packaging in accordance with all applicable laws and transportation requirements. Visit ni.com/contact or call (866) 275-6964 for more information on the RMA process.

Where to Go Next

After you have finished mounting and connecting your MON-10496 wireless monitoring gateway, finish setting up your system by doing the following.

- Install your MON-10467 wireless vibration measurement device(s) and/or MON-10411 wireless vibration sensor(s). Refer to the following documentation on ni.com/manuals for help with your MON-10467 or MON-10411 devices.
 - *MON-10467 Safety, Environmental, and Regulatory Information*
 - *MON-10467 User Guide*
 - *MON-10467 Specifications*
 - *MON-10411 Safety, Environmental, and Regulatory Information*
 - *MON-10411 User Guide*
 - *MON-10411 Specifications*
- Set up and configure your system in NI InsightCM. Go to ni.com/downloads to download and install NI InsightCM version 3.5 or later. For help using your device in NI InsightCM, refer to the NI InsightCM Help in software or online at ni.com/r/insightcmhelp.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

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Visit ni.com/services for information about the services NI offers.

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