Insights

Robotiq Insights

Instruction Manual

LEAN ROBOTICS

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Revisions

Robotiq may modify this product without notice, when necessary, due to product improvements, modifications or changes in specifications. If such modification is made, the manual will also be revised, see revision information. See the latest version of this manual online at support.robotiq.com.

Revision 2021/08/11

Section modified : 1.2 Requirements & compatibility

Revision 2020/07/30

Change of the camera model included in the Insights Starter Kit

Revision 2019/05/21

Major changes:

Replacement of the Edge Gateway by the IIoT Device

Addition of the Backup Tool

Revision 2018/07/03

Section modified: 4.1 Web application interface

Revision 2018/03/15

Section modified: 1. General Presentation

Section modified: 3.1 Installation steps

Section modified 4.1 Web application interface

Revision 2018/02/05

Section modified: 3.1 Installation steps

Section modified: 4.1 Web application interface

Section modified: 4.2 Teach pendant interface

Revision 2017/09/11

Official release

Copyright

1. General Presentation

1.1. Purchase options

Robotiq Insights is a web application that provides a digital representation of Universal Robots in operation. Once registered, the user can connect a UR robot to the web application and get a 360-degree view of the robot's performance with real-time monitoring, analysis, and diagnosis tools.

Insights' rich data set and analytics allow manufacturers to continuously improve productivity and quality while reducing the level of supervision required during operation.

Insights comes in two subscription plans. The features comprised in each plan are displayed in the table below:

Feature	Insights License [1]	Insights Starter Kit [1]
Real-Time Robot Overview	✓	✓
Email Reports Scheduler	✓	✓
Robot SMS Alerts	✓	✓
Production Performance Timeline & KPIs	✓	✓
Robot Digital I/Os	✓	✓
Downloadable Events Log	✓	✓
Remote Access	✓	✓
Backup and Robot Log Files	✓	✓
Preconfigured 4G LTE/Wi-Fi Router & antennas		✓
Prepaid international SIM card [2]		✓
Logitech C270 webcam		✓
Connection cables & accessories		✓

[1]1-year term
[2] Equivalent to a 1-month period

Using their laptops, smartphones or tablets, Insights users can:

- Remotely monitor a UR robot's state in real time;
- Optimize robot performance using real-time, operational key performance indicators (KPIs);
- Analyse performance trends using robot performance data over time periods that narrows from years to minutes
- Receive daily performance reports sent by email;
- Receive notification messages (SMS) for events such as emergency stops, protective stops, safeguard stops, or when the robot is disconnected;
- Diagnose work cell events like bottlenecks, faults or exceptions using digital I/O states and external sensor readouts;
- Access a dedicated, downloadable log of Insights events;

- ○ Share the robot with others (co-workers, partners, etc.) and receive remote support from them.
- ○ Gain peace of mind by having all robot files backed up in the cloud.

1.2. Requirements & compatibility

For Insights

> **Info**
>
> Insights is only available for Universal Robots UR3, UR5 & UR10 and e-Series. It is compatible with controller version CB3.1 or later, and with PolyScope version 5.0 (e-Series) or 3.6 (CB series) and later.

> **Info**
>
> Insights is optimized for **Google Chrome** web browser. Note that it is not supported on **Internet Explorer 11**.

For Remote Access

Web browser

Google Chrome is the only web browser compatible with the Remote Access web application.

> **Warning**
>
> Please note that the Remote Access web application opened with a mobile device will not allow for a Remote Access connection.

Whitelisting

In order for the remote robot network and the Remote Access web application to communicate through your company network, the ***.robotiq.com** domain needs to be whitelisted on both sides.

Contact your IT department should you need assistance in whitelisting a domain on your network.

It should work «straightforwardly» with a SIM card in a 3G/4G configuration.

Web cameras

> **Caution**
>
> There is no physical limitation that prevents the use of more than two web cameras.
>
> It is not recommended to plug more than two cameras to avoid overloading the USB bandwidth as it can cause performance issues with the robot or other connected devices.

Single camera feed

The majority of web cameras will work for single camera feed, but we recommend to use either the one included in the Starter Kit: the Logitech C270, or the Logitech C920.

Dual camera feed

- Logitech C920

1.3. Components

Log in or create an account by visiting insights.robotiq.com. Users need to connect their robot to the Insights cloud service via an Internet connection and then pair the robot to their account. The following are the main components of the product:

○ Insights web application (insights.robotiq.com), a platform that provides a dashboard to view all paired robots and each robot's performance data.

○ Insights URCap to be installed on the UR robot, which in turn will be paired to an Insights account. The URCap enables the connection to the Insights web application.

○ Insights Starter Kit that ensures an easy and secure connection of your robot to the cloud and to setup Remote Sessions.

2. Safety

2.1. Intended Use

Insights is designed to work only with Universal Robots arms. Robotiq Insights is intended to be used for the following purposes:

○ Monitor robot status in real time

○ Monitor robot performance indicators in real time and via reports

○ Get SMS alerts for robot events

○ Remotely access the robot from everywhere

○ Manage backups of robot files

> **Warning**
>
> Insights should not be used as a safety parameter for the robotic cell.

> **Caution**
>
> Always comply with local and/or national laws, regulations and directives on automation safety and general machine safety.

Robotiq will not be liable for any damages resulting from any improper or unintended use.

2.2. Network Security Warning

Connecting your robot to an unsecured Internet network represents a high security risk. Make sure you use the Insights IIoT Device or secure the robot by yourself to protect it from being tampered with.

> **Warning**
>
> Strong security should be provided to the communicating channel. Communication between your robot cell, the gateway and the cloud must be secure in order to prevent any data tampering or unrestricted access.

Using the Insights IIoT Device properly will protect your robot from being tampered with. It is designed to allow:

- Only outbound communication to the cloud (no inbound connectivity)
- Targeted outbound connectivity (only the necessary ports are open)

Refer to the **Installation** section for guidelines on how to install the IIoT Device correctly.

Refer to the **Appendix** section for privacy policy and end-user terms of use and license agreement.

2.3. Insights IIoT Device Warning

> **Caution**
>
> Do not use the IIoT device in premises that can be submerged by water.

> **Caution**
>
> Do not use the IIoT Device during an electrical storm to avoid electrical shock.

Compliance is required with respect to voltage, frequency, and current requirements. Connection to a different power source than those specified may result in improper operation, damage to the equipment or fire hazard if the limitations are not followed.

This equipment is provided with a detachable power cord which has an integral safety ground wire intended for connection to a grounded safety outlet.

- Do not substitute the power cord with one that does not correspond to the approved type. If a 3-prong plug is provided, never use an adapter plug to connect to a 2-wire outlet as this will defeat the continuity of the grounding wire.
- The equipment requires the use of the ground wire as a part of the safety certification, modification or misuse can provide a shock hazard that can result in serious injury or death.
- Protective grounding/earthing is provided by the listed AC adapter. Building installation shall provide appropriate short-circuit backup protection.
- Protective bonding must be installed in accordance with local national wiring rules and regulations.

Refer to the **Installation** section for guidelines on how to install the IIoT Device correctly.

Refer to the **Appendix** section for privacy policy and end-user terms of use and license agreement.

This equipment is provided with the power up option via stripped wire cables. Follow the plugging instructions in the **Configuring Insights IIoT Device** section. Failure to do so may result in breakage of equipment.

2.4. Remote Access Warning

Safety

The remote sessions are provided at your sole risk and Robotiq will not be liable to you for any loss, costs, expenses or damages incurred by you, including but not limited to any direct, indirect, incidental, consequential, or special damages.

Moving the robot remotely without the visual stream provided by the web camera(s) is not recommended. Having one ore two web cameras connected and working allows for safer remote operation and control of the robot. Robotiq disclaims itself from any material damage and/or bodily injury caused by the remote operation and control of the robot.

Make sure an operator stands next to the robot at all times during a Remote Access session, with the emergency stop (E-Stop) button within arms reach.

Safety

Make sure the robot is calibrated before going into Freedrive mode remotely.

Confidentiality

A Remote Access session provides the remote expert with complete access to the robot (programs, installation file, etc.)

Revoke access to the robot to stop sharing robot data.

2.5. Backup Warning

Confidentiality

Activating the backup functionality will enable access to robot files to every robot viewer.

Revoke access to the robot to control access to data.

3. Installation

First, log in or create an account on insights.robotiq.com. You will access the Dashboard that contains the Insights Demo robot. Follow these three steps in order to install Insights on a robot and pair it to your account.

1 Quickstart Guide

2 IIoT Device (4G LTE/Wi-Fi Router)

3 Power supply

4 24V power stripped cables

5 1 month of data on a prepaid international SIM card

6 USB key

7 Ethernet cable

8 Logitech C270 Camera

9 USB extension cable

10 USB splitter

11 4G LTE standard antennas

12 Wi-Fi standard antenna

13 4G LTE wire antennas

14 Wi-Fi wire antenna

The user needs to provide an Ethernet cable to supply Internet connectivity if the use of Ethernet Bridge configuration is wanted.

3.1. Configuring Insights IIoT Device

3.1.1. Screw in the Wi-Fi and 4G antennas

The Starter Kit includes 2 sets of antennas: a set of standard antennas to put the device next to the controller, and a set of wire antennas that will be useful if you want to enclose the IIoT Device in the controller box. The wire antennas are magnetic and can be placed outside of the controller box.

> **Info**
>
> There are 2 4G antennas. Place each one of them at a distance and pointing in a different direction to maximize the reception. Do not place the antennas next to each other and try different positions to maximize the reception.

> **Info**
>
> It is recommended to plug both of the antennas, the Wi-Fi and the 4G ones, to make the switch easier, when a different connection option is needed.

3.1.2. Power up the modem

Two power up options are available:

1. Plug in a wall outlet;
2. Plug directly in the controller, using stripped wire cables.

Power up the modem with 120V/240V power outlet

1. Plug the power connector into the wall with a 120V/240V power outlet
2. Plug the 4 pins connector into the modem

Power up the modem with the UR controller

1. Remove the 24V terminal from the UR Controller box
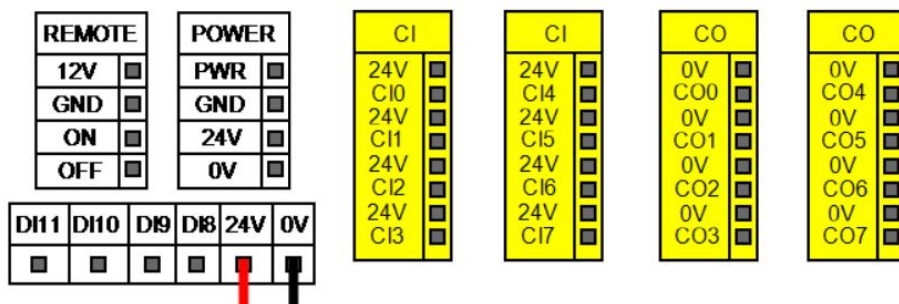
Fig. 3.1: Wiring diagram for e-series

2. Fix the black wire in the 0V input and the red wire in the 24V input and screw firmly in place

3. Plug back the 24V terminal in the controller box

4. Plug the 4 pins connector into the modem

3.1.3. Selection of the connection option and configuration of the device

Cellular 3G/4G bridge configuration with the provided SIM card

Insert the SIM card in the device

1. Press the **Eject button** to pop the SIM card slot out

2. Insert the provided SIM card into the SIM card slot

Sim Card Slot

Plug the device in the controller

1. Plug the Ethernet cable into the LAN port of the modem

Here

2. Plug the other end of the Ethernet cable into the controller box Ethernet port ⊟⊟

> **Tip**
>
> If the robot controller Ethernet port is already used, refer to section "**Connection in existing network**" to see how to integrate the IIoT Device in your existing robot network.

3. Verify the connectivity

> **Info**
>
> It might take few minutes for the robot to confirm its connection to internet. To verify it, click the **Triple bar icon**, then **Settings**, **System** and **Network**. You should read the "**Network is connected**" mention.
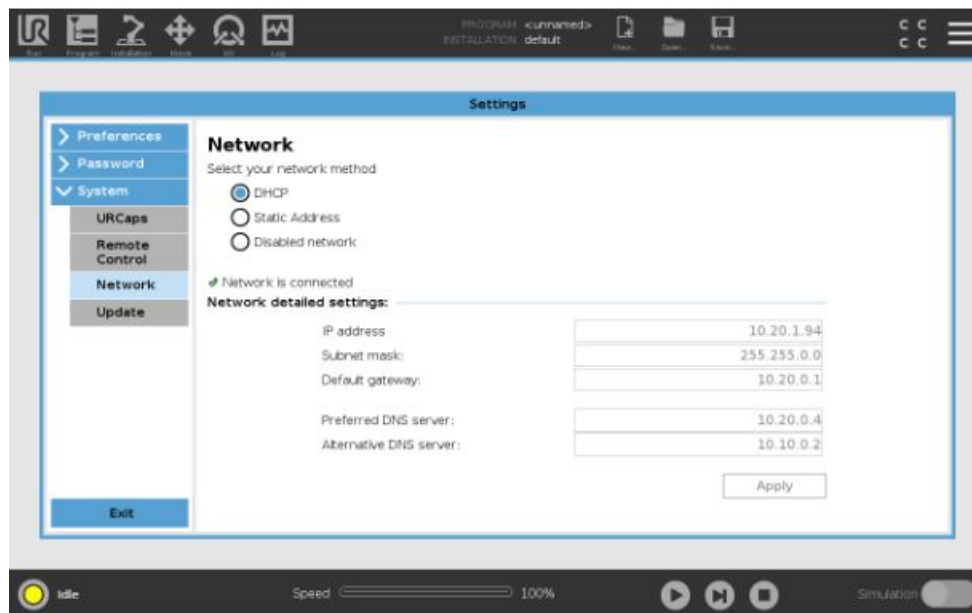
> **Caution**
>
> It is strongly recommended to change the administrator password. Refer to **Change Admin password** section to follow the instructions.

Cellular 3G/4G bridge configuration with other SIM cards

Insert the SIM card in the device

1. Press the **Eject button** to pop the SIM card slot out
2. Insert the provided SIM card into the SIM card slot

Plug the device in your computer

> **Info**
>
> Recent computers might not have an Ethernet port and might require an adaptor.

1. Plug the Ethernet cable into the LAN port of the modem

Here

2. Plug the other end of the Ethernet cable into your computer

3. If needed, setup the Ethernet port to DHCP.

4. Open your web browser

5. In the URL bar, type in **192.168.8.1**

> **Caution**
>
> The Internet browser may indicate that the connection is not secure. Depending on the browser used, this can be solved by going to the advanced options and adding an exception.

6. The default username and password are:
   - Username: **admin**
   - Password: **admin**

Setup 3G/4G configuration

1. Click on **Network**, then **Modem** on the left menu of your web browser.
   - Select the Interface 0, by pressing the **Mod button**

- Set your APN
  - The APN can be obtained from you cellular carrier or by looking at our pre-filled APN list at the end of the document.

- If needed, enter your:
  - Username/Password
  - Service code
  - PIN

- Press **Save**

2. On the left menu, click on **Network Type** and make sure the following settings are selected.

3. To validate that the cellular connection is working, click on **Status**, on the left menu, then on **Modem**.
   - If the SIM status is set at "**Ready**", then the connection is working with your carrier.
   - You can also check if antennas are well placed by looking at the **Signal** diagram.

Plug the device in the controller

You are now ready to unplug the Intercel from your computer and plug the cable in the Ethernet port of the controller.

It might take couple of minutes for your network to be detected by the robot.

To continue, follow the installation instructions in section 3.2

Wifi Bridge Configuration

> **Info**
>
> In order for Insights to connect to the Internet properly, make sure these ports are opened on your corporate firewall:
>
> - TCP port 443 (MQTT)
> - UDP/TCP port 443 (HTTPS)
> - UDP port 123 (NTP)
> - DNS port 53 (UDP/TCP)

Plug the device in your computer

Please, follow the steps as described in the **Cellular 3G/4G bridge configuration with other SIM cards** section.

Setup your Wi-Fi Configuration

1. On your web browser, click on **Network** on the left menu, then on **WLAN**.
   - If it is not already done, click on **Enable** the WLAN status

- On the **Basic Settings**, put the **Wireless mode** at **Station**.

2. Click on **Scan**
3. Select the desired Wi-Fi network

4. Enter the Wi-Fi password in the **WPA Shared Key** field

5. Click on **Save**

6. Under the **Network Type** section, select "**eth1**" for the **Default Route** and the **Interface Name**.

7. Press **Save**

8. To ping to confirm the internet connection:

   - On the left menu, click on **System** and **Network Test**

   - Write a **Destination** for the ping. For example: www.google.com

   - A positive result will look like:

Plug the device in the controller

You are now ready to unplug the Intercel from your computer and plug the cable in the Ethernet port of the controller.

It might take few minutes for the network to be detected by the robot.

> **Info**
>
> It is strongly recommended to change the administrator password. To do so, refer to the Change Admin password section.

Ethernet bridge configuration

Note that the Ethernet bridge configuration serves as a firewall only. Internet is brought by an Ethernet cable.

> **Info**
>
> In order for Insights to connect to the Internet properly, make sure these ports are opened on your corporate firewall:
>
> - TCP port 443 (MQTT)
> - UDP/TCP port 443 (HTTPS)
> - UDP port 123 (NTP)
> - DNS port 53 (UDP/TCP)

Plug the device in your computer

Follow the steps as described in Cellular 3G/4G bridge configuration with other SIM cards section

Setup Ethernet Bridge configuration

1. Plug the Ethernet cable in the **LAN/WAN** port of the device

Here

2. Under **Network**, select **WAN/LAN**
   a. Set the **work mode** to ''**wan**''
   b. Set the **Connection Type** to ''**dhcp**''
   c. Press **Save**

3. Go to **Network** and select **Network Type**
   a. Set **Default Route** to "**eth0**"
   b. Set **DNS Type** to "**custom**"
   c. Set **DNS1** to "**8.8.8.8**"
      • Optionally, you can set **DNS2** to your WAN local network DNS server
   d. Press **Save**

Plug the device in the controller

You are now ready to unplug the Intercel from your computer and plug the cable in the Ethernet port of the controller.

It might take few minutes for the network to be detected by the robot.

> **Info**
>
> It is strongly recommended to change the administrator password. To do so, refer to next section.

Change Admin password

Follow the steps in section 3.4.2 to connect your IIoT Device to your computer, then:

1. Under **System**, click on **Account**
2. Select **Admin**
3. Type in the new admin password
4. Press **Save**

3.1.4. Connection in existing network

In this section, you will find Robotiq's recommendations if your robot controller is already connected to other machines or to internet via an Ethernet port.

Nomenclature

DHCP (*Dynamic Host Configuration Protocol*): Service that configures network parameters automatically

IIoT Device: Network device with embedded security components that connect a robot to the Insights service.

LAN (*Local Area Network*): Computer network that links computers within a restricted area

NAT (*Network Address Translation*): Process of re-allocating an IP address space into another

Robot Network: Network that includes a number of industrial devices such as a PLC, a CNC machine, robots, etc.

Static configuration: A network configuration in which the parameters are configured manually

WAN (*Wide Area Network*): Computer network that covers a large geographical area

Topology

The IIoT Device provided by Robotiq is a device that enables a secure connection between a robot and the Insights service. In order to do so, the IIoT Device blocks all communication ports except the ones used by the Insights service. The location at which the IIoT Device is installed must be carefully chosen in order to avoid interference and reinitialization of any existing network.

Robotiq recommends the implementation of one of the three common network topologies (mappings) below, depending on the user's current situation.

Topology #1

Robot not networked to other devices

BEFORE   AFTER

Insights IIoT device

Prerequisites: Internet connection providing a **DHCP server** (otherwise see exception handling)

Connection: Configure your device internet settings of choice, then connect the robot Ethernet port to the **LAN port** of your IIoT Device

Robot configuration: Use the DCHP configuration option in the robot teach pendant connectivity configuration

Topology #2

Robot connected to a LAN that is not linked to the Internet

BEFORE   AFTER

Networked devices   Networked devices

Switch   Switch   Insights IIoT device
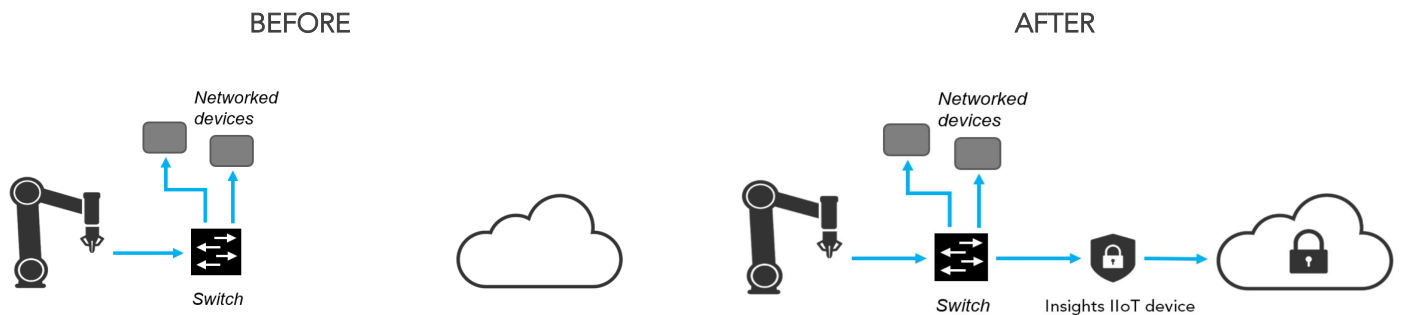
Prerequisites:

Identify if the robot network is addressed using DHCP or static mode: from the initial state, prior to installing anything related to Insights, go to the PolyScope network configuration page of the UR robot, and look at the network parameters.

Connection:

DHCP network: please refer to your IT department for further instructions.

Static network:

- Connect the robot **Ethernet port** to the user-provided robot/hub switch
- Connect the **LAN port** of the IIoT Device to the user-provided robot hub/switch
- Connect the **cable that was previously connected to the robot** to the user-provided robot hub/switch
- Connect the **IIoT Device WAN port** to your Internet cable

IIoT Device configuration:

Log into the IIoT Device GUI (see **Installation** section section).

On the LAN port:

- Turn off the DHCP server
- Assign an available static IP address that matches your network configuration
- Set the same subnet mask as the robot

Robot configuration:

In the network configuration, assign the **IIoT Device IP address** previously configured to the **gateway IP address** field. Other parameters should not be changed.

Topology #3

Robot connected to a LAN linked to the Internet
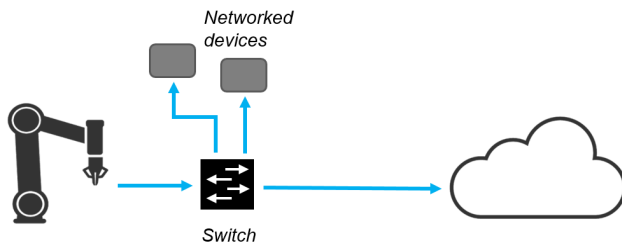
Prerequisites:

Identify the reasons why the robot should be connected to the Internet:

- Access to the robot from an off-site desktop device
- Access to a file server (on the company network) from the robot
- Log robot data on a local server
- Other reasons

The user cannot use the IIoT Device if one of the robots needs a direct access to the Internet. The IIoT Device exclusively allows communication for the Insights service. Therefore, any other type of communication will be blocked by default.

If the user does not have a reason to connect the robot to the Internet, please refer to **Topology #2** section.

Any other topology

Contact our support team. Our network expert will assist you to find the best configuration.

3.2. URCap installation

1. From the Insights web application, press the **Add robot** button. Download the .urcap file, also accessible to download from the Insights product page at support.robotiq.com

2. Put the URCap on a USB stick

3. Connect the USB stick in the robot teach pendant

CB-Series	e-Series
• From the PolyScope home page, tap **Setup Robot** • Tap **URCaps Setup**	• On the teach pendant, tap the **triple bar icon** in the upper right corner and select **Settings** • Select **URCaps** in the left pane

4. Tap the **+** sign

5. Choose the **Insights URCap** file from the USB stick

6. Tap **Restart**

3.3. Connect the robot

1. From the UR teach pendant, go to **Program Robot** and tap the **Installation** tab

2. Go to **Insights** and tap the **Start configuration wizard button**

3. Follow the connection steps

3.4. Robot pairing

Simultaneously:

From the Insights web application

a. From the Dashboard, go to **Add robot**

b. Click on **Start pairing**

c. Use the serial number shown in the pairing wizard on the robot teach pendant

d. Fill in the robot information

e. Confirm and get the pairing code to enter on the robot teach pendant

From the teach pendant

a. Open a robot program an go to the **Installation** tab

b. Go to **Insights** and launch the robot pairing wizard

c. The robot serial number will appear on the teach pendant; enter it in the web application pairing window

d. Get the pairing code from the web application and enter it in the wizard.

e. Tap **Next**.
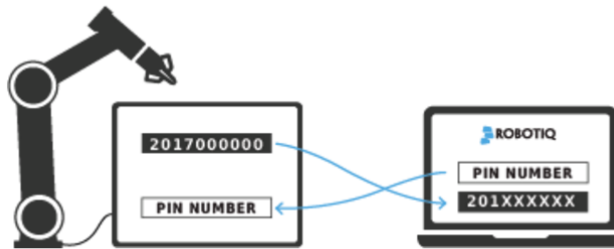
The pairing will be completed and the robot will appear on your Dashboard.

As soon as the pairing is completed, the robot will have 1 month of trial to access all features. To keep using Insights, you will need to purchase a license for the robots and activate it.

> **Info**
>
> It is possible to pair a robot that has already been paired. Doing so will delete the previous pairing. A message in the pairing wizard will display who the current owner is and will ask you if you wish to pair the robot to another account, thus deleting the current one.

3.5. URCap upgrade

The robot cards in the **Real-Time Robot Overview** (refer to the **Real-Time Robot Overview** section) display a gear icon in the upper-right corner. If there is a **red dot** next to the gear icon, it means that the latest **Insights URCap** has not been installed on that particular robot's teach pendant.
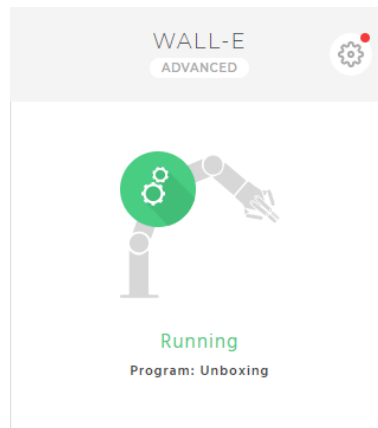
Clicking the gear icon brings up the **About** section (refer to the **About** section) of the Insights web application and the URCap version row indicates that a new URCap version is available for download on that particular robot's teach pendant.
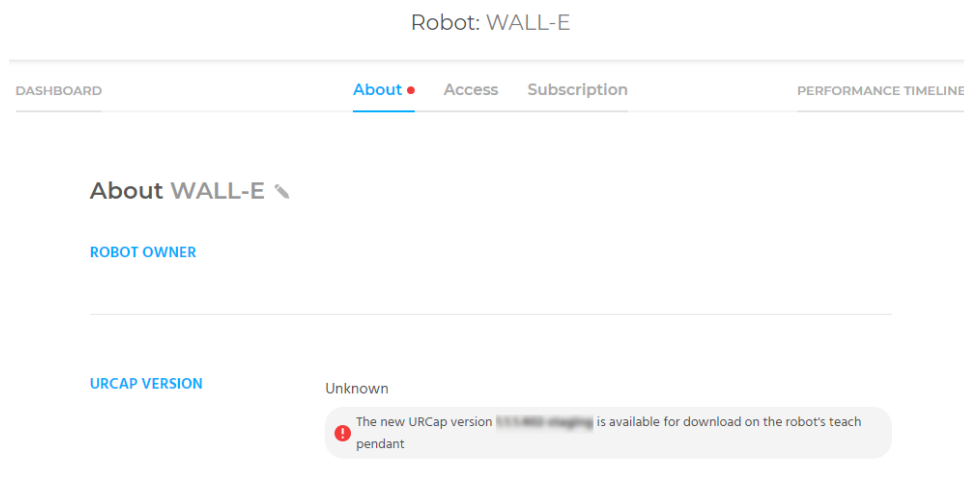
From the teach pendant, follow the instructions below to upgrade the Insights URCap:

- In PolyScope, open a robot program, go to the Installation tab and select **Insights** from the menu on the left
- Tap the **Dashboard** sub-menu; Insights will notify you if an upgrade is available
- If so, tap the **Download** button (otherwise, Insights will display that the software is up to date)
- After the download, Insights will display that the software is ready to be installed
- Refer to point 5 of the **URCap installation** section to complete the upgrade

4. Using Insights

4.1. Web application interface

4.1.1. Real-Time Robot Overview

The Real-Time Robot Overview is a card-based view of all the robots linked to one's account. Each card displays high-level information about its corresponding robot (name, license type, status, robot program and gear icon for settings).

Robot Status

Robots can be in one of 6 states:

- Connected: when pairing a robot to an account, the robot will be in the connected state until it receives the first status information from the UR robot.
- Idle: the robot is ready to execute a program
- Initializing: joints are restarting after a fault or normal startup
- Running: the robot is executing a program
- Fault: a fault was detected; it is further diagnosed as:
    - E-Stop: robot is in emergency stop
    - P-Stop: robot is in protective stop
    - Safeguard: robot is in safeguard stop
- Disconnected: the robot is not connected to the Insights service.

> **Info**
>
> When in disconnected state, performance data is still collected and maintained on the robot; once the connection is re-established the data will be uploaded to maintain an accurate picture of the performance.

> **Info**
>
> Robot states are updated in real time and can be seen in the application within 1-3 seconds (depending on the latency of the connection used).

Notifications button

For more information about **My Alerts Settings**, **Alerts Schedule** and **notifications delivery modes**, refer to the **My Alerts Settings** section. For more information about the notifications via SMS and/or email, please refer to the **Robot alerts** section. For details regarding the reports via email, refer to the **Email Reports Scheduler** section.

Add robot button

For more information about adding a robot to the Real-Time Robot Overview, please refer to the **URCap installation** section.

4.1.2. Robot management

The user who pairs a robot with his account becomes the owner of the robot.

The owner can share the access to the robot data with users and revoke the access to said users. The owner can also modify the robot information, hand off the ownership to another user, manage the subscriptions and delete robots.

Both the users and the owner can see the robot in their Dashboard, configure notifications and view the robot data. To manage access, the owner has to go to the web application's main menu and click on **Manage Robots**.

The user can navigate through three sub-menus:

- About
- Access
- Subscription
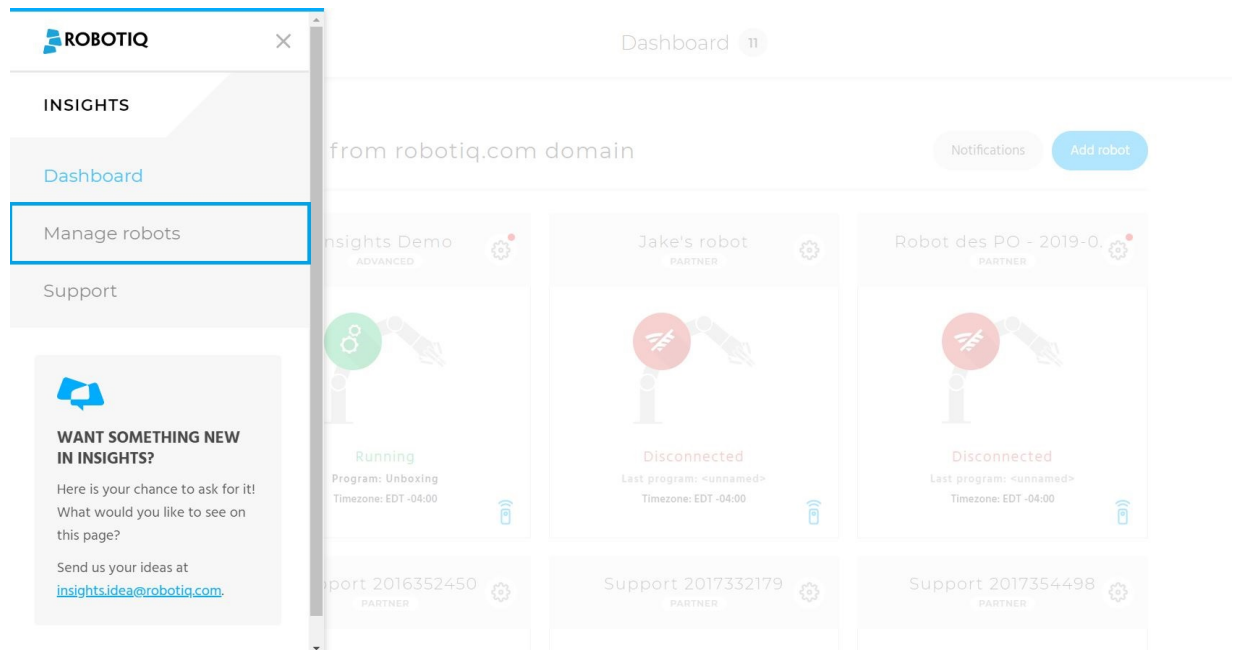
About

Once in the **Manage robots** interface, click the **About** button of the appropriate robot, in the **Manage** column.

Once in the **About** menu, the user can view and edit the robot's core information:

- The owner of the robot
- The shifts used to define the robot's performance periods
- The Insights URCap version (and message of new version of URCap available for download, if applicable)
- The robot timezone
- The robot's serial number
- The robot's model
- The workplace at which the robot is located

Shifts

Shifts are user-defined time windows set in the robot's timezone.
They are computed in order to show/hide events and KPIs during **operating times**.

The user can add shifts by selecting the weekdays and corresponding time frames.

SHIFTS

Shifts allow you to define performance periods for your robot. They are being set in the robot timezone.

- ✅ Monday
- ✅ Tuesday
- ✅ Wednesday
- ✅ Thursday
- ✅ Friday
- ☐ Saturday
- ☐ Sunday

Shift name	Start time	End time	
Morning	08:00	12:30	🗑

Shift name	Start time	End time	
Afternoon	12:30	18:00	🗑

Add a shift

OPERATING TIMES

Operating times are used to compute performance statistics. 100% performance means full operation for at least this amount of time.

5 days / week   **10** hours / day

Operating times are computed based on the shifts defined.
Add or edit shifts to update operating times.

Once in the **Performance Timeline**, the user can choose to display the graphs according to **operating periods**...

...or **full day hours**.

Please refer to the **Performance Timeline** section for more information on graphical data.

Access

Once in the **Manage robots** interface, click the **Access** button of the appropriate robot, in the **Manage** column.

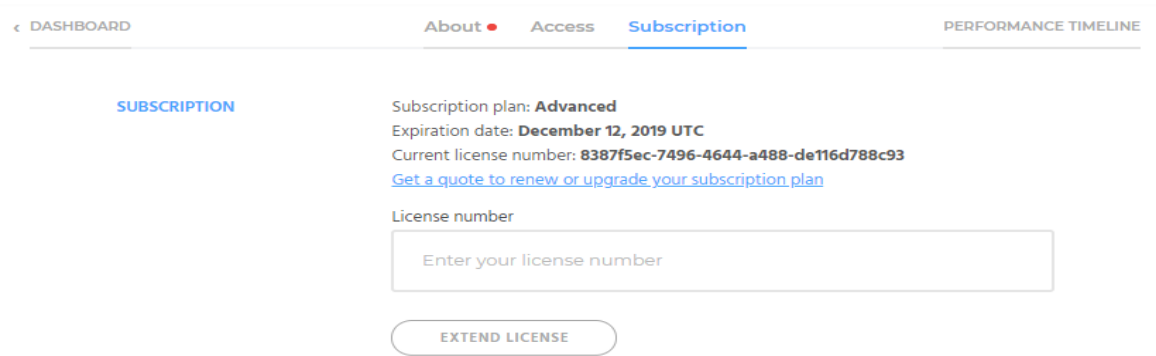The owner can add users, hand off the ownership of the robot to another user or revoke access to the robot for a user.

Add user(s)

Adding users can be done either by single email address or in bulk by creating a domain access to the robot (xxxxxdomain.com).

Hand off

Allows to give the ownership of the robot to another user in the list of people the robot has been shared with.

Revoke

Blocks the access to the robot for the corresponding user.

Subscription

Once in the **Manage robots** interface, click the **Subscription** button of the appropriate robot, in the **Manage** column.

Given a robot with an Expired license, the robot owner will be able to:

- View the subscription type (Trial, Advanced or Expired)
- Ask for a quote to get a yearly license
- Enter an Advanced license number and click the **Activate license button**

Given a robot with an Advanced license, the robot owner will be able to:

- View the subscription plan type
- View the expiration date of the license
- Ask for a quote to renew the license
- View the activated license number
- Activate renewal license number

4.1.3. My Alerts Settings

Here, the user enters his/her phone number. After providing the phone number, one can test the SMS delivery using the **Test now** button.

This is also where the user enters the email address at which the reports and/or notifications will be sent.

The **Receive Alerts as** sub-menu allows to select the notifications delivery mode (SMS Only, Email Only, SMS & Email, Mute All)

Below these is the **Alerts Schedule** sub-menu. The user can select the days during which he/she wishes to receive SMS and/or email alerts.
Checking a box for a specific day will reveal the **From** and **to** boxes that can be filled according to the time range during which the user wished to receive the alerts.
Checking the **All day** box will not reveal the time range boxes, and will allow for the 24-hour notifications delivery for that particular day.

Refer to the figure below for visual support.

4.1.4. Email Reports Scheduler

The Email Reports Scheduler allows the user to receive daily, weekly and/or monthly reports that display a summary of the Key Performance Indicators (KPIs) activity and events occurrences over the selected timeframe.

The **Preview** button opens a new window and display a preview of the email that would potentially be sent to the user.

The **Customize** button opens a selection menu allowing to select the events to include in the email reports.

4.1.5. Robot alerts

One can choose to receive SMS and/or email alerts from several event types that might occur during the robot program.

The **(Change settings)** button brings up the **My Alerts Settings** menu (please refer to **My Alerts Settings** section).
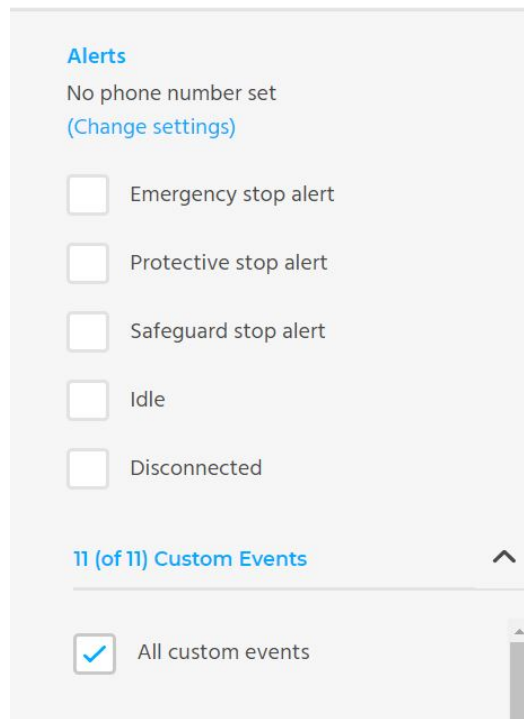
The default options for which the application can send SMS and/or email alerts are the following:

- Alert for an emergency stop (E-stop)
- Alert for a protective stop (P-stop)
- Alert for a safeguard stop
- Alert for robot being in idle state
    - The user can define the time threshold at which, upon being reached, the system will send an SMS and/or email alert
- Alert for robot being in disconnected state
    - The user can define the time threshold at which, upon being reached, the system will send an SMS and/or email alert

The last option for which the application can send SMS and/or alerts is called Custom events. SMS and/or email alerts triggered by custom events depend on the enablement of notifications for specific Insights events set in a robot program via the teach pendant. The *Select* **button allows the user to select for which custom events he/she wishes to receive**

For more information about enabling notifications from the teach pendant, please refer to the Custom events section.

Alerts

No phone number set

(Change settings)

☐ Emergency stop alert

☐ Protective stop alert

☐ Safeguard stop alert

☐ Idle

☐ Disconnected

11 (of 11) Custom Events ⌃

☑ All custom events

Caution

Please note that the number of SMS and/or email alerts that can be sent is limited to **50** per robot, per user, per hour.
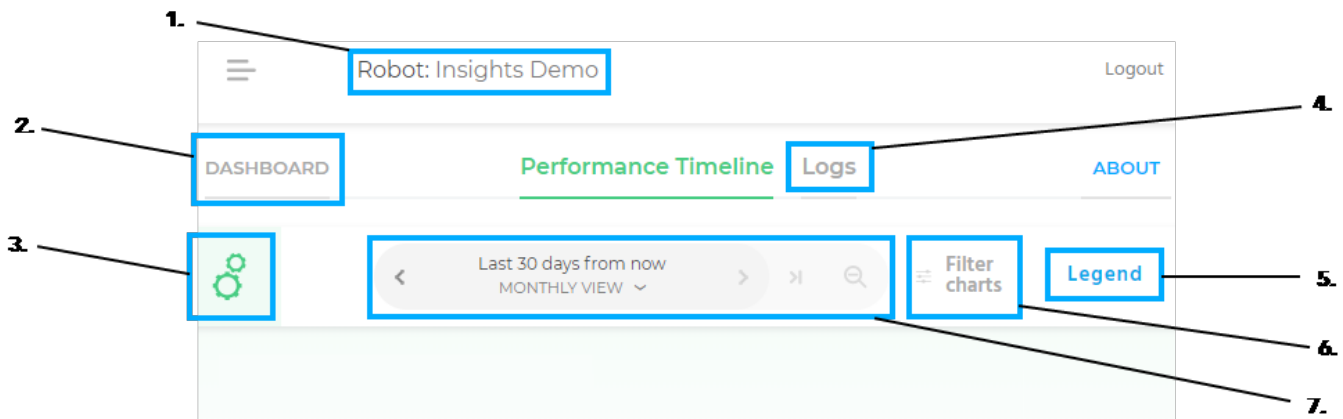

Warning

After implementing changes in the Notifications interface, make sure to save your changes.

4.1.6. Performance Timeline

The Performance Timeline is an Insights interface that displays in graphs the robot data captured by the teach pendant counterpart of Insights.

1. Robot name corresponding to the performance timeline displayed
2. Button to go back to the **Real-Time Robot Overview**
3. Icon indicating the status of the robot program (more details in the **Robot Status** section)
4. Button to access the **Logs** interface
5. The **Legend** button opens a box indicating which colour corresponds to which robot program
6. The **Filter charts** button allows to select which KPI graphs will be displayed in the Performance Timeline interface
7. Time scale panel indicating the view option between hourly, daily, weekly and monthly
   a. The left arrow takes a step back by one (1) unit of time (hour/day/week/month)
   b. The right arrow takes a step forward by one (1) unit of time (hour/day/week/month)
   c. The rightmost arrow moves the graphs to the current time period
   d. The magnifier icon "zooms out" (hourly to daily, daily to weekly, weekly to monthly)

4.1.7. Key Performance Indicators (KPIs)

Insights cumulates data and displays it in KPI charts of the aformentioned Performance Timeline.

The Advanced version of Insights comes with what are called the **Top 5 cobot KPIs**:

○ **Cycles completed**: Number of robotic cycles performed by the running program during the selected time period. Cycles are summed for multiple programs that have run in the same time period.

○ **Utilization**: Percentage of time the robot is running a program over the selected time period. Does not take into account the disconnected time.

○ **Efficiency**: Proportion of the utilization time during which the robot is moving. For instance, if a robot has been utilized 75% of the time over a given period and has been moving all of the time, its efficiency value will display 75%.

○ **Wait Time**: Proportion of the utilization time during which the robot is not moving (typically waiting for an event). For instance, if a robot has been utilized 75% of the time over a given period and has been waiting all of the time, its wait value will display 75%.

○ **Disconnected**: Percentage of the time during which the robot was disconnected from the network (or turned off). Note that data is not lost during short periods of connectivity loss. Data will be stored locally and sent to the service when the connection is restored. However, real-time status and other events will not be available during disconnected periods. Reports are still available for but alerts are not.

> **Tip**
>
> The user can create custom events via the Insights URCap program interface on the UR teach pendant. After their creation, they can be added to the Performance Timeline using the **Add custom event** button.
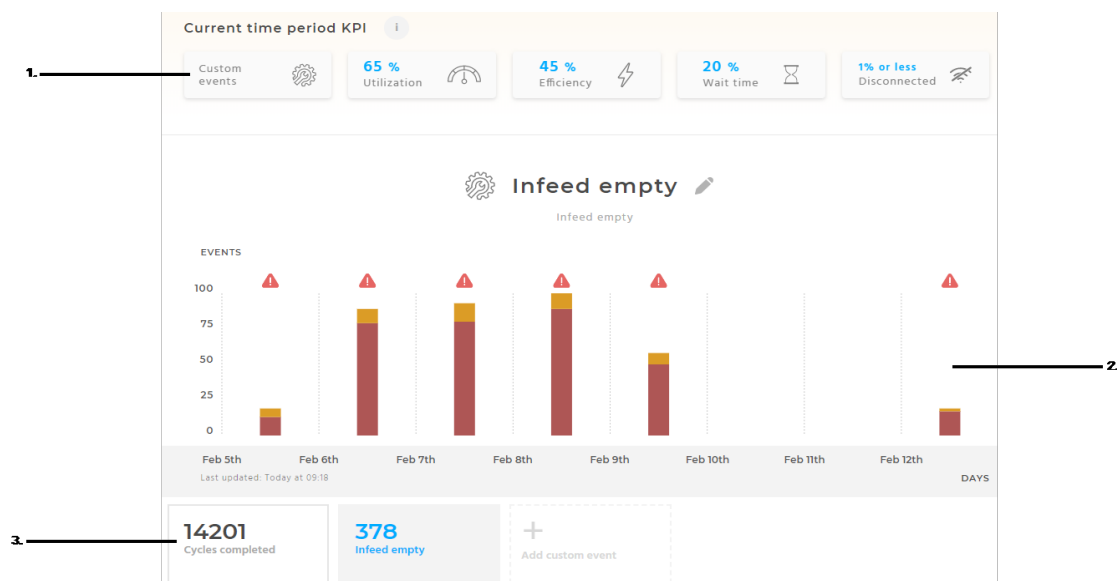
1. **Top 5 cobot KPIs panel**: selecting an option brings the user to the corresponding graph

> **Info**
>
> Current time period KPI indicates the cumulative performance of the entire time period shown.

2. **KPI graph**: chart displaying the robot data linked to the event inserted in the corresponding robot program

3. **Custom events panel**: where the user can select the custom event to display in the Custom events KPI graph; by clicking the **Add custom event** button, the user can also add the custom events that have previously been created via the Insights URCap on the UR teach pendant.

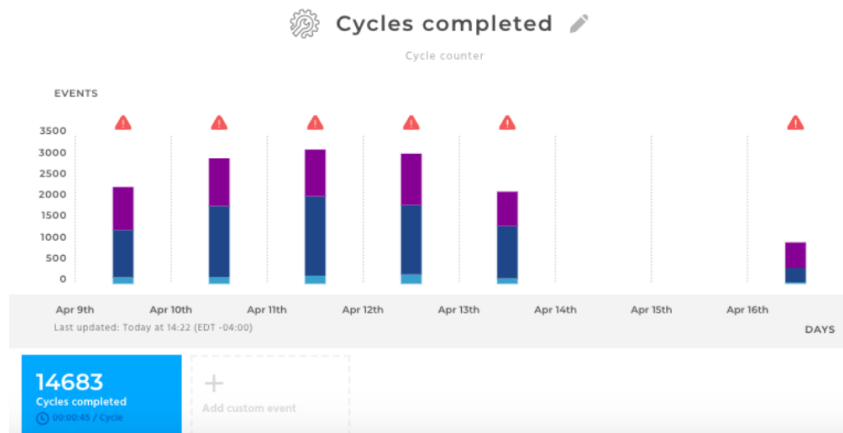In each KPI chart, the data is grouped by program. Each color represents a different program that was run.

> **Info**
>
> The overall KPIs that are shown include all programs. This means there is no difference between programs in the KPIs shown.

The KPIs are refreshed every minute in the Insights web application when in the hourly view. In the others views, you should refresh your web browser to refresh the KPIs.

The KPI tiles display the average cycle time between events.

4.1.8. Robot digital I/Os

The robot digital input/output states can only be seen in the **hourly view**.

Controller General Purpose Digital Inputs

Controller I/Os allow for the connection of equipment inside the control box. This category of I/O is extremely flexible and can be used for a wide range of different equipment; including pneumatic relays, PLCs and emergency stop buttons.

- DI4
- DI5
- DI6
- DI7

> **Info**
>
> Events cannot be logged on a graph for digital inputs 0 to 3 (DI0, DI1, DI2, and DI3) since they could be used for high speed inputs such as conveyor tracking data, for instance. The number of events generated would therefore be overwhelming.

Tools Digital Inputs

The tool digital inputs are implemented as PNP with weak pull-down resistors. This means that a floating input will always read low.

- DI8
- DI9

Controller General Purpose Digital Inputs

DI4
14:20:03 to 15:19:06

DI5

DI6

DI7

Tools Digital Inputs

DI8 (Yellow)
14:20:03 to 15:19:06

DI9 (Green)

4.1.9. Signals

The signals timelines can only be seen in the **hourly view**. They contain time-coded signal stops of the following nature:

- Emergency stop (E-stop)
- Protective stop (P-stop)
- Safeguard stop

4.1.10. Downloadable events logs

Insights events are compiled in the Insights cloud service and accessible for download (CSV format) via the **Logs** interface of the Insights web application.
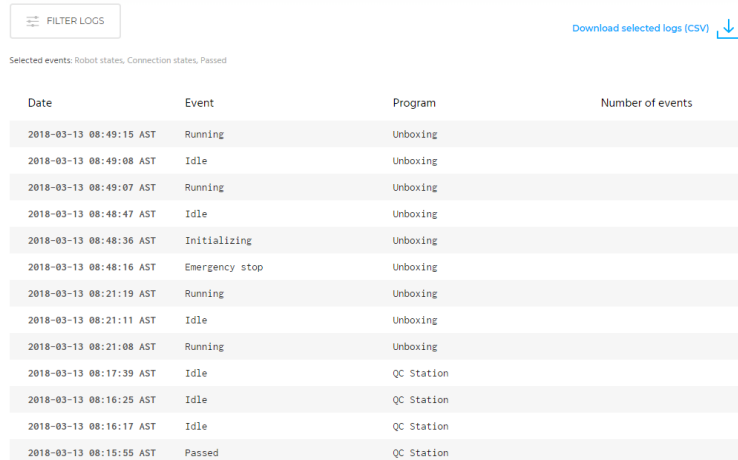
1. **Filter logs button**: brings up the filter options selection menu
2. **Filter options menu**: allows the user to select which events to capture in the log by checking one or more boxes among:
    a. All events
    b. Robot events
        i. Robot states
        ii. Connection states
    c. Custom events

3. **Download selected logs button**: downloads the CSV file comprising the log data according to the filter options selected

4. **Log data population zone**: displays log data with timestamp and corresponding events according to the filter options selected

4.1.11. Backup & Robot log files

Insights offers the option to backup all the robot files on the cloud for safekeeping and restoration. For those who are familiar with the file infrastructure in the robot, the folders that are backed up are the /programs and the /root folders. Here are some notable backed up files:

- Program related files (urp and scripts)
- Variables and installation files
- Log files
- Calibration files
- URCaps
- And much more

Refer to the **Activate the Backup** section to see how to activate the features, create a backup and restore files from backup, directly from the teach pendant.

From the web application, once the backup is activated, you have access to 2 different backup options:

1. **Continuous backup** is the live state of your robot. As long as the backup feature functionality is activated in the Teach Pendant and your robot has an internet connection, every file change will be uploaded to the cloud and be accessible from here.

   - You can browse through the backup files in the right pane. An exact replica of what is on the robot will be available as long as the functionality is enabled and a reliable internet is accessible.
   - In the drop-down menu, select the desired option you want to see among **All Files**, **Program files** only or **Calibration files** only.
   - A **download button** is next to each file you want to get.
   - A **clock button** allows to browse through the file versions (30 days history)
   - You can also **Download robot log files**

2. **Backup History**: contains all manual backups you created on the Teach pendant. Backups will remain saved as long as the robot owner does not delete them.

   - The left menu allows you to browse through the backups
   - You can also delete backup by clicking the **Delete button**

> **Info**
>
> The robot owner is the only one that can delete data. All robot viewers can visualize and download them.

4.2. Teach pendant interface

4.2.1. Activate the Backup

To benefit from the backup functionality, you must activate the feature first.

1. Make sure you have the **URCap version 1.4.1** or greater installed on your robot

2. In the URCap, go to Installation tab → Insights → Backup. Activate the **Backup Feature** by turning on the toggle in the top right corner. This will activate the **Continuous Backup** and keep the files on your robot synchronized on the cloud and accessible from the web application. You will also be able to create backups and restore files from backups.

3. We recommend to create an initial backup of all your robot files by taping **Create Backup** in the URCap interface.

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4.2.2. Create Backup

It is a good practice to do a **Create Backup**, as soon as you get your robot to store a copy of your current robot files, including the calibration files.

Under **Create Backup** section, enter a **backup name** and, if relevant, enter a comment explaining the person who created the backup or the reason, for example. Then, click on **Start Backup**.
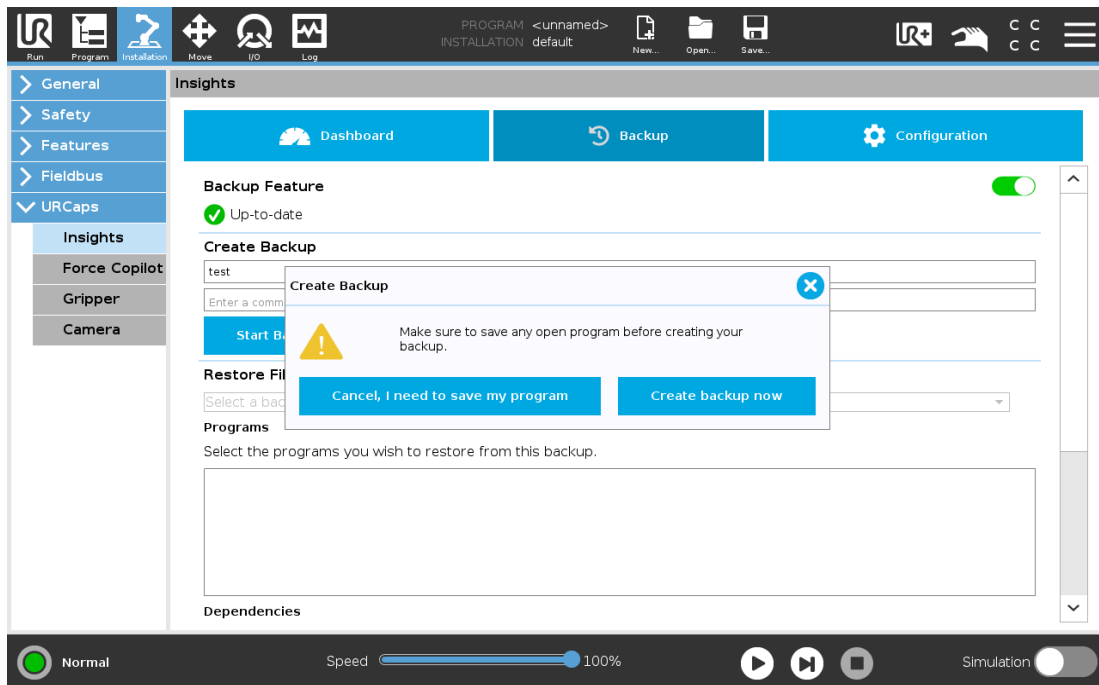
> **Warning**
>
> Always make sure your programs are saved and closed before creating a backup. The functionality will only backup the saved changes.

4.2.3. Restore Files from Backup

For example, to restore files on the robot:

1. Select the **Backup** you want to restore the file from.
2. Select the **Program files** you want to restore.
3. Finally, you can restore program's dependencies (installation and variables files).
   - Restoring dependencies may result in newer programs to not work properly anymore since you will overwrite the current installation or variables file with the same name.
   - Choosing to not restore dependencies could prevent your restored program to not be able to run due to missing dependencies. Proceed carefully.
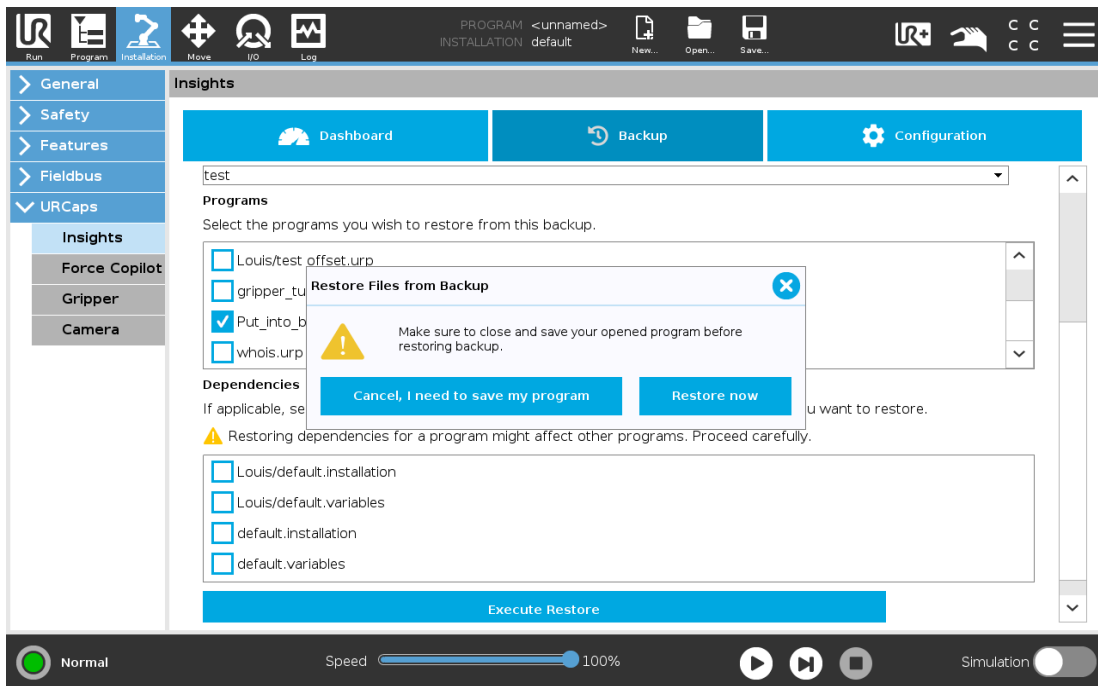
> **Warning**
>
> Always make sure your programs are saved and closed before performing a restoration. Otherwise, your unsaved files may overwrite what you are trying to restore.

4.2.4. Insights node

Insights nodes can be inserted at specific points in robot programs to count events and thus populate their corresponding graph on the web application.

1. From the PolyScope home page, go to **Program Robot**; open a program or create an empty one
2. Program a repeatable sequence or routine (for example)
3. Tap the **Structure** tab and select the **URCaps** sub-menu
4. Tap the **Insights** button to insert an **Insights node**
5. Tap the **Command** tab and select the Insights node in the program tree
   a. Select a standard Robotiq event from the list or select a custom event that has been previously created (refer to section **Custom events** section)

4.2.5. Custom events

Insights users can create their own events for reporting the completion of a specific robot routine, or reaching a specific point in a robot program, for example. The occurrences of these events populate data in a corresponding graph of the web application.

Create

- Once in a robot program, tap the **Command** tab
- In the program tree, select an Insights node that had been previously inserted
- Enter a name in the **Enter event name** textbox and tap the **Create** button

Alerts

In order to receive alerts when a specific event is triggered:

1. Select the event from the dropdown events menu
2. Check the **Enable event alerts** button
   - The default SMS alert includes the robot name, the program name and the event name
3. Enter an optional custom message to add to the default SMS alert in the **Add custom message** textbox

Manage

1. From the PolyScope home page, go to **Program Robot**; open a program or create an empty one
2. Tap the **Installation** tab and select **Insights** from the menu on the left
3. Go to the **Manage events** sub-menu
4. View the custom events list
5. Create and/or delete custom events if needed
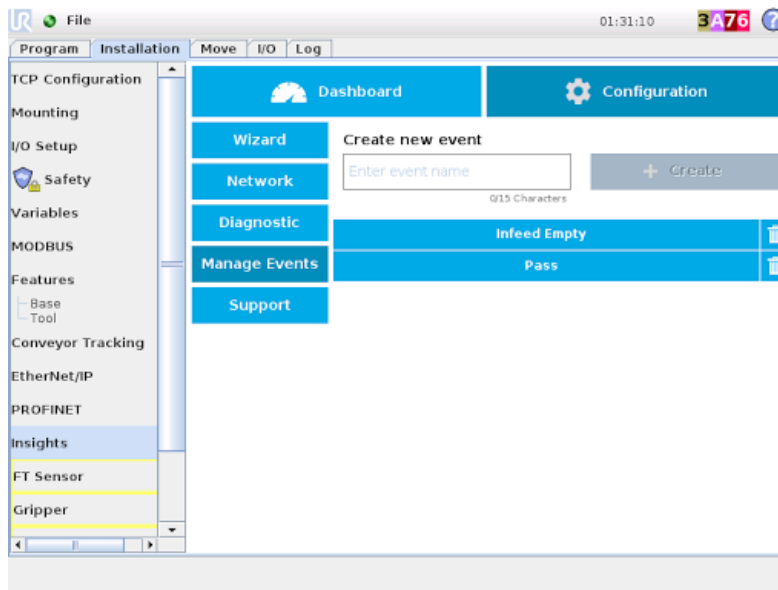
4.3. Remote Access

<div style="border:2px solid yellow">

Safety

The remote sessions are provided at your sole risk and Robotiq will not be liable to you for any loss, costs, expenses or damages incurred by you, including but not limited to any direct, indirect, incidental, consequential, or special damages.

Moving the robot remotely without the visual stream provided by the web camera(s) is not recommended. Having one ore two web cameras connected and working allows for safer remote operation and control of the robot. Robotiq disclaims itself from any material damage and/or bodily injury caused by the remote operation and control of the robot.

Make sure an operator stands next to the robot at all times during a Remote Access session, with the emergency stop (E-Stop) button within arms reach.

</div>

<div style="border:2px solid red">

Confidentiality

A Remote Access session provides the remote expert with complete access to the robot (programs, installation file, etc.)

Revoke access to the robot to stop sharing robot data.

</div>

Make sure the Remote Access application is properly set up both on the robot and on the teach pendant sides (please refer to the **Installation** section).

Initial setup by robot owner

1   Install Insights (please refer to the **Using Insights** section) and click on the remote access icon in the lower right corner of the robot card in the Real-Time Robot Overview.
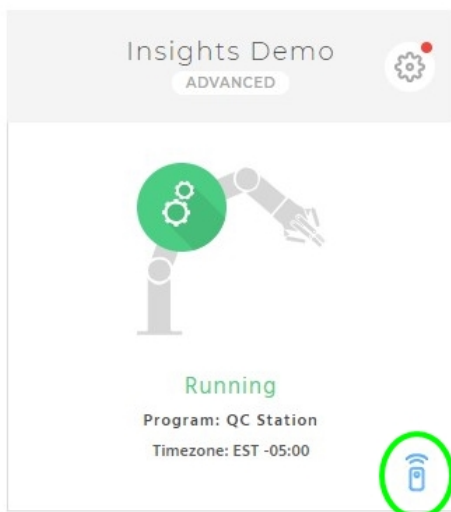
2 In the new Remote Access browser tab, click on the Get Started button.
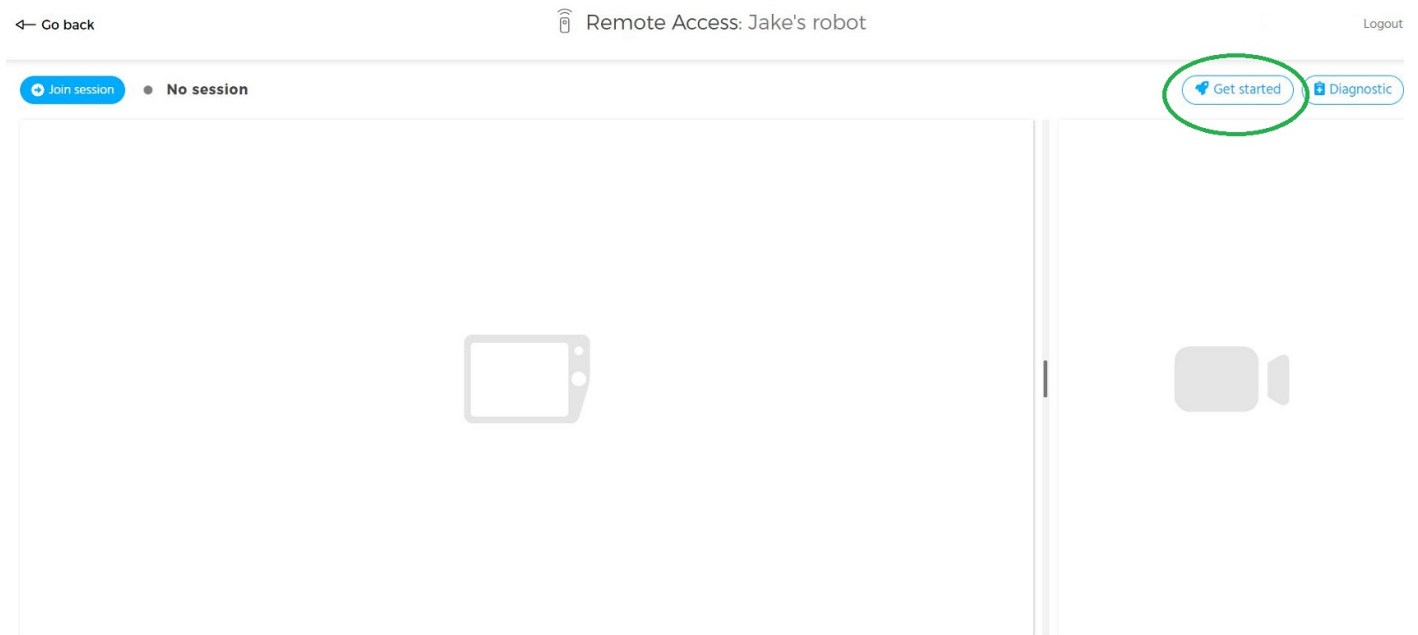
3 Download the Remote Access software (compressed files).

4 Decompress the files at the root of a USB storage device.

5 Insert the USB storage device in the robot controller or teach pendant.

6 Wait for the Remote Access application to start.

7 Plug one or two USB cameras in the robot controller (plugging more than two cameras to the robot controller has a negative impact on robot performance). If necessary, use the USB hub and USB extension cable provided in the Starter Kit to plug the cameras.

8 Adjust camera positioning with the camera feed on the teach pendant.
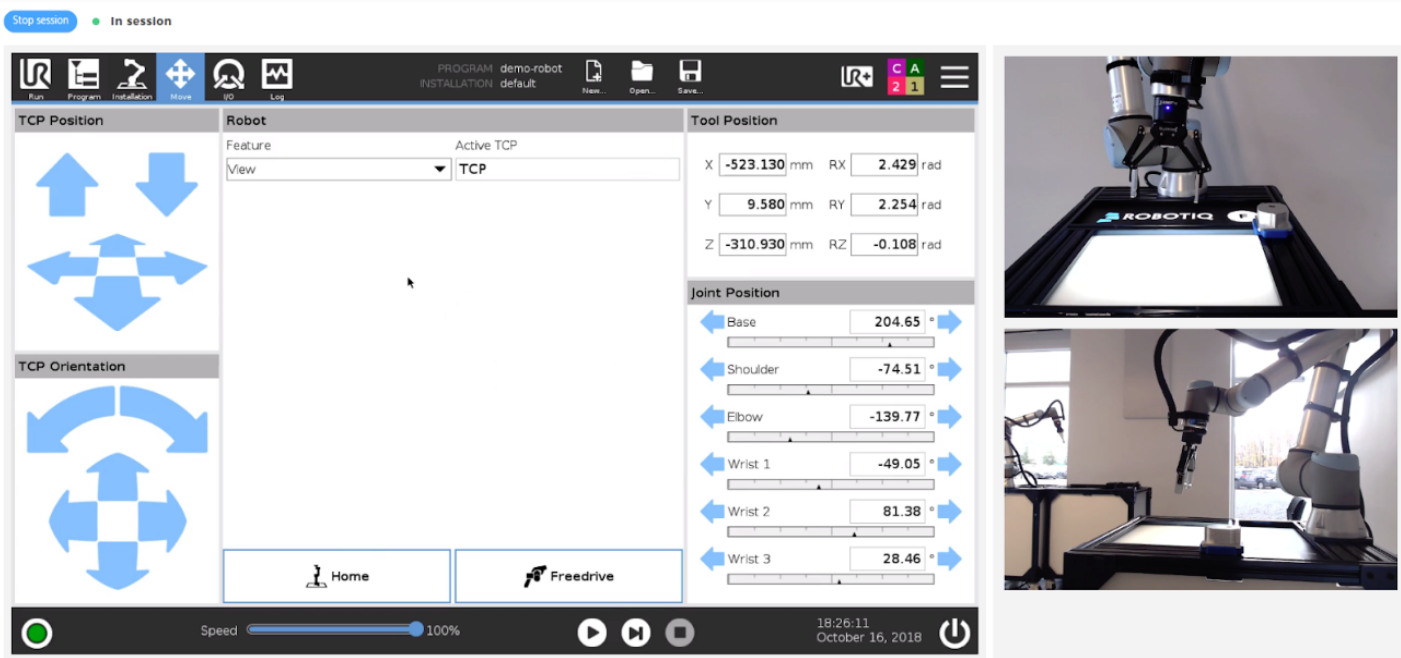
9 Tapping the close icon (X) in the upper right corner of the teach pendant or removing the USB key will close the Remote Access application on the teach pendant.

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Starting a remote session

Remote robot side

1 Grant access to a remote expert

    a Go to the **Manage Robots** menu and share the robot with a remote expert (refer to the **Access** section).

    b If you do not want the remote access to be able to access the robot at all times after the remote session, revoke the access to that person (refer to the **Access** section).

2 Insert the USB storage device containing the Remote Access software in the robot teach pendant or controller.

3 Wait for the Remote Access application to start.

4 Tap the **Launch session** button to generate a **passcode**.

5 Share the passcode with the remote expert.

6 Tapping the close icon (X) in the upper right corner of the teach pendant or removing the USB key will close the Remote Access application on the teach pendant.

Web application side

1 Browse to the Remote Access web application by logging in to an Insights account (please refer to step 1 of the **Initial setup by robot owner** section).

2 Select a robot to which the access has previously been granted (see **Remote robot side** section).

3 Click on the **Join session** button.

USA

Provider	APN
AT&T	tfdata phone wap.cingular proxy NXTGENPHONE
T-Mobile	fast.t-mobile.com epc.tmobile.com internet2.voicestream.com
Verizon	vzwinternet
Sprint	cinet.spcs sprint

Canada

Provider	APN
Rogers	ltemobile.apn rogers-core-appl1.apn internet.com
Bell	pda.bell.ca
Telus	sp.telus.com
Virgin	inet.bell.ca
Sask Tel	inet.stm.sk.ca proxy.stm.sk.ca pda.stm.sk.ca

6. Appendix

Appendix A – Warranty and Agreements

6.1.1. Privacy Policy

Protecting your privacy is important to Robotiq. The purpose of the Privacy Policy is to explain how we collect, use and disclose the personal information you may provide us while using this website or our products and services, including our web platforms, and is meant to comply with the Canadian federal and provincial privacy laws. By accessing and using this website or any of our products and services, you agree to be bound by the terms and conditions contained in Robotiq's Privacy Policy. If you do not agree to be bound by these terms and conditions, please do not access or use the features of Insights or any of our products and services. You can find the full Robotiq Privacy Policy here: https://robotiq.com/product_privacy_policy.pdf .

6.1.2. End-Users Terms of Use & License Agreement

You should carefully read the End-User Licence Agreement (the "Agreement"), a legal agreement between you and Robotiq, before using Insights. By clicking the "I accept the terms" checkbox on the website account creation page, by installing, accessing, or otherwise using Insights, you acknowledge that you have read and understood this Agreement and agree to the validity to be bound by its terms. If you do not agree to the terms of this Agreement, Robotiq cannot and does not license Insights to you. In such event, you must not use or install the Insights. You can find the full End-User Licence Agreement here: https://robotiq.com/product_eula.pdf.

6.1.3. IIoT Device Warranty

Robotiq warrants the Insights IIoT Device against defects in material and workmanship for a period of one year from the date of reception when utilized as intended with the specified maintenance. Robotiq also warrants that this equipment will meet applicable specifications under normal use.

> **Caution**
>
> Warranty applies under the following conditions:
>
> - Usage respects recommendations from the **Safety** section
> - Installation respects the indications in the **Installation** section

During the warranty period, Robotiq will repair or replace any defective product, as well as verify and adjust the product free of charge if the equipment should need to be repaired or if the original adjustment is erroneous. If the equipment is sent back for verification during the warranty period and found to meet all published specifications, Robotiq will charge standard verification fees.

> **Caution**
>
> The warranty will become null and void if the:
>
> - Unit has been tampered with, repaired or worked on by unauthorized individuals.
> - Unit has been misused, neglected, or damaged by accident.
> - Unit has been opened.
> - Unit's firewall rules have been modified.

This warranty is in lieu of all other warranties expressed, implied, or statutory, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. In no event shall Robotiq be liable for special, incidental, or consequential damages.

Exclusion

Robotiq reserves the right to make changes in the design or construction of any of its products at any time without incurring an obligation to make any changes whatsoever on units already purchased.

This warranty excludes failure resulting from: improper use or installation, normal wear and tear, accident, abuse, neglect, fire, water, lightning or other acts of nature, causes external to the product or other factors beyond Robotiq's control. It also excludes all consumable parts.

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Where automation Pros come to share their know-how and get answers.

dof.robotiq.com