ROBOTIQ

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 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

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Official release

Copyright

1. General Presentation

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	Free Plan	Advanced Plan[1]
Real-Time Robot Overview	Included	Included
Email Reports Scheduler	Included	Included
Robot SMS Alerts	Default downtime alerts	Custom alerts
Production Performance Timeline & KPIs	Top 5 cobot KPIs	Top 5 cobot KPIs Custom KPIs
Robot Digital I/Os	Not included	Included
Downloadable Events Log	Not included	Included
Insights Edge Gateway	Sold separately[2]	Complimentary

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 (Advanced subscription plan);
- 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 dashboard with others (co-workers, partners, etc.).

> **Info**
>
> Insights is only available for Universal Robots UR3, UR5 & UR10. It is compatible with controller version CB3.1 or later, and with PolyScope version .3.4.0-39 and later.

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[1] 1-year term only
[2] One-time purchase

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 Edge Gateway that ensures an easy and secure connection of your robot to the cloud.

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

> **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 Edge Gateway or secure the robot by yourself to protect it from being remotely accessed or controlled by a third party.

> **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 Edge Gateway properly will protect your robot from being remotely accessed or controlled by a third party. 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 Edge Gateway correctly.

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

2.3. Insights Edge Gateway Warning

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

> **Caution**
>
> Do not use the Edge Gateway 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 Edge Gateway correctly.

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

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.

3. Installation

3.1. Installation Steps

> **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)

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.

3.1.1. URCap installation

1. From the Insights web application, press the **Add robot** button OR download from the Insights product page at support.robotiq.com
2. Download the .urcap file
3. Put the URCap on a USB stick
4. Connect the USB stick in the robot teach pendant
5. From the PolyScope home page, go to **Setup Robot**
6. Go to **URCaps**
7. Tap the **+** sign
8. Choose the **Insights URCap** file from the USB stick
9. Tap **Restart**

3.1.2. 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. The wizard will then guide you through the wiring steps of the Edge Gateway. For more details, refer to the **Using the Insights Edge Gateway** section**Using the Insights Edge Gateway** section
4. Follow the connection steps

3.1.3. 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**.
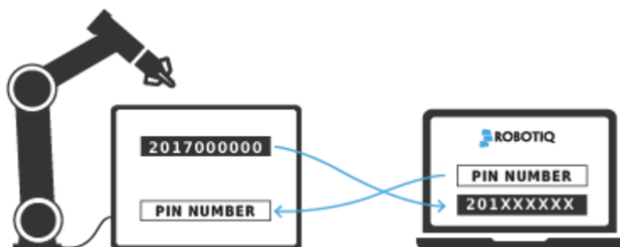
The pairing will be completed and the robot will appear on your Dashboard.

> **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.
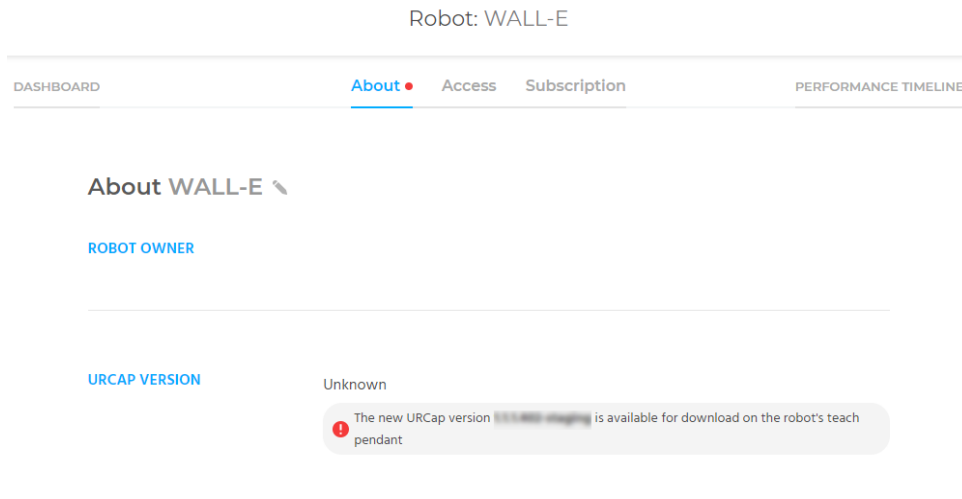
3.1.4. URCap upgrade

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.
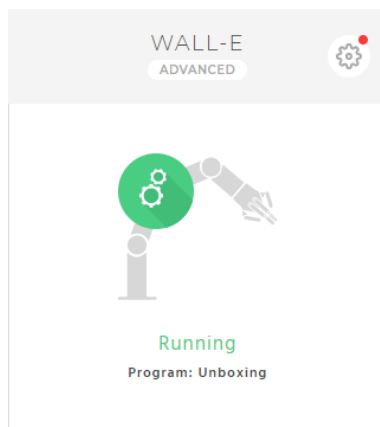
Clicking the gear icon brings up the **About** section (refer to the **About** section) of the Insights web application and the URCap version row indicates that a new URCap version is available for download on that particular robot's teach pendant.

Robot: WALL-E

| DASHBOARD | About ● | Access | Subscription | PERFORMANCE TIMELINE |

About WALL-E ✎

ROBOT OWNER

URCAP VERSION

Unknown

🔴 The new URCap version ▓▓▓▓ ▓▓▓▓ is available for download on the 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

3.1.5. Remote Access (Advanced plan only)

> **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.

Requisites and compatibility

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, 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.

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.
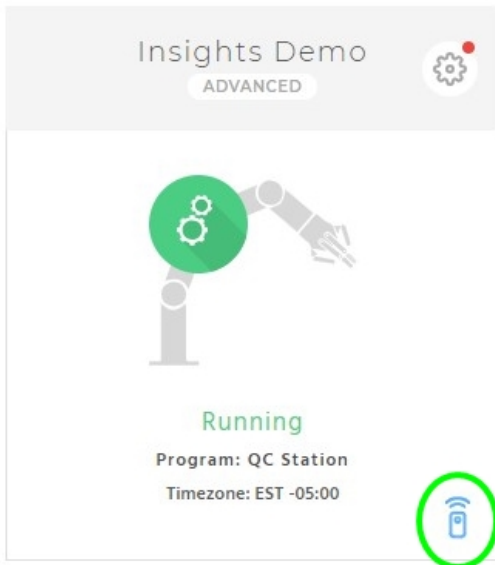
Dual camera feed

- Logitech C920

Initial setup by robot owner

1   Install Insights (please refer to the **Installation Steps** section).

2   Click on the remote access icon in the lower right corner of the robot card in the Real-Time Robot Overview.
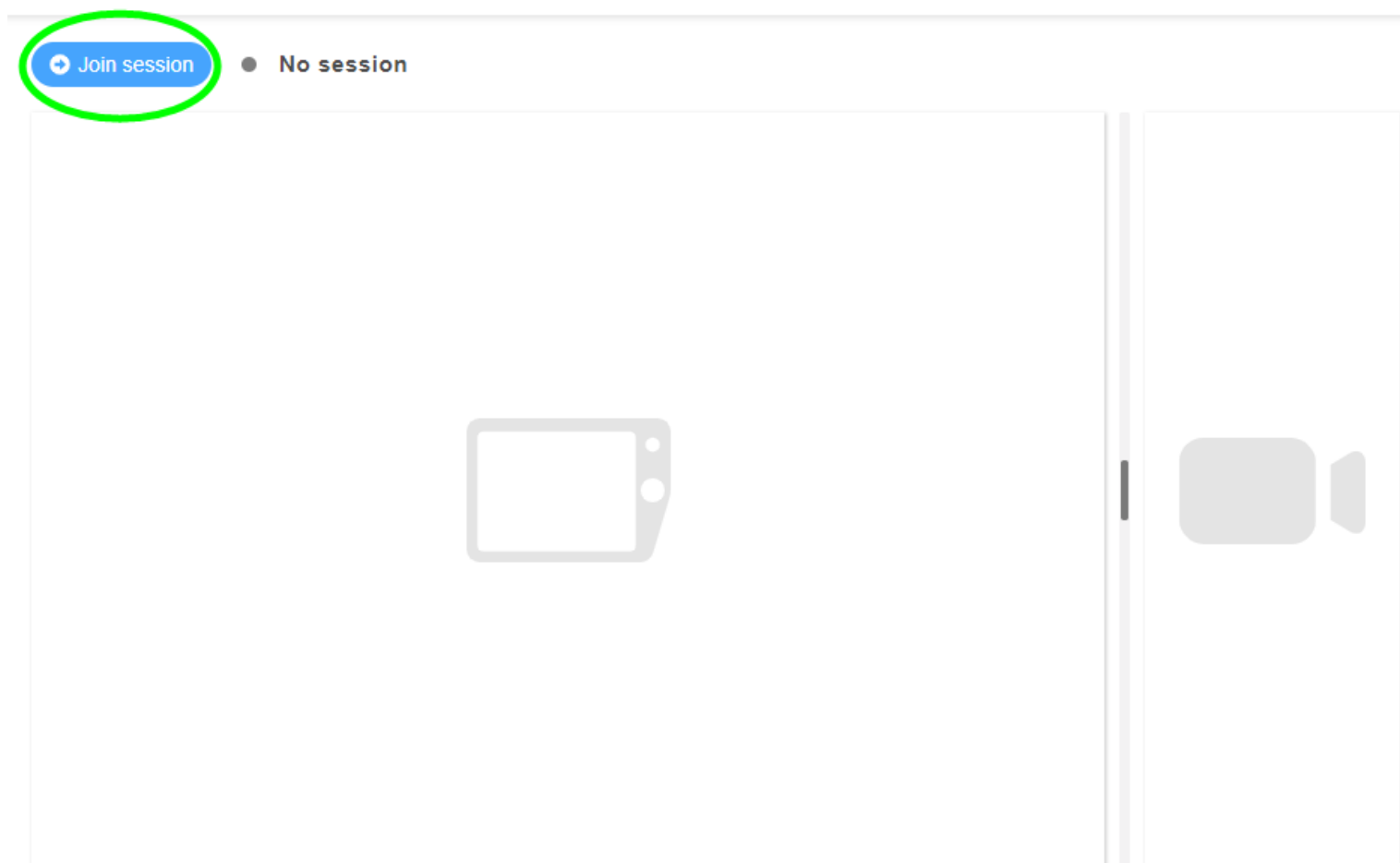

3   In the new Remote Access browser tab, click on the Get Started button.

← Go back   📟 Remote Access: Insights Demo | Logout

➤ Join session   ● No session

4 Download the Remote Access software (compressed files).

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

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

7 Wait for the Remote Access application to start.

8 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).

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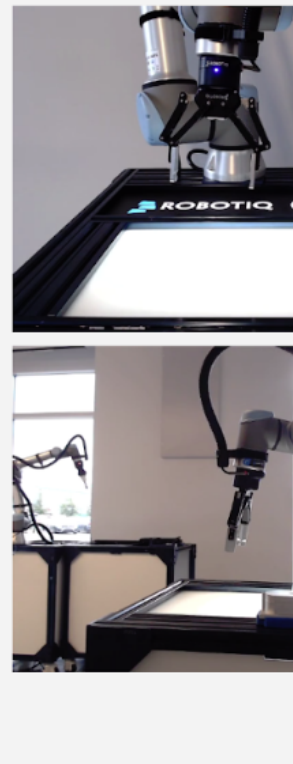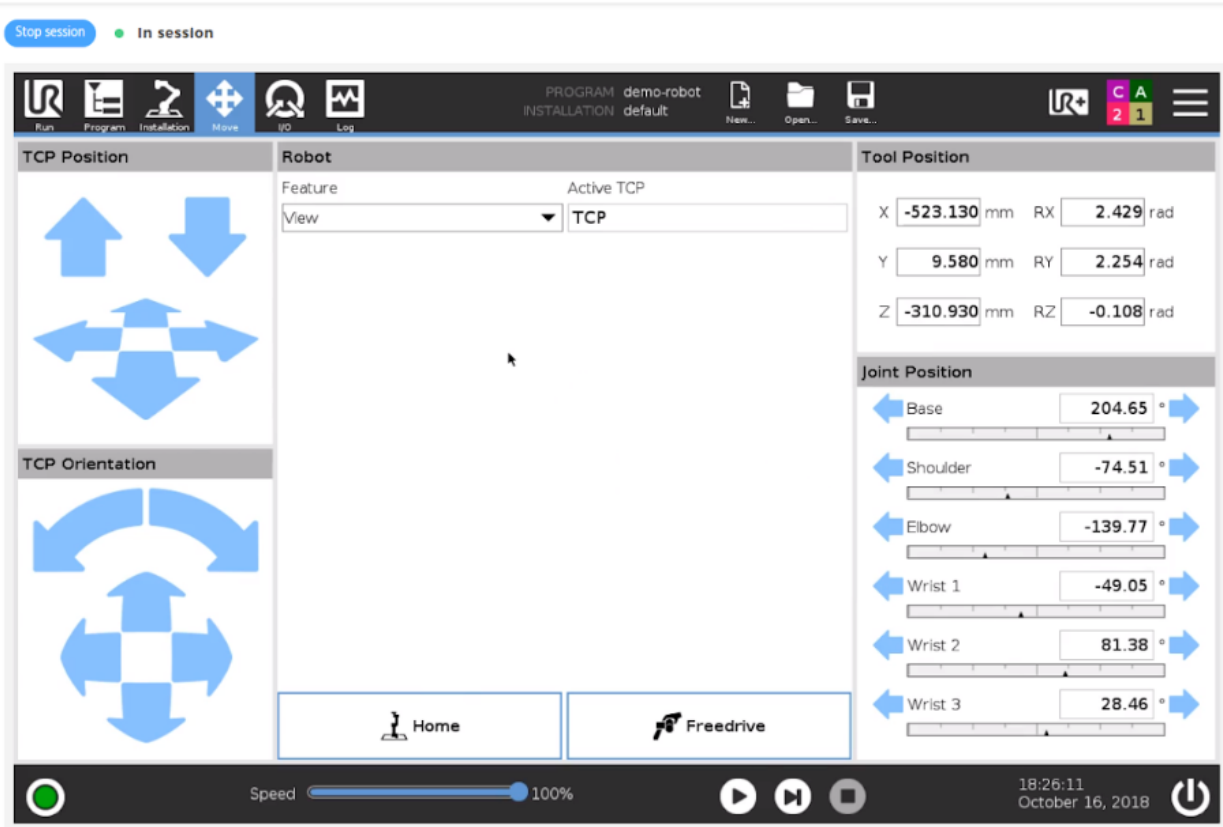
10 Tapping the close icon (X) in the upper right corner of the teach pendant or removing the USB key will close the Remote Access application on the teach pendant.

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 Browses to the Remote Access web application by logging in to an Insights account (please refer to step 2 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 **Launch session** button.

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4   Enter the passcode generated by the Remote Access robot application.

5   Click on the Connect button.

3.2. Using the Insights Edge Gateway

The Insights Edge Gateway securely connects the robot LAN to a WAN network with Internet access and includes an inbuilt firewall that protects and allows restricted and secure communications. The Edge Gateway is setup to automatically block all incoming traffic and allow exclusively outgoing traffic through specific ports.

3.2.1. Scope of delivery

The Insights Edge Gateway comes with:

○ Preconfigured Edge Gateway

○ Power supply with USA and European plugs (types A and C)

○ Ethernet cable

○ USB key

○ Fixation kit

○ USB 2.0 micro b to type A Cable (only needed in case the configuration needs access to the WebGUI)

The user needs to provide an Ethernet cable to supply Internet connectivity.

> **Caution**
>
> The operating temperature of the Edge Gateway is between 0°C and 50°C. Make sure you install the gateway in an environment that respects this condition.

3.2.2. Wiring

The Edge Gateway wiring is done via the connection wizard on the UR teach pendant. It consists in the following steps:

1. Connect the Edge Gateway AC adapter to a power outlet (the device may take up to 3 minutes to power up)

2. Connect the robot controller to the LAN port of the gateway using the provided Ethernet cable

3. Connect the WAN port of the gateway to a network connected to the Internet

3.3. Connectivity

3.3.1. Nomenclature

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

Edge Gateway: 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 vonfiguration in which the parameters are configured manually

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

3.3.2. Topology

The Edge Gateway provided by Robotiq is a device that enables a secure connection between a robot and the Insights service. In order to do so, the Edge Gateway blocks all communication ports except the ones used by the Insights service. The location at which the Edge Gateway 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 Edge Gateway

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

Connection: Connect the robot Ethernet port to the **LAN port** of the Edge Gateway, then plug your Internet cable to the **WAN port** of the Edge Gateway
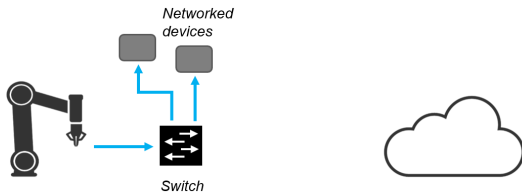
Robot configuration: Use the DCHP configuration option in the robot teach pendant connectivity configuration
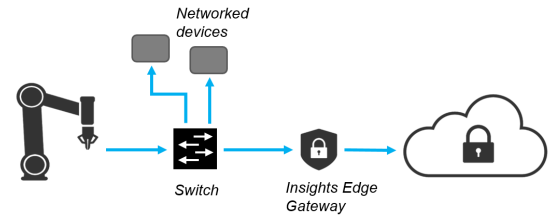
Topology #2

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

BEFORE	AFTER

Networked devices

Switch

Networked devices

Switch *Insights Edge Gateway*

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 theEdge Gateway 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 **Edge Gateway WAN port** to your Internet cable

Edge Gateway configuration:

Log into the Edge Gateway GUI (see **Custom configuration** section section).

On the LAN port:

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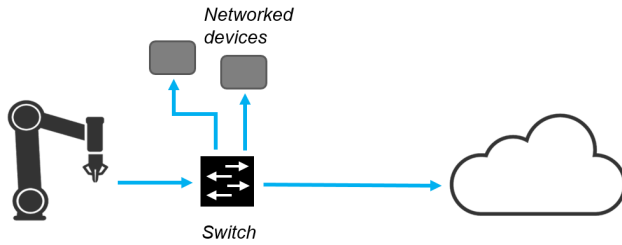- Set the same subnet mask as the robot

Robot configuration:

In the network configuration, assign the **Edge Gateway 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 offsite 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 Edge Gateway if one of the robots needs a direct access to the Internet. The Edge Gateway 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.

3.3.3. Edge Gateway Configuration

Default configuration

LAN port

- IP address: 192.168.204.1
- DHCP server
- DNS resolver

WAN port

- DHCP client

A network address translation (NAT) is also present between the LAN and WAN ports.

Custom configuration

> **Caution**
>
> The Edge Gateway takes 2 to 3 minutes to power up and display the WebGUI. If the user tries to reach the address during the power up, the browser will most likely freeze.

1. Connect the Edge Gateway LAN port to the desktop or laptop device Ethernet port
2. Go to network configuration and set the following parameters
   a. IP address: 192.168.204.5
   b. Subnet mask: 255.255.255.0
   c. Default gateway: none
   d. DNS: none
3. Open a web browser and type 192.168.204.1

   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.

4. On the Netgate landing page, enter the following credentials:
   a. Username: **user**
   b. Password: **changethispassword**
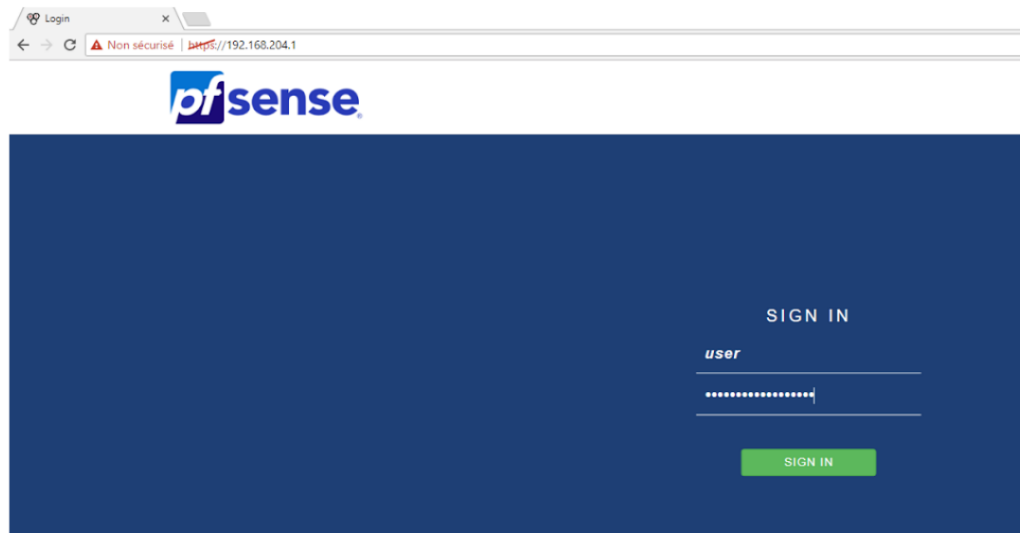
5. The user can change the parameters of the gateway through the different menus and options

6. In the WAN menu, the gateway's DHCP server can be turned off.

7. In the LAN menu, the Edge Gateway LAN IP adress can be modified (typically 192.168.204.1).

8. Doing so requires to manually enter the gateway address when configuring the connection on the robot teach pendant.

Manual Network Configuration

> **Caution**
>
> WAN and LAN port network addresses must be different. Otherwise, the NAT will not function properly and the Internet access will be interrupted or intermittent.

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**.
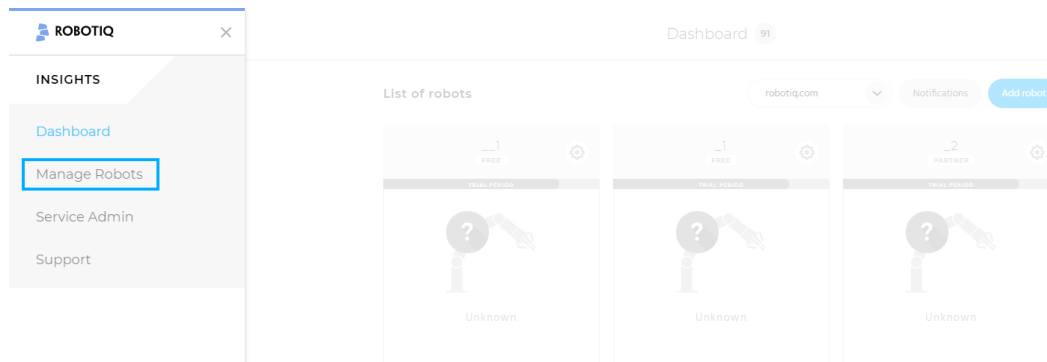
About

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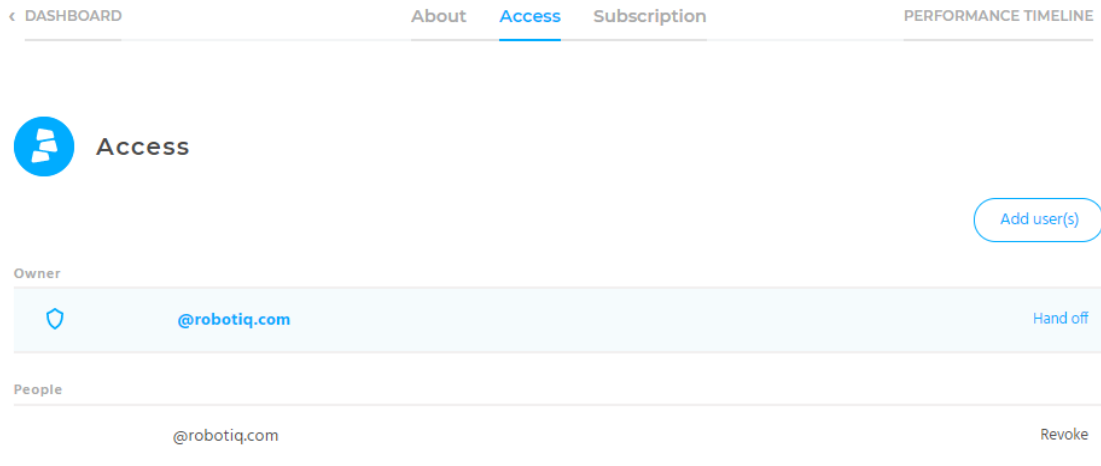
...or **full day hours**.

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.

The owner of a robot used in the framework of a Free plan can go to that menu to:

- View the subscription plan type
- Ask for a quote to upgrade the license
- Enter an Advanced license number and click the **Activate license button** to upgrade the plan

Robot: _1

‹ DASHBOARD   About   Access   **Subscription**   PERFORMANCE TIMELINE ›

SUBSCRIPTION

Subscription plan: **Free**

If you have a license number, enter it in the field below to activate your license. If not, contact your local partner or get a quote for a subscription plan

License number

Enter your license number

ACTIVATE LICENSE

The owner of a robot used in the framework of an Advanced plan can go that menu 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

Robot: Assembly Station

‹ DASHBOARD   About   Access   **Subscription**   PERFORMANCE TIMELINE

SUBSCRIPTION

Subscription plan: **Advanced**
Expiration date: **February 6, 2019**
Get a quote to renew or upgrade your subscription plan

License number

0c51f6e8-797a-4d98-9ad4-6534d4d51d9f   ✓

LICENSE ACTIVATED

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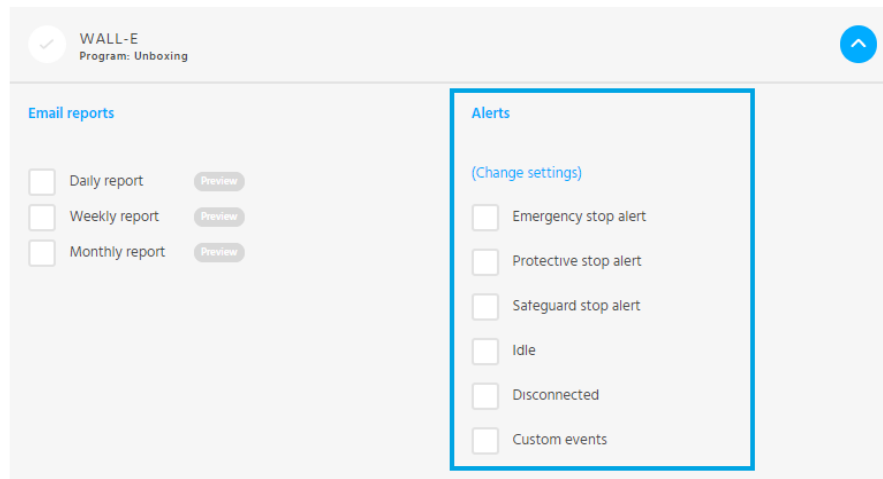
The **Preview** button opens a new window and display a preview of the email that would potentially be sent to the user.

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.
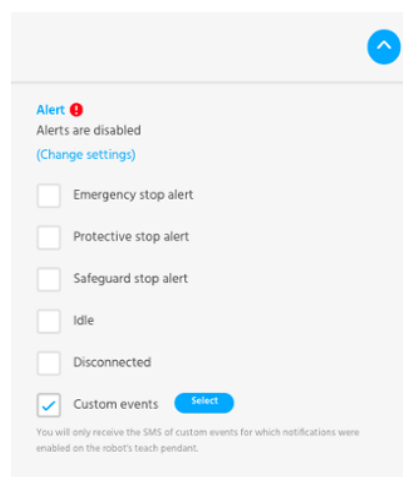
Caution

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.
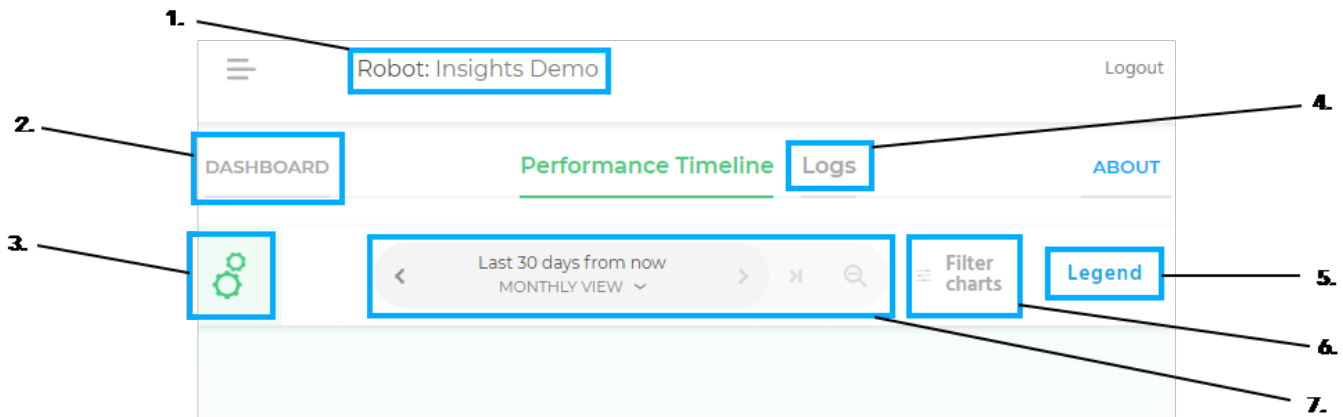
1. Robot name corresponding to the performance timeline displayed
2. Button to go back to the **Real-Time Robot Overview**
3. Icon indicating the status of the robot program (more details in the **Robot Status** section)
4. Button to access the **Logs** interface
5. The **Legend** button opens a box 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.
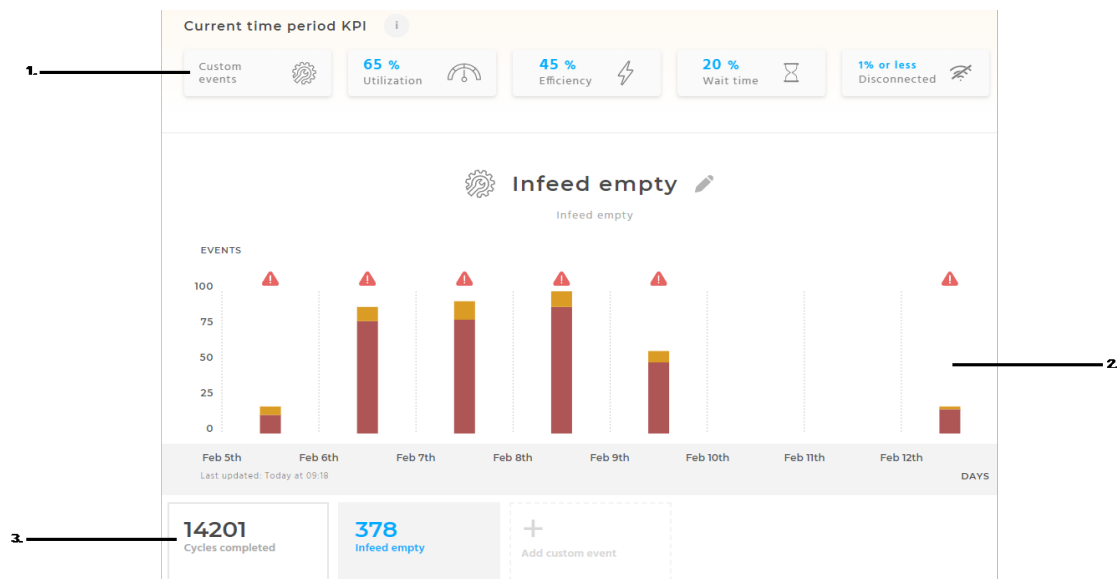
1. **Top 5 cobot KPIs panel**: selecting an option brings the user to the corresponding graph

> **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.

Select custom events

- [x] Empty box
- [ ] Failed
- [x] Passed
- [ ] Stack completed

Done

Cycles completed ✏️

Cycle counter

EVENTS

Apr 9th   Apr 10th   Apr 11th   Apr 12th   Apr 13th   Apr 14th   Apr 15th   Apr 16th

Last updated: Today at 14:22 (EDT -04:00)

DAYS

14683
Cycles completed
00:00:45 / Cycle

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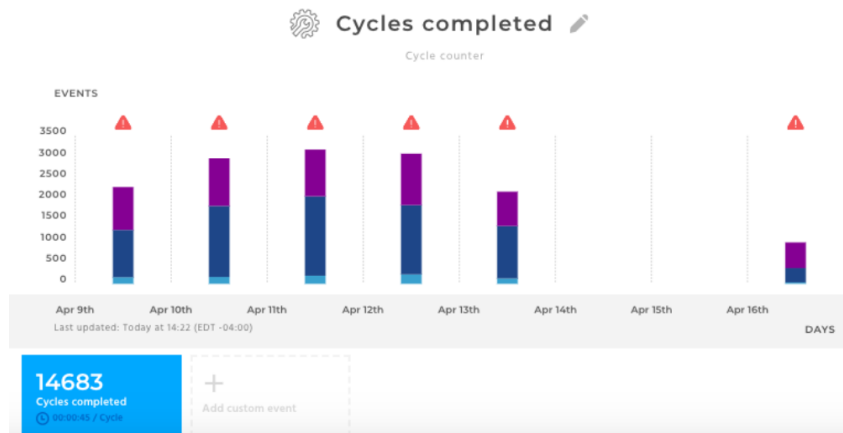
In each KPI chart, the data is grouped by program. Each color represents a different program that was run.

> **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

	FILTER LOGS		Download selected logs (CSV) ⬇
Selected events: Robot states, Connection states, Passed			

Date	Event	Program	Number of events
2018-03-13 08:49:15 AST	Running	Unboxing	
2018-03-13 08:49:08 AST	Idle	Unboxing	
2018-03-13 08:49:07 AST	Running	Unboxing	
2018-03-13 08:48:47 AST	Idle	Unboxing	
2018-03-13 08:48:36 AST	Initializing	Unboxing	
2018-03-13 08:48:16 AST	Emergency stop	Unboxing	
2018-03-13 08:21:19 AST	Running	Unboxing	
2018-03-13 08:21:11 AST	Idle	Unboxing	
2018-03-13 08:21:08 AST	Running	Unboxing	
2018-03-13 08:17:39 AST	Idle	QC Station	
2018-03-13 08:16:25 AST	Idle	QC Station	
2018-03-13 08:16:17 AST	Idle	QC Station	
2018-03-13 08:15:55 AST	Passed	QC Station	

4.2. Teach pendant interface

4.2.1. 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)

4.2.2. 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
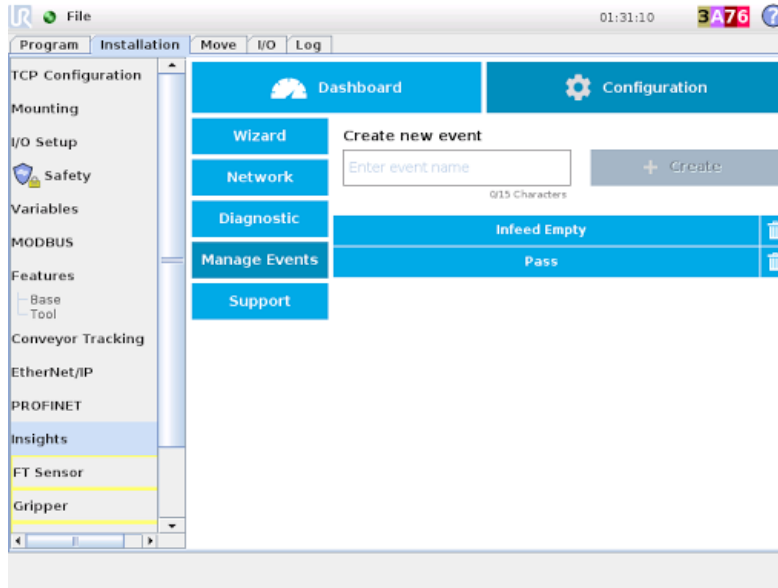
4.3. Remote Access

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.

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.

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

5. Specifications

> **Info**
>
> Insights is only available for Universal Robots UR3, UR5 & UR10. It is compatible with controller version CB3.1 or later.

5.1. Insights Edge Gateway

Specification	Value
Power input	5V, 2.5A
Internet connection	Wired Ethernet Cable
Radio frequency	2.4 GHz

6. Troubleshooting

This section will be populated soon.

7. Appendix

Appendix A – Warranty and Agreements

7.1.1. 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 .

7.1.2. 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.

7.1.3. Edge Gateway Warranty

Robotiq warrants the Insights Edge Gateway 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.

CE Marking

CE marking on the Edge Gateway represents the product is in compliance with all applicable directives.

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