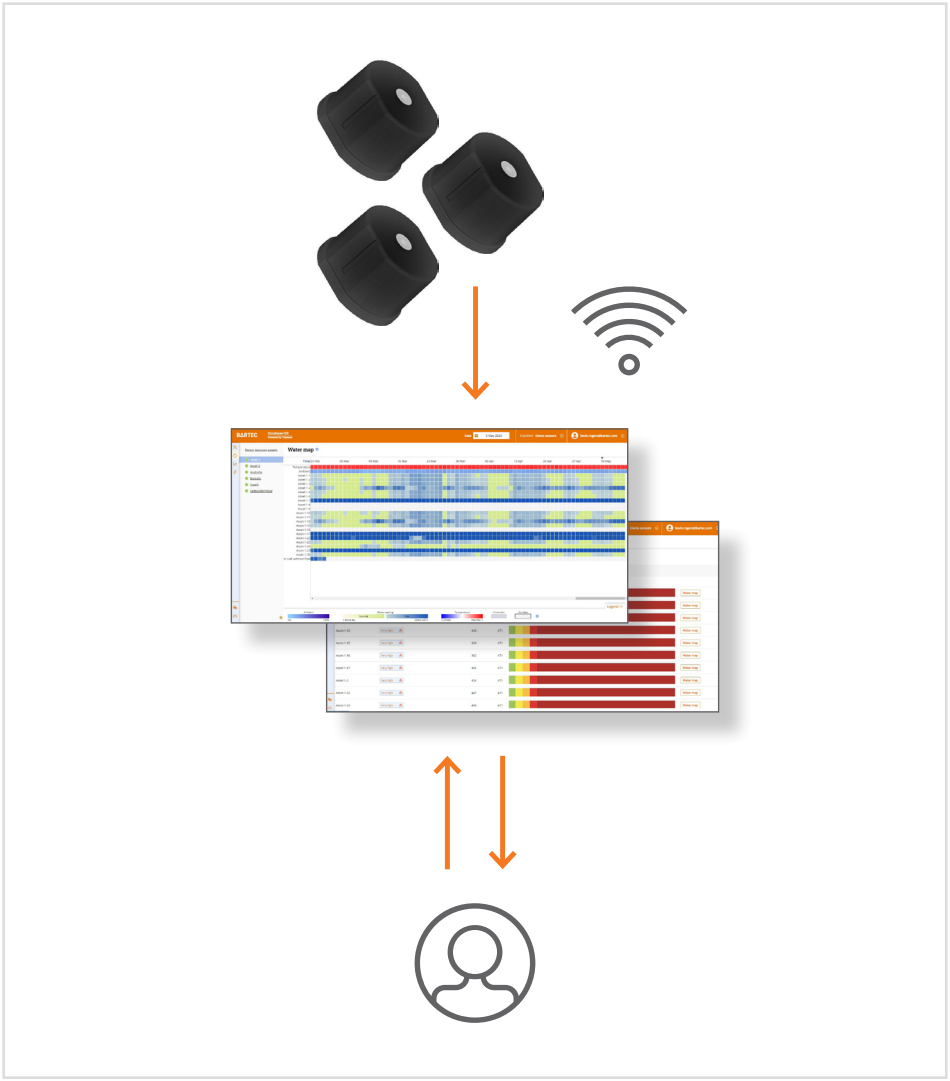
BARTEC

EXaminer® CUI 310 E NB

CirruSense Demo Quick Start Guide

Introduction

This is a quick start guide to walk you through the CirruSense demo environment. BARTEC is proud to present CirruSense, the cloud solution which gathers, organizes, analyses and presents data from our EXaminer® CUI 310 E NB.



BARTEC Cirrusense Powered by Trisense is an application in the BARTEC cloud which provides CUI (Corrosion Under Insulation) specific analysis and visualization of your assets.

Features

The EXaminer® CUI 310 E NB sensor is intended and specially designed for mounting on cladding of pipe insulation. Other use cases may apply.

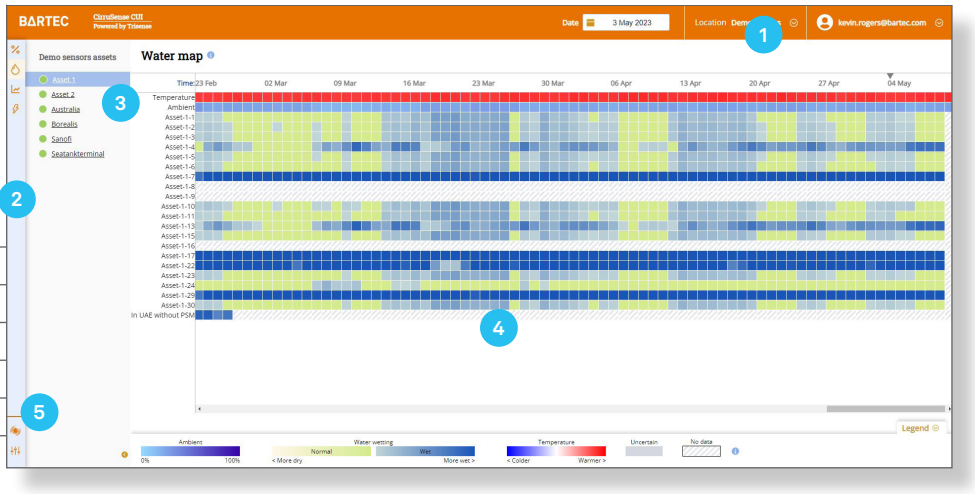
The EXaminer® CUI 310 E NB will sense the relative humidity, temperature and water presence. Measurements are transmitted over NB-IoT or LTE-M to an IoT-Hub and a cloud solution like MS Azure or similar, as required by the end customer.

Walkthrough

Log in

1. Open **bartec.cloud** in a web browser
2. Log in with the credentials provided by your BARTEC contact person
3. Click CirruSense CUI

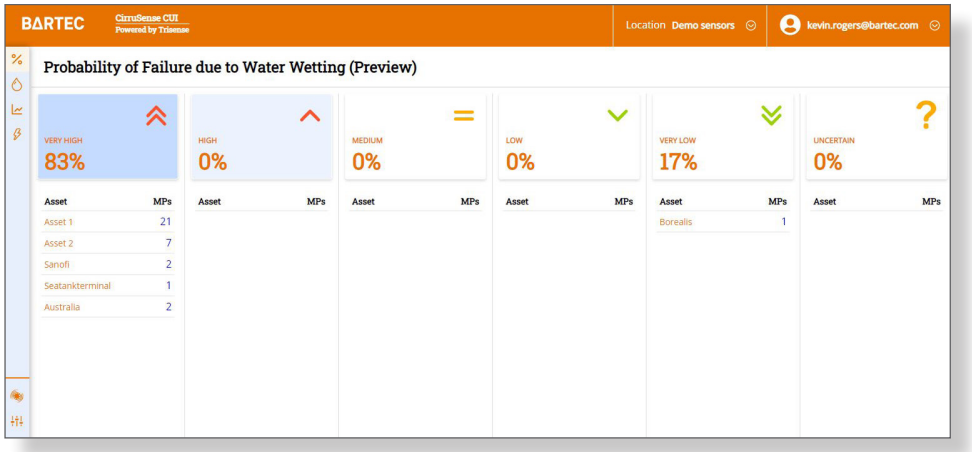
User interface overview



1. Location menu
2. Page menu
3. Asset selection
4. Page contents
5. Settings menu

Probability of Failure dashboard

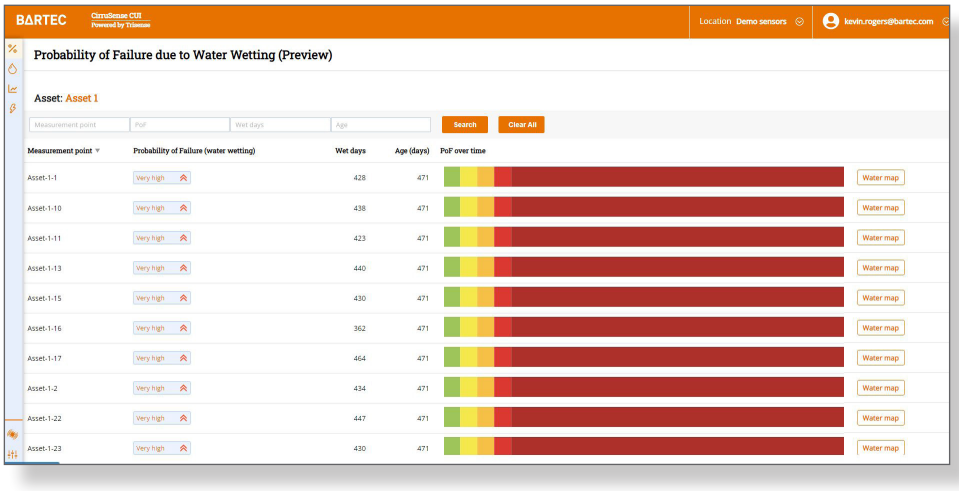
The first page you see is a dashboard showing classifications of Probability of Failure due to Water Wetting for the different assets, here named Asset-1-1 to Asset-1-30. An asset represents a physical object to be monitored such as a piping section or a tank, and will typically be monitored at multiple measurement points (MPs). Measurement points represent the specific point locations on an asset where sensors are placed. In this way, a physical sensor can be replaced without disrupting the trends and analysis for an MP.



Probability of Failure asset details

The data shown in this environment are simulated, so that we can set up different scenarios to test or demonstrate. Asset-1-1 is configured with 99 sensors and simulates occasional water intrusions. Click Asset-1-1 in the Probability of Failure dashboard to see details for this asset.

Here, the individual PoF classifications as well as a history line is shown for every measurement point of Asset-1-1.



Water map

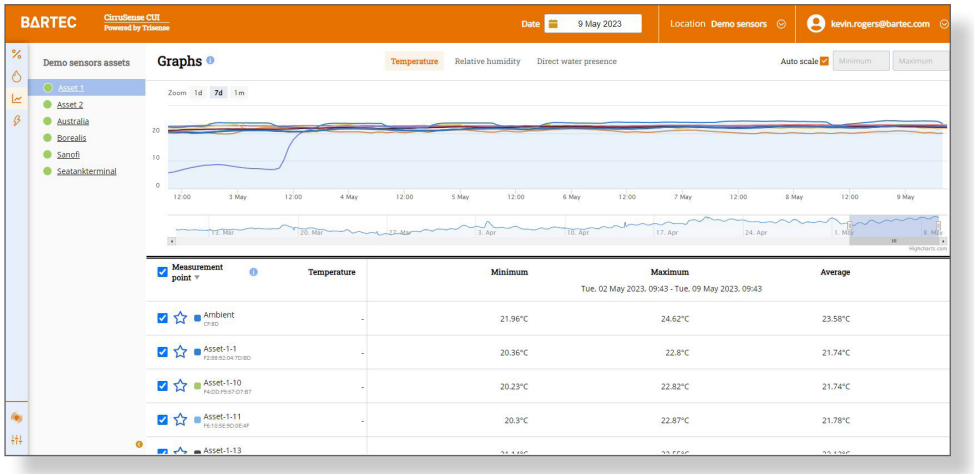
Now that Asset 1 is selected, you can navigate to different views to see its conditions from other perspectives and detail levels. Click Water map in the page menu (droplet) to see the water map representation of Asset 1.

The water map gives an overview at a glance of how water propagates along the piping section, and how it changes over time. Every day, a wetting state of normal or wet is calculated for each measurement point. The state is represented with colored blocks in the water map. Green indicates normal (dry), and blue indicates wet. The different shades of blue indicate the degree of humidity measured.

Graphs

Other assets can be selected as well. Click Asset 1 in the asset selection sidebar to see a different data set. Next, click Graphs in the page menu. If you select another asset, it will be kept while navigating between pages.

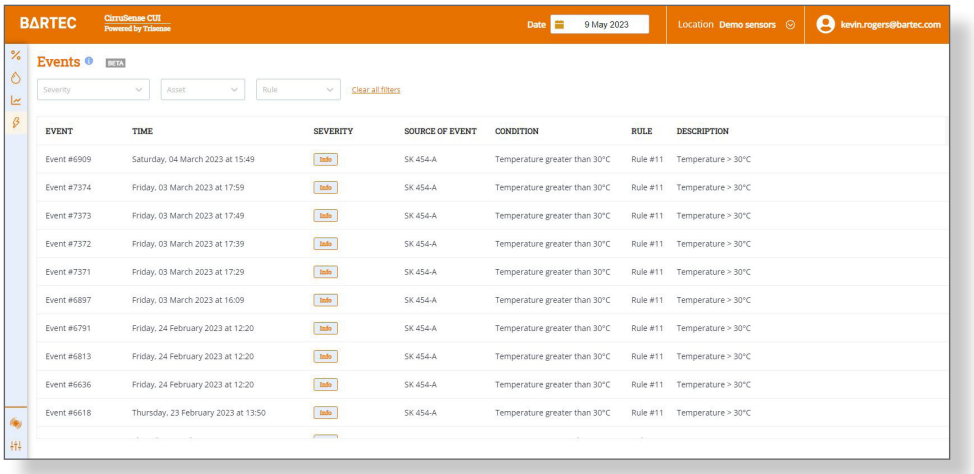
Here, the measurements taken by sensors can be inspected in detail. Below the graphs is a table showing instantaneous as well as aggregated values (minimum, maximum and average). The aggregated values are calculated over the current zoom range, while the instantaneous values are shown for the time of the vertical line which can be set by clicking an empty spot in the graphs.



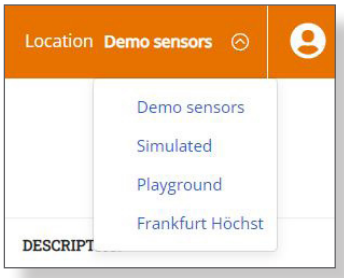
Events

Users can configure rules that detect different events, such as a temperature falling below some threshold. Click Events in the page menu.

Here, you can see the log of events that have been detected.



Locations

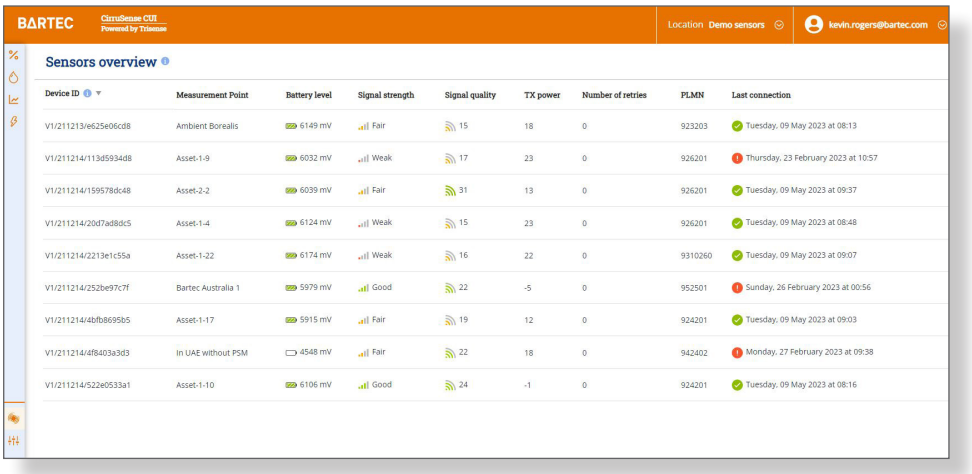


CirruSense organizes groups of assets in different locations. So far, we have looked at simulated data in the Simulated location. There are also some real sensors sending data to the demo environment. Click the location menu, and select Demo sensors.

Sensor info

Note that the demo sensors are not placed at real pipings in a production facility, so the analysis will not be realistic. However, the demo sensors can be used to demonstrate the Sensor info page, which is not in use for the simulated ones. Click Sensor info in the settings menu.

This page is used to verify correct operation of the sensors. Battery level and signal quality indicators are shown. Most important, however, is the time of last connection. As long as the sensors have been able to transmit recently, all data collected is synchronized with CirruSense.



Field trial data

Finally, the demo environment is set up with historical data from a field trial. Click the location menu, and select Injection Test. The data is from April to June 2021. It shows the results of controlled water injections into an insulated piping section, as well as some sporadic water intrusions.

ESS BU
BARTEC GmbH
Max-Eyth-Str. 16
97980 Bad Mergentheim
Germany

Phone: +49 7931 597-0
info@bartec.com

bartec.com