

EnSURE<sup>™</sup> Touch  
SureTrend<sup>™</sup> Cloud  
Architecture and Implementation Overview  
Introduction for IT Professionals

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## Introduction

This document will help IT professionals understand how to deploy the EnSURE Touch instrument in your environment, and what to consider when using SureTrend Cloud.

## Assumptions

This document assumes the reader has an understanding of Wi-Fi, network, IoT devices, and browser applications. The reader should also understand the basic function of EnSURE Touch Environmental Monitoring System. Hygiena.com contains videos that demonstrate many of the basic functions.

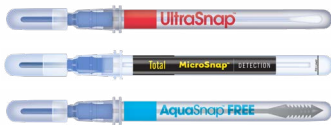
## Overview

For a general overview of the product and updated information, please refer to <https://www.hygiena.com/food-and-beverage-monitoring-systems/ensuretouch-fb.html>.

## Architecture

There are 4 components to Hygiena's EnSURE Touch Environmental Monitoring System:

1. Disposable test devices.
2. EnSURE Touch handheld luminometer, also referred to as the instrument.
3. SureTrend Cloud service API used by the EnSURE Touch to Sync data.
4. SureTrend Cloud Web App, the browser-based user interface of SureTrend Cloud.



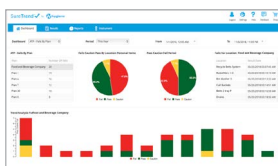
Hygiena manufactures many different disposable test devices used to collect samples from surfaces, products, liquids, etc. The chemistry in these devices is then activated and the device is placed in the EnSURE Touch instrument to be analyzed.



EnSURE Touch is a mobile handheld luminometer (instrument). Like a cellphone or small tablet today, it has a 5" resistive touch screen, local storage, and supports Wi-Fi connectivity. These features allow EnSURE Touch to function autonomously. EnSURE Touch is the only handheld luminometer in the market today that can be completely configured and programmed directly on the instrument. All other competitors require the handheld luminometer be connected to the computer running the vendor's software to configure and program their instrument.



While EnSURE Touch can run offline and autonomously, it can also be connected to the SureTrend Cloud services. The SureTrend Cloud service adds some very compelling features. EnSURE Touch can synchronize with your SureTrend Cloud account and offer features such as backup in case an EnSURE Touch instrument is lost or damaged, managing the program information across multiple instruments in your account, monitoring test results, and performing rich data analysis of the test results. If you have multiple EnSURE Touch instruments across multiple sites globally, you now can monitor and contrast your testing procedures in real-time.



The SureTrend Cloud web app is a browser-based application that allows the customer to invite their users, describe their sites, register and program their EnSURE Touch instruments, collect program information and test results from EnSURE Touch instruments, and analyze and report on the collected results.

## Azure App Services

This solution leverages the Microsoft Azure App Services platform. Below are the key components and the services they use.

Android Embedded  
Application



Azure App Services Web APIs  
[suretrend.hygiene.com](http://suretrend.hygiene.com)

Azure App Services  
Accessible from Public Internet

Azure App Services Web App  
[suretrend.hygiene.com](http://suretrend.hygiene.com)

## EnSURE Touch

EnSURE Touch uses Azure Web APIs to sync data with SureTrend Cloud. EnSURE Touch must be connected to the internet and registered with a SureTrend Cloud account to sync its data with SureTrend Cloud. Most users connect EnSURE Touch via Wi-Fi.

EnSURE Touch uses embedded Android OS, application, and tools. The makes the user interface intuitive. With the 5-inch capacitive multipoint touch screen, customers can use most of the touch gestures they are familiar with on their smartphones, such as swiping, scrolling, and a full keyboard.

EnSURE Touch can be configured and programmed directly on the instrument, and it has onboard memory to store millions of test results. EnSURE Touch can be used without SureTrend Cloud; however, SureTrend Cloud offers additional benefits.

### ▶ EnSURE Touch Hardware

EnSURE Touch is a low power, handheld luminometer with an embedded Android tablet for the user interface. It has local storage for instrument programming and to collect test results. It has Wi-Fi to connect EnSURE Touch to the internet to work with SureTrend Cloud. There are other sensors to help the user operate the instrument correctly such as device detection to make sure the user inserts the device, accelerometer to make sure the instrument is in the correct position when running the test, and lid sensor to make sure the lid is closed during the test.

EnSURE Touch is powered by a 2900mAh rechargeable lithium-ion battery, and the instrument can run off of USB power without a changed battery, or without a battery installed at all.

### ▶ EnSURE Touch Users

Security can be enabled on EnSURE Touch. Users will be presented with a login screen to access the features of the instrument. A list of assigned Users to the instrument will be on the login screen. The User can select their Username and supply their 4-digit pin to login. Users are assigned roles on the instrument to control access to instrument functions and settings. There is a security lockout time if inactive. There are also password recovery features in case passwords are lost or forgotten. It is important to remember that EnSURE Touch Users need a separate login to access SureTrend Cloud.

## ▶ Instrument Registration

In order for EnSURE Touch to communicate with SureTrend Cloud it must be registered with a SureTrend Cloud account. There are instructions on SureTrend Cloud for registering an instrument, and there is a setup step in the first-time startup of EnSURE Touch to help register the instrument.

## SureTrend Cloud

SureTrend Cloud Azure Web App is the user interface to SureTrend Cloud. The Web App is used to manage Users, User access, sites, instruments, instrument programming, test results, reports, and more.

### ▶ Accounts

While the SureTrend Cloud Web App and APIs are accessible from the public internet, customers create SureTrend Cloud accounts to manage their sites, Users, instruments, test results, etc. Only Users in your account can access your data, and only if they have permissions set by the Owner or Admin account.

### ▶ Sites

Sites are used to partition a SureTrend Cloud account. Users can have access to 0 or more sites. Instruments and programming are assigned to a site. The site is usually thought of as a physical location (e.g. a facility). The allows sites to function without access or clutter of data from other sites. Instruments assigned to the same site will have the same programming so they can be backups of each other in case of instrument failure and can be used as needed at that site.

You can exclude programming from an instrument if desired so you can have custom instruments in a site.

You can reassign an instrument to another site, however the programming for the currently assigned site will be erased from the instrument and replaced with the newly assigned site.

### ▶ SureTrend Cloud Users

SureTrend Cloud Users have access to SureTrend Cloud. When you create a SureTrend Cloud account the user creating the account is the Owner. SureTrend Cloud uses email to validate user accounts so it is important to make sure the email address is correct, and emails can be received from @hygiena.com domain.

The Owner can invite Users to join their SureTrend Cloud account. Invitations are sent via email. Users can have access to 0 or more sites. Users are assigned a role to control their access to features in SureTrend Cloud. It is important to remember that the login account information for SureTrend Cloud does not give you login access to the EnSURE™ Touch instrument.

It is common to have an administrator of a site with multiple Users to manage the day to day testing at the site. Then you can have a User or Administrator have access to multiple sites for reports and data analysis.

### ▶ Other Azure Services

It is worth noting that SureTrend Cloud uses other features of Azure for data storage, scaling, security monitoring, etc. These features are not visible to end users. The point is that data stored in SureTrend Cloud is secure, encrypted, and best practices of Azure Services are utilized.

## Connecting EnSURE Touch

Most customers connect one or more EnSURE Touch instruments to a Wi-Fi Access Point or hotspot. The hotspot can be a mobile phone, Windows 10 computer, Mac or a device that supports Wi-Fi hotspots. EnSURE Touch also supports tethering to a Windows 10 computer using Windows Internet Connection sharing (ICS). The Windows 10 computer must have internet access. There is some Windows setup required.



## SureTrend Cloud Data Risk Level

Each customer must assess the data risk for themselves. This section will describe the type of data collected, how it is stored, and how it is transmitted. From Hygiena's perspective, the data is benign. All data in the system can be obfuscated except for the email address. Hygiena does not share or sell the data. The SureTrend Cloud data may be used to support EnSURE Touch and the use of the disposable test devices (e.g. UltraSnap™). Hygiena may use SureTrend Cloud data to improve the solution by adding features, improving performance, and fixing bugs.

### ▶ SureTrend Users

SureTrend Cloud logins require a valid email. It can be a public or corporate email. There is no email domain limitation. When a SureTrend Cloud User is created, an email is sent to validate the User. Other information collected on the account creation page is for general support information and is not verified. Users can be disabled.

### ▶ Instrument Programming

The instrument programming is specific to each customer's environment. Names assigned to Sites, Plans, Location, etc. are at the user's discretion. Many customers use coded names such as T1, T2, T3 for tables. Pass/Fail thresholds and typical RLU values depend on the type of testing. The test can be performed after cleaning or during production to show contamination rates. While Pass, Caution, and Fail values can show failures, the data is meaningless to anyone that does not understand the details of the programming.

## EnSURE Touch Security

The EnSURE Touch instrument is an embedded version of an Android device. All nonessential features of Android have been removed. MTP (Media Transfer Protocol) and ADB (Android Debug Bridge) are disabled. There are no servers running on EnSURE Touch. EnSURE Touch is considered LOCKED. Connecting EnSURE Touch to USB will show Unknown Device unless USB Tethering is enabled. When USB Tethering is enabled, EnSURE Touch appears as a network card to Windows 10 computers.

## SureTrend Cloud Encryption

SureTrend Cloud data is stored in Azure SQL Server encrypted at rest. When sending data from SureTrend Cloud to the browser or the EnSURE Touch instrument, the data is sent using HTTPS using TLS 1.2.

## Communication Details, Ports and Protocols

When EnSURE Touch is registered with a SureTrend Cloud account it will sync with the SureTrend Cloud server when instructed to do so. EnSURE Touch must have an internet connection to reach SureTrend Cloud. At no time does SureTrend Cloud try to reach EnSURE Touch instrument unsolicited. However, when EnSURE Touch is instructed to sync with SureTrend Cloud it will use the following ports and protocols:

Network Ports, Protocols and IP Address - EnSURE Touch	
Port	443
Protocol	https
DNS name	suretrend.hygiene.com
Static IP addresses	N/A

Network Ports, Protocols and IP Address - SureTrend Cloud	
Port	80
Protocol	https
URL	suretrend.hygiene.com
URL	www.recaptcha.net (This is only used on the account creation page)

## Software Updates

EnSURE Touch updates its application software over the internet once accepted by EnSURE Touch user. If the instrument is connected to the internet, it will download the application software over https from suretrend.hygiene.com (the instrument does not need to be registered with SureTrend Cloud to receive software updates). The application software size is about 5,000 KB.

## Time Service

EnSURE Touch has an onboard real-time clock (RTC) to maintain the time on the instrument. There is also a super capacitor to maintain the RTC for 2 hours if the battery is removed or drained to 0. This helps maintain the RTC during battery swapping. Android will use Network Time Protocol (NTP) to keep the RTC current by default, and can be changed in EnSURE Touch by navigating to Settings>General>Date. This can be changed to use suretrend.hygiene.com or not update the RTC.

### Network Time Protocol (NTP)

Only used for Date & Time source

Port	123
Protocol	UDP
DNS name	pool.ntp.org

## TeamViewer

EnSURE Touch comes with TeamViewer remote support client installed. It is not active unless the user navigates to the Settings > Support screen and requests remote support.

TeamViewer is installed and can be used for remote support.

<https://community.teamviewer.com/t5/Knowledge-Base/Which-ports-are-used-by-TeamViewer/ta-p/4139>

## WiFi Module Information

Standard	Frequency Band
<ul style="list-style-type: none"> <li>IEEE802.11b, 802.11g, 802.11n</li> </ul>	<ul style="list-style-type: none"> <li>2.4000~2.4835GHz</li> <li>(Industrial Scientific Medical Band)</li> </ul>
Data Rate	Security
<ul style="list-style-type: none"> <li>11b: 1/2/5.5/11Mbps</li> <li>11g: 6/9/12/24/36/48/54Mbps</li> <li>11n (20MHz): MCS0-7 (up to 72Mbps)</li> <li>11n (40MHz): MCS0-7 (up to 150Mbps)</li> </ul>	<ul style="list-style-type: none"> <li>WEP 64/128, WPA, and WPA2</li> <li>IEEE802.1x (Windows System Only)</li> <li>Software WPS configuration</li> </ul>
Output Power	Humidity and Temperature
<ul style="list-style-type: none"> <li>11b: 17 ± 1.5dbm</li> <li>11g: 15 ± 1.5dbm</li> <li>11n: 14 ± 1.5dbm</li> </ul>	<ul style="list-style-type: none"> <li>Operating: 10~90% (Non-Condensing)</li> <li>Storage: Max. 95% (Non-Condensing)</li> <li>Operating: 32~104°F (0~40°C)</li> <li>Storage: -4~140°F (-20~60°C)</li> </ul>
Receive Sensitivity	Certifications
<ul style="list-style-type: none"> <li>11n (20MHz) @MCS7: -68dBm±2dBm</li> <li>11n (40MHz) @MCS7: -64dBm±2dBm</li> <li>11g@54Mbps: -71dBm±2dBm</li> <li>11b@11Mbps: -81dBm±2dBm</li> </ul>	<ul style="list-style-type: none"> <li>CE, FCC, Wi-Fi</li> </ul>