Navitas Safety

Hardware Technical Specification

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Smart Probe

Processor: ARM Cortex-A7 + M47
Hardware: PICO-IMX7
Memory: 2GB
Android Version: 8.0.0 (Oreo)

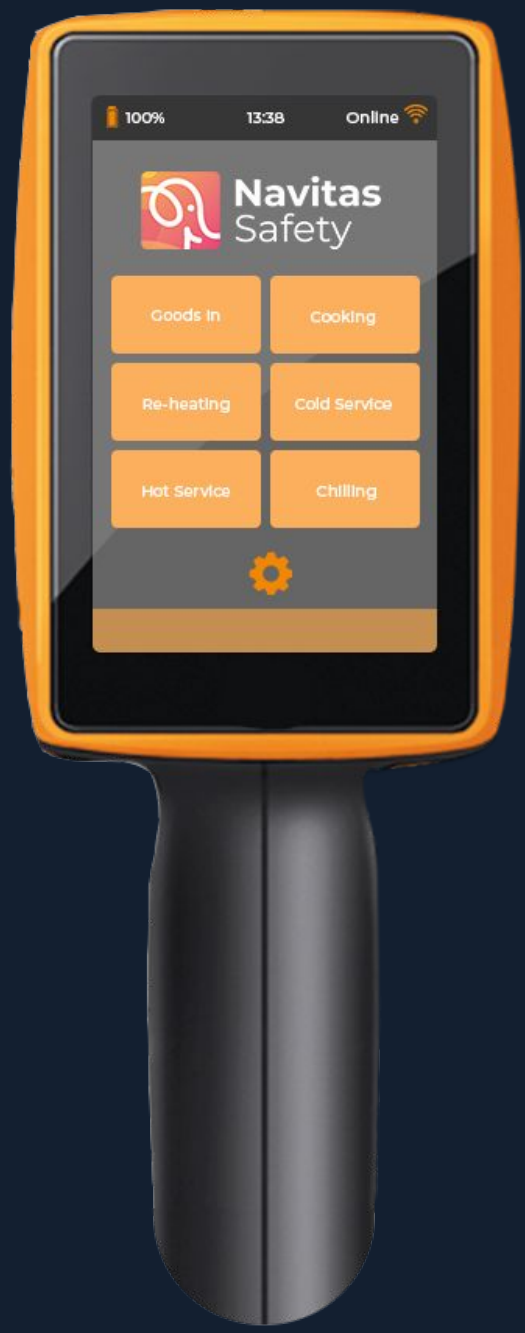
Wireless Module: Qualcomm QCA9377
Wireless Standards: 802.11 a/b/g/n (2.4/5 GHz)
Security: WEP, WPA-PSK/WPA2-Personal, WPA/WPA2 Enterprise, 802.11i

Battery Voltage: Voltage 3.7v Li-Ion with 4500mAh
Battery Charging: 20% to 80% within 2 hours
Charger Input: 100-240V / 50-60Hz / 300-150 mA
Charger Output: 5V / 2000mA / 10W
Dimensions: 400mm x 400mm x 210mm

Supplied with country adapter clips.

Smart Probe Dimensions:
Width 85mm, Height 250mm, Depth 80mm

Display Size: 4.00"
Resolution: 480 x 800
Viewing Angle: 80/80/80/80
Brightness: 350
Operating Temp (min): -20°C
Operating Temp (max): 70°C
IR Needle Temp (min): -50°C
IR Needle Temp (max): 160°C
Physical Needle Temp (min): -30°C
Physical Needle Temp (max): 100°C



Smart Probe Housing

The plastic housing is made from an antimicrobial material, to ensure full safety within your kitchen.

The Smart Probe exterior housing can be wiped down using sanitisers and cleaners.

The Smart Probe has been designed to be fully shockproof and robust by providing full protection to the internal circuitry.

Smart Pods + Hub

The system consists of many Pods to one or more Hub(s). The pods independently record temperatures and transmit via LoRaWAN to the Hub.

Upon receiving a successful packet from a paired Pod, the Hub will time and date stamp the temperature reading and then upload this to a cloud server. If there is no network connection present (via Wi-Fi or Ethernet) the pod will store the data locally.

Once successfully establishing a connection all readings that have been locally stored will be transmitted to the cloud server and removed from the local storage.

POD READING
Every 30 minutes the Pod will wake and record a temperature.

To reduce the chance of an anomaly reading (for example cold storage door being opened upon temperature being recorded) being sent, the Pod will take 20 readings every 100mSecs and the average is calculated. This is the temperature value that is transmitted to the Hub.

After each temperature value is calculated a packet of data is sent to the Hub. The data packets include Battery level, temperature value & Pod Serial ID.

Pods can be used via two methods using the internal pod sensor or by using the external sensor, see below specifications

Built in Temperature Sensor: -40 ~ +80 °C

External Temperature Sensor Range - White Pods Only:
Operating Range: -55 °C ~ 125 °C



Hardware Features

POD

- LoRaWAN Class A protocol.
- Wall mountable.
- Built in 2400mAH battery.
- Tri-color LED to indicate status.
- Frequency Bands, options: EU433, CN470, EU868, IN865, KR920, AS923, AU915, US915
- Dimensions: 85mm x 60mm x 25mm.
- Weight 250g.

HUB

- LoRaWAN Gateway
- Bundled 5V 3A PSU connects via USB C.
- 2.4G Wi-Fi (802.11 bgn)
- 10M/100m RJ45 Port
- Frequency Bands, options: EU868, IN865, US915, AU915, AS923, KR920.

Connectivity Protocol

Protocol: HTTPS, Private LoRaWAN, UDP
Datatype: JSON

Tablet

HOTWAV Pad 8 - 10.4”

General

Brand:	Hotwav
Type:	Tablet
Model:	Pad 8
Screen Size:	10.4 inch
OS:	Android 13

Hardware

CPU:	Octa-core 2000 MHz
RAM	8GB
ROM	128GB
Internal Storage	256GB
External Memory	microSDXC up to 1024 GB (not included)

Display

Display Size::	2000 x 1200 pixels
Resolution:	2K Ultra HD MP
Screen Type	IPS LCD

Connectivity

Wi-Fi:	802.11 a/b/g/n/ac (2.4GHz/5GHz)
Bluetooth:	V5.0
SIM Quantity:	Dual SIM
SIM Types:	Nano SIM Card 4G LTE dual-card 5G dual-band

Interfaces

Earphone port:	1 x 3.5mm
USB:	1 x Type-C
Card Slots:	2 x Nano SIM card or (1 x Nano SIM card + 1 x TF card) Slots

Camera

Rear Camera:	13.0MP
Front Camera:	8.0MP

Battery

Type:	Non-detachable Li-ion 6580mAh
Charging	Fast charging
Talk Time:	31 hours
Audio Time:	30 hours
Video time:	5.5 hours
Web browser time:	10 hours
Standby time:	672 hours
Power:	5V 2A

Design

Size:	247 x 156.8 x 7.6 mm
Weight:	442g

Contents

Box Contents:	1 x Eject pin 1 x User manual 1 x USB cable



Network Requirements

Smart Probe

A stable Wi-Fi connection must be available in all areas where the Smart Probe is expected to operate. The SmartProbe can be used offline but it will need to reconnect to the network in order to push the data into the software.

Smart Probe must have access to the following Internet addresses:

- dfs.navitas.eu.com (35.227.247.204) port 443
- app.navitas.eu.com (104.155.71.218) port 443
- 2.android.pool.ntp.org (185.83.168.27) port 123 UDP

Smart Probe must have access to stable DNS servers.

Smart Probe do not otherwise need access to your internal network.

Any connection and authentication details for your Wi-Fi network must be provided to Navitas in advance of an installation taking place.

The WiFi must not include any captive portals or splash screens. It must also support 2.4 Ghz (5Ghz is not supported).

The network must not include an Enterprise SSID as the Navitas solution does not support this.

If no suitable Wi-Fi connection is available at your site, as a last resort, the Hubs can be configured to emit a network secured by WPA2-PSK.

Navitas Hub

Hubs may connect to the Internet via any of the following methods:

- An ethernet connection
- A stable Wi-Fi connection
- As a last resort a 3G/4G connection can be used

Hubs must have access to the following Internet addresses:

- ICMP
- dfs.navitas.eu.com (35.227.247.204) port 443
- Apps.navitas.eu.com (35.195.27.57) port 443
- chirp.navitas.eu.com (46.101.87.7) port 1700 UDP
- *.openwrt.pool.ntp.org (`78.61.68.79) port 123

Hubs must have access to stable DNS servers.

Hubs do not otherwise need access to your internal network.

Any connection and authentication details for your network must be provided to Navitas Safety in advance of an installation taking place.

The WiFi must not include any captive portals or splash screens. It must also support 2.4 Ghz (5Ghz is not supported).

The network must not include an Enterprise SSID as the Navitas solution does not support this.

Cloud Platform End User Requirements

Windows

- Windows 7, Windows 8, Windows 10 or later
- A modern web browser such as Chrome, Firefox, or IE
- An Intel Pentium 4 processor or later that's SSE2 capable
- 1gb RAM or greater
- 20gb free disk space
- An internet connection

Mac

- OS X Yosemite 10.10 or later
- A modern web browser such as Chrome, Firefox, or IE
- An Internet Connection

Linux

- 64 Bit Ubuntu 14.04+, Debian 8+, openSUSE 13.3+, or Fedora Linux 24+
- A modern web browser such as Chrome, Firefox, or IE
- An Intel Pentium 4 processor or later that's SSE2 capable
- An internet connection

Android

- Android OS version 6.0 and above that are compatible with Google Play
- Wi-Fi
- Bluetooth (If using the Allergen application)
- 2gb Ram or greater
- 4 Core Process @1.8ghz or greater

IOS

- Operating system with the version 9 and above
- Wi-Fi

Data Flow Diagram



LoRaWAN

LoRaWAN

LoRaWAN



Navitas Safety
LoRaWAN Gateway

UDP Semtech

Public Internet

Chirpstack Network Server

chirp.navitas.eu.com
(EU 868 mHz spec)

chirpus.navitas.eu.com
(US 915 mHz spec)

Chirpstack Application Server

6 EU868 Pods — Black pod EU868

11 LHT65-868-Pods — White pod EU868

15 LHT65-915-Pods — White pod US915

7 US915 Pods — Black pod US915

Integration

Black pod EU868 → https://smartpods.dfs.navitas.eu.com/api/v2/extractData

White pod EU868 → https://smartpods.dfs.navitas.eu.com/api/v1/extractData

White pod US915 → https://smartpods.dfs.navitas.eu.com/api/v1/extractData

Black pod US915 → https://smartpods.dfs.navitas.eu.com/api/v2/extractData

DFS Platform

Data Flow Description

Individual Establishment



Store Tablet
HTTPS SSL/TLS
Cert AUTH
TCP 443

WiFi Router
2.4/5GHz

TLS 1.2
Cert AUTH



LPS8 OpenWRT
SSH 2222 HTTP 8000

AES128 LoRaWAN
Encapsulation
868MHz
LHT65 /
ST8413-05



Navitas Safety Smart Pods in Establishment

TLS 1.2
Cert AUTH

HTTPS SSL/TLS
Cert AUTH

Public Internet

TLS 1.2
Cert AUTH

LoRaWAN Chirpstack Instance within Container Droplet - Digital Ocean Service

Public Internet

Post HTTPS SSL/TLS
No AUTH

HTTPS SSL/TLS
Cert AUTH

Temperature Reading via
Navitas Safety Chirpstack Service

Store Tablet APK Interface via Internet to DFS

- Virtually Managed GCF
- Database Management
- Integration
- DFS Platform