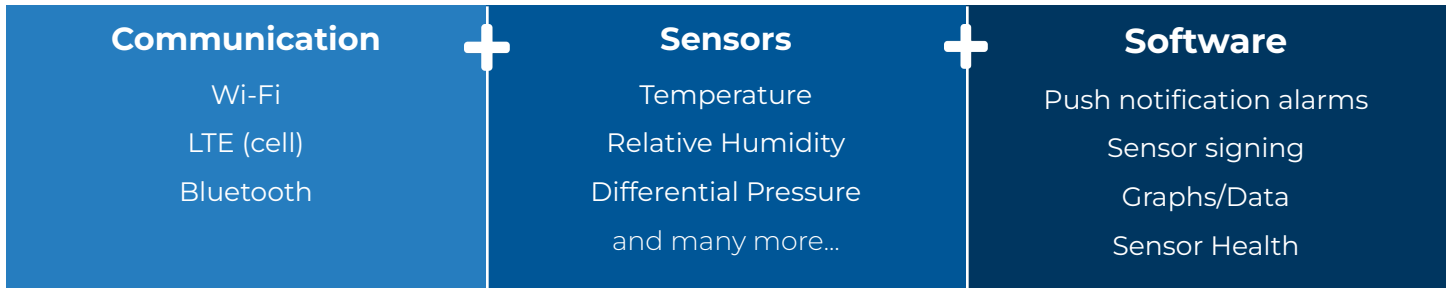
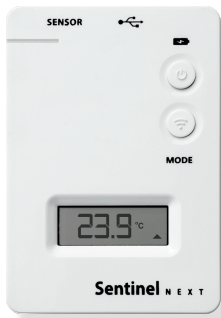




Remote Monitoring Solution



Aegis **Remote Monitoring Solution** is designed for the scientific, business and technology needs of the Pharmaceutical, Blood Bank, Biotech, Hospitals, Pharmacy and Life Sciences industries. The solution is **21 CFR Part 11 compliant**.



Remote Monitoring with **WiFi**
Sentinel Next 1S



Uses your existing WiFi network to monitor across all your facilities. Automates monitoring of temperature, humidity, differential pressure, CO2 and more to meet compliance standards with 24/7 real-time continuous monitoring. Alerting system uses emails, text messages and APPs for notifications. The system meets 21 CFR 11 requirements, are ideal for monitoring of refrigerators, freezers and ultra low freezers



Remote Monitoring with **LTE**
Sentinel Next 1S LTE (cell)



Uses the cell phone network to monitor across all your facilities thereby eliminating IT security concerns, network performance issues and support commitment from IT. Automates monitoring of temperature, humidity, differential pressure, CO2 and more to meet compliance standards with 24/7 real-time continuous monitoring. Alerting system uses emails, text messages and APPs for notifications. The system meets 21 CFR 11 requirements, are ideal for monitoring of refrigerators, freezers and ultra low freezers.



Datalogging with **Bluetooth**
Sentinel Trace, IPM and Inspector



Datalogging thermometer that meets 21 CFR 11 requirements, are ideal for monitoring temperatures in refrigerators, freezers, water baths, heating blocks, and incubators.

Remote Monitoring Solution

+ Communication

1. Network

The sensor communicates using WiFi Protocols (IEEE 802.11b/g/n) OR the LTE cell phone network. A key feature of our WiFi communication is that it supports a myriad of encryption including WEP, WPA/WPA2, PEAP, EAPTLS.

Therefore, our sensors can easily operate in any corporate or enterprise network. On board data storage with the store-and-forward feature prevents any data loss in case of network problems. Use of WiFi or LTE network eliminates the need for any gateway device. The sensors can communicate directly to the Cloud.

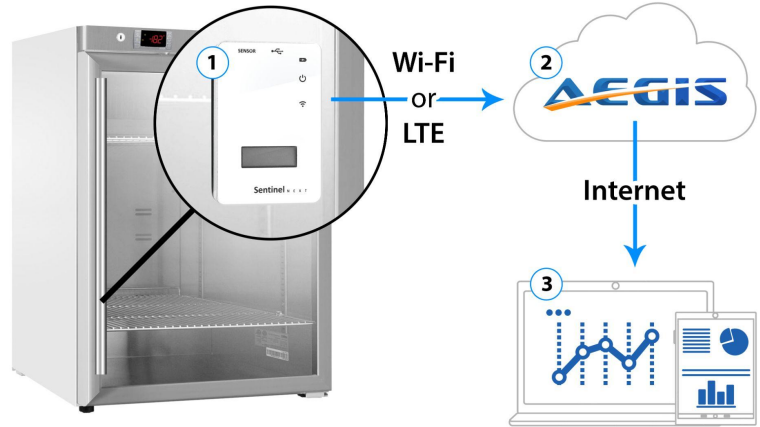


TABLE 1: The comparator below will help you choose which wireless network meets your technical and business needs

	WiFi	LTE (Cell Phone)
Customer IT Support	Required	Not Needed
Connectivity	Depends on WiFi Network	Depends on Cell Signal
Security	Corporate Policy	Same across the Country
Power failure on-site	Sensor will be offline	Sensor will be still online
Cost	No Cost	Small Monthly Cost

2. Cloud

The IoT cloud platform is unique because it has an ingestion engine that supports virtually unlimited number of sensors across a distributed network over many locations. An additional benefit of this platform is the possibility for users to develop prediction models for a particular use case using the AI and machine learning modules.

3. Dashboard

From the cloud the sensor data is moved to a dashboard for data visualization, alerting and reporting. Alerting engine includes emails, text messages and phone call with escalations. Custom reporting features, for any particular domain, can be created on the dashboard. Another unique feature of the dashboard is to track annual sensor certifications and validation procedures. In addition the ability to visualize assets and its maintenance procedures is very useful. Custom workflows can be implemented.



Remote Monitoring Solution

+ Sensors

The sensors are modular in design with a digital interface for different types of sensor probes such as T, RH, CO2, Differential pressure and more.

The sensor platform is modular which makes easy addition of sensors, including any off-the-shelf sensor with customization. Several diagnostic tools have been developed to measure the sensor health remotely allowing the solution to be implemented on a large scale.



Temperature
Sensors



Relative humidity
Sensors



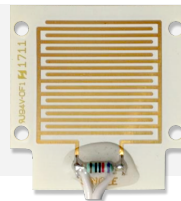
Differential Pressure
Sensors



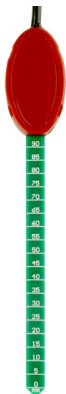
Oxygen
Sensors



CO2
Sensors



Leak
Sensors



Moisture
Sensors



and more
+custom solutions



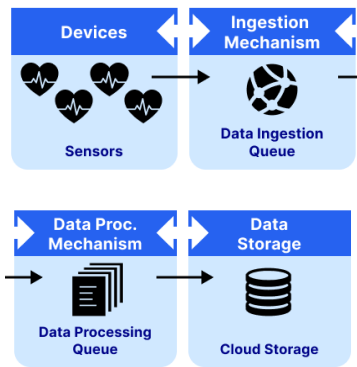
Remote Monitoring Solution

+ Software

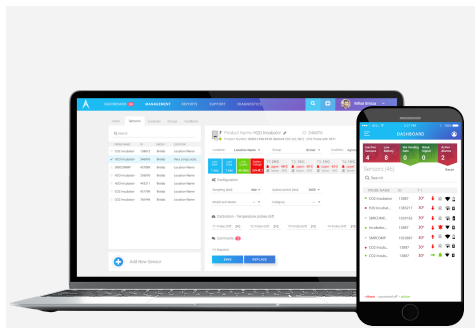
The software **complies with 21 CFR Part 11.**

It meets GMP standards and is used by Hospitals, Clinics, Pharma and Research Institutions.

Cloud Services	+	Dashboard	+	APPS
MQTT communication IoT Ingestion Engine Data Storage No limits to number of sensors		Visualize sensor Group/Location/Asset Alarming and Alerting Individual & Aggregate Report		iOS and Android Sensor Configuration Wizard Quickview Sensor Status Alarm Notifications



Sensors communicate to the cloud using MQTT via either using WiFi or LTE cell network. No data is lost. All sensor communications can be seen in the cloud for updating firmware, debugging and diagnostics purposes. The system can be scaled to 100,000+ sensors instantly by allocating more resources on the server. The diagram shows the data flow from the sensor to the cloud.



The dashboard sits on top of the Data storage system. It is designed to help the user set sensor parameters, visualize data through graphs and tables, aggregate reports for managers and manage alarms.

Features include:

- User management
- Sensor management
- Alarm management
- Graphs / Data (exporting)
- Sensor Diagnostics
- Admin reports
- Sensor Health
- Sensor Signing
- Manage NIST Certificates
- Alarm Statistics
- Custom Reports and Workflows



Sensor configuration Wizard is an APP to test your network to cloud connectivity, configure sensors in the field and perform advanced diagnostics in case of communication malfunction

Sentinel Next APP provides a quick view of the sensor reading, graph, health and status of the alarms. The alarms can also be acknowledged from the APP. In addition, it can be used to validate sensors in the field.



Remote Monitoring Solution

Datasheets

Sentinel NEXT 1S

Monitor environment - Use low power **Wi-Fi**

Product Number: **XTEMP-3101-0000**

Specifications

Dimensions (HxWxD)	89mm x 60mm x 20mm (3.50" x 2.36" x 0.78")
Weight	102g (3.60 Oz)
Connectors	10-pin Sensor Connector; micro USB for Charging
Battery	Integrated 1000mAh Rechargeable Li-Ion Battery
Wi-Fi Protocols	IEEE 802.11b/g/n
Wi-Fi Models Supported	Wi-Fi Direct, Infrastructure, Remote
Wi-Fi Encryption	WEP, WPA/WPA2 Personal, PEAPv0, PEAPv1, EAP-TLS
On Board Data Storage	>2 months with a Once/Minute Sampling Rate
Operating Temperature	0°C to 40°C on Charger -20°C to 60°C on Battery only
Non-operating Temperature	-30°C to 70°C
Relative Humidity	10% to 90%
Certifications	FCC, CE



Software to View Data

Cloud, Enterprise or App based solution available.



Sentinel NEXT 1S LTE

Monitor environment - **LTE (cell)**

Product Number: **XTEMP-3201-0000**

Specifications

Dimensions (HxWxD)	89mm x 60mm x 25mm (3.50" x 2.36" x 0.98")
Weight	102g (3.60 Oz)
Connectors	10-pin Sensor Connector; micro USB for Charging
Battery	Integrated 1000mAh Rechargeable Li-Ion Battery
LTE radio technology	LTE Cat M1
LTE Band	12 (also supported: 1, 2, 3, 4, 5, 8, 13, 18, 19, 20, 25, 26, 28)
Internal Flexible Antenna	Wideband 698-3000MHz
Operator	T-Mobile
Wi-Fi Protocols	IEEE 802.11b/g/n
Wi-Fi Models Supported	Wi-Fi Direct, Infrastructure, Remote
Wi-Fi Encryption	WEP, WPA/WPA2 Personal, PEAPv0, PEAPv1, EAP-TLS
On Board Data Storage	>2 months with a Once/Minute Sampling Rate
Operating Temperature	0°C to 40°C on Charger -20°C to 60°C on Battery only
Non-operating Temperature	-30°C to 70°C
Relative Humidity	10% to 90%
Certifications	FCC, CE



Software to View Data

Cloud, Enterprise or App based solution available.



PRO Temperature Probe

Iprobe-4000-0001

Probe Length & Diameter	Stainless probe: 25mm, Ø 4mm (1", Ø 0.16")
Cable Length	304cm (10ft)
Measurement Range	-30°C to +150°C (-22°F to +302°F)
Accuracy	±0.2°C (±0.4°F) at 25°C (77°F)
Response Time (to reach 90%)	In water, with stirring: <10sec
Display Resolution	0.1°C (0.1°F)



RTD - Ultra Low Temperature Probe

Iprobe-4101-0001

Probe Length & Diameter	Stainless probe: 25mm, Ø 4mm (1", Ø 0.16")
Cable Length	183cm (6ft)
Measurement Range	-200°C to +150°C (-328°F to +302°F)
Accuracy	±0.2°C (±0.4°F) at 25°C (77°F)
Response Time (to reach 90%)	In water, with stirring: <10sec
Display Resolution	0.1°C (0.1°F)
Optional DI (Digital Input)	dry contact available



Temperature and Relative Humidity Connector

Iprobe-4000-0004

Dimensions	28mmx10mmx10mm
Temperature Measurement Range	-40°C to +125°C (-40°F to +257°F)
Accuracy	±0.3°C (±0.5°F)
Relative Humidity Range	0 to +100% RH
Response Time (to reach 66%)	5 to 30sec for T; 8sec for RH
Display Resolution	0.1°C (0.1°F)





RTD Temperature Probe with Dry Contact

Iprobe-4101-0004

Probe Length & Diameter	Stainless probe: 25mm, Ø 4mm (1", Ø 0.16")
Cable Length	183cm (6ft)
Measurement Range	-200°C to +150°C (-328°F to +302°F)
Accuracy	±0.2°C (±0.4°F) at 25°C (77°F)
Response Time (to reach 90%)	In water, with stirring: <10sec
Display Resolution	0.1°C (0.1°F)
Optional DI (Digital Input)	dry contact available
Door Contact	
Circuit type	Open loop
Operation gap	½"(13mm)
Color	White
Terminals	Screw-type
Mounting Tabs	Yes
Case	High-impact ABS plastic
Contacts	Deactivated rhodium on gold under-plating
Contact rating	0.1A@100VDC (max), 1.0A@10VDC (max), 10W (max)
Temperature	-15°~160°F (-25°~70°C)
Switch cycles	50 Million (0.1mA@5VDC)
Switch Dimensions	2 1/2"x9/16"x1/2" (63.5x14x13mm)
Magnet Dimensions	2 1/2"x1/2"x1/2" (63.5x13x13mm)
Magnet Type	Ferrite



Large Range CO2 Probe (0-30%)

Iprobe-4400-0002

Probe Dimensions	7.6cm x 9.5cm x 3.8cm (3" x 3.75" x 1.5")
Cable Length	100cm (~39")
Operating Principle	Non-dispersive infrared (NDIR)
Measurement range CO2	0 to 30%vol(CO2)
Measurement RH	0 to 100% (non-condensing)
Measurement range °C	-40 to 60 °C
Accuracy	± 0,25vol ± 3% of reading
Operation temperature range	0 to 50 °C
Operation humidity range	0 to 95% RH (non-condensing)
Display Resolution	0.1°C (0.1°F)



Ambient CO2 Probe

Iprobe-4400-0001

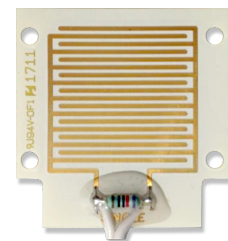
Probe Dimensions	7.6cm x 9.5cm x 3.8cm (3" x 3.75" x 1.5")
Cable Length	100cm (~39")
Operating Principle	Non-dispersive infrared (NDIR)
Measurement range CO2	0 to 5000 ppm (CO2)
Measurement RH	0 to 100% (non-condensing)
Measurement range °C	0 to 50 °C
Accuracy	± 30ppm ± 3% of reading
Operation temperature range	0 to 50 °C
Operation humidity range	0 to 80% RH (non-condensing)
Display Resolution	0.1°C (0.1°F)



Water (Leak) detection Probe

Iprobe-4200-0001

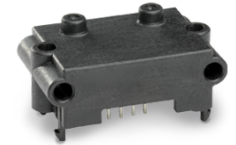
Impedance range	0Ω to 2MΩ (Lower limit theoretical)
Accuracy	1.8V
Maximum Current	<0.18mA
Response Time (to reach 66%)	10ms



Differential Pressure, +/- 125 Pa

XTEMP-4000-0020

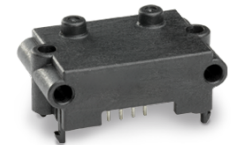
Output	I2C
Pneumatic Connection	Manifold or Tube
Pressure range (bidirectional)	125 Pa 0.5" H2O
Accuracy of measured value	3%
Lowest detectable pressure	< 0.01 Pa
Measurement speed	0.5 ms
Calibrated for	Air, N2
Gas compatibility	Air, inert gas
Dimensions	29mmx18mmx25.4mm



Differential Pressure, , +/- 500 Pa

XTEMP-4000-0021

Output	I2C
Pneumatic Connection	Manifold or Tube
Pressure range (bidirectional)	500 Pa 2" H2O
Accuracy of measured value	3%
Lowest detectable pressure	< 0.02 Pa
Measurement speed	0.5 ms
Calibrated for	Air, N2
Gas compatibility	Air, inert gasses
Dimensions	29mmx18mmx25.4mm





Oxygen Sensor

IProbe-4400-0003

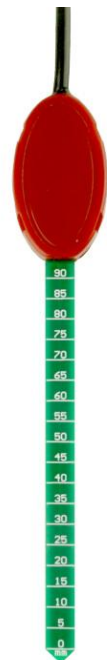
Output	I2C
Detected Gas	O2
Measurement range	0-25% Vol
Maximum Measurement limit	30% Vol
Response time	≤15 s
Repeatability (precision)	<2% of reading
Resolution	0.15% Vol
Stability (per month)	<2%
Zero drift (-20°C to 40°C)	≤0.1% Vol
Storage Temperature	-20°C to 50°C
Storage Humidity	0 to 100% Relative Humidity
Pressure range	Standard atmospheric pressure ± 10%
Anticipating using life	2 years
Dimension (L x W x H)	37 x 27 x 24.5 mm
Weight	~37g



Soil Moisture Sensor

IProbe-4200-0002

Supply Voltage	3.5 to 20V
Output	0 to 3V
Power consumption	< 13mA
Measurement range	0-100% Volumetric Water Content (VWC)
Response time	400 ms
Accuracy at 25°C	2%
Operational Temperature	-40°C to 85°C
Operational Humidity	0 to 100% (Waterproof)
Dimension (L x W x H)	See drawing
Weight	~65g





Water Level Sensor

Iprobe-4200-0003

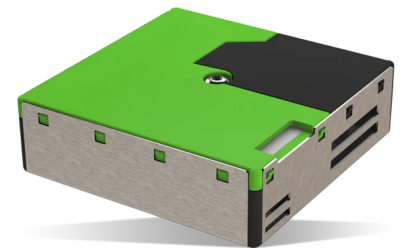
Supply Voltage	3.5 to 20V
Output	0 to 3V
Power consumption	1.2mA
Measurement range	0-100% relative to calibration length
Resolution	0.1% of the calibrated length
Response time	400 ms
Accuracy at 25°C	2%
Operational Temperature	-40°C to 85°C
Operational Humidity	0 to 100% (Waterproof)
Dimension (L x W x H)	See drawing
Weight	~65g



PM Sensor

XPM-1000-0001

Dimension	41 x 41 x 12mm
Weight	28gm
Measurement Method	Laser Scattering (600nm Wavelength)
Particle Sizes	PM0.5, PM1, PM2.5, PM4, PM10
Number Concentration	0-3000/cm ³
Mass Concentration	0-1000microgram/m ³



Coming soon **VOC** (volatile organic compound) and **NO_x** sensors.

Contact us for specialty sensors:

Pipe sensor (measures pipe surface temperature), **Capture display reading** (using a camera and converting to digital reading), **Water Turbidity**, **Dissolved oxygen** and **Corrosion**.



Ref ID	Name	Probe ID	Range	Notes
SNT-X/RTD-X	Sentinel Next 1S base unit	XTEMP-3101-0000	No Probes	Base WiFi communication unit
SNT-X/RTD-X	Sentinel Next 1S LTE base unit	XTEMP-3201-0000	No Probes	LTE communication unit
Probe-SNT-X-1	PRO Temperature Probe System, single	IPROBE-4000-0001	-30°C to +150°C	Single temperature adaptor + 1m probe
Probe-SNT-X-2	PRO Temperature Probe System, dual	IPROBE-4000-0010	-30°C to +150°C	Dual temperature adaptor + 1m probe
Probe-RTD-X-1	RTD, Single Adaptor + 6ft Probe	IPROBE-4101-0001	-198°C to +150°C	Single Ultra Low Temp system
Probe-RTD-X-2	RTD, Dual Adaptor + 6ft Probe	IPROBE-4102-0001	-198°C to +150°C	Dual Ultra low Temp System
Probe-RTD-X-1-A	RTD, Single Adaptor Only	IPROBE-4101-0001-A	No Probes	Standard Audio Jack on Adaptor for Probe
Probe-RTD-X-2-A	RTD, Dual Adaptor Only	IPROBE-4102-0001-A	No Probes	Standard Audio Jack on Adaptor for Probe
Probe-RTD-X-1-DC-A	RTD, Single Adaptor + Dry Contact	IPROBE-4101-0002-A	No Probes	Standard Audio Jack on Adaptor for Probe
Probe-RTD-X-2-DC-A	RTD, Dual Adaptor + Dry Contact	IPROBE-4102-0002-A	No Probes	Standard Audio Jack on Adaptor for Probe
Probe-RTD-X-6-P	RTD Probe only, 6ft	IPROBE-4100-000-6-P	-198°C to +150°C	Probe length 6ft
Probe-RTD-X-10-P	RTD Probe only, 10ft	IPROBE-4100-000-10-P	-198°C to +150°C	Probe length 10ft
Probe-RTD-X-1-DC	RTD Probe only with, single Dry Contact	IPROBE-4101-0002	-198°C to +150°C with dry contact	Specify Dry Contact when ordering
Probe-RTD-X-2-DC	RTD Probe only with, dual Dry Contact	IPROBE-4102-0002	-198°C to +150°C with dry contact	Specify Dry Contact when ordering
Probe-DC-X-1	Single Dry Contact only	IPROBE-4300-0001	No Probes	Specify Dry Contact when ordering
Probe-DC-X-2	Dual Dry Contact only	IPROBE-4300-0002	No Probes	Specify Dry Contact when ordering
Probe-SHT	T/RH Connector: Temp & RH	IPROBE-4000-0004-1	0°C to +40°C 0 to +100% RH	RH is relative Humidity
Probe-SHT+	T/RH Probe: Temp & RH	IPROBE-4000-0004-2	-40°C to +125°C 0 to +100% RH	Recommended for use: 10C to 30C
Probe-SNT-X-2-SHT	"PRO Temperature probe, dual with T/RH connector"	IPROBE-4000-0011	T probes: -30°C to +150°C T/RH connector: 0°C to +40°C"	2 Temp Probes with T/RH connector; RH is 0 to +100%
Probe-SNT-X-CO2-PL US	Large Range CO2 Probe with T/RH	IPROBE-4400-0002	0-30% CO2 0 to 100% RH 0°C to 50°C"	
Probe-SNT-X-CO2-A mb	Ambient CO2 Probe with T/RH	IPROBE-4400-0001	0 to 5000 ppm (CO2) 0 to 100% RH 0°C to 50°C	
Probe-SNT-X-WET	Water (Leak) detection Probe	IPROBE-4200-0001	0Ω to 2MΩ	
Probe-DPS-X-125	Differential Pressure, +/- 125 Pa	IPROBE-4000-0020	125 Pa (0.5 in. H2O)	Manifold or Tube; Calibrated for Air, N2
Probe-DPS-X-500	Differential Pressure, , +/- 500 Pa	IPROBE-4000-0021	500 Pa (2 in. H2O)	Manifold or Tube; Calibrated for Air, N2



Ref ID	Name	Probe ID	Range	Notes
Probe-RTD-X-1-A-M	RTD Single Adaptor with 1m Cable and Premium connector	Iprobe-4101-0003-A	No Probes	Probe tip with connector order separately
Probe-RTD-X-1-DC-A-M	RTD Single Adaptor + Dry contact with 1m Cable and Premium connector	Iprobe-4101-0002-M	No Probes	Probe tip with connector order separately
Probe-RTD-X-1-A-H	RTD Single Adaptor with 1m Cable and Standard connector	Iprobe-4101-0003-H	No Probes	Probe tip with connector order separately
Probe-RTD-X-1-DC-A-H	RTD Single Adaptor + Dry contact with 1m Cable and Standard connector	Iprobe-4101-0004-H	No Probes	Probe tip with connector order separately
Probe-RTD-P-M	RTD Probe tip only with 1m Cable and Premium connector	Iprobe-4101-0002-P	-198°C to +150°C	Use with Iprobe-4101-0003-A or Iprobe-4101-0002-M
Probe-RTD-P-H	RTD Probe tip only with 1m Cable and Standard connector	Iprobe-4101-0003-HP	-198°C to +150°C	Use with Iprobe-4101-0003-H or Iprobe-4101-0004-H
Probe-SNT-X-1-A-M	PRO Single Adaptor with 1m Cable and Premium connector	Iprobe-4000-0001-C	No Probes	Probe tip with connector order separately
Probe-SNT-X-1-DC-A-M	PRO Dual Adaptor with 1m Cable and Premium connector	Iprobe-4000-0010-D	No Probes	Probe tip with connector order separately
Probe-SNT-X-1-A-K	PRO Single Adaptor with 1m Cable and Standard connector	Iprobe-4000-0001-K	No Probes	Probe tip with connector order separately
Probe-SNT-X-1-DC-A-K	PRO Dual Adaptor with 1m Cable and Standard connector	Iprobe-4000-0010-KD	No Probes	Probe tip with connector order separately
Probe-SNT-P-1-M	PRO Single Probe tip with 1" Cable and Premium connector	Iprobe-4000-0001-P	-30°C to +150°C	Use with Iprobe-4000-0001-C or Iprobe-4000-0010-D
Probe-SNT-P-4-M	PRO Single Probe tip with 4" Cable and Premium connector	Iprobe-4000-0001-P2-0	-30°C to +150°C	Use with Iprobe-4000-0001-C or Iprobe-4000-0010-D
Probe-SNT-P-1-K	PRO Single Probe tip with 1" Cable and Standard connector	Iprobe-4000-0001-KP	-30°C to +150°C	Use with Iprobe-4000-0001-K or Iprobe-4000-0010-KD
Probe-SNT-P-4-K	PRO Single Probe tip with 4" Cable and Standard connector	Iprobe-4000-0001-P2-K	-30°C to +150°C	Use with Iprobe-4000-0001-K or Iprobe-4000-0010-KD

OTHER ACCESSORIES

Door contact	Door-Alarm	HW-DOOR-CONTACT		Use with Dry contact
Probe-SHT+	T/RH Probe: Temp & RH	Iprobe-4000-0004-2	-40°C to +125°C 0 to +100% RH	Recommended for use: 10C to 30C
Glycol bottle	Gly-bot	XACCES-1000-0001		IceClear PGX for temperatures > -30C; Wax beads for temperatures < -30C