



## Smart-Vue Pro system for remote monitoring

A solution for sample processing and storage

# A **Smart** solution provides a new **Vue** in **Protection**

Your work represents hope—for an answer, for a breakthrough, for a therapy, or maybe a cure. Sample integrity is paramount to your success. Confidence that your one-of-a-kind patient samples are at the proper temperature is necessary for your peace of mind. Regulatory bodies require validation of the conditions of your clinical products and materials. The reality is that many factors can affect instrument performance, including routine maintenance, usage behavior, power fluctuations, and mechanical stress over time. If the instruments fail to maintain settings accurately, your scientific products could be at risk.

**You want to be prepared for the unexpected.**

# Investing in a remote monitoring solution for your laboratory is **Smart**



## **Remote monitoring supports sample protection**

- Instant alerts for out-of-range sample conditions enable urgent proactive response, so you can manage your scientific products before they are compromised.

## **Remote monitoring supports compliance**

- Automatic and continuous data logging creates a permanent audit trail to support compliance standards and consistent, reproducible results.

## **Remote monitoring supports asset/cost optimization**

- A remote monitoring system can serve as part of your asset management strategy by minimizing cost for insurance policies that cover the replacement of equipment and products.

# Smart-Vue Pro system provides Protection

The Thermo Scientific™ Smart-Vue™ Pro system is a remote monitoring solution for sample processing and storage applications from research through production to patient care. This advanced solution connected by a secure, long-range, dedicated network provides real-time 21 CFR Part 11–compliant data logging and monitoring of critical parameters across your lab equipment.

## What the Smart-Vue Pro system can monitor for your lab

Features	
Ambient monitoring	<ul style="list-style-type: none"><li>• Temperature with external sensor</li><li>• Temperature and relative humidity (RH) with external sensor</li></ul>
Ultralow-temperature freezers	–100°C to +150°C
Auto-cascade ultralow-temperature freezers	–155°C to –100°C
Thermo Scientific™ LN <sub>2</sub> Phase Separator/ CryoPlus™ Storage Systems	–196°C to –100°C
Refrigerators (single-, double-, and triple-door)	0°C to +10°C
Freezers	–40°C to 0°C
Refrigerator-freezer combinations per chamber (i.e., top/bottom, left/right)	–30°C to +8°C
Cold rooms	–30°C to +8°C; –40°C or colder
Incubators	Ambient to +100°C, +120°C; and relative humidity (RH): 0–99.9%, non-condensing
Water baths	Ambient to +120°C
4–20 mA current loop (0–5 V and 0–10 V)	4–20 mA; device with a 4–20 mA self-powered output



# Designed with simplicity, compliance, and optimization in mind

## Next-generation monitoring solution for sample storage and processing

The ability to select the configuration of probe, module, and network type allows you to build the system you need. The modular, customizable architecture allows for easy expansion without costly upgrades. The Smart-Vue Pro system is compatible with multiple brands and types of equipment. New equipment and labs can be added to existing Smart-Vue Pro systems. With the longer range (LoRa™ technology), scalability is possible across multiple labs, floors, or buildings with fewer gateways.\*



**Hardware**

- Interactive colored touchscreen module displays parameters with audio/visual alarms or at-a-glance monitoring.
- Modules can monitor up to 4 precalibrated parameters.



**Network**

- The Long Range wireless Wide Area Network (LoRaWAN™ network) is a stand-alone dedicated network that increases connectivity range by up to 9 km.



**Software**

- The cloud server allows access to the full system functionality from anywhere, anytime.
- Intuitive dashboard simplifies daily usage.
- Compliance with confidence—supports 21 CFR Part 11 guidelines with audit trail and secure user-level access control.

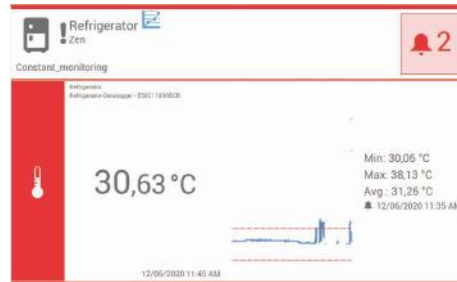


**Services**

- End-to-end support is here to guide you through hardware, installation, orientation, and support.

\* Note: Up to 2 km line of sight in urban areas. Actual range impacted by building design, construction, and other natural obstacles.

# How the Smart-Vue Pro system works



## Data traceability and security

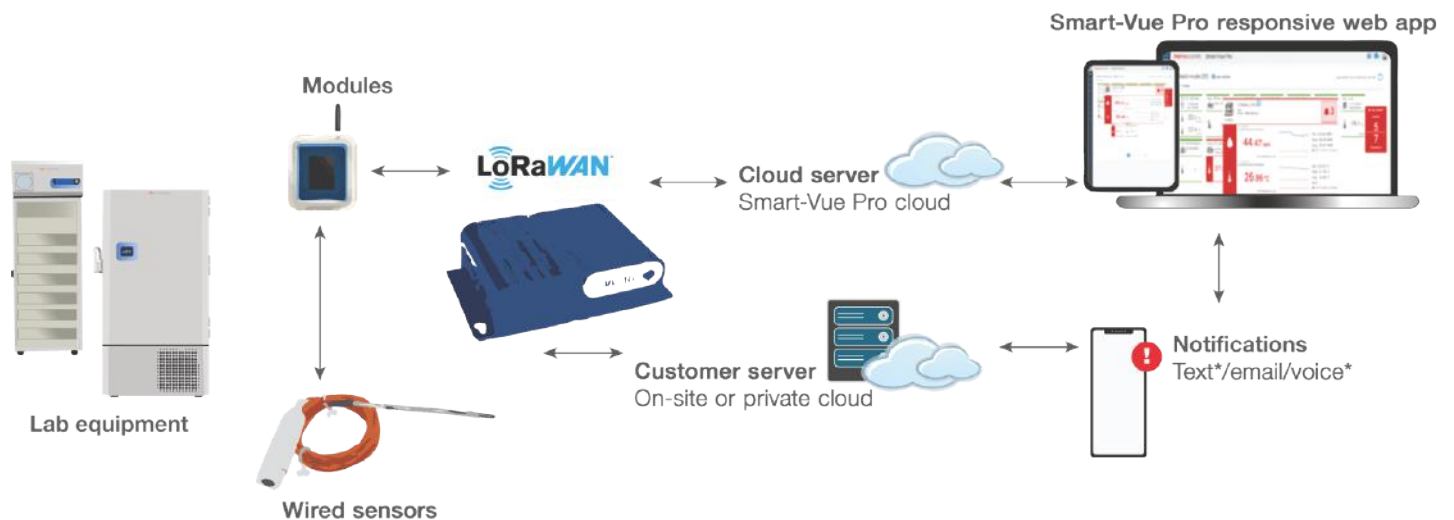
- Measurement and transfer periods are defined by the user. Data are transmitted securely in a digital format with backup.
- Automatic and continuous data logging creates permanent record of readings, alarms, acknowledgments with impact notes, system access, and program changes with user traceability.

## Notifications

- Self-monitoring alarm system activates if it exceeds high/low setpoints with immediate notification. The system alerts users in the event of a power or mechanical failure by their preferred method of notification.
- Includes audiovisual siren, telephone,\* email, SMS text messaging,\* mobile app for the Smart-Vue Pro system.

## Access

- On-site or cloud-based configurations allow flexibility to check status anytime, anywhere from most modern web browsers.
- Intuitive dashboard has multiple views—optional floor plan and site views. Data can be exported with a click for reporting and customizable graphs.



Readings are taken by smart sensors and transmitted by local modules to LoRaWAN gateways where they are processed and sent to the cloud or on-site server.

\* Requires Smart-Vue Pro alert subscription.

# Modules

## Increase efficiency with multi-sensor wireless monitoring

The Smart-View Pro modules support various combinations of sensors and parameters. The Duo configuration has one physical connector allowing a wired single- or dual-sensor probe (up to 2-parameter monitoring).

The Quattro configuration has two physical connectors allowing a combination of wired single- or dual-sensor probes for up to 4-parameter monitoring. It is ideal for monitoring several pieces of equipment simultaneously or multiple points within one piece of equipment.



- Bright 2.4 inch color touchscreen with multiple views
- Audio/visual\* alarms for local notification
- Low AC power consumption through USB port access
- Optional replaceable batteries with extended life (minimum of 1 year) allow for continuous monitoring
- Choice of wired and wireless sensors with automatic sensor detection
- User traceability with customized levels of user access with encrypted password protection
- Stand-alone module allowing direct connection via 4–20 mA output

\* Requires external power.



# Digital smart sensors

## Increase productivity in your lab with Thermo Scientific smart sensors

Designed to be a plug-and-play system with auto-detection and precalibration, the sensors have on-board memory that stores sensor type, serial number, and calibration coefficients. When the sensors are connected to the modules, the information stored on them is automatically populated in the system.

### Multiple parameters

- Temperature (–200 /+150°C)
- Temperature and relative humidity
- 4–20 mA (0–5V/0–10V)
- Dry contact (available soon)
- Differential pressure
- %CO<sub>2</sub>



### Smart sensors—modular configuration with smart calibration

- Plug-and-play feature with calibrated sensors with auto-detection
- No data loss or downtime for calibration with off-the-shelf calibrated sensors
- Calibration coefficients stored in sensor memory to simplify recalibration process
- Data and certificates accessible on demand
- In-house laboratory–calibrated: ISO 17025–accredited (COFRAC) and National Institute of Standards and Technology (NIST)–traceable



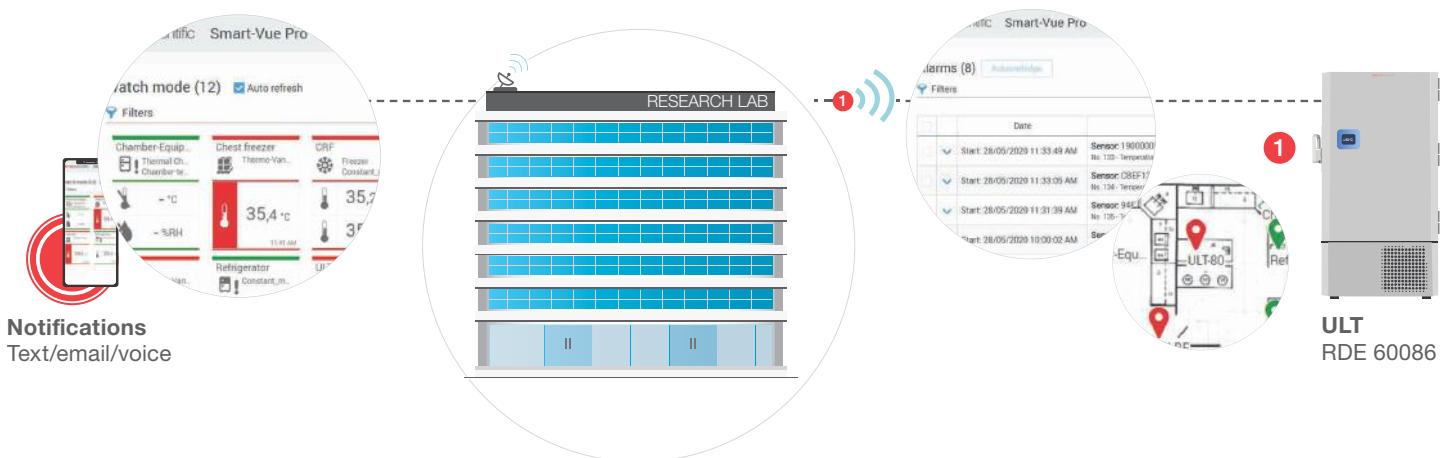
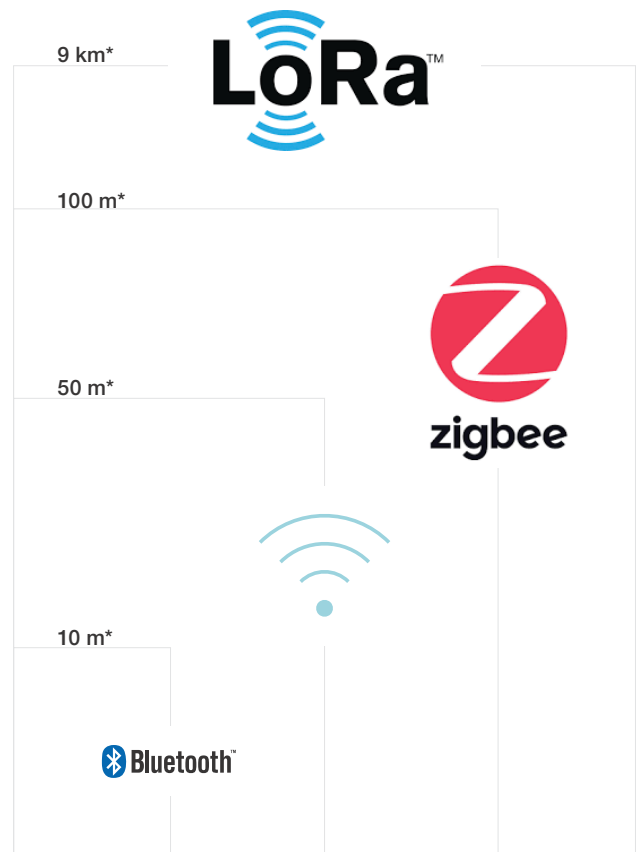


# Network

IT-friendly LoRaWAN platform provides easy setup of a reliable, dedicated, and secure wireless network

LoRaWAN network is short for Long Range wireless Wide Area Network. It is a stand-alone dedicated network and increases the connectivity range for Internet of Things (IoT) devices by up to 2 km in urban and 9 km in rural areas. This gateway pushes data to the cloud by connecting to your local network via an Ethernet or Wi-Fi connection.

- Long-range wireless connectivity enables a single gateway to cover large areas, replacing the need for repeaters
- Dedicated wireless network requires only an internet connection and minimal IT support needed for setup
- Support for up to 300 data-logging parameters per gateway



LoRa technology allows for coverage throughout your facility with as little as a single gateway.

\* Under optimal conditions, LoRa technology can provide a 9 km range for communication. Actual performance will vary significantly, and is heavily dependent on building construction. Signal strength testing is recommended to verify performance at a specific location.

# Services

## Ensure your monitoring solution is functioning properly

### **A precision monitoring solution, backed by service and support from experienced professionals, that gets you up and running faster**

- Installation and start-up services from experienced professionals
- Priority technical support with enhanced digital tools for faster troubleshooting and diagnosis
- Corrective replacement and preventive maintenance
- Be audit-ready with compliance support

### **Compliance services to support your laboratory equipment**

Factory-certified validation engineers meet ISO 9001 and ISO 17025 standards to ensure your Smart-Vue Pro system is installed and operating to specification

- Installation qualification
- Operational qualification
- Calibration services\*
- Preventive maintenance



### **Be ready for your next audit**

Unity Lab Services helps you confidently maintain regulatory compliance, leveraging a global calibration infrastructure\* that utilizes the latest technology and metrology techniques.

- Calibration services from Unity Lab Services meet or exceed various international standards, including ISO/IEC 17025, ensuring that calibration processes are routinely reviewed and audited by external accreditation bodies such as A2LA, and that our field service engineers (FSEs) are highly trained and certified. Flexible calibration service levels are available, depending on the quality policy requirements of your organization.

\* Calibration services not available in all countries/regions. Inquire about calibration service availability with your local representative or with Unity Lab Services.

# Ordering pages

## Modules and gateways



### Smart-Vue Pro modules—Duo and Quatro configurations

	Product	Description	Cat. No.
Module	Smart-Vue Pro Duo	Smart-Vue Pro Duo with multi-frequency support. Delivered with two 3.6 V lithium batteries, one sensor mounting kit, one mounting holder, one antenna and one 1.5 m/5 ft. flat cable.	SVPHWRMOD002
Module	Smart-Vue Pro Quatro	Smart-Vue Pro Quatro with multi-frequency support. Delivered with two 3.6 V lithium batteries, two sensor mounting kit, one mounting holder, one antenna and two 1.5 m/5 ft. flat cables.	SVPHWRMOD004

	Product	Description	Cat. No.
Gateway	Smart-Vue Pro LoRaWAN 865-868*	865–868 MHz LoRaWAN platform–enabled Ethernet/Wi-Fi connectivity receiver with universal power supply	SVPHWRLGW002
Gateway	Smart-Vue Pro LoRaWAN 915*	915 MHz LoRaWAN platform–enabled Ethernet/Wi-Fi connectivity receiver with universal power supply	SVPHWRLGW001

\* Frequencies that are approved for use are country-specific. 865–868 MHz is approved for use in most European markets, and 915 MHz is approved for use in North American markets. Please consult your local representative for more details.

# Accessories and other parts

Customize your system with accessories to meet your specific needs

Other accessories to complete your monitoring solution

## Remote contact

### Help connect to your local system

Thermo Scientific™ Smart Remote Contact wireless controllers are used to raise alerts if alarm conditions are detected in your Smart-Vue Pro wireless monitoring system. Alarms can be configured in the Smart-Vue Pro web application for any or all of your end-point modules and groups.



## Remote siren

### Provides local audio/visual critical alarm notifications

The Thermo Scientific™ Smart Siren adds a remote audio/visual siren to alert users in a remote location on critical system alarms.



## Accessories and other parts

Product		Description	Cat. No.
<b>Smart Siren</b>			
Module	Smart Siren 865-868*	Wireless alert device for LoRaWAN solution, 865–868 MHz, with universal power supply	SVPACCSIR002
Module	Smart Siren 915*	Wireless alert device for LoRaWAN solution, 915 MHz, with universal power supply	SVPACCSIR001
Module—spare	Wall mount holder	Kit includes one velcro fastener (11 cm) and two magnets for Smart Siren	SVPSPRMNT003
Module—spare	Universal power supply	Universal power supply for Smart Siren and Smart Remote Contact, 12 V	SVPSRPWR001
<b>Smart Remote Contact</b>			
Module	Smart Remote Contact 865–868*	Dry contact alert device with LoRaWAN wireless connectivity, 865–868 MHz for use with LoRaWAN systems	SVPACCSRC002
Module	Smart Remote Contact 915*	Dry contact alert device with LoRaWAN wireless connectivity, 915 MHz for use with LoRaWAN systems	SVPACCSRC001
Module—spare	Wall mount holder	Wall mount holder for Smart Remote Contact	SVPSPRMNT004

\* Frequencies that are approved for use are country specific. 865–868 MHz is approved for use in most European markets, and 915 MHz is approved for use in North American markets. Please consult your local representative for more details.

## Wired sensors

	Product	Description	Cat. No.
Sensor	Temperature sensor -40/+80°C, 1 m	Digital sensor -40/+80°C, cable length 1 meter (short)	SVPSENTUS001
Sensor	Temperature sensor -40/+80°C, cal, 1 m	Digital sensor -40/+80°C, cable length 1 meter (short), calibrated at -30°C, -15°C, 0°C, 20°C, 40°C	SVPSENTCS001
Sensor	Temperature sensor -40/+80°C, 3.5 m	Digital sensor -40/+80°C, cable length 3.5 meters (long)	SVPSENTUE001
Sensor	Temperature sensor -40/+80°C, cal, 3.5 m	Digital sensor -40/+80°C, cable length 3.5 meters (long), calibrated at -30°C, -15°C, 0°C, 20°C, 40°C	SVPSENTCE001
Sensor	Temperature sensor -40/+120°C, 1 m	Digital sensor -40/+120°C, cable length 1 meter	SVPSENTUS002
Sensor	Temperature sensor -40/+120°C, cal, 1 m	Digital sensor -40/+120°C, cable length 1 meter, calibrated at 30°C, 60°C, 80°C, 100°C, 105°C.	SVPSENTCS002
Sensor	Smart sensor Pt100 -100/+150°C	Smart Sensor Pt100, cable length 3.5 meters	SVPSENTUS003
Sensor	Smart sensor Pt100 -100/+150°C, cal	Smart Sensor Pt100 calibrated at -80°C, -40°C, 0°C, cable length 3.5 meters	SVPSENTCS003
Sensor	Smart sensor Pt100 -200/+50°C	Smart Sensor Pt100, cable length 1.4 meters	SVPSENTUS004
Sensor	Smart sensor Pt100 -200/+50°C, cal	Smart Sensor Pt100 calibrated at -196°C, -80°C, 0°C, cable length 1.4 meters	SVPSENTCS004
Sensor	Smart sensor temp/RH	Smart Sensor, temperature and relative humidity, -40°C to +150°C, 0 to 99.9% RH	SVPSENUS001
Sensor	Smart sensor temp/RH, cal +23°C/50% RH	Smart Sensor, temperature and relative humidity, calibrated at +23°C/50% RH	SVPSENRC001
Sensor	Smart sensor temp/RH, cal +37°C/90% RH	Smart Sensor, temperature and relative humidity, calibrated at +37°C/90% RH	SVPSENRC002
Sensor	Smart sensor 4-20 mA/0-10 V	Smart Sensor 4-20 mA (0-5 V/0-10 V) single digital sensor	SVPSEN4US001
Sensor	Smart sensor 4-20 mA/0-10 V, cal	Smart Sensor 4-20 mA (0-5 V/0-10 V) single digital sensor, calibrated at 4, 8, 12, 16, and 20 mA	SVPSEN4CS001
Sensor	Smart sensor CO <sub>2</sub> -Temp-RH	OCEASOFT Smart Triple Point Sensor for CO <sub>2</sub> , temperature, and relative humidity, CO <sub>2</sub> : 0.5/9.9%. Temp: 0/+50°C, RH: 0/99%.	SVPSENCUS001
Sensor	Smart sensor CO <sub>2</sub> -Temp-RH, cal	OCEASOFT Smart Triple Point Sensor for CO <sub>2</sub> , temperature, and relative humidity, CO <sub>2</sub> : 0.5/9.9%. Temp: 0/+50°C, RH: 0/99%, calibrated at 5% CO <sub>2</sub> /37°C/80% RH	SVPSENCCS001
Sensor	Smart differential pressure sensor	OCEASOFT Smart Differential Pressure Sensor -500/+500 Pa., tube length 50 cm, diameter 4 mm	SVPSENPU001
Sensor	Smart differential pressure sensor, cal	OCEASOFT Smart Differential Pressure Sensor -500/+500 Pa., tube length 50 cm, diameter 4 mm, calibrated at 0 Pa., 15 Pa., 25 Pa., 50 Pa.	SVPSENPCS001

## Wireless sensors

	Product	Description	Cat. No.
Sensor	Wireless Datalogger (remote sensor)	OCEASOFT wireless datalogger module (remote sensor) -40° to +85°C, calibrated at +5°C	SVPWSENTCS001
Sensor	Wireless Datalogger (remote sensor) with Pt100 -200/+50°C	OCEASOFT wireless datalogger module (remote sensor) with external temperature Pt100 probe -200°C to +50°C, calibrated at -80°C	SVPWSENTCS002
Sensor	Wireless Datalogger (remote sensor) with Pt100 -50/+200°C	OCEASOFT wireless datalogger module (remote sensor) with external temperature Pt100 probe -50°C to +200°C, calibrated at +5°C	SVPWSENTCS003

## Replacement parts

	Product	Description	Cat. No.
Accessory	USB power supply	Universal power supply for Smart-Vue Pro system with USB cable, 5 V-1.2 A	SVPACCPWR001
Accessory	Sensor mounting kit	Sensor mounting kit includes: 2 wire ties, 4 plastic holders with removable sticky back adhesive	SVPSPRMNT002
Accessory	1.5 m cable (x1)	1.5 m extension flat cable	SVPACCCBL001
Accessory	Battery cover and screw	Battery cover and screw replacement for Smart-Vue Pro system	SVPSPRPRT001
Accessory	Extra antenna	Antenna for Smart-Vue Pro Duo or Quatro, module wireless siren and dry contact	SVPSPRANT001
Accessory	Wall mount holder	Kit for Smart-Vue Pro system including 1 support + 1 magnet glued to the support	SVPSPRMNT001

# Subscriptions and services

## Subscription and server software part numbers

Cloud	Server	Server update	Server maintenance	Alert
<b>Type</b>				
Annual	One time	Optional annual	Optional annual	Optional annual
<b>Description</b>				
Access to the full Smart-View Pro cloud solution for package number of sensors	Server software license for package number of sensors	Server software license for upgrade package number of sensors	Server software updates for one year (does not include installation services)	Add-on notification package though SMS and voice calls (Twilio)
SVPSWCS20005*	SVPSWPS20005*		SVPSWSM20005	SVPSWSA20005*
SVPSWCS20020	SVPSWPS20020	SVPSWPU20020	SVPSWSM20020	SVPSWSA20020
SVPSWCS20050	SVPSWPS20050	SVPSWPU20050	SVPSWSM20050	SVPSWSA20050
SVPSWCS20100	SVPSWPS20100	SVPSWPU20100	SVPSWSM20100	SVPSWSA20100
SVPSWCS20250	SVPSWPS20250	SVPSWPU20250	SVPSWSM20250	SVPSWSA20250
SVPSWCS20500	SVPSWPS20500	SVPSWPU20500	SVPSWSM20500	SVPSWSA20500
SVPSWCS21000	SVPSWPS21000**	SVPSWPU21000	SVPSWSM21000	SVPSWSA21000
SVPSWCS21500	SVPSWPS21500**	SVPSWPU21500	SVPSWSM21500	SVPSWSA21500
SVPSWCS22000	SVPSWPS22000**	SVPSWPU22000	SVPSWSM22000	SVPSWSA22000

\* Promo tier.

\*\* Server capacity restrictions apply. Check with the IT team.

## Start-up and installation by experienced professionals

- Orientation
  - On-site: SVPORIENT1
  - Remote: SVPORIENT2
- Server configuration
  - On-site: SVPCNFIGON1
  - Remote: SVPCNFIGON2
- Installation of servers, gateways, modules, and sensors

## IQOQ qualification\*

- Field delivery and protocol: IOQPCKE89003675
- Protocol only: IOQDOCE89003675
- OQ-only qualification (coming soon)

## Calibration† for all sensor types

- ISO 17025
  - Single point: CALPRRM1
  - Dual point: CALPRRM2
- ISO 9001
  - Single point: CALBCRM1
  - Dual point: CALBCRM2

## Preventive maintenance

- SVPPMSVC1

## Service contracts

- Choose the service contract to cover your full Smart-View Pro system at the level of care you need
  - Remote support: RSRMSVPRO
  - Tech direct: TECRMSVPRO
  - Total care: CARERMSVPRO

Please reach out to your Thermo Fisher Scientific sales representative for more details.

\* Qualification protocols available in English, French, and German languages.

† Calibration services not available in all countries/regions. Inquire about calibration service availability with your local representative or with Unity Lab Services.

## Service contracts

	Remote support	Tech direct	Total care
	RSRMSVPRO	TECRMSVPRO	CARERMSVPRO
Remote technical support, unlimited	✓	✓	✓
Virtual and augmented-reality support tool access	✓	✓	✓
Annual preventive maintenance	—	✓	✓
Battery replacement‡	—	✓	✓
Corrective service	—§	—§	✓
OEM spare parts	—§	—§	✓

‡ Provided with annual preventive maintenance when applicable to hardware.

§ 15% discount on parts and labor.



# Data security

## Help build a security-minded culture

- The components of the Smart-Vue Pro solution have undergone rigorous security testing from our ISO 27001–certified Information Security Program. Hardware and software items go through an initial penetration test, followed by remediation guidance from industry-recognized cybersecurity experts. The products are then change-tested to ensure that fixes have been implemented appropriately. Product and software testing is designed around standards and recommendations set by various agencies and organizations, such as the OWASP ASVS V4.0 and OWASP Top 10 IoT security practices, and all testing is peer-reviewed before being made official. In addition, Thermo Fisher has a dedicated data privacy office to handle compliance with data privacy laws, such as General Data Protection Regulation (GDPR), which product teams engage with throughout development to make sure compliance is being maintained.

- Thermo Fisher also benefits from numerous partnerships, including with the FDA, Medical Device Innovation Consortium, Health Information Sharing and Analysis Center (H-ISAC), and others, to stay on top of the latest design standards and threat intelligence. The Smart-Vue Pro solution is hosted on a dedicated Amazon Web Services™ (AWS™) instance that is secured by Trend Micro™ and Turbo™ platforms—two industry-leading software companies. In addition, Thermo Fisher has a security operations center open 24/7/365 to handle the ever-changing landscape and respond quickly to concerns.

- GDPR
- OWASP Top 10 IoT security practices
- OWASP ASVS V4.0
- National Institute of Standards and Framework's Cybersecurity Framework (NIST-CSF)
- ISO 14971–certified
- ISO 27001–certified





Find out more at [thermofisher.com/smartvuepro](https://thermofisher.com/smartvuepro)

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S C I E N T I F I C

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