



# 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-View Pro system is compatible with multiple brands and types of equipment. New equipment and labs can be added to existing Smart-View 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.

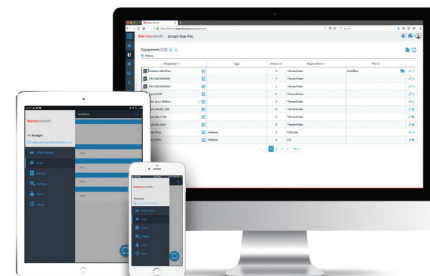
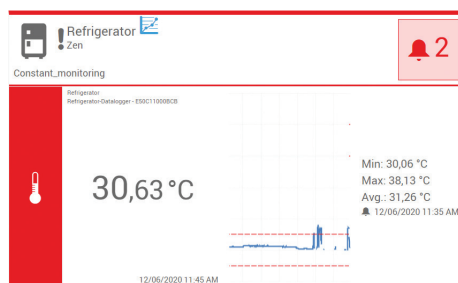


Services

- 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

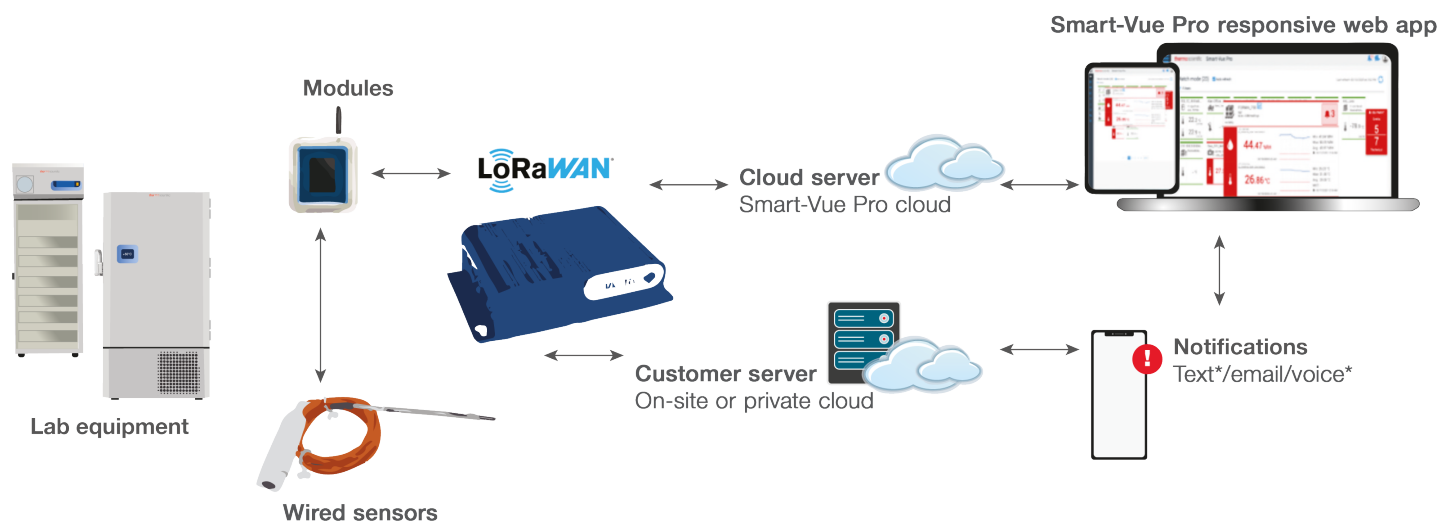
- Measurement and transfer periods are defined by the user. Data are transmitted securely in a digital format with backup.
- Automatic and continuous data logging creates permanent record of readings, alarms, acknowledgments with impact notes, system access, and program changes with user traceability.

## 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 Quatro 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 ( $-200$  /  $+150^{\circ}\text{C}$ )
- Temperature and relative humidity
- $4\text{--}20\text{ mA}$  ( $0\text{--}5\text{V}/0\text{--}10\text{V}$ )
- Dry contact (available soon)
- Differential pressure
- $\%\text{CO}_2$

### 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

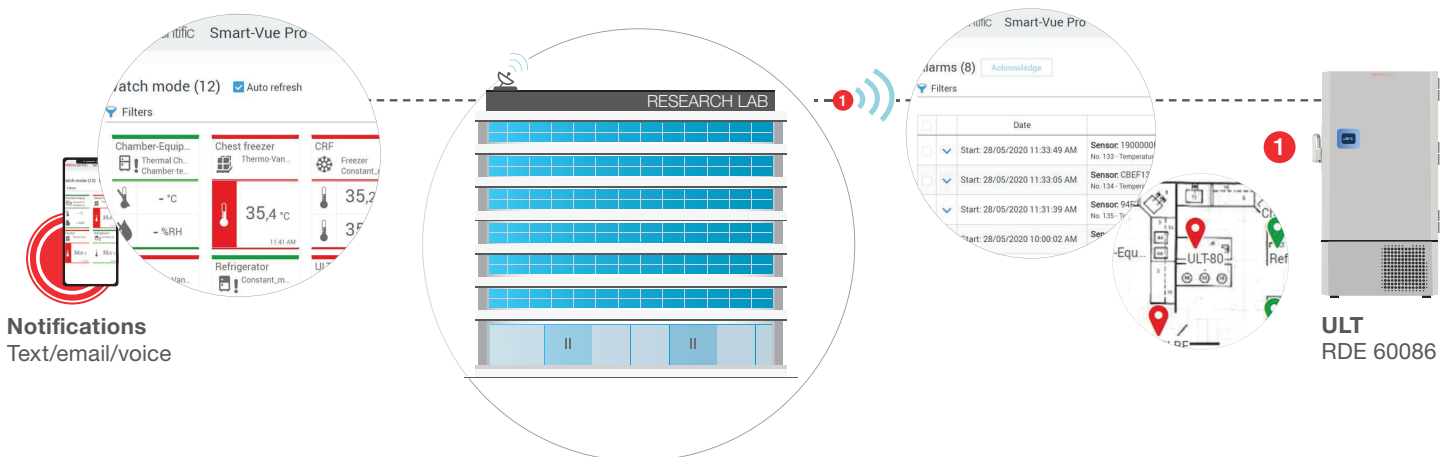
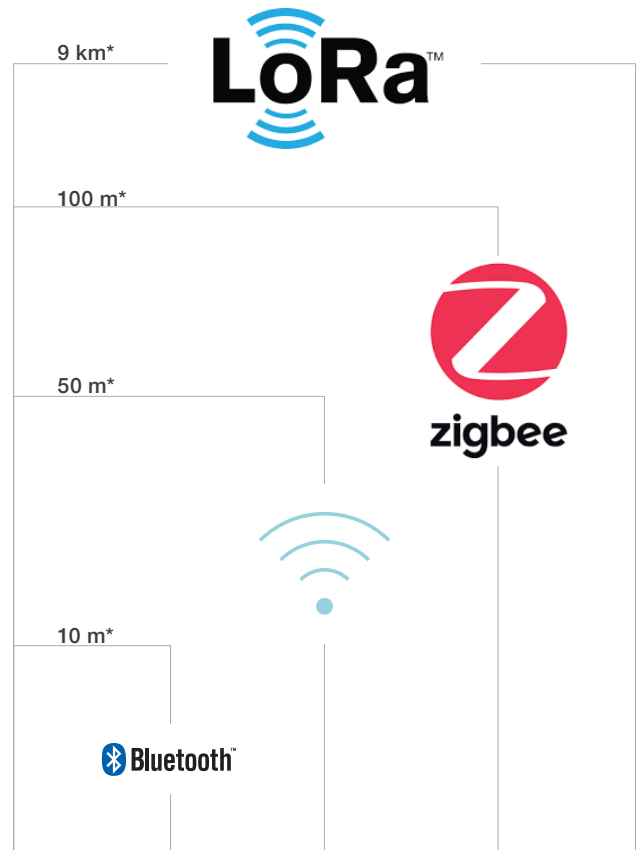
## IT-friendly LoRaWAN platform provides easy setup of a reliable, dedicated, and secure wireless network

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

Meets ISO 9001 and ISO 17025 standards to ensure your SmartVue Pro system is installed and operating to specification.

- Installation qualification (IQ)
- Operational qualification (OQ)
- 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, 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 865-928 MHz only. 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.      | SVPHWRMOD032 |
|         | Smart-Vue Pro Quatro           | Smart-Vue Pro Quatro 865-928 MHz only. Delivered with two 3.6 V lithium batteries, two sensors mounting kit, one mounting holder, one antenna and two 1.5 m/5 ft. flat cables. | SVPHWRMOD034 |
| Gateway | Smart-Vue Pro LoRaWAN 915*     | 915 MHz LoRaWAN platform-enabled Ethernet/Wi-Fi connectivity receiver with universal power supply  | SVPHWRLGW001 |
|         | Smart-Vue Pro LoRaWAN 865-868* | 865–868 MHz LoRaWAN platform-enabled Ethernet/Wi-Fi connectivity receiver with universal power supply  | SVPHWRLGW002 |

\*Frequencies that are approved for use are country specific. 865-868 MHz is approved for use in most European and Indian markets. The 915 MHz gateway is approved for use in North American, Latin American and Asia Pacific markets where the LoRa frequency bands range from 902-928 MHz. 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 915*              | Smart-Vue Pro Quattro 865-928 MHz only. Delivered with two 3.6 V lithium batteries, two sensors mounting kit, one mounting holder, one antenna and two 1.5 m/5 ft. flat cables. | SVPACCSIR001 |
|                             | Smart Siren 865-868*          | Smart-Vue Pro Duo 865-928 MHz only. 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.       | SVPACCSIR002 |
| Module—spare                | Wall mount holder             | Kit includes one velcro fastener (11 cm) and two magnets for Smart Siren  | SVPSPRMNT003 |
|                             | 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 915*     | Dry contact alert device with LoRaWAN wireless connectivity, 915 MHz for use with LoRaWAN systems   | SVPACCSRC001 |
|                             | Smart Remote Contact 865–868* | Dry contact alert device with LoRaWAN wireless connectivity, 865–868 MHz for use with LoRaWAN systems   | SVPACCSRC002 |
| 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 and Indian markets. The 915 MHz gateway is approved for use in North American, Latin American and Asia Pacific markets where the LoRa frequency bands range from 902-928 MHz. 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)  | SVPSSENTUS001 |
|        | 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   | SVPSSENTCS001 |
|        | Temperature sensor –40/+80°C, 3.5 m      | Digital sensor –40/+80°C, cable length 3.5 meters (long)  | SVPSSENTUE001 |
|        | 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   | SVPSSENTCE001 |
|        | Temperature sensor –40/+120°C, 1 m       | Digital sensor –40/+120°C, cable length 1 meter   | SVPSSENTUS002 |
|        | 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.  | SVPSSENTCS002 |
|        | Smart sensor Pt100 –100/+150°C           | Smart Sensor Pt100, cable length 3.5 meters   | SVPSSENTUS003 |
|        | Smart sensor Pt100 –100/+150°C, cal      | Smart Sensor Pt100 calibrated at –80°C, –40°C, 0°C, cable length 3.5 meters   | SVPSSENTCS003 |
|        | Smart sensor Pt100 –200/+50°C            | Smart Sensor Pt100, cable length 1.4 meters   | SVPSSENTUS004 |
|        | Smart sensor Pt100 –200/+50°C, cal       | Smart Sensor Pt100 calibrated at –196°C, –80°C, 0°C, cable length 1.4 meters  | SVPSSENTCS004 |
|        | Smart sensor temp/RH                     | Smart Sensor, temperature and relative humidity, –40°C to +150°C, 0 to 99.9% RH   | SVPSSENUS001  |
|        | Smart sensor temp/RH, cal +23°C/50% RH   | Smart Sensor, temperature and relative humidity, calibrated at +23°C/50% RH   | SVPSSENRC001  |
|        | Smart sensor temp/RH, cal +37°C/90% RH   | Smart Sensor, temperature and relative humidity, calibrated at +37°C/90% RH   | SVPSSENRC002  |
|        | Smart sensor 4–20 mA/0–10 V              | Smart Sensor 4–20 mA (0–5 V/0–10 V) single digital sensor   | SVPSSEN4US001 |
|        | 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  | SVPSSEN4CS001 |
|        | Smart sensor CO2-Temp-RH                 | OCEASOFT Smart Triple Point Sensor for CO2, temperature, and relative humidity, CO2: 0.5/9.9%. Temp: 0/+50°C, RH: 0/99%.                                  | SVPSENCUS001  |
|        | Smart sensor CO2-Temp-RH, cal            | OCEASOFT Smart Triple Point Sensor for CO2, temperature, and relative humidity, CO2: 0.5/9.9%. Temp: 0/+50°C, RH: 0/99%, calibrated at 5% CO2/37°C/80% RH | SVPSENCCS001  |
|        | Smart differential pressure sensor       | OCEASOFT Smart Differential Pressure Sensor –500/+500 Pa., tube length 50 cm, diameter 4 mm   | SVPSENPUS001  |
|        | 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 |
|        | 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 |
|        | 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 and accessories

|           | 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 |
|           | Sensor mounting kit         | Sensor mounting kit includes: 2 wire ties, 4 plastic holders with removable sticky back adhesive  | SVPSPRMNT002 |
|           | 1.5 m cable (x1)            | 1.5 m extension flat cable  | SVPACCCBL001 |
|           | Battery cover and screw     | Battery cover and screw replacement for Smart-Vue Pro system  | SVPSRPRT001  |
|           | Extra antenna               | Antenna for Smart-Vue Pro Duo or Quatro, module wireless siren and dry contact  | SVPSPRANT001 |
|           | Wall mount holder           | Kit for Smart-Vue Pro system including 1 support + 1 magnet glued to the support  | SVPSPRMNT001 |
|           | Smart-Vue Pro 3Wire Adapter | Smart-Vue Pro adapter for use with 2 or 3 wire generic PT100 probes. The adapter connects directly to a Smart-Vue Pro Duo or Quatro module. | SVPADPPT1001 |
|           | SV to SVP PT100 Adapter     | Smart-Vue Pro adapter for use with Smart-Vue Classic PT100 probes. The adapter connects directly to a Smart-Vue Pro Duo or Quatro module.   | SVPADPPT1002 |

# 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

### Calibration† for all sensor types

- ISO 17025
  - Single point: CALPRRM1
  - Dual point: CALPRRM2

- ISO 9001
  - Single point: CALBCRM1
  - Dual point: CALBCRM2

### Preventive maintenance

- SVPPMSVC1

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.

### Remote Support

Smart-View Pro includes the following remote support:

- Unlimited, remote technical support
- Virtual and augmented-reality support tool access



# 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



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

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