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Smart-Vue Pro LoRaWAN Enabled Receiver

User Guide 331676H02 • Revision B • 08/27/2024



IMPORTANT Read this user guide. Failure to follow the instructions in this user guide can result in damage to the unit, injury to operating personnel, and poor equipment performance.

CAUTION All internal adjustments and maintenance must be performed by qualified service personnel.

Material in this manual is for informational purposes only. The contents and the product it describes are subject to change without notice. Thermo Fisher Scientific makes no representations or warranties with respect to this manual. In no event shall Thermo be held liable for any damages, direct or incidental, arising from or related to the use of this manual.

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Contents

Regulatory Information Legal Information FCC Certification FCC Interference Notice Industry Canada Class B Notice	1 1 1 1
Safety Notices. Lithium Battery. User Responsibility. Power Supply Caution. Device Maintenance.	2 2 2 2 2
Introduction Product Overview Detailed Description Architectures and Technologies	3 3 3
Setting Up your Receiver Getting Started First-Time Setup LoRaWAN Configuration Setting Up an Ethernet Connection Setting Up a Wi-Fi Connection to your Network Cellular Data Connection Configuring "Failover" Order for Network Access	6 9 11 12 13 16 17
Troubleshooting	18
Firmware Upgrading Process	22
Set Up Procedure	23

Smart-Vue Pro LoRaWAN Set Up Procedure with Smart-Vue Pro Duo/ Quatro and Web app	. 23
Appendix - Product Specifications	. 31
Features	. 31
Related Products	. 31
Installation Details	. 32
WEEE Compliance	. 33
IF YOU NEED ASSISTANCE	. 36

Regulatory Information

Legal Information

47 CFR Part 15 Regulation Class B Devices

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



CAUTION: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Certification

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all users and must not be co-located or operated in conjunction with any antenna or transmitter not described under this FCC id, except in accordance with FCC multi-transmitter product procedures.

FCC Interference Notice

This device complies with part 15 of the FCC Rules.Operation is subject to the following two conditions:(1) This device may not cause harmful interference(2) This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class B Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

This device complies with Industry Canada license-exempt RSS standard(s). The operation is permitted for the following two conditions:

- 1. The device may not cause interference.
- 2. This device must accept any interference, including interference that may cause undesired operation.

Safety Notices

Lithium Battery

- A lithium battery (3 V, coin cell, CR1632) located within the product provides backup power for the timekeeping. This battery has an estimated life expectancy of ten years.
- When this battery starts to weaken, the date and time may be incorrect.
- Battery is not user replaceable. If the battery fails, the device must be sent back to MultiTech Systems for battery replacement.



CAUTION: Risk of explosion, if this battery is replaced by an incorrect type. Dispose off batteries according to instructions.

User Responsibility

Respect all local regulations for operating your wireless device. Use the security features to block unauthorized use and theft.

Power Supply Caution



CAUTION: Do not replace the power supply with one designed for another product; it can damage the modem and void your warranty. Adapter is installed near the equipment and is easily accessible.

Device Maintenance

When maintaining the device:



CAUTION: Do not attempt to disassemble the device. There are no user serviceable parts inside.



CAUTION: Do not misuse the device. Follow instructions on proper operation and only use as intended. Misuse could make the device inoperable, damage the device and/or other equipment or harm users.



CAUTION: Do not apply excessive pressure or place unnecessary weight on the device. This could result in damage to the device or harm to users.



CAUTION: Do not use this device in explosive or hazardous environments unless the model is specifically approved for such use. The device may cause sparks. Sparks in explosive areas could cause explosion or fire and may result in property damage, severe injury and/or death.



CAUTION: Do not expose the device to any extreme environment where the temperature or humidity is high. Such exposure could result in damage to the device or fire.



CAUTION: Do not expose the device to water, rain or spilled beverages. It is not waterproof. Exposure to liquids could result in damage to the device.



CAUTION: Do not place the device alongside computer discs, credit or travel cards or other magnetic media. The information contained on discs or cards may be affected by the device.



CAUTION: Using accessories, such as antennas, that MultiTech has not authorized or that are not compliant with MultiTech's accessory specifications may invalidate the warranty.

Introduction

This document describes the set up and use of the Smart-Vue Pro LoRaWAN™ enabled receiver, a key component for collecting data in your monitoring solution.

Product Overview

It is designed for the use with Thermo Scientific wireless modules featuring Smart-Vue Pro LoRaWAN connectivity.

The Smart-Vue Pro LoRaWAN receiver is a wireless receiver that leverages new-generation Smart-Vue Pro LoRaWAN Internet of Things technology to offer exceptionally long-range wireless communication.

This receiver can be connected to your local network via a wired Ethernet or a Wi-Fi connection or a cellular connection (based on model).



Figure 1. Smart-Vue Pro LoRaWAN Enabled Receiver- PRO Model



Figure 2. Smart-Vue Pro LoRaWAN Enabled Receiver- Advanced Model

Detailed Description

Key Features

- Compatible with LoRaWAN data loggers
- Low energy technology preserves data logger battery
- LED status indicators
- Software updates via integrated web interface

Data Management

 Collects/forwards data from data loggers to Cloud or Onpremises server

Connectivity

- LoRaWAN long-range wireless technology
- Range up to about 15 km/10 miles
- Automatic data logger detection
- LoRaWAN channel plans in ISM spectrum (depending on model): EU868, US915, AU915, IN865, KR920, AS923-1, AS923-2, AS923-3, AS923-4, and RU864

Hardware Details (Both Pro and Advanced Models)

- Antenna (+3dBi default; +5dBi or +8dBi optional)
- External power supply (110-240V AC adapter)
- ARM9 400MHz; 256 MB DDR RAM; 256 MB Flash
- Storage conditions: -40 °C to +85 °C (-40 °F to +185 °F); 20 to 90% RH (non-condensing)
- Wall-mount, screw attachment
- LoRaWAN / Wi-Fi / Cellular data: FCC, CE, IC
- ROHS 3, REACH, PROP-65
 Introduction > Detailed description
 LoRaWAN Gateway User Guide Page 9

Hardware Details - Advanced Model (Blue)



Figure 3. Advanced Model (Blue)

 Connectivity options: Ethernet; Wi-Fi (802.11 a/b/n/g, 2.4 & 5 GHz); and/or 4G-LTE cellular

Note: Cellular connection requires standard sized SIM card.

- Operating conditions: -30 °C to +70 °C (-22 °F to +158 °F); 20 to 90% RH (non-condensing)
- Anodized aluminum, IP30 rating
- Dimensions: 161.3 x 107.4 x 42.8 mm (6.4 x 4.2 x 1.7 in.)
- Weight: 450 g (16 oz.)

Hardware Details - Pro Model (Gray)

- Operating conditions: 0 °C to +70 °C (32 °F to +158 °F); 20 to 90% RH (non-condensing)
- PC-ABS (polycarbonate-ABS), IP30 rating
- Dimensions: 165 x 135 x 36 mm (6.5 x 5.3 x 1.4 in.)
- Weight: 284 g (10 oz.)

Technical Highlights

- Wireless range up to about 10 miles (16 km) line-of-sight
- 2-way wireless communications
- Available LoRaWAN protocol frequencies: 915 MHz and 868 MHz
- Wired Ethernet or Wi-Fi network connection
- Optional cellular data module

Package Contents

- LoRaWAN enabled gateway
- AC adapter (110-240 v)
- LoRaWAN antenna
- Ethernet cable
- Optional and to be ordered separately.
- Wi-Fi wireless module (Optional) and Antenna
- Cellular data module (Optional) and SIM card (Optional) (standard or micro-SIM depending on the gateway model)



Figure 4. Pro Model (Gray)

• Connectivity options: Ethernet/4G-LTE cellular

Note: Cellular connection requires micro-SIM.

Architectures and Technologies

Installed locally at your site, the Smart-Vue Pro LoRaWAN enabled receiver collects data from compatible Thermo Scientific modules within wireless range.

The receiver is connected permanently via internet to the serve where data logger data is pushed by the receiver and accessed using the Smart-Vue Pro web application. The following diagram shows the overall solution organization with the receiver collecting data from data loggers and forwarding it to the cloud platform.





Setting Up your Receiver

The Smart-Vue Pro LoRaWAN enabled receiver is configured using an integrated web interface. You must use that interface to determine how your receiver connects to the internet, that is, via an Ethernet or Wi-Fi. This chapter describes how to connect to your receiver and enter the appropriate setting for your solution.

Getting Started

Plug in the Smart-Vue Pro LoRaWAN Antenna

Advanced Model

- 1. Plug the white Smart-Vue Pro LoRaWAN radio antenna into the "RF" connector (the location may vary according to your unit's options).
- 2. Hand-tighten the antenna by rotating the ring clockwise.



Figure 6. Attach Smart-Vue Pro LoRaWAN Antenna to connector labeled "RF"

Pro Model

- 1. Plug the provided art-Vue Pro LoRaWAN Pro radio antenna on the connector on the back of the device.
- 2. Hand-tighten the antenna by rotating the ring clockwise.



Figure 7. Attach Smart-Vue Pro LoRaWAN Antenna to connector labeled "RF"

Plug in the Power Cable

Advanced Model

- 1. Plug the power cable into the stainless-steel connector behind the receiver. The cable fits correctly onto one of the connectors.
- 2. Tighten the cable by rotating the steel ring clockwise to attach it firmly to the unit.



Figure 8. Plug in the power cable to the stainless steel connector

3. Plug the AC adapter into a power socket to boot the receiver. The startup process may take 2-3 minutes to complete. When the unit is ready for use, the left-hand LED remains lit as shown here (the status LED continues to blink):



Figure 9. Power indicator remains on when receiver is ready to use

Pro Model

1. Plug the power cable firmly into the power plug on the back of the device.



Figure 10. Plug in the power cable into the power plug and wait for the LED to turn green

2. Plug the AC adapter into a power socket to boot the gateway. The startup process may take up to 5 minutes to complete. When the unit is ready for use, the status LED turns green. LED activity will vary depending on the connection type.

Connect to the Configuration Interface

1. Plug the ethernet network cable into the ethernet port behind the receiver.



Figure 11. Advanced model receiver with ethernet cable



Figure 12. Pro model receiver with ethernet cable

- 2. Plug the other end of the cable into either your:
 - a. Local Area Network

If your Local Area Network uses the following IP addresses: 192.168.2.x, you may skip to step 3. Otherwise or if you are unsure, see step (b).

b. Computer

The receiver does not have a DHCP server which means you must manually set an IP address on your computer to communicate with the receiver.

In your computer's network settings, assign the following IP information temporarily (ensure you change it back when done configuring your receiver):

IP: 192.168.2.199

Mask: 255.255.255.0

Do not change the Default Gateway or DNS

3. Use your web browser to connect to the receiver's default IP address: http://192.168.2.1



IMPORTANT NOTE: We recommend to use Google Chrome as your web browser. Internet Explorer is not supported.

Upon first boot, the gateway is in "commission mode" and you will be prompted to create a new user-name and password. There is no default user-name or password. 4. Assign user-name in commissioning mode and press **OK.**

OLII	
mPower™ Edge I	ntelligence Conduit
Commissi	ioning Mode
lsemame:	

P. P. M. P. at at at at a f prost 1 5 + 5 + 5 + 5 and

Figure 13. Assign user-name in commissioning mode

5. Assign a password for that user-name and press **OK**:



Figure 14. Assign a password for the user-name

6. You may then login using the information you just entered.

MULTITE	ECHI
mPower [™] Edge Intelli	igence Conduit
Username	

Figure 15. Enter Login Credentials

Note: User-name and Password

While performing the initial configuration of the device for the network, an administrative user-name and password is set.

Ensure that this information complies with your organization's user account provisioning policies and follows best security practices.

Rather than setting a password for the administrative account, consider setting a pass phrase. A combination of 4 or more unrelated words with spaces is statistically more secure than assigning a password, regardless of complexity.

Store this user-name and password information in the designated repository defined by your organization's policies. A digital password vault that has the ability for multiple users is one option, while storing it in a fireproof safe is another. It is recommended that the user-name and password should not be stored in a location easily accessible by those not requiring access because of the access privileges allowed to the device with these credentials.

First-Time Setup

Setting Up Your Device Using Setup Wizard (After Choosing Reset and Factory Default Settings)

When the power is turned on the device, set the device to factory default settings to see the first-time setup. This wizard helps you configure the main features of your device.

Here are the steps for first-time setup:

- 1. When the power is turned on for the first time or after you set factory default settings, the device goes into commissioning mode. The system requires you to set up an admin user. Enter your user-name and click **OK**.
- 2. Enter a password for the admin user and click **OK**. This password must be of sufficient length and strength (with a mix of character classes such as letters, numbers and symbols). Enter the password again to confirm. Click **OK**.
- 3. On the first page, you see the below screen. Click Next.



Figure 16. First Time setup wizard

4. Configure Call Home.



Figure 17. Call home configuration

- a. This feature is not supported for the Smart-Vue Pro solution so click **Next** to go to the next screen without changing the settings.
- 5. Set the date, time and time zone.

First-Time Setup Wizard	A A A	\times
Time Configuration		
Current Time	05/05/2020 11:27:53 (UTC)	
Date	MM/DD/YYYY	
Time (24 hr)	HH:MM	
Time Zone	UTC ~	
		_
	Back Next	

Figure 18. Time configuration

- a. Enter the **Date**.
- b. Enter the Time.
- c. Select the Time Zone in which the device operates.
- d. Click Next.
- e. By default the date and time are in UTC format. If you do not wish to change the current settings of date and time simply click **Next** to go the next screen.
- 6. Configure LAN network interfaces Eth0 and Br0.

First-Time Setup Wizard					
Network Interface Configuration - eth0					
Bridge	v				
IPv4 Address	192.168.2.1				
Mask	255.255.255.0				
Network Interface Configura	Network Interface Configuration - br0				
IPv4 Address	192.168.99.1				
Mask	255.255.255.0				
	Back Next	I			

Figure 19. Network interface configuration

- a. Leave the settings to default and click Next to go to the next screen. The detailed procedure to configure the Ethernet is mentioned in "**Setting Up an Ethernet Connection**".
- 7. Set up Remote Management.

First-Time Setup Wizard					
Remote Manageme	Remote Management				
Enabled	✓ SSL Enabled				
Server Name	ds.devicehq.com				
Server Port	5798				
App Store URL	https://www.devicehq.com				
Account Key					
	Back Next				

- This feature is not supported for the Smart-Vue Pro solution so simply click **Next** to go to the next screen without changing the settings.
- 8. Configure **HTTP/HTTPS Access**.

First-Time Setup Wizard		\times
Access Configuration		
HTTP Redirect to HTTPS		
✓ Enabled		
Port	80	
✓ Via LAN✓ Via WAN		
HTTPS		
✓ Via WAN		
Port	443	
	Back Next	

Figure 20. Access configuration

- a. This feature is not supported for the Smart-Vue Pro solution so click **Next** to go to the next screen without changing the settings.
- 9. Set up **Bootloader Protection** by setting a u-boot password.

First-Time Setup Wizard		\times
Bootloader Protection		_
Authentication Status	Disabled	
Set Password		_
Password	٢	
Enable		
	Back Finish	

Figure 21. Bootloader Protection

- a. This feature is not supported for the Smart-Vue Pro solution so click **Next** to go to the next screen without changing the settings.
- 10. Click Finish.
- 11. To save your changes, click **Save** and **Restart**.

LoRaWAN Configuration



IMPORTANT NOTE: When you connect to the receiver for the first time, a First-Time Setup Wizard runs automatically. We recommend that you close the wizard and set up the receiver manually as described here.

Start your receiver configuration by verifying LoRaWAN networking settings.

1. Click LoRaWAN (Network Settings).

	LORAWAN NETWORKING Ø
Home	LoRa Mode
@ LoRaWAN ®	
Network Settings	PACKET FORWARDER *
😫 Setup	Status
🗢 Wireless	Packet Forwarder
🐯 Firewall	
器 Tunnels	LoRa Card Information
administration	Gateway EUI 1 0-80-00-00-A0-00-93-90 Frequency Band 868
≕¥ Status & Logs	FPGA Version Upgrade FPGA
도 Commands	Gateway Info
III Apps	UUID 0004df8-32cd+ec1f-64e9-1751607ffaa3
⑦ Help	Serial Number 😗 21949343
	LoRa Packet Forwarder Configuration
	Network Settinos
	Channel Plan
	Europe/Africa *
	Server Settings
	Server Address Port
	test.smartvueconnect.com 1700
	- Intervals
	Keep Alive Interval (s)
	🗸 Submit 🖌 Test LoRa Server
	Copyright © 1995 - 2024 by Multi-Tech Systems, Inc All rights reserved.

Figure 22. LoRaWAN configuration screen

- 2. Ensure the following default values are entered.
 - a. For Smart-Vue Pro Quatro/Duo data loggers:
 - Server Address: smartvueconnect.com
 - Port (up & down): 1700
 - Keep Alive Interval: 10 seconds



CAUTION: If you enter a domain name rather than an IP address, the DHCP client in the receiver must be able to resolve the name to connect to the internet (described in the next section).

3. Click Test LoRa Server in the lower left-hand corner to verify the connection.



CAUTION: Test Lora Server will only work once you configure your network properly (see **Setting Up an Ethernet Connection** to **Setting Up a Wi-Fi Connection to your Network**).

- 4. When the test run has succeeded, click Submit to apply your changes.
- 5. You must restart gateway services for settings to be saved. Click on Save and Apply in the menu on the lefthand side of the screen (or Save and Restart) to complete configuration. This process takes several minutes.
- 6. Once the services are restarted, LoRaWAN networking status is updated.

Setting Up an Ethernet Connection

This section describes how to configure your receiver with an Ethernet wired connection. The receiver does not require to be placed in its final location for this operation, but it does need to be accessible over your network.

1. Click Setup → Network Interfaces → Options (Edit) for "eth0" (1).

Note: The Cellular and WiFi configuration will be available based on the model you purchased.

	NETW	ORK INTERI	FACES CONFIGURA	TION 💿		E Re	set To Default
Home	NAME	DIRECTION	ТҮРЕ	IP MODE	IP ADDRESS	BRIDGE	OPTIONS
R LoRaWAN ®	eth0	WAN IPv4	Ethernet	DHCP Client	192.168.2.34/24		1-
ø Setup	ppp0	WAN IPv4	Cellular (WWAN)	Auto			*
Network Interfaces	wlan0	WAN IPv4	Wi-Fi as WAN	DHCP Client			*
WAN Configuration							
Direction	_					V	
WAN	*						
Dud Oattings							
IPV4 Settings							_
Mode	_		Gateway				
DHCP Client	*		192.168	3.2.254			
IP Address			Primary D	NS Server			
192.168.2.34			192.168	3.0.2			
Mask			Secondar	y DNS Server			
255.255.255.0			192.168	3.0.21			
C Enable IP Masquera	ding						
802.1X Authentication							
602. TX Addicition							_
Authentication Method							
NONE	*						
✓ Submit						× Cancel	
					l.		

Figure 23. Ethernet adapter settings for your network

2. Adjust the various settings in the **Network Interface Configuration** window to match your network:

Table 1. Network Interface Configuration

Option	Settings
Direction	WAN
Mode	Static (in which case you must set the IP Address in the field below) or DHCP Client (the receiver gets its IP address from your network's DHCP server).
IP Address, Mask, Gateway, Primary DNS Server, Secondary DNS Server	Enter the IP addresses according to your network configuration.

3. Click Submit when you are done.

If you connected your computer directly to the receiver with an ethernet cable remember to plug the receiver into your Local Area Network.



CAUTION: It is essential to leave the DHCP server option disabled on your receiver (Setup → DHCP). Enabling that option could create a conflict with your network's DHCP server. This is not to be confused with the DHCP client option described above. Its not required to configure other options in the Network Interfaces (described in Setting Up a Wi-Fi Connection to your Network).

Note: Ethernet Network Address Settings

If you wish to specify what devices can communicate with the system by way of Access Control Lists (ACLs), the network address should be set to a static IP. Your IT team will assist in ensuring the routes required are open for each device to connect through any firewalls.

Setting Up a Wi-Fi Connection to your Network

This section describes how to configure your receiver with a Wi-Fi wireless connection using DHCP automatic IP address assignment.



CAUTION: If you need to use your LoRaWAN router in Wi-Fi mode with a static IP address, See **Applying a Static IP address for Wi-Fi Connection**.

To set up Wi-Fi wireless access for your receiver:

1. Plug the provided Wi-Fi antenna into the Wi-Fi connector and rotate the ring clockwise to fasten the antenna securely:



Figure 24. Attaching antenna for Wi-Fi network

2. Click Wireless → Wi-Fi as WAN, as shown below:

/I-FI AS WAN (°			
Configuration				
C Enabled			Status No saved net	works
✓ Submit	Reset Wi-Fi			
Saved Wi-Fi Net	tworks			+ Add Network
NAME	SSID	SECURIT	ry 🖉	OPTIONS
		No saved netwo	ork yet 2	
Available Wi-Fi	Networks			Auto Scan 🕑 Scan
Q Search Wi-Fi	network			
SSID	SECURITY		SIGNAL	OPTIONS
		No matching re	cords	
			3	
vailable Wi-Fi Netwo	orks			Auto Scan 🕑 S
Q Search Wi-Fi network	rk			
SSID		SECURITY	SIGNAL	OPTIONS
TF_GW_8a1c		WPA2-PSK	-42.00 dBm	+
		WDAO DOV	- 50.00 dDm	100

Figure 25. Wi-Fi configuration for advanced model

- 3. Click on Enabled (1) to activate Wi-Fi, then on Scan (2) to display available WiFi networks.
- 4. If your network is listed, click on the corresponding + (3) icon and enter the required security information (notably the Shared key to access the network). Then click on Finish to save your changes.

5. If your network is not listed, click on to add a network and fill in the information as required:

Network Name		
Hidden Network		
SSID		
-		
Security Mode		
WPA2-PSK		*
WPA Algorithm		
AES		Ŧ
Shared Key		
â		Θ
	🗸 Finish	× Cancel



Table 2. Network Information

Option	Setting
Network Name	Assign a "friendly" name for the network.
Hidden Network	Indicate whether this network is publicly visible.
SSID	Enter the exact network name.
Security Mode	Choose the security and key encryption methods used by your Wi-Fi network.
WPA Algorithm	TKIP+AES, TKIP, or AES according to your network.
Shared Key	Enter the network access code.

- 6. Click on Finish to save these settings.
- 7. If this is the only change you are making to your configuration, click on Save and Apply. Otherwise, we recommend waiting until you have made all your changes and do a global Save and Apply when you are done (or Save and Restart depending on the settings you changed). The process takes several minutes and there is no reason to launch it multiple times.

Applying a Static IP address for Wi-Fi Connection

Follow these steps if you would like to use a static IP address with your Wi-Fi configuration:

- 1. Click on Setup -> Network Interfaces
- 2. Click on Options (edit symbol) (1) on line containing the Wi-Fi as WAN configuration.

CAINE.	DIRECTION	TYPE	IP MODE	IP ADDRESS	BRIDGE	OPTIONS
eth0	WAN IPv4	Ethernet	DHCP Client	192.168.15.34/24		1
opp0	WAN IPv4	Cellular (WWAN)	Auto			-
wlan0	WAN IPv4	Wi-Fi as WAN	DHCP Client	192.168.15.17/24		1
Directio	n					
WAN	*					
IPv4 S	Settings					
Mode			Gateway			
Static]	192.168.15.254	4		
IP Addr	ess		Primary DNS Ser	ver		
192.1	68.15.17]	192.168.0.3			
Mask			Secondary DNS S	Server		
255.2	55.255.0		192.168.0.2			
-						
	Enable IP Mas	querading				

Figure 27. Applying a Static IP Address for Wi-Fi Connection

3. Enter the appropriate IP address information for your network, then click on **Submit**.

Using a Pre-shared WPA/ WPA2 Key

Wi-Fi Protected Access Pre-Shared Key (WPA-PSK) is an encryption method for authenticating users or devices on wireless local area networks.

Some Wi-Fi networks may require you to enter a pre-shared WPA/WPA2 key in order to connect the LoRaWAN gateway.

In the gateway's administration interface:

1. Click on Wireless ->Wi-Fi Access Point, then click in the Security Options field:

Coourity Option	_		Security Options	s
Security Options	s ———		Mode	
Mode			None	*
Nene			None	
None	*		WPA-PSK	
		_	WPA/WPA2-PSI	ĸ

Figure 28. Wi-Fi access point selection

2. Choose the security option used for your network. For example, if you choose WPA or WPA2, click to select the appropriate WPA Algorithm:

WPA Algorithm TKIP TKIP AES TKIP+AES

Figure 29. Select the appropriate algorithm

3. Enter the key in the Shared Key field.

Security Options _____ Mode WPA-PSK * WPA Algorithm TKIP+AES * Shared Key

Figure 30. Enter the shared key

- 4. Click on Submit in the lower left-hand corner of the screen when done.
- 5. If this is the only change you are making to your configuration, click on Save and Apply. Otherwise, we recommend waiting until you have made all your changes and do a global Save and Apply when you are done (or Save and Restart depending on the settings you changed). The process takes several minutes and there is no reason to launch it multiple times.

Cellular Data Connection

- 1. The cellular antenna is integrated inside the gateway casing, so you do not need to connect an external antenna.
- 2. Insert the SIM card completely into the slot on the back of the gateway as shown below. The slot is "keyed", so the SIM card can only be inserted with the cut corner on the left-hand side, facing forward.



Figure 31. Insert the SIM into the gateway

Software Configuration

 In the administration interface, select Cellular → Cellular Configuration:

Enabled	Connection Mode
Enabled	WWAN +
Cellular Mode	
Auto *	
Packet Size Settings	
MTU	
1500	
Modem Configuration	
SIM Pin	
PDP Context Mode	
Auto	
Auto	
APN	
Authentication	

Figure 32. Cellular configuration interface

4. In this screen, the only fields you should need to edit are:

SIM Pin	If necessary, enter the PIN number to unlock access to your SIM card. Many data-only (Internet of Things) solutions do not require a SIM code.
APN	Enter the code provided by your cellular service provider.

All other fields may be left with their default values.

- 5. Click on Submit to save your settings.
- If this is the only change you are making to your configuration, click on Save and Apply.
 Otherwise, we recommend waiting until you have made all your changes and do a global Save and Apply when you are done (or Save and Restart depending on the settings you changed). The process takes several minutes and there is no reason to launch it multiple times.
- 7. You can check the gateway's cellular status by clicking on Cellular → Radio Status:

Module Information		Service Information		
IMEI	359852054354452	Home Network	1nce.net	
IMSI	901405102546374	Current Network	Orange	
Manufacturer	Telit	RSSI	-81 dBm	
Model	LE910-EUG	Service	LTE	
MDN (Phone Number)		Roaming	No	
MSID	5102546374			
Firmware Version	17.00.523			
ICCID	89882280666025463740			
Options				
MDN (Phone Number)	C Update			

Figure 33. Cellular status interface

Configuring "Failover" Order for Network Access

If you have more than one Internet connectivity option installed in your gateway, the gateway can switch from one to another in case of failure.

As a reminder:

- The Advanced model supports Ethernet and Wi-Fi
- The Pro model supports Ethernet and 4G/cellular

Connectivity options are specified at the time of purchase.

For example, if you choose to run Ethernet as your primary connection and the connection fails at some point, you could

backup the communication channel by also configuring the optional cellular data connection as described below:

- Click on Setup → WAN Configuration. The list below shows the priority order in which connectivity options are used. In the case below, Ethernet is used as the priority connection. The gateway would switch automatically to WiFi if communication via Ethernet fails, and then cellular data if WiFi fails.
- 2. Click on the up/down arrows (1) to change network priority order.

ode FAILOVE	R			
ANs				
PRIORITY	STATE	NAME	ТҮРЕ	OPTIONS
1	Enabled	eth0	ETHERNET	^ v 🌶
2	Enabled	wlan0	WIFI	
0	Enabled	0qqq	CELLULAR	~ ~ <i>\$</i>



Troubleshooting

How do I access the Smart-Vue Pro LoRaWAN configuration page?

For the first time when you plug in your Smart-Vue Pro LoRaWAN, use your web browser to connect to the receiver's default IP address: http://192.168.2.1.

Once Wi-Fi or ethernet is successfully configured and saved then use the IP address assigned to the Smart-Vue Pro LoRaWAN to connect.

The assigned IP address for your Smart-Vue Pro LoRaWAN can be seen on the home page of Smart-Vue Pro LoRaWAN. Note the IP address for later use.

Home				
	Model Number	MTCDT-247A	Current Time	7/17/2024, 9:31:57 AM
Administration	Serial Number	21949348	Up Time	1 day 02:11:45
	UUD	0ec04df8-32cd-ec1f-64e9-1751607ffaa3	WAN Transport	Ethernet
) Help	Firmware	6.3.2	Current DNS	10.130.3.98, 10.68.81.101, 10.0.2.220
			GeoPosition	Not Acquired
	WAN		LAN	
	Ethernet (eth0)		Bridge (br0)	
	Mode	DHCP Client	State	Enabled
	MAC Address	00:08:00:4C:25:FF	MAC Address	86:81:48:01:85:BB
	IPv4 Address	10.96.42.156	IPv4 Address	192.168.99.1
	Mask	255.255.255.128	Mask	255.255.255.0
	Gateway	10.96.42.129	DHCP State	Disabled
	DNS	10.130.3.98, 10.68.81.101	Interfaces	wian1
	802.1X Auth Type	None	Wi-Fi Access Point (wla	n1)
	Wi-Fi (wlan0)		State	Disabled
	State	Not connected	Planta all Olaria	
	Mode	DHCP Client	Bluetooth Classic	Disabled
	MAC Address	80:C9:55:7D:B0:24	MAC Address	00-00-55-01-16-04
	IPv4 Address		WINC HODIESS	00.07.00.0A.10.04
	Mask		Accessory Carda	
	Gateway		Accessoly Cards	
	DNS		ap1	
			Model Number	MTAC-LORA-H-868
			Serial Number	21622648
			Hardware	MTAC-LORA-1.5

Figure 35. Smart-Vue Pro LoRaWAN configuration page

Can I test my Smart-Vue Pro LoRaWAN network connection?

In the **Setup** \rightarrow **LoRa** window (described in **Smart-Vue Pro LoRaWAN Configuration**), is a **Test LoRa Server** button. When you Click that button, you receive an acknowledgment that the connection is up and running.

Why sensors connected to Smart-Vue Pro Quatro does not get detected in the web application?

Sensors attached on Smart-Vue Pro Quatro sometimes may not be detected due to the latency in the network which is configured in Smart-Vue Pro LoRaWAN. If the latency is greater than 200 mSec, then this issue occurs. Use the 'Test LoRa Server' option to measure the latency.

	LORAWAN NETWORKING ()
Home	LoRa Mode
@ LoRaWAN @	
Network Settings	PACKET FORWARDER +
🏟 Setup	Status
🗢 Wireless	Packet Forwarder 4.0.23-r43.0 RUNNING
🐯 Firewall	
器 Tunnels	Loka Card Information
2. Administration	Gateway EUI 00-80-00-80-00-93-9D Frequency Band 868
≕¥ Status & Logs	FPGA Version Upgrade FPGA
🗔 Commands	Gateway Info
III Apps	UUID 🎦 0ec04df8-32cd-ec1f-64e9-1751607ffaa3
Help	Serial Number 😰 21949348
	LoRa Packet Forwarder Configuration
	Network Settings
	Server Settings
	Server Address Port
	test.smartvueconnect.com 1700
	Intervals
	Submit Test LoRa Server
	Copyright © 1995 - 2024 by Multi-Tech Systems, Inc All rights reserved.

Figure 36. Smart-Vue Pro LoRaWAN network connection

How can I be confirmed that communication between the Smart-Vue Pro LoRaWAN and the webapp is established?

This can be confirmed by the latency time. The latency (time taken for the data logger to communicate with the web application via the Smart-Vue Pro LoRaWAN and receive a response) should be less than 200 ms. Latency details are visible when the 'Test LoRa server' option is clicked on the Smart-Vue Pro LoRaWAN web interface page. (See **Figure 36**).

I would like to see how well the LoRaWAN connection works at my site. Is there an easy way to test this?

You may test the wireless connection between your receiver and a Smart-Vue Pro LoRaWAN data logger as described in the data logger user guide. For more information, or to conduct a more complete site survey, contact your Thermo Scientific representative.

How can I check the coverage status of the Smart-Vue Pro LoRaWAN signal between Smart-Vue Pro Quatro and the Smart-Vue Pro LoRaWAN?

On Smart-Vue Pro Quatro, the 'Range Test' feature helps you know if there is Smart-Vue Pro LoRaWAN signal coverage between Smart-Vue Pro Quatro and the Smart-Vue Pro LoRaWAN.

A good coverage (100%) will be shown on the device.



Figure 37. Smart-Vue Pro LoRaWAN signal

Why is the telemetry data from the sensors (connected to Smart-Vue Pro Quatro) not showing on the web app?

Verify the below:

- Check if the option "Smart-Vue Pro LoRaWAN ON/ OFF" on Smart-Vue Pro Quatro is enabled.
- Ensure the sensor is disconnected from earlier data logging sessions completed.

- Smart-Vue Pro LoRaWAN is switched **ON** and configured network latency is less than 200 mSec.
- Switch off the Smart-Vue Pro LoRaWAN Quatro by disconnecting the AC Adapter (If plugged in) and remove the batteries and then replace batteries and connect back AC Adapter (if required). Press show sensor on device.
- Disconnect sensor and connect the sensor back. Press "Refresh sensors" and ensure the sensor value is seen in "Show Sensor" screen of Smart-Vue Pro LoRaWAN Quatro.

What is the default time to wait for complete functionality to start on Smart-Vue Pro LoRaWAN after restart / power on restart?

After a power on restart/ restart waits for at least 2 minutes for the complete setup to be up.

Why is data logging not starting/stopping on web app?

- This would be due to bad network. If the latency is more than 200 msec, then the selected command will not reach the Smart-Vue Pro LoRaWAN and Smart-Vue Pro LoRaWAN Quatro.
- Ensure that the network used for communication from Smart-Vue Pro LoRaWAN has good internet speed.
- Stop data logging takes certain time to stop based on the data which need to be synced from Smart-Vue Pro LoRaWAN Quatro to cloud. Audit trails in web app shall show the time of the event happened.

What to do when it shows "Unable to reach Smart-Vue Pro LoRaWAN server"?

Ensure port 1700 is open and inform IT team that it should communicate via UDP.

I'd like to test LoRaWAN wireless coverage at my site. The receiver is in place, but I don't want to use it on the internet and just use LoRaWAN to check coverage. Is it possible?

There is an auto-acknowledgment wireless testing feature in SVP Quatro data logger firmware. If you want to test on-site coverage without an internet connection (that is, just the LoRaWAN part), you may configure the SVP Quatro data logger as follows:

Select Menu → Advanced → LoRaWAN → Network → Custom.

Select the region and enter this 8-digit number via the keypad: "00000000". On gateway side, click **LoRaWAN** (Network Settings), change the "Server Address" to 127.0.0.1. Click to use the **Range test** feature on the SVP Quatro data logger to test LoRaWAN connectivity with your receiver.

How to reset the login password if password is blocked or forgotten?

The LoRaWAN receiver need to be reset, to set a new password.

How do you reset the LoRaWAN receiver?

Switch on the power on the Lora receiver and then press and hold the reset button on front panel for more than 30secs and then release the button. The status LED on front panel will be steady for more than 2mins and then blink. Once the device is ready, as explained in section "**Connect to the**

Configuration Interface" configure the device.

How to assign a Static IP address in Windows 7, 8, 10, XP or Vista?

In the "Network Connections" window, right-click the adapter for which you want to set a static IP address, and then select the "Properties" command.

Step by step illustration:

1. Go to System Preferences.



2. Click the Network icon.



3. You will see a list of network connections on the left. If the connection is green, that means it is active.

Click the connection and then click the **Advanced button** at the bottom right.

Connected	1 C 1	Status:	Connected	Turn Wi-Fi Off
Ethernet Not Connected	<>		Wi-Fi is connected has the IP address	to FIOS-ZOPPY-5G and 192.168.1.159.
FireWire Not Connected	* e *	Network Name:	FIOS-ZOPPY-50	3
Bluetooth PAN			Ask to join new	w networks
Not Connected	•	-	Known networks with the known network to the known	will be joined automatically. If is are available, you will have t a network.
1		🗹 Show Wi-Fi status	in menu bar	Advanced

4. This will bring up all the advanced settings for the network connection. Click the TCP/IP tab and you'll see a drop-down next to Configure IPv4.

Wi-Fi	TCP/IP	DNS	WINS	802.1X	Proxies
Configure IPv4 IPv4 Address	Using I ✓ Using I Using I Manua	DHCP DHCP w BootP Ily	ith manua	al address	
Subnet Mask	Off				
Router	: 192.16	8.1.1		-	

5. This will bring up all the advanced settings for the network connection. Click the TCP/IP tab and you'll see a drop down next to Configure IPv4.

Configure IPv4:	Using DHCP with manual address	٢
IPv4 Address:	0.0.0.0	
Subnet Mask:	255.255.255.0	
Router:	192.168.1.1	

For Windows OS:



ALL REAL DRIVEN			
etworking Sharing			
Connect using:			
🛫 Intel(R) Ethemet (Connection (2) 1219-	V	
		C	onfigure
This connection uses the	e following items:		
Clent for More	soft Networks		^
🗹 🕎 File and Printer	Sharing for Microsof	t Network	s
VirtualBox NDI	S6 Bridged Network	ng Driver	
QoS Packet St	cheduler	-	
Monach Network	of Version 4 (TCP/IF	(V4)	
Microsoft LLDF	Protocol Driver	NOI THOUGH	
<			>
< Instal	Immetal	p,	>
<	Uninstal Protocol/Internet	Pt tocol. The	> operties e default ation
< Igstal Description Transmission Control wide area network pr across diverse interco	Uninitial Protocol/Internet official particles prinected networks.	Pt stocol. The communic	operties e default ation
< Igstal Description Transmission Control wide area network pr across diverse interco	Uninitial Protocol/Internet ofocol that provides innected networks.	Pt Stocol. The communic	> operties e default ation
Igstall Description Transmission Control wide area network pr across diverse interco	Uninstall Protocol/Internet otocol that provides innected networks.	ok	> operties e default ation Cancel
Igstal Description Transmission Control wide area network pr across diverse interco	Uninstall Protocol/Internet ofocol that prodes innected networks.	Pt stocol. The communic	> operties e default ation Cancel
Install Description Transmission Control wide area network pri across diverse interco	Uninstal Protocol/Internet Protocol otocol that provides prinected networks.	Pr todol. The communic	> operties e default ation Cancel
Install Description Transmission Control wide area network pri across diverse interco met Protocol Version 4 (TCI neral	Uninstal Protocol / Internet Protocol otocol that provides primected networks.	Pt todal. The communic	> operties e default ation Cancel
Igstall Description Transmission Control wide area network pr across diverse interco met Protocol Version 4 (TCI reral su can get IP settings assigne sis capability. Otherwise, you the appropriate IP settings	Lininstal Protocol/Internet otocol that provides nnected networks. P/IPv4) Properties d automatically if your ne need to ask your network	Pt stocol. The communic OK	> operties e default ation Cancel
Install Description Transmission Control wide area network pri across diverse interco met Protocol Version 4 (TCI reral u can get IP settings assigne s capability. Otherwise, you r the appropriate IP settings. Obtain an IP address auto	Uninstal Protocol / Internet Protocol / Internet Protocol that process prinected networks. P/IPv4) Properties d automatically if your network matically	Pt stocol. The communic OK	> operties e default ation Cancel
Install Description Transmission Control wide area network pri across diverse interco met Protocol Version 4 (TCI reral u can get IP settings assigne is coapbility. Otherwise, you it the appropriate IP settings. O Obtain an IP address auto Use the following IP addres	Uninstal Protocol/Internet Protocol/Internet Protocol that prodess minected networks.	toocal. This communic OK	> operties e default ation Cancel
Install Description Transmission Control wide area network pn across diverse interco met Protocol Version 4 (TCR reral su can get IP settings assigne su can get IP settings with appropriate IP settings. Obtain an IP address auto @ Use the following IP addre IP address:	Uninstall Protocol/Internet Protocol/Internet Protocol/Internet Protocol that protoces prinected networks. P/IPv4) Properties d automatically if your network matically ss: 192.158.1	Pt toool. The communic OK	> operties e default ation Cancel
	Uninstall Protocol/Internet Protocol/Internet Protocol/Internet Protocol/Internet Protocol that produces princed networks. P/IPv4) Properties d automatically if your network matically ss: 192 . 168 . 1 255 . 255 . 25	Pt toool. The communic OK	> operties e default ation Cancel

Firmware Upgrading Process



CAUTION: Use official firmware files provided by thermo scientific.

Upgrade Process (mPower 6.3.2)

To install mPower 6.3.2, the Conduit gateway must be upgraded to mPower 6.0.0 or higher. Customers that are running earlier versions of mPower should use the following upgrade process.



Figure 38. Firmware Upgrading Process

Set Up Procedure

Smart-Vue Pro LoRaWAN Set Up Procedure with Smart-Vue Pro Duo/ Quatro and Web app

1. Ensure Smart-Vue Pro Quatro is connected with sensors and sensor value is shown in show sensor screen.

Example: Smart sensor value displayed in show sensor screen.



Figure 39. Smart Sensor value display

2. Ensure LoRaWAN is ON in Smart-Vue Pro Quatro.

In Smart-Vue Pro Quatro device,

Click **Menu** \rightarrow **Advanced** \rightarrow give the code which is set in webapp and added by user during configuring the user setting i.e., pin code set in webapp by the user.

Then in Advanced, once a valid code is entered, select the **LoRaWAN** → select **ON** option from **ON/OFF** to enable Smart-Vue Pro LoRaWAN connectivity. After selecting the LoRaWAN as ON, go back to LoRaWAN→ Network→ ThermoScientific → select your region and Save.



Figure 40. In Smart-Vue Pro Quatro device

3. Press "Test" in Smart-Vue Pro Quatro device to ensure the Smart-Vue Pro LoRaWAN coverage is good.



Figure 41. Smart-Vue Pro LoRaWAN coverage

- Open Smart-Vue Pro LoRaWAN web browser page, Configure the Network in Smart-Vue Pro LoRaWAN settings to communicate to cloud.
 Refer Setting Up an Ethernet Connection and Setting Up a Wi-Fi Connection to your Network which explains the setting up of different networks like Wi-Fi and Ethernet.
 - a. Ethernet Configuration:

Click **Setup → Network Interfaces → Options** (Edit) for "eth0" (1).

	NETWC	RK INTERFA	CES CONFIGURATION	N 🕖		6	Reset To Default
Home	NAME	DIRECTION	TYPE	IP MODE	IP ADDRESS	BRIDGE	OPTIONS
🔊 LoRaWAN ®	eth0	WAN IPv4	Ethernet	DHCP Client	10.96.42.156/25		
Network Settings	wlan0	WAN IPv4	Wi-Fi as WAN	DHCP Client			1
St Cotur	wlan1	LAN	Wi-Fi Access Point			br0	1
& Setup	br0	LAN IPv4	Bridge	Static	192.168.99.1/24		1
Network Interfaces							
	NETWOR	(INTERFACE)	CONFIGURATION - ETI	H0 💿			
Home							
R LoRaWAN ®	Direction WAN		*				
Network Settings	IDv/I Set	tings					
鑗 Setup	IPV4 Set	ungs		C.1			
Network Interfaces	DHCP CI	ient	*	10.96.42.129			
WAN Configuration	IP Address			Primary DNS Serve	er		
Global DNS	10.96.42	.156		10.130.3.98			
DDNS Configuration	Mask			Secondary DNS Se	erver		
DHCP Configuration	255.255.	255.128		10.68.81.101			
LLDP Configuration	C En	able IP Masqueradin	9				
GPS Configuration	000 1V /						
SMTP Configuration	802.1X A	Authentication					
NMP Configuration	Authentica	ation Method					
Time Configuration	NONE						
😴 Wireless	Sub	mit				× Cancel	
🕶 Firewall		-					

Figure 42. Ethernet Configuration

- b. Wi-Fi onfiguration:
- Wireless → Wi-Fi as WAN → add the network and select the enabled option and submit the settings to save.

Home	Configuration			
R LoRaWAN ®	Conhied		Ctatue Not connected	
🕸 Setup	C Enabled		Status Not Connected	
Network Interfaces	A Submit Report WE Fi			
WAN Configuration	V Subilit			
Global DNS	Count MC 5: Not could			
DDNS Configuration	Saved WI-FI Networks			+ Add Network
DHCP Configuration	NAME	SSID	SECURITY	OPTIONS
LLDP Configuration	TFS-MKD	TFS-MKD	WPA2-PSK	* 11
GPS Configuration				
SMTP Configuration	Available Wi-Fi Networks			🔘 Auto Scan 🕐 Scar
SNMP Configuration	Q. Search Wi-Fi network			
Time Configuration				
	SSID	SECURITY	SIGNAL	OPTIONS
Wi Ei Annene Deint	NEBULA	WPA2-PSK	-51.00 dBm	+
WHEN ACCESS FORM	NebulaNX	WPA2-IEEE	-50.00 dBm	+
WI-FI as WAN	NEBULA-Geo	NONE	-51.00 dBm	+
Bluetootn-IP	Visitor	NONE	-51.00 dBm	+
Bluetooth Low Energy		WPA2-PSK	-51.00 dBm	+
7 Firewall	Airtel_paru_2775	WPA/WPA2-PSK	-76.00 dBm	+
器 Tunnels	TF_GW_8a1c	WPA2-PSK	-39.00 dBm	+
Administration	visitors.tfs.wireless	NONE	-33.00 dBm	+
🛒 Status & Logs	sec2.tfs.wireless	WPA2-IEEE	-33.00 dBm	+
2 Commands	Airtel_kota_4322	WPA/WPA2-PSK	∎0 -73.00 dBm	+
Apps	🔶 1 2 📦		R	tecords: 10 25 50 100

Figure 43. Wi-Fi as WAN

• To save the settings, save and restart to be selected.

c. Press "Test Lora Server" in Smart-Vue Pro LoRaWAN page after infrastructure is added in webapp (This only works once you configure your network properly (as described in the **Setting Up an Ethernet Connection** and **Setting Up a Wi-Fi Connection to your Network**).

MULTITECH MTCDT:247A Firmware 6.3.2	- Application Enablement Platform	n	🚨 admin -
	Home	LoRa Mode	CoRa Server reached I (Latency: 272ms)
	LoRaWAN ®	PACKET FORWARDER	
	Network Settings		
	🕸 Setup	Status	
	Network Interfaces	Packet Forwarder	
	WAN Configuration	4.0.23143.0 HUNNING	
	Global DNS	LoRa Card Information	
	DDNS Configuration	Gateway EUI 👩 00-80-00-00-93-90	
	DHCP Configuration	Frequency Band 868	
	LLDP Configuration	FPGA Version Upgrade FPGA	
	SMTP Configuration	Gateway Info	
	SNMP Configuration	UUID 10 0ec04df8-32cd-ec11-64e9-1751607ffaa3	
	Time Configuration	Serial Number 😗 21949348	
	😴 Wireless	LoRa Packet Forwarder Configuration	
	Wi-Fi Access Point	Network Settings	
	WI-FI as WAN	Channel Plan	
	Bluetooth-IP	Europe/Africa +	
	Bluetooth Low Energy	Server Settings	
	K Firewall	Server Address Port	
	器 Tunnels	test.smartvueconnect.com 1700	
	2. Administration	intervals	
	=≰ Status & Logs	Keep Alive Interval (s)	
	D Commands		
	III Apps	🗸 Submit 🖉 Test LoRa Server	

Figure 44. Smart-Vue Pro LoRaWAN Networking

- 5. Configuration in webapp.
 - a. In devices page, add the device name (Smart-Vue Pro Quatro) which is under test.

Last alors A	Data loggers (29) 🕀 🍙 📵					Create data logger	Tipe	
(the second s	Y Filters				_	ESOC10000313	Smart-Vue Pto Quality	
100 million	Type 0		Designation *			Name*	Inventory code	
Larray Larray	Smart-Viae Pro Quatro	-	Alan	E	ESOCOOC	Description		
Unused	Smart-Vue Pro Quatro		AvL_Lora1234	E	ESOCOOC			
ineers -	Smart-Vue Pro Quatro		AVL,SC434LR		ESOCOOC			
	Smart-Vue Pro Quatro		AVL_X4_Oceabridge	E	ESOCOOC			
	Smart-Vue Pro Quatro		Cynt_LTR_Lora12	E	£500000	Trigger atarm after 0 minutes w	thout communication.	
	Smart-Vice Pro Quatro		Cyntiora13Dec	R	ESOCOOC	Repeat alarm every 0 ho	urs.	
	Smart Tracker Pro	3	ESOAD00002AE	E	ESOA000	Trigger alarm after 0 minutes in ba	ttery mode.	
	Smart Tracker Pro	1	E50A000002C4	E	ESOA00C			
	Smart Tracker Pro	_	E50A000002E8	0 🛃	ESOA00C			
	Smart Tracker Pro PT100		ESOE00000CA5	R	ESOE000			
				4 4 <mark>0</mark> 2 3				

Figure 45. Add the device name

\equiv	thermoscientific	Smart-Vue Pro								<u></u>	3
 Image: Constraint of the second second	DATA LOGGER	★ Data loggers (2 ♀ Filters	6) 🕂 🍙 🚯			× E50	COOOOO313 t-Vue Pro Quatro - LoRa	a_LTR_1_313		C	
	Alarms 5/26	Smart-Vue Pro Qu	Gabi Virtual D	Z	E40C	Firmware version 2.4.0	Last activity 2020-01-23 3	:33 PM	Last r	eceiver _ver5.1.2	
R	26 Alarms	Smart-Vue Pro Qu	GabisDesk	Ø	E50C	Alarms	Power supply	Transfer interva	il n	Triggers	hin
Ð	Last 24 nours	Smart Tracker Pro	GN-EM1	Z	E50A	v	E 04%	15111		9	
4	11/26	Smart-Vue Pro Qu	IEC_Mech	Z	E50C	Sensors (1) 🙆					
		Smart-Vue Pro Qu	LoRa_LTR_1_313	Z	E50C		Designation 🖨		Ra	nges 🕕	
ů.		Smart-Vue Pro Qu	LoRa_LTR_2_2DB	Z	E50C	9F1A104000 Ocynt_lora_LR	001041	Z	1	250.00 °C	
٥,		Smart-Vue Pro Duo	Lora_LTR_5_391	Z	E50F	Pt100 LoRa_LT	R_1_313	/802	•	200.00 0	
0		Smart-Vue Pro Qu	Lora_LTR3_C21 ①		E50C						
		Smart-Vue Pro Qu	LoRa_path	Z	E50C						

Figure 46. After adding the device

- b. In sensor page, verify the associated sensor serial number shown.
- c. In infrastructure, add the Smart-Vue Pro LoRaWAN details.

INFRASTRUCTURE			×	
Alarms 3/10	Arms Arms Arms P Filters		Create infrastructure con	Type Smart-Vue Pro LoRaWAN
8 Last 3 months Alarm active	Designation *	Identifier \$	Name*	Inventory code
	5.1.2lora Smart-Vue Pro LoRaWAN 123	0008004A43F4	Organization * thermofisher	~
	AvL_E-Lab Smart-Vue Pro LoRaWAN	0008004A5BA4	Description	
	Cynt_Dry Contact Smart Remote Contact	E5110307E820		
	CyntLORA_5.1.2_14thlab Smart-Vue Pro LoRaWAN	0008004A76A2		
	Gabi GW Smart-Vue Pro LoRaWAN	0008004AA31C	Trigger alarm after 0	minutes without communication.
	GabisDesk Smart Bridge	A840411B0D94	Repeat alarm every 0	hours.
	GN-Office Smart-Vue Pro LoRaWAN	0008004A98B0		
	LORA_ver5.1.2 Smart-Vue Pro LoRaWAN	0008004A6A06		
	LSB Office Smart-Vue Pro LoRaWAN	0008004A43F5		

Figure 47. Add Smart-Vue Pro LoRaWAN details in Infrastructure

d. To add a Smart-Vue Pro LoRaWAN, in serial number field, add the node id mentioned on the Smart-Vue Pro LoRaWAN label.

Ш	thermoscientific Sn	nart-Vue Pro			<u> 💷 🔁</u>			
*		Infrastructure (9) (+)		K Edit infrastructure component				
Ð	Alarms 3/9	♥ Filters		Node ID*	Type Smart-Vue Pro LoRaWAN			
	Last 2 menths			Name *				
	Alarm active	Designation 📤	Identifier 🗢	LORA_ver5.1.2	Inventory code			
R		5.1.2lora Smart-Vue Pro LoRaWAN 123	0008004A43F4	Organization*	~			
0		AvL_E-Lab Smart-Vue Pro LoRaWAN	0008004A5BA4	Description				
2.		Cynt_Dry Contact Smart Remote Contact	E5110307E820					
ŝ		CyntLORA_5.1.2_14thlab Smart-Vue Pro LoRaWAN	0008004A76A2					
٥.		GabisDesk Smart Bridge	A840411B0D94	Firmware version: -	Last activity: 2020-01-23 3:38 PM			
0		GN-Office Smart-Vue Pro LoRaWAN	0008004A98B0	✓ Trigger alarm after 15	minutes without communication.			
		LORA_ver5.1.2 Smart-Vue Pro LoRaWAN	0008004A6A06	Repeat alarm every	hours.			
		LSB Office Smart-Vue Pro LoRaWAN	0008004A43F5					
		· · · · ·			Cancel Save			

Figure 48. Add the node ID in Smart-Vue Pro LoRaWAN label

e. Create an equipment and then add the sensor to equipment which is recently added to device.

≡	thermoscientific Sm	nart-Vue Pro			â 🥌 🤹
♠₽	EQUIPMENT A	Equipment (28) 🕂 🍙 🌱 Filters		X Create equipment Name*	
	4/28	Designation *	Туре	Inventory code	
	52 Alarms Last 24 hours	#116_equp_lora	box	Icon Type	
U I	17/28	Alan Office _E50C0000		Organization* thermofisher	~
10		AVL_ELAB_451	fridge	Critical	Not critical
G		🗊 AvL_Lora 🗾 🛃	E-Lab Bench	Mobile	Static
٥.		CX2 50C00004C5			
0		🗊 CX2 50C000005B0 🗾			
		A Cynt_lora 🛛 🛃	normal testing 3		
		Cynt_Lora_331			
		🗊 Gabi Digital 🔀			
			н 4	·	
					Cancel Save

Figure 49. Adding Sensor to equipment (1 of 2)

Ξ	thermoscientific Sr	mart-Vue Pro					É	
۸		Equipment (22)			× Cynt_LoRa_test		Ç	3 /
Ð	Z3 Last alarm ▲ LAN 12:32 PM	Filters			ß			
-	Alarms 6/23	Designation +	Туре	Sens	Organization test-1			
Ø	13 Alarms	🗊 AvL_Lora	E-Lab Bench		Alarms	Mobility	Status	bled
	Last 24 nours	CX2 50C00004C5			~	Static		bieu
		🗊 CX2 50C00005B0			Sensors (1)	Plan	
		A Cynt_lora	normal testing 3		Design	ation 🗢	Data logging	(+)
ä		Cynt_lora_12B	replace sensor test		0 BCE60F4000001	041		
٥.		🗒 Cynt_LoRa_test 🛛 🛃			Pt100 Cynt_LoRa_te	ist 🛃	П.	
୭		LoRa_LTR_1_313	Long run test					

Figure 50. Adding Sensor to equipment (2 of 2)

f. For adding sensor to equipment, open the particular equipment created and click + in equipment details page under sensor.

	Data logger 🗢	Designation 🗢
1	•	6B00000B4808D628 DS18B20
	Cynt_LoRa_test Smart-Vue Pro Quatro	57E6135000001041 Pt100
	E50A000002AE Smart Tracker Pro	E50A00002AE_T Internal Sensor
	E50A00002EB Smart Tracker Pro	E50A00002EB_T Internal Sensor

Figure 51. Associate sensor

g. After successfully adding the equipment, device and testing the Smart-Vue Pro LoRaWAN coverage on Smart-Vue Pro Quatro, start the data logging from either Equipment page or Device page by clicking on the play icon.

Ξ	thermoscientific Si	mart-Vue Pro					é	
*		Equipment (23)		;	× Cynt_LoRa_test		Ç	3 / :
Ð	23 Last alarm 🛕 JAN 12:32 PM	✓ Filters						
4	Alarms 6/23	Designation *	Туре	Sens	test-1			
Z	Alarms	🗊 AvL_Lora 🗾	E-Lab Bench		Alarms	Mobility	Status	bled
8	Less 24 nours	🗊 CX2 50C00004C5 🗾			•	otatio	End	bica
200 200		🕵 CX2 50C00005B0			Sensors (1)		Plan	
		A Cynt_lora	normal testing 3		Designat	tion 🗢	Data logging	(+)
4		Cynt_lora_12B	replace sensor test		0 BCE60E40000010	a1 🕞		
Ф.		🗊 Cynt_LoRa_test 🛛 🛃			Pt100 Cynt_LoRa_test		П.	
0		LoRa_LTR_1_313	Long run test					



\equiv	the	rmoscientific S	mart-Vue Pro							Ĺ	2	3
♠€	Data loggers (26) ⊕ ⓐ ⓑ 359 PM ♀ Filters					* E50C0000BCB Smart-Vue Pro Quatro - Cynt_LoRa_test			3			
		Alarms 5/26	iype ≎	Designation -	Seriai n	Firmware version 2.4.0	2020-01-23 4	:05 PM	Last n	_ver5.1.2		
Ø	26	Alarms	Smart-Vue Pro Quatro	AvL_Lora1234	E50C000004	Alarms	Power supply	Transfer interv	al	Triggers	s.	
Ð	20	Last 24 hours	Smart-Vue Pro Quatro	AvL_SC434LR	E50C000004		96%	20 m	In	4		
		Unused 11/26	Smart-Vue Pro Quatro	AVL_X4_Oceabridge	E50C00004	Sensors (2)						
8			Smart-Vue Pro Quatro	Cynt_LoRa_test	E50C00000E		Designation 🖨		Ra	inges 🕕		
<u>نا</u>			Smart-Vue Pro Quatro	Cynt_LTR_Lora12	E50C000003	II 57E61350000	01041	12	9	250.0	°C	
٥.			Smart-Vue Pro Quatro	Cyntlora13Dec	E50C000003	PT100 Cynt_LoR	a_test		•	-250.0	°C	
0			Smart Tracker Pro	E50A000002AE	E50A000002	Sc-Demo-BcB Pt100 Cynt_LoR	a_test	Z	1	250.0 -250.0	°C °C	▶⊗

Figure 53. Data loggers page

h. We can see the equipment thumbnail in home screen when data logging is in progress.



Note: For more details refer to the user guides of the data logger.

		thermofisher	thermofisher	E-Lab Bench thermofisher	E-Lab Bench thermofisher	Gabi_Demo
- °C	° 🔏		¥ -v	23.6 °C 1024	-80.4 °C	c
ynt_lora normal testi LoRa_alerts	Gabi Digital Gabi_Demo	Gabi temp_RH	LoRa_BCB_bench	LoRa_LTR_1_313		
- *c	22.0	22.9 ·c	0	¥ -*c		
- %RH	LL.9 *C	💧 34.5 ыян	- "C 1231	X -77		





Figure 55. Tiles on watch mode

Appendix - Product Specifications

Smart-Vue Pro LoRaWAN Enabled Receiver Features

- Internet of Things connectivity featuring Smart-Vue Pro LoRaWAN wireless connectivity
- Long asset management range up to 10 miles/16 km line-of-sight; 1-3 miles/2 km within buildings.

Note: This represents ideal network configuration and equipment set up. Results vary depending on various technical considerations, as well as RF interference and obstruction type (e.g., metal, cement, etc.)

- Ethernet: One RJ-45 Ethernet 10/100 port
- Wi-Fi (optional) via integrated data logger
- Input voltage: 9 V 32 V

- Dimensions (L x W x H): 6.35" x 4.23" x 1.69" (161.3 mm x 107.4 mm x 42.8 mm)
- Weight: About 16.2 oz. (459 g)
- Chassis Type: Metal
- Operating Temperature: -30°C to +70°C
- Storage Temperature: -40°C to +85°C
- Relative Humidity: 20% to 90%, non-condensing

Related Products

- Smart-Vue Pro sensor monitoring solution (web application).
- Compatible Smart-Vue Pro LoRaWAN enabled wireless sensor modules.

Label	Description	Remarks		
CELL, AUX	Cellular antenna inputs CELL: Primary AUX: Bx Diversity/MIMO	Not used.		
AP1, AP2	Slots for MultiTech accessory cards.	AP1 slot used for LoRa radio antenna. AP2 slot not used.		
USB DEVICE	User-defined, high-speed 480 Mbps, standard USB 2.0 Micro B Connector.	Not used.		
E-NET	RJ-45 receptable for standard Ethernet10/100 Base-T.CAUTION: Ethernet ports and command ports are not designed to be connected to a public telecommunication network.	Used for connecting to the ethernet cable.		
USB HOST	High-speed, standard USB 2.0 Type A connector. 500 mA maximum current draw.	Not used.		
POWER	9.32 V DC power receptable for provided power cord.	Used for connecting to the power supply.		

Table 3. Back Panel Connectors

Note: Power Source

When setting up the Smart-Vue Pro LoRaWAN Enabled Receiver (antenna), connect to a power source that is grounded with surge protection as well as on a battery backup, if at all possible. This ensures the availability of the functionality of the device.

Table 4. Front Panel Connectors

Label	Name	Description
PWR	Power	Solid (constant green) if unit is on, indication that power is present.
STATUS	Power Status	Default Condition: LED blinks when mLinux is fully loaded.
LS	Link Status	Varies with radio model.
CD	Carrier Detect	This LED is on when a cellular data connection is made. Present on the Conduit Application model only.
Signal	Signal Strength	These 3 LEDs display the strength of the cellular signal. Present on the Conduit application model only.

Installation Details

The LoRaWAN module is a critical device in your wireless monitoring system. Therefore, we recommend that you keep it plugged it into an interruptible power supply or safety plug.

Smart-Vue Pro LoRaWAN enabled receiver may be placed on a flat surface or mounted using the mounting holes located at bottom of the casing.





Figure 56. Back/bottom view of LoRaWAN gateway data logger

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