AoFrio

PRODUCT GUIDE

Network Pro ONE
Product Guide

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Warnings

Warnings	Important do's and don'ts
Installation The Network Pro ONE is mains electricity powered and therefore the installation should only be performed by people that have the appropriate qualifications in the country of installation. The Network Pro ONE must only be installed and configured by trained and authorized staff. Please follow the instructions provided in this Guide otherwise the warranty may be void.	• Only authorised and appropriately qualifed staff should install the Network Pro ONE.
USB-C port Do not connect anything to the USB-C port. The port is a non-standard USB-C and is only intended to be used by AoFrio during manufacturing. Connecting anything to this port may damage the product and void the product warranty.	• Do not connect anything to the USB-C port.
No serviceable parts There are no serviceable parts inside the Network Pro ONE. Do not attempt to open the housing. Opening of the electronics housing, altering, or modifying the Network Pro ONE will invalidate the warranty and damage the device.	• There are no serviceable parts inside the Network Pro ONE. • Do not open the housing.
Fit for purpose The Network Pro ONE must only be used for the purposes and functions described in this manual. While AoFrio may provide technical support on suitable applications and configurations of the Network Pro ONE (where such a relationship may exist), no liability, responsibility or risk is accepted in determining if the Network Pro ONE is fit for purpose for any particular application. No liability, responsibility or risk is accepted by AoFrio for the operational function of any particular installation or configuration.	• The Network Pro ONE must only be used for the purposes described in this manual.
Cellular connection, ownership, and activation The Network Pro ONE requires a cellular connection, either LTE-M or 2G to set up and upload data to the Cloud. A cellular connection might not be available in all locations. The presence of LTE does not guarantee LTE-M signal being available. LTE-M is intended for low bandwidth Internet of Things (IoT) products where LTE is for mobile high bandwidth applications. Because this device is shipped in a non-active state, ownership is established as part of the setup process where AoFrio adds the device and owner to its database. Permission to manage pairing with other AoFrio hardware can be granted through User Roles within AoFrio's User Manager software. To use AoFrio's Field app as part of the configuration process, the Network Pro ONE needs to be activated to the database that you are working in and registered in the Cloud. If not activated, then it's possible you won't be able to see the device in the Field app's list of available devices.	• The Network Pro ONE requires a clear cellular connection • Each device needs to be registered with AoFrio as part of setup and activated to the correct database • Pairing requires additional user role permissions through User Manager.

Warnings	Important do's and don'ts
Correct disposal The Network Pro ONE is subject to EU Directive 2012/19/ EU (WEEE) for e-waste. It may also be subject to other national legislation for the safe disposal of e-waste. The Network Pro ONE must not be disposed of in municipal collections, it must be disposed of through an approved WEEE collection point. Alternatively, Network Pro ONE may be returned to an authorised AoFrio distributor at the end of its working life. Penalties may be applicable for incorrect disposal, as specified by national legislation. The device contains a lithium battery. This may be hazardous if incinerated or physically damaged. The circuit board may contain hazardous substances which could affect health and the environment if disposed of incorrectly. Once the device's battery is depleted, remove the device from equipment and dispose of it according to local requirements. Leaving Network Pro ONE installed in the equipment presents risks due the potential for battery housing corrosion leading to chemical leakage.	• The Network Pro ONE must not be disposed of in municipal collections; it must be disposed of through an approved e-waste collection point. • **Safety warning:** The Network Pro ONE devices contain a lithium battery. This may be hazardous if incinerated or physically damaged. • Do not leave an old Network Pro ONE installed in field equipment after it has reached its end of life.
Vibration and impact The unit must be installed in such a way as to be protected from vibration and impact during operation. Exposure to impact and mechanical shock, either in operation, installation, transportation, or storage, may damage electronic circuits and housing components, leading to premature failure, and may cause the Network Pro to become unsafe. Damage caused by impact is not covered by warranty.	• Do not drop or install the Network Pro ONE in locations with vibration.
Continuous development AoFrio undertakes to continuously develop and improve products and services. The design and specification of Network Pro ONE and contents of this manual are subject to change without notice. While every endeavour is made to ensure that all specifications and documents are current and complete, AoFrio accepts no liability, responsibility, or risk due to omissions or changes caused by continuous improvement and design changes. Users of this manual should verify that they have the latest version of the information (published on the AoFrio website www.aofrio. com) before proceeding.	• The design and specification of the Network Pro ONE is subject to change and new firmware may be released without notice.
RF exposure RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.	

Introduction

The Network Pro ONE is one of the communications devices in the AoFrio Connect IoT system. It provides real-time automated data acquisition for one asset from AoFrio SCS controllers, Monitors and Clicks installed in your assets in the field, adding a cellular connectivity option to the existing portfolio of data acquisition solutions provided by AoFrio.

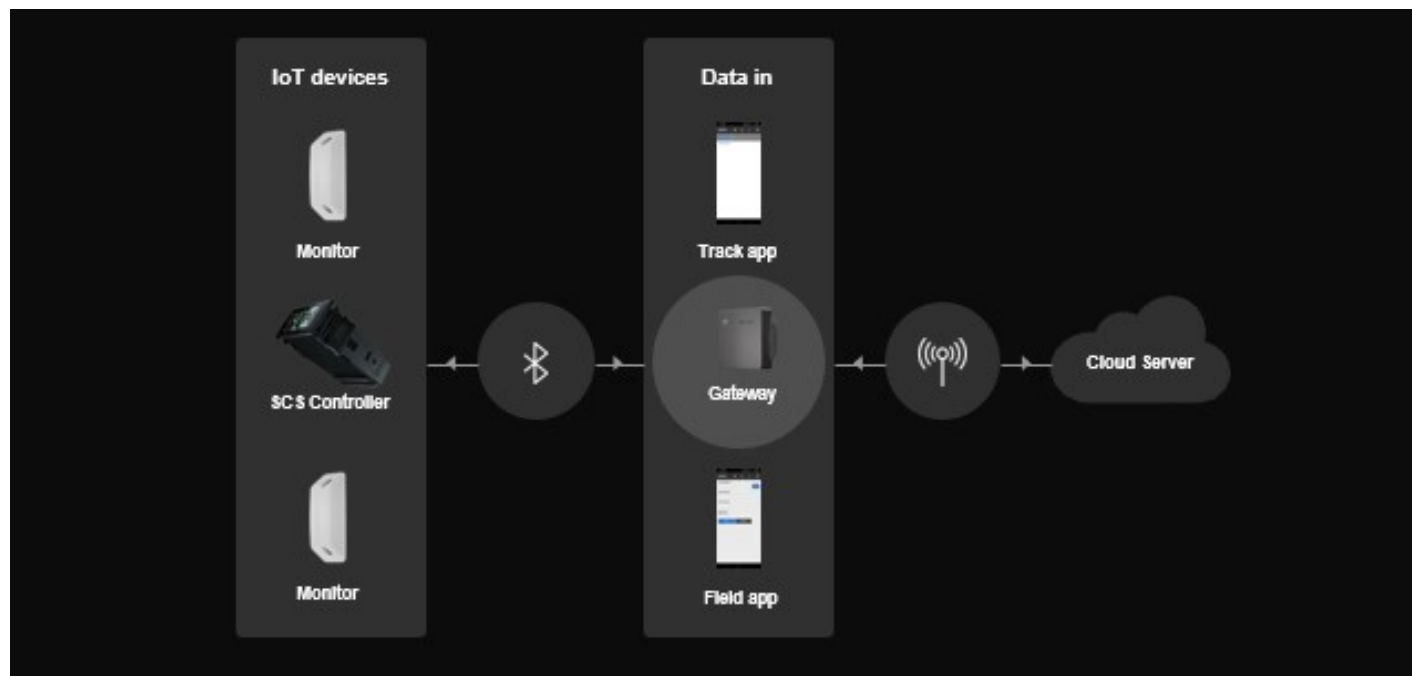Connectivity over the cellular network eliminates the need for site visits to acquire data from the asset fleet or update the firmware on the device.

Network Pro ONE expands the portfolio of data collection options for the AoFrio IoT system by adding all the intelligence in the existing AoFrio Track app and SDK portfolio for permanent deployment near the target AoFrio IoT device.

- Cloud connectivity using LTE Cat M1 with 2G fallback
- BLE connectivity with a single asset
- Location tracking via Wi-Fi positioning
- Over the air updates for firmware and parameters
- "Just works" with existing AoFrio SCS Controller, Monitor, and Click products

How it works

Network Pro ONE is an advanced communications gateway that collects data from the AoFrio IoT device within your asset and uploads it to the AoFrio Cloud Platform. It connects to the entire suite of AoFrio Connect IoT devices using Bluetooth. It then uploads all the data to the AoFrio Cloud using a cellular data connection.

Key features

Communications

Network Pro ONE is equipped with 2 different types of radio connectivity:

- Bluetooth, for connectivity to AoFrio IoT devices

- Cellular, for internet access to enable data uploads to the AoFrio Cloud.

Bluetooth

The device is fully compatible with the AoFrio Connect IoT system and uses Bluetooth to acquire data from a single asset.

Cellular connectivity

Network Pro ONE is equipped with a global cellular module that provides connectivity using LTE Cat M1 with a 2G fallback. Cellular SIMs are installed at the time of manufacture and the data plan is managed by AoFrio.

Battery

The device has a rechargeable internal battery that is used for backup if the external power supply is removed. The battery life is approximately 12 hours during which time the Network Pro ONE will continue to operate fully as if it was still connected to its external power supply.

Location Reporting

Wi-Fi positioning is used to help determine the location of the Network Pro ONE, and therefore also the cooler it is paired with. WiFi is not used to transfer data, i.e., Network Pro is not capable of establishing a WiFi connection.

Remote Setpoint control

For seasonal changes and on demand energy savings, you can change the Setpoint Temperature of a cooler equipped with a SCS Controller and a paired Network Pro ONE using the remote asset management feature in the AoFrio web portal.

Field app

The AoFrio Field app includes functionality that allows the Network Pro to run a self-test and display the test results to the Installer.

This means that the Installer can ensure that the system is fully functional before they leave the site. Refer to the separate Installation Guide document for the Field app usage guide.

Report app

The AoFrio Report app now includes features for management of Network Pro ONE, the cooler, and the AoFrio IoT device it is connected to. Refer to the Report app section in this document for more information.
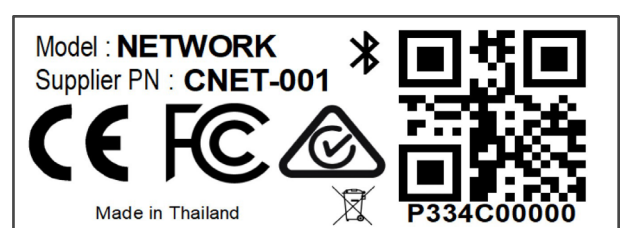
What do you need

- AoFrio Network Pro ONE
- AoFrio AC to DC power supply
- Hardware (screws, cable ties, tape etc) to mount the Network Pro ONE and AC/DC power supply

Product label & QR code

The Network Pro ONE product identification label contains product information and a QR code.

These include the model and part number as well as all compliance requirements and marks. The QR code can be scanned by users to connect to the device using the AoFrio IoT apps and digital toolkit. An additional copy of the QR code is supplied as a sticker for mounting on the asset exterior.

Installation, commissioning, and verification

Stage	Details
Shipping	Network Pro ONE ships from the factory in a deactivated state which ensures that its backup battery is not in use and there are no radio emissions during transport. The device only activates when external power is applied to it. The SIM card installed in each device is appropriate for the country where it will be used.
SIM card activation	Typically, the SIM card will be activated during the Network Pro ONE and/or asset supply chain process. If the SIM remains inactive prior to the asset's field installation, it will be activated if the Network Pro ONE is paired with a device using the AoFrio Field app. This may take several days depending on the scenario and timing. Refer to the **Network Pro ONE Installation Guide.**
Installation & mounting	Refer to the **Network Pro ONE Installation Guide.**
Commissioning & configuration	On first power-up Network Pro ONE will attempt to connect to the cellular network and the AoFrio Cloud and download configuration and commissioning information. This will happen automatically and will allow the Network Pro ONE to know which AoFrio IoT device to track. Only AoFrio Connect IoT devices associated with the same customer database will be allowed to connect to the Network Pro ONE. Network Pro ONE will also check for any new firmware updates at start up, and then every 24 hours.
Verification	The AoFrio Field app can be used to verify the correct operation of Network Pro ONE. Refer to the **Network Pro ONE Installation Guide**.

Operating modes

Normal operation

During normal operation, Network Pro ONE will perform the following tasks:

- Check-in to the AoFrio Cloud every 24 hours to determine if new firmware or configuration is available for download.

- Acquire data from the AoFrio IoT device that it has been paired with. Data will be uploaded to the AoFrio Cloud periodically, typically at least every 24 hours.

- Listen for alarms from the paired AoFrio IoT device and upload data to the AoFrio Cloud immediately if high priority alarms have been configured.

Battery powered operation

The device has a rechargeable internal battery that is used for backup when external power is removed.

- If fully charged the backup battery will continue to operate the Network Pro ONE for approximately 12 hours.

- When operating from the backup battery the Network Pro ONE will continue to acquire data from Connect IoT devices and send data to the AoFrio Cloud until the battery is depleted.

- Once the battery is depleted the Network Pro ONE will turn off.

- Network Pro ONE will reactivate once reconnected to external power and then acquire and upload data from the paired IoT device as normal.

- The backup battery will take 5-6 hours to fully charge from a fully depleted state.
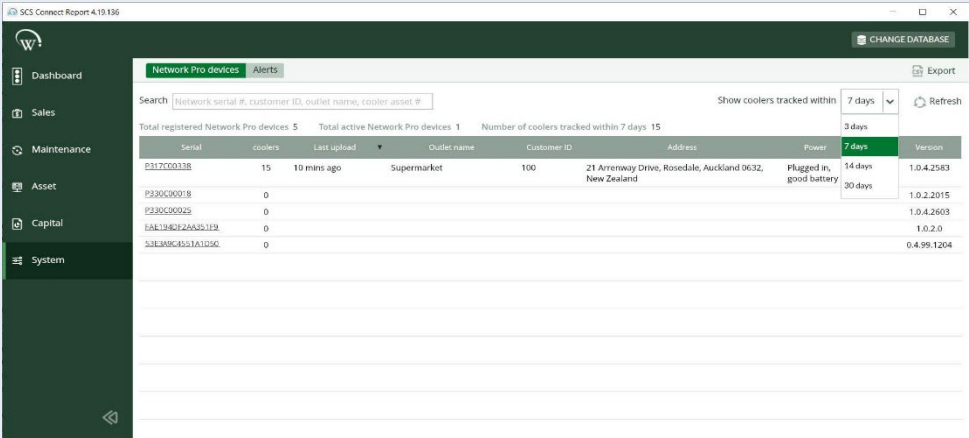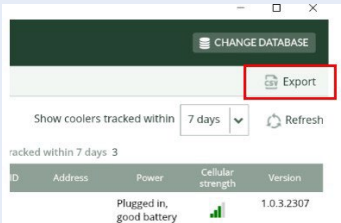
Report app

The Report app includes features that enable the management of Network Pro devices and the Connect IoT devices that it is connected to:

- See the Network Pro ONE details including the outlet where it is installed, the installation address, when it last uploaded data to the AoFrio Cloud and other details.

- List the asset the Network Pro ONE is paired with and click through to the asset's details.

- Search Network Pro devices by **Network Pro serial #**, **Customer ID**, **Outlet name** or **Cooler asset #**.

For full details of functionality, go to the section **System**, then click **Tutorial Videos** within the Report app.

- **Access** - Access to Network Pro ONE features inside Report app are controlled by your Role settings within the AoFrio User Manager app. If your Role type does not include the Network Pro ONE permissions, then you will not have access to the feature.

- **Version** - Network Pro ONE features are available in version 4.19.122 or later of the Report app. Check the version from the banner within the Report app itself.

Report app feature	Details / Screenshots
Access all the Network Pro devices in the customer account.	1. In the left-hand menu, click **System**, then click AoFrio Network Pro ONE**.
List of all Network Pro connections in the customer account	1. In the left-hand menu, click **System**, then click **AoFrio Network Pro**. 2. Select a **Network Pro serial number** to see details for the Network Pro and all Connect IoT devices it has connected to. Details include: **Total registered Network Pro devices** **Total active Network Pro devices** **Number of coolers tracked within the time period selected** **Power** **Cellular Signal Strength** **Firmware Version number** 3. (Optional) Filter connected devices. By default, the list will show the devices it has connected to in the past 30 days, but you can adjust this to show just the last 3, 7, or 14 days. A checkbox is also available to show ALL coolers that the Network Pro has connected to in its life. You can also filter by: **Last upload** – the last time that the Network Pro uploaded data for the cooler to the AoFrio Cloud. **Last data** – the timestamp of the last datapoint that was received from the cooler.
Export option that lists all Network Pro devices and the coolers they have tracked as a downloadable CSV file.	1. In the left-hand menu, click **System**, then click **AoFrio Network Pro**. 2. Click **Export** to generate a CSV file.

Report app feature	Details / Screenshots
Search by Network serial number, customer ID, outlet name, or cooler asset number	1. In the left-hand menu, click **System**, then click **AoFrio Network Pro**. 2. Select a **Network Pro serial number** to see details for the Network Pro and all Connect IoT devices it has connected to. 3. Enter your search into the **Search** box. The list of Network Pro's will dynamically update as you add additional search criteria.

Over-the-Air (OTA) Firmware updates

AoFrio will update the Network Pro ONE firmware when necessary. Firmware updates are performed Over-the-Air (OTA) via the cellular network, enabling new functionality, improving product performance and/or resolving any product issues.

AoFrio Support staff will only deploy new firmware after comprehensive testing has been completed. Customers may not be notified of new firmware deployments ahead of time.
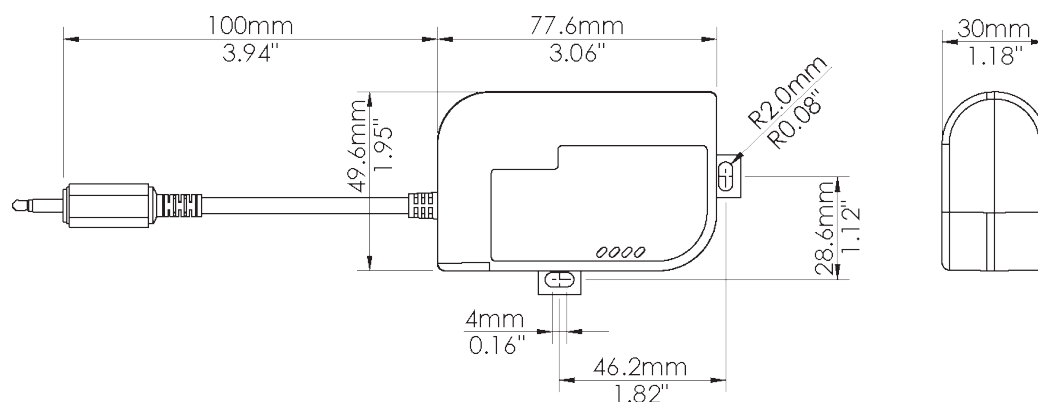
Network Pro ONE will check the AoFrio Cloud every 24 hours for firmware updates and will download any new version of firmware that is available.

During an OTA update:

- Network Pro ONE will not be servicing other tasks i.e., reporting of alarms and sending data from AoFrio IoT devices to the AoFrio Cloud will be deferred until the firmware update has completed.

- If external power is lost during the OTA update process the cellular connection could be dropped and when external power is reconnected the OTA process will restart again.

Once Network Pro ONE has downloaded the new firmware it will restart and be offline for a few seconds before checking into the AoFrio Cloud again.

Dimensions

Technical Specifications

Specifications	
AC/DC Power Adaptor	• Input 100-240V AC, 50/60Hz, 0.8A, 1m cable • Output 5V DC 2.0A, 2m cable
Network Pro ONE	• Input 4.5V – 6.4V DC, 300mA max
Cellular communications	LTE Cat M1 with 2G (GPRS) fallback
Cellular bands	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B28, B39
Connectivity	Bluetooth (BLE 4.1)
Wi-Fi (Geo-location only)	2.4GHz, 802.11 b/g/n
Battery	750mAh, 3.7V, Li-Po (approx. 12 hrs full product operation)
Status LEDs	1 x Power Status ; 1 x Battery Status. 2 x Cellular status
Connector/Interface	3.5mm 4 pole plug
Mounting method	2x 8G (4.2mm)self-tapping screws or double-sided adhesive pad
Ingress protection	IP43
Operating temperature*	-20°C to +60°C (-4°F to 140°F)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Weight	Main unit: 63g (2.2oz) AC/DC Power adaptor: 188g (6.6oz)
Approvals	CE FC ⟨⟩ NOM

* Backup battery charging only occurs between 0°C and 40°C

Compliance declarations

FCC warning

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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 and, 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.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter, End-Users must be provided with transmitter operation conditions for satisfying RF exposure compliance.

ISED warning

This device complies with Industry Canada licence-exempt RSS standard(s):

Operation is subject to the following Two conditions : (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RF exposure

RF Radiation Exposure Statement Caution: This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.

Déclaration d'exposition Attention: Cet émetteur doit être installé pour fournir une distance de séparation d'au moins 20 cm de toute personne.

Manufacturer information:

Manufacturer: East West Industries Vietnam LLC
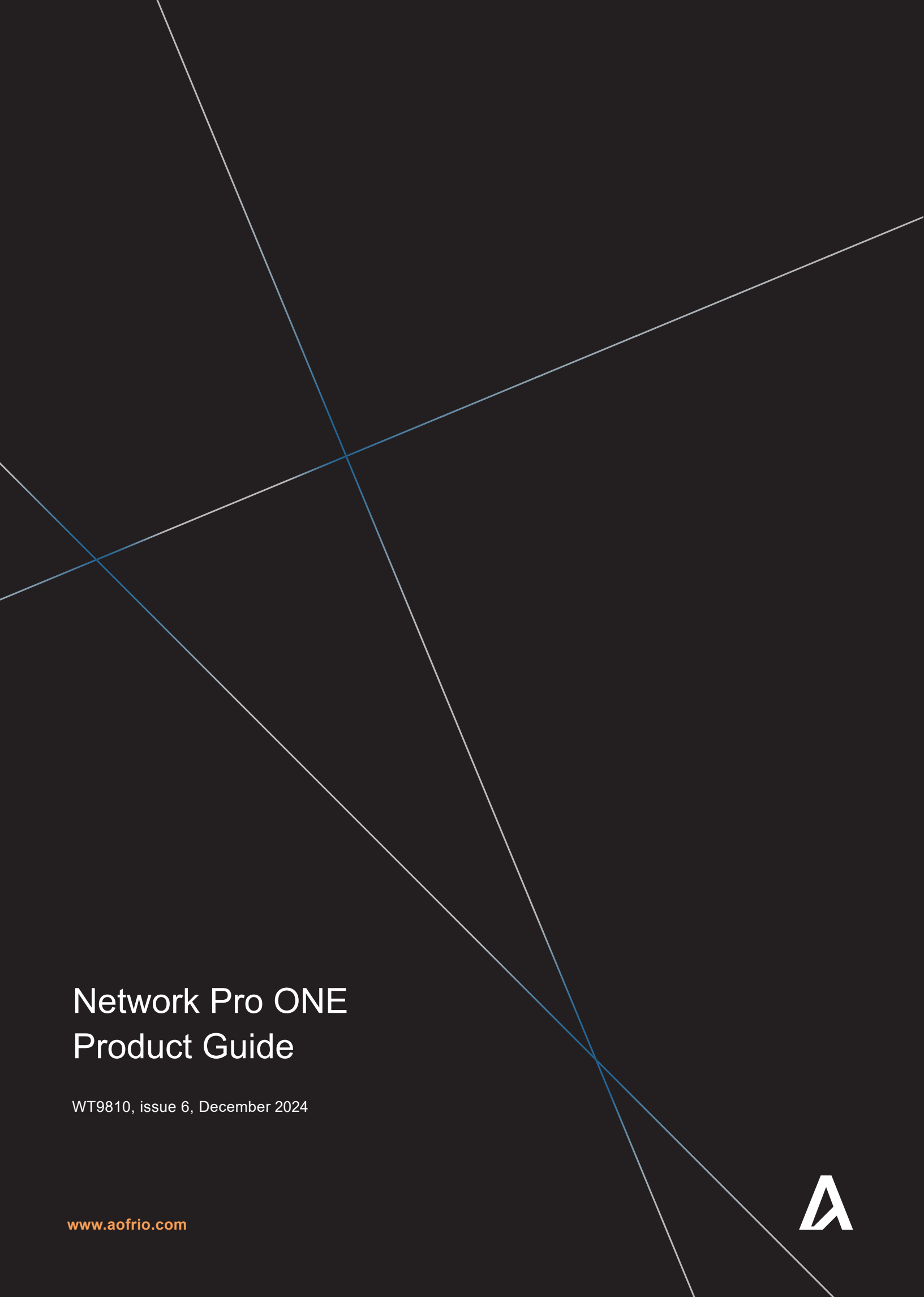Address:
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