



# Titan Net Switch

## User Manual

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Before contacting Avolites for service enquiry please ensure that you have the product serial number.

**The small print :**

**No Liability for Consequential Damages**

Avolites has a policy of continuous product and documentation improvement. As such the detail within this manual may not match the operation of this unit.

In no event shall Avolites be liable for any direct, indirect, special, incidental, or consequential damages or loss whatsoever (including, without limitation, damages for loss of profits, business interruption, or other pecuniary loss) arising out of the use or inability to use the console even if Avolites Ltd. has been advised of the possibility of such damages. Because some jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

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## I. PRODUCT SAFETY INFORMATION

### 1.1 IMPORTANT PRODUCT SAFETY INFORMATION

Please read the following text regarding product safety information

#### 1.1.1 PRODUCT WEIGHTS AND SAFETY

Take care when lifting the product, see approximate product weights below;

- o Approximate product weight 11 Kg / 25 lbs
- o Approximate product weight Boxed as shipped 11 Kg / 25 lbs

#### 1.1.2 ENVIRONMENTAL MAXIMUMS

Do not operate the TNS if the humidity and ambient temperature cause condensation on or inside the product, allow the product to dry first before connecting to the mains supply.

Max humidity is 95% relative humidity non-condensing

Operating temperature range 0-40 °C or 32-104°F

Storing temperatures -15- 50°C or 5-122°F

Do not obstruct the ventilation on the sides

Nominally the server can produce 15W of heat (No PoE load)

#### 1.1.3 ELECTRICAL SAFETY

The TNS must be connected to protective earth (PE) when energized.

Do not use the product if the mains inlet is damaged

Do not use the product if the mains system is not in accordance to the below mains voltages information

Do not open the product while connected to mains unless qualified to do so.

Hazardous mains voltages are present inside the case and the PSU while connected to the mains.

Hazardous voltage may be present inside the PSU for up to one minute after disconnecting from the mains.

#### 1.1.4 MAINS VOLTAGES

The minimum and maximum voltage ratings are: 90-240V AC  $\pm 10\%$  Single phase with the following connections:

Phase, Neutral and PE (protective earth) with the Neutral at PE potential

Mains frequency 50-60hz  $\pm 10\%$

Power consumption Max 40W, 4~2.8A (110~240V AC)

### 1.1.5 **SERVICING THE PRODUCT**

Leave repairs and service to qualified personnel.

Hazardous voltages are present inside the TNS when connected to the mains, even if the server is switched off.

Always disconnect from the mains before opening the TNS.

Hazardous voltages are present inside the TNS when connected to mains, and for up to one minute after disconnecting from the mains

Replace safety critical parts like PSU, battery, fuses, mains connector, and internal mains lead with original parts.

Use ESD protection devices when servicing the TNS

Take care when replacing the battery to not short the outputs of the battery

Take care not to obstruct the fan

When cleaning the fan inside the TNS with compressed air or a vacuum cleaner, take care to not allow the fan to spin.

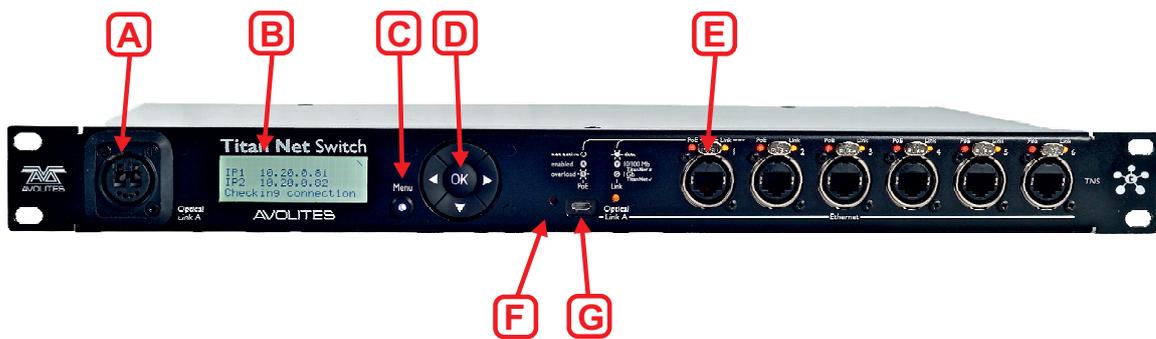
## 2. ABOUT THE TITAN NET SWITCH

The Titan Net Switch (TNS) is a network switch specifically designed for connecting up lighting networks.

- Optical input for fibre connection to console
- 1Gb network switch with etherCON connectors and Power over Ethernet (PoE)
- Built in UPS

The TNS is pre-configured to avoid the problems sometimes experienced with standard network switches blocking ArtNet and sACN lighting data.

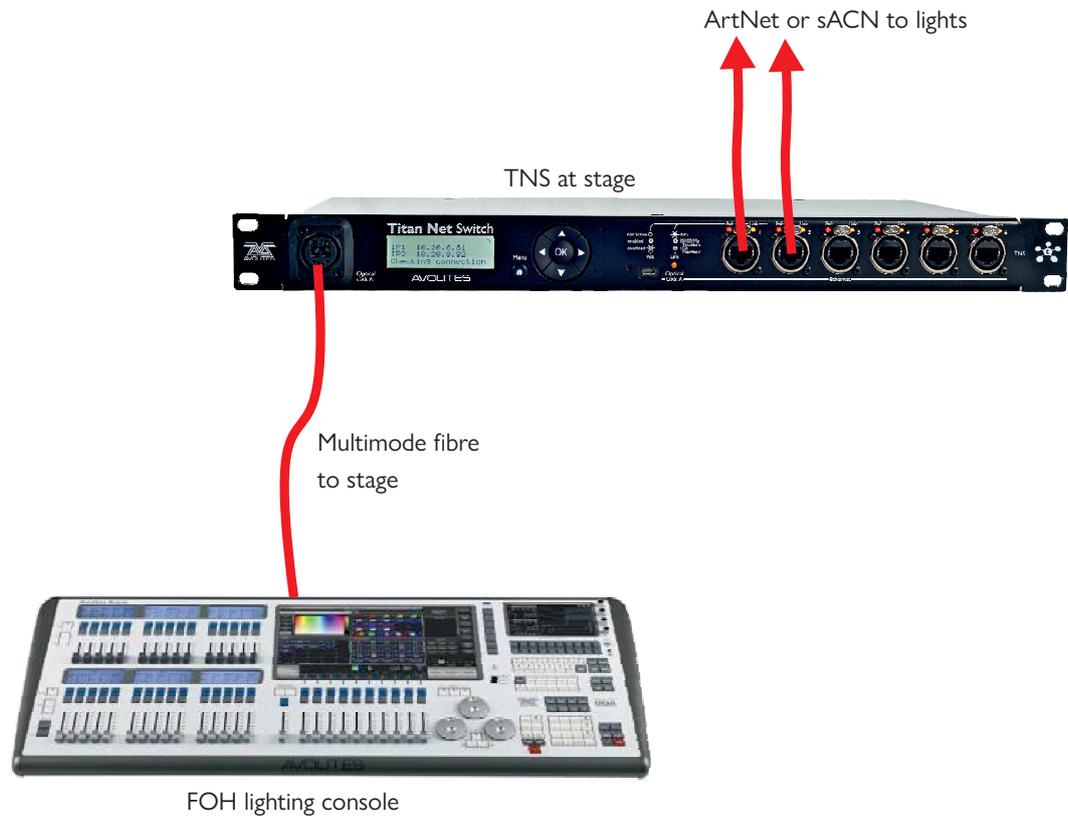
## 3. FEATURES OF THE TITAN NET SWITCH



<b>A</b>	Multimode dual port opticalCON connector 850nm
<b>B</b>	LCD display
<b>C</b>	Menu button
<b>D</b>	Navigation/selection buttons
<b>E</b>	1Gb etherCON network ports
<b>F</b>	Panel reset button – resets the control panel microprocessor
<b>G</b>	Micro-USB for firmware upgrading (using USB expert)

## 4. CONNECTING UP

The TNS can be used with conventional copper network cabling or with fibre optic cabling using opticalCON ports (as fitted on the Avolites D9 or Arena consoles). A typical use is to provide network distribution at the stage.



- Neutrik opticalCON 850nm multimode fibre must be used with the opticalCON ports on D9, Arena and TNS.

## 5. SWITCHING ON AND OFF

The TNS will switch on automatically when mains power is connected.

When power is disconnected, the TNS will continue to run on its internal battery (UPS). If the network signal also stops then the TNS will turn off after 300 seconds (5 minutes), or you can manually shut it down using the Shutdown menu option.

If the network signal remains active the TNS will assume a power failure and will keep running on its UPS until the battery gets too low.

## 6. STATUS DISPLAY

In normal operation the TNS displays the following status display:

```
TNS 0059
IP1 10.0.0.100
IP2 10.0.0.101
Switch connected
```

The top line shows the name of the TNS as it will show up for discovery on the network. This can be set by the user in the menu options.

IP1 is the IP address of the network switch. This is user configurable (see 6.1)

IP2 is the IP address for the control panel which is used to configure the switch. IP2 is automatically set to be one address above IP1 on the same subnet.

Note: You must keep both of these IP addresses free in your network to ensure correct operation of the TNS.

The bottom line shows the status of the network.

If no network is detected on any port, the display will show

```
TNS 0059
IP1 10.0.0.100
IP2 10.0.0.101
Checking connection
```

then

```
Interface reboot 5
IP1 10.0.0.100
IP2 10.0.0.101
..until connected
```

The number top right will count down to zero and the unit will cycle in this state until a functioning network is connected to the TNS.

### 6.1 ETHERNET PORT STATUS INDICATIONS

The etherCON ports have indicator lights which show the status of the ports.

Left: Power over Ethernet status

Off	PoE not active
Red	PoE active
Flash red	PoE overload status

The PoE can supply a maximum of 46W across all the ports.

Right: Link status. Light flashes when data is passing.

Off	no connection
Yellow	10/100Mb connection
Green	1Gb connection

Near the Micro-USB connector is an indicator LED to show the status of the optical link. This has the same indications as the etherCON link status LED.

---

## 7. SETTING OPTIONS

To enter the menu system to set options, press the Menu button.

Use the Up/Down arrows to choose the desired menu option.

Press OK to modify the selected menu option.

To exit the menu system press the Menu button again.

### 7.1 SET IP ADDRESS

```
Set IP1?(IP2=auto)
ADDR 010.000.000.100
MASK 255.000.000.000
GATE 010.255.255.254
```

This option sets the IP address of the network switch (IP1). The control panel also has an IP address which will automatically be set one address above IP1. You might need to change these if they conflict with something existing on your network.

### 7.2 SAVE/LOAD CONFIGURATION

You can save one user-defined configuration, and switch between that and the default configuration.

```
Save/Load Config?
```

Press OK to see the options:

```
Save/Load Config?
SAVE  User
LOAD  User  Default.
```

Use the up/down/left/right buttons to select an option.

Select “SAVE – User” and press OK to save the current configuration into the User store.

Select “LOAD – User” and press OK to reload a previously stored configuration from the User store.

Select “LOAD – Default” and press OK to load the default settings (this will not erase the User store)

### 7.3 SHUTDOWN AND RESTART

```
Shutdown/Restart?
```

Press OK to see the options:

```
Shutdown/Restart?
SHUTDOWN No      Yes
RESTART  No      Yes
```

Use the up/down/left/right arrows to select an option.

Select “SHUTDOWN - Yes” and press OK to shut down the unit (Press any button to power up again after a manual shutdown).

Select “RESTART- Yes” and press OK to restart the unit.

### 7.4 UPS STATUS DISPLAY

```
UPS Battery Status
mV  14552
mA  440   Charge *
Temp 19C
```

This screen shows information about the internal UPS for diagnostic purposes.

mV shows the battery voltage in millivolts.

mA shows the amount of current going into the battery in milliamps.

Temp shows the current temperature of the battery.

Charge shows an icon indicating the full/empty charge level of the battery.

## 7.5 SERIAL NUMBER / MAC DISPLAY

```
Serial No. and MAC
SERIAL 0059
MAC1 0012B2.14003B
MAC2 A06391.EB3815
```

This screen shows the serial number and MAC addresses of the network switch and the control panel. These can't be changed.

## 7.6 SET NETWORK NAME

```
Change Name?
TNS 0059
```

This screen shows the name of the TNS which is sent over the network and will be shown to identify the device on connected Titan consoles. Use the left/right arrows to select a letter to change and the up/down arrows to choose a letter.

## 7.7 NETGEAR WEB INTERFACE

The TNS uses a Netgear switch and you can access the web control interface of the switch by entering the switch's IP address (IP1 on the status display) into a web browser on a networked computer.

Avolites have pre-configured the switch settings for optimum performance in a lighting network. It is not recommended to change these settings.

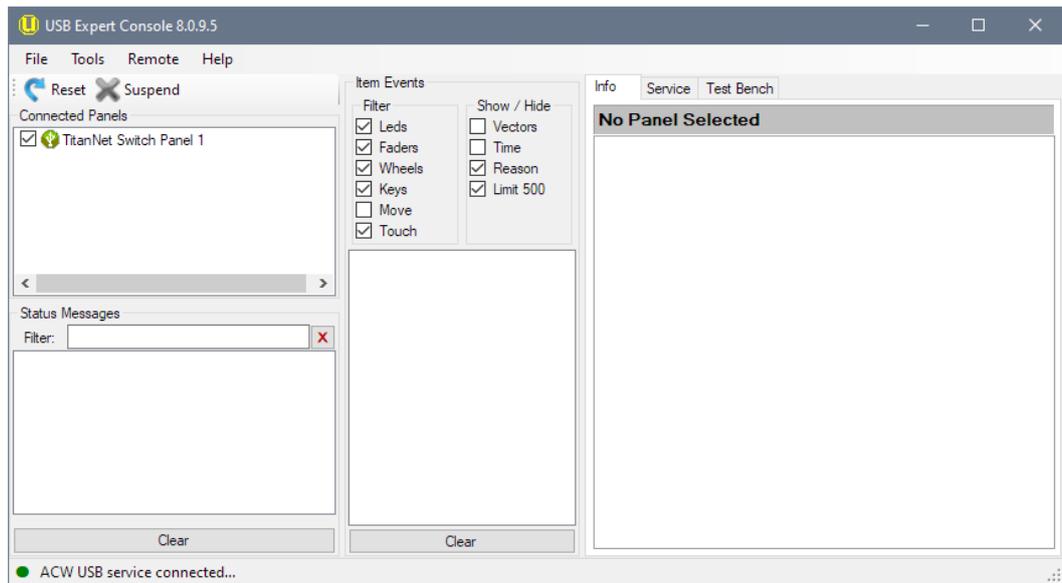
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# 8. FIRMWARE UPGRADE

The firmware in the TNS can be upgraded by plugging the micro-USB connector into an Avolites console or a PC using a suitable cable.

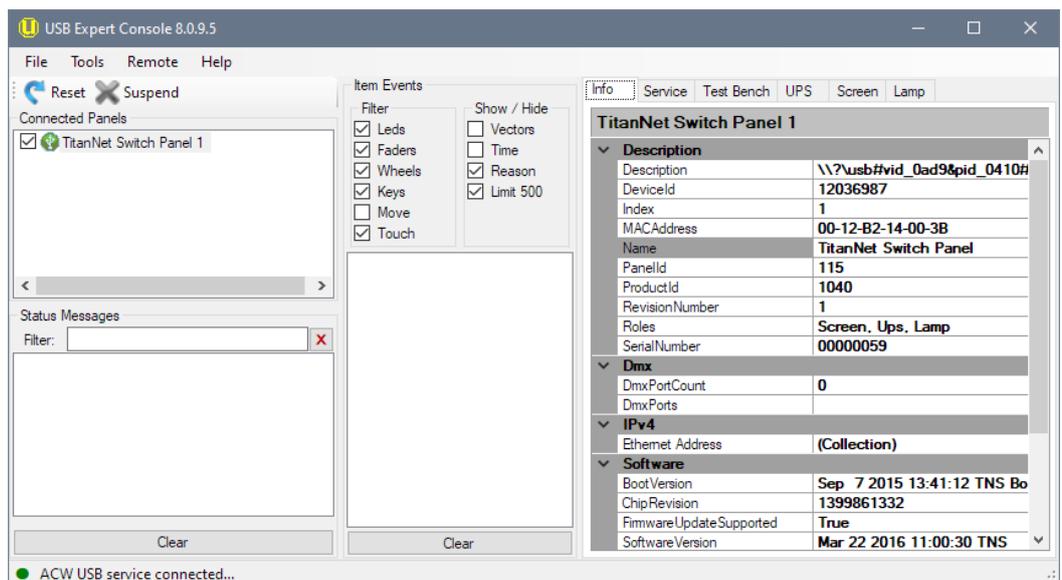
First obtain the TNS firmware update file from Avolites. The file is called "tns\_mb.bin". Copy it to C:\Program Files\Avolites\UsbExpert\Panel Software\

Once the USB is connected, run the Avolites USB Expert software (this is on the Tools menu if you are using a console).



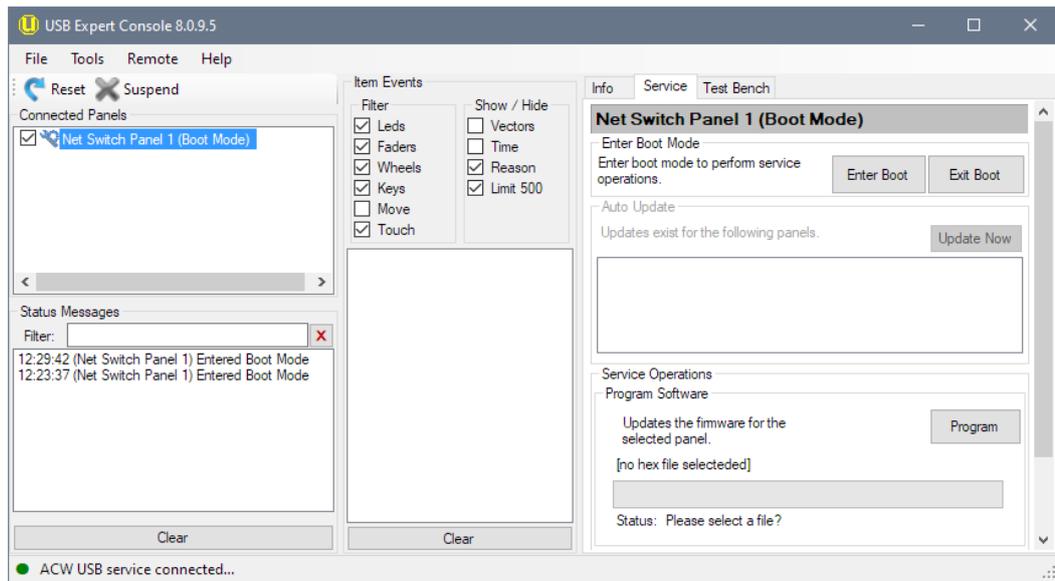
The TNS should show up in the “Connected Panels” window.

Click on the TNS in the left hand window and more information will be shown in the right hand window.



Click on the “Service” tab at the top of the right hand window then click “Enter Boot Mode”.

If the “.bin” file you copied earlier is a valid update file then the Auto Update section will show the file and you can click the “Update Now” button to update the firmware. The device will automatically exit boot mode at the end of the process.



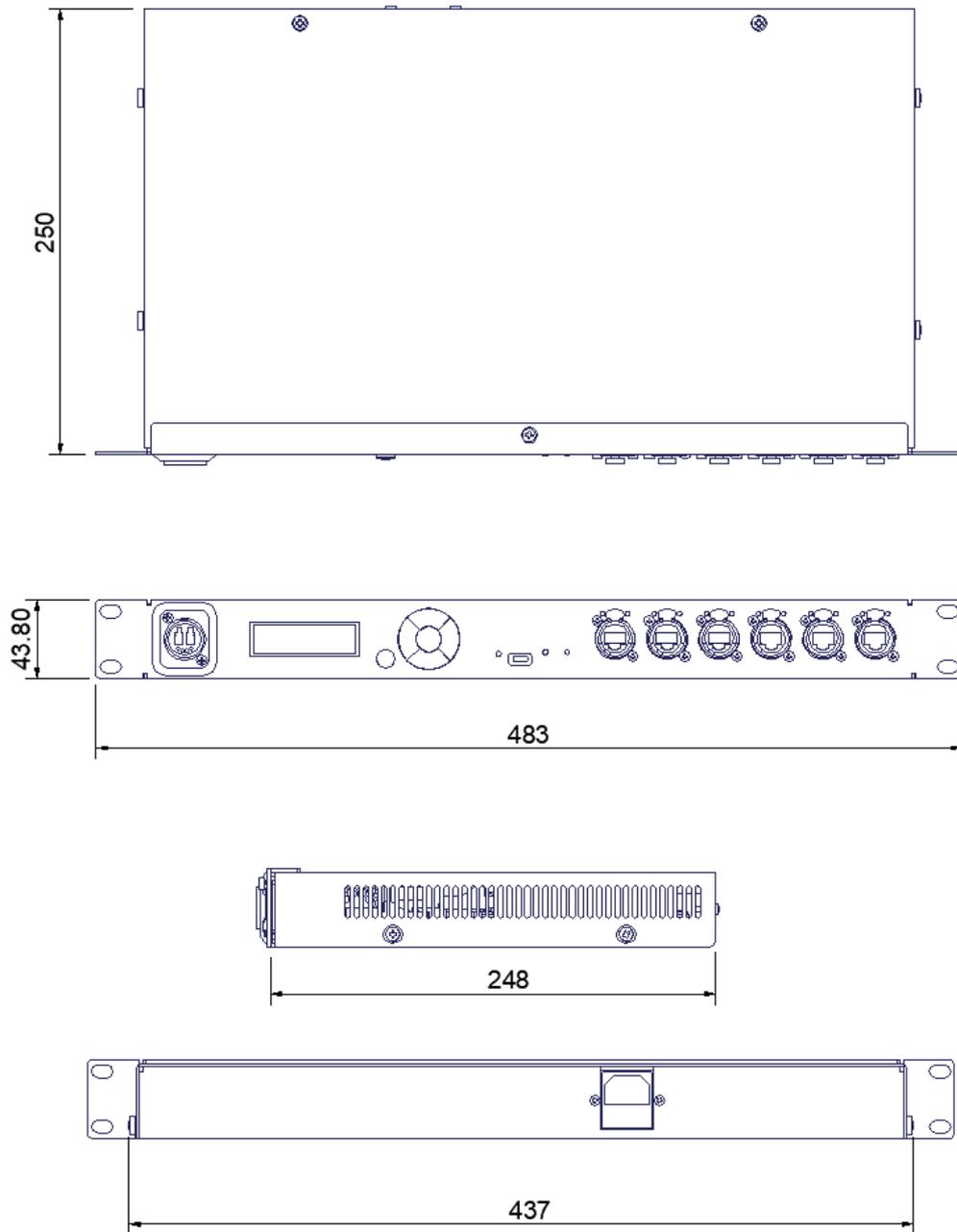
See <https://www.avolites.com/support/titan-troubleshooting/> for a document detailing the update process.

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## 9. HARDWARE SPECIFICATION

### 9.1 DIMENSIONS

Shipping box dimensions: 580mm x 300mm x 120mm (22.8" x 11.8" x 4.7")



### 9.2 WEIGHT

Approximate product weight 6 Kg / 13.2 lbs

Approximate product weight Boxed as shipped 6.8 Kg / 15 lbs

### 9.3 ELECTRICAL

The minimum and maximum voltage ratings are: 90-240V AC  $\pm 10\%$  Single phase with the following connections:

Phase, Neutral and PE (protective earth)

Mains frequency 50-60hz  $\pm 10\%$

Power consumption Max 40W, 0.5~0.3A (110~240V AC)

### 9.4 ENVIRONMENTAL

Max humidity is 95% relative humidity non-condensing

Operating temperature range 0-40 °C or 32-104°F

Storing temperatures -15- 50°C or 5-122°F

Do not operate the TNS if the humidity and ambient temperature cause condensation on or inside the product, allow the product to dry first before connecting to the mains supply.

Do not obstruct the ventilation on the sides

Nominally the server can produce 15W of heat (No PoE load)

The airflow through the TNS is approximately 1.1 CFM, and directed left to right

### 9.5 CONFORMITY

The TNS has passed the following test.

BS EN 55032:2015	Electromagnetic compatibility of multimedia equipment. Emission requirements.
BS EN 55103-2:2009	Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Immunity
BS EN 0065:2014+A11:2017	Safety requirements Audio, video and similar electronic apparatus

Note: In certain cases Avolites can provide further information if local regulations require this.