SPINODE MANUAL

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Revision History

Revision	Date	Author(s)	Description
5	08.09.2026	JL	Update SPI cable maximum length
4	07.06.2026	ME	Added safety warning
3	18.09.2025	JL	Update for firmware 1.01
2	02.06.2025	JL	Power through update
1	01.05.2025	JL	Initial version

Contents

Chapter 1

Safety Precautions

This chapter contains important safety information for the installation, operation, and maintenance of the SpiNode. Read these precautions carefully before using the device to ensure safe operation and to prevent damage to equipment or injury to personnel.

Before installing the SpiNode, read this manual completely and ensure that all installation personnel are familiar with the product and applicable safety requirements. Verify that the installation environment is suitable for the device and within the specified operating conditions. Disconnect power before making any wiring connections. Do not install or operate the product if it appears damaged. Ensure adequate ventilation around the unit and prevent exposure to moisture, excessive heat, or mechanical stress.

1.1 Indoor Use Only

The SpiNode is intended for indoor use only. Do not install or operate the device in environments exposed to rain, moisture, condensation, excessive dust, or direct sunlight. Operating the product outside its specified environmental conditions may result in malfunction, damage, or reduced product lifetime.

1.2 Power Supply Requirements

Only power the SpiNode using the approved power sources specified in this manual: a DC power supply within the specified input voltage range. Applying voltages outside the specified limits may damage the device and void the warranty.

1.3 No User-Serviceable Parts

The SpiNode contains no user-serviceable parts. Do not attempt to open, disassemble, or repair the device. Opening the enclosure may expose sensitive electronic components and may void the warranty. Repairs must only be carried out by qualified service personnel or the manufacturer.

1.4 Product Modifications

Do not modify the SpiNode or its accessories. Unauthorized modifications may impair product performance, compromise safety, invalidate regulatory compliance certifications, and void the warranty.

1.5 Disconnect Power Before Servicing

Always disconnect all power sources, including any external DC supply, before installing, wiring, relocating, or servicing the device. Failure to disconnect power may result in equipment damage or unintended operation.

Chapter 2

Introduction

Thank you for choosing the **SpiNode** by Visual Productions. The SpiNode is a versatile protocol converter that translates Art-Net and sACN data into LED SPI protocols.

Figure 2.1: SpiNode

An internal web-server provides the web-interface through which you can setup the SpiNode. A modern web browser is required during setup to access the web interface. A browser or computer is not required for stand-alone use after the initial set-up.

The Web-interface also includes a complete testing interface to help you easily identify universe boundaries, individual LED positions for an easy mapping and possible faulty LEDs.

Additionally the SpiNode includes a 16 Universe extension license for the Visual Productions CueCore3.

At the time of writing this manual the SpiNode firmware was at version 1.01.

2.1 Compliance

This device is in compliance with the following regulations:

- CE
- UKCA

See the appendix for the associated certificates.

2.2 Features

The feature set of the SpiNode includes:

- 4 x synchronous or asynchronous SPI ports
- Up to 4096 pixels (1024 per port)
- 24 universes input (6 per port)
- More than 20 pixels protocols, including: WS2812, SK6812, WS2801, APA102 etc..
- Custom protocol tool
- Power through 20A system-wide (Only with DC input)
- 10/100 Mbit/s Ethernet port
- Art-Net V.4 Input
- sACN E1.31 Input
- Web-based user-interface for programming
- Din-Rail mountable housing.
- 16 universes extension license for CueCore3
- Power input 5-24V DC
- IEEE 802.3af Class 1 compliant PoE input
- Operating temperature -20C to +50C (-4F to 122F)
- Operating relative humidity 10% to 80% non-condensing

2.3 What's in the box

Figure 2.2: Box contents

The SpiNode packaging contains the following items:

- SpiNode
- Quick Start card
- 1m network cable

2.4 Unpacking

Carefully unpack the SpiNode and inspect the contents for any signs of damage that may have occurred during transportation. Verify that all supplied accessories and documentation are present. If any damage is found, do not install or operate the device and contact your supplier immediately. Retain the original packaging materials whenever possible, as they provide the safest means for transporting or storing the product in the future.

2.5 Intended Disposal

At the end of its service life, this product must not be disposed of with household waste. The SpiNode contains electronic components that should be collected and recycled in accordance with local regulations for Waste Electrical and Electronic Equipment (WEEE). Please dispose of the product through an authorized recycling facility or return it to an appropriate electronic waste collection point. Proper disposal helps conserve natural resources and prevents potential negative effects on the environment.

2.6 Further help

If you have further questions after reading this manual, please consult the online forum: `https://forum.visualproductions.nl`

Chapter 3

Protocols

The SpiNode supports various protocols. This chapter describes these protocols and to which extent they are implemented in the SpiNode.

3.1 SPI

SPI (Serial Peripheral Interface) is a widely used protocol for controlling addressable LED pixel products. Unlike DMX-512, where a single DMX channel controls a specific parameter, SPI protocols transmit colour data directly to individual pixels, allowing each LED to be controlled independently.

Various pixel chipsets exist, including devices such as WS2811, WS2812, SK6812 and APA102. Different chipsets use different timing requirements and data formats. The SpiNode supports a range of commonly used SPI pixel protocols and can be configured to match the requirements of the connected pixel product.

The SpiNode can generate SPI pixel data directly from Art-Net or sACN input sources. Depending on the selected pixel protocol and output configuration, a single SpiNode can control thousands of individual pixels.

The SpiNode supports a wide range of SPI pixel protocols. See Appendix **??** for a complete overview of supported protocols.

3.1.1 Asynchronous vs. Synchronous

Asynchronous protocols use a data signal only (e.g. WS2812), while synchronous protocols use both data and clock signals (e.g. APA102).

3.1.2 One-way Protocol

Unlike network protocols such as Art-Net and sACN, which support both transmission and reception of data, *SPI pixel data* is a one-way protocol. Data is sent from the controller to the pixel devices, while the pixels themselves do not transmit control data back to the controller.

3.2 Art-Net

The Art-Net protocol primarily transfers DMX-512 data over Ethernet. The high bandwidth of an Ethernet connection allows Art-Net to transfer up to 256 universes.

Art-Net traffic places a certain load on the network, therefore it is recommended to disable Art-Net when not in use.

Additional to transmitting DMX-512 data, Art-Net can also be used for transferring timecode information for equipment synchronization.

The SpiNode supports receiving of 24 universes of Art-Net data.

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3.3 sACN

The streaming Architecture of Control Networks (sACN) protocol uses a method of transporting DMX-512 information over TCP/IP networks. The protocol is specified in the ANSI E1.31-2009 standard.

The sACN protocol supports multicast in order to make efficient use of the network's bandwidth.

The SpiNode supports receiving of 24 sACN universes.

3.4 DHCP

The Dynamic Host Configuration Protocol (DHCP) is a standardized network protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses.

The SpiNode operates as a DHCP client and can automatically obtain network settings from a DHCP server.

Chapter 4

Installation

This chapter describes the physical installation of the SpiNode. It covers mounting, power connections, status indicators, SPI port wiring, power distribution considerations, and cable length recommendations.

4.1 DIN Rail

The SpiNode is designed for DIN rail mounting. The device takes 6 width units.

Figure 4.1: DIN Rail mounting

4.2 Power over Ethernet

The SpiNode can be Power over Ethernet (PoE) powered. Simply connect the device to PoE capable network switch or a PoE-injector.

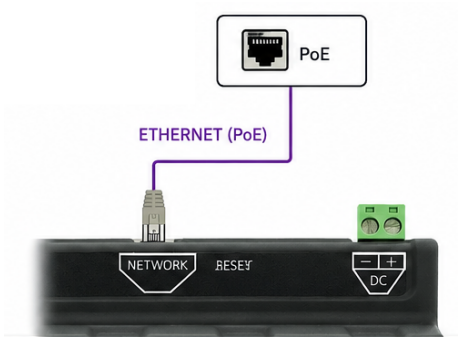


Figure 4.2: PoE power

4.3 DC Power

The SpiNode can be powered via a DC power supply:

- 5–24 VDC
- 500 mA typical (excluding power-through load)

The power supply is sold separately.

The DC power input can be used together with the PoE power. In this case the SpiNode will be powered via PoE and the DC power supply will be used in case of PoE failure.

Important: Ensure correct polarity when connecting power to your pixels.

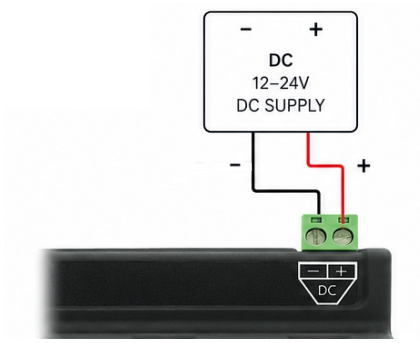


Figure 4.3: DC power

4.4 Status LED

The status LED indicates the current state of SpiNode. The LED color may vary depending on the device state.

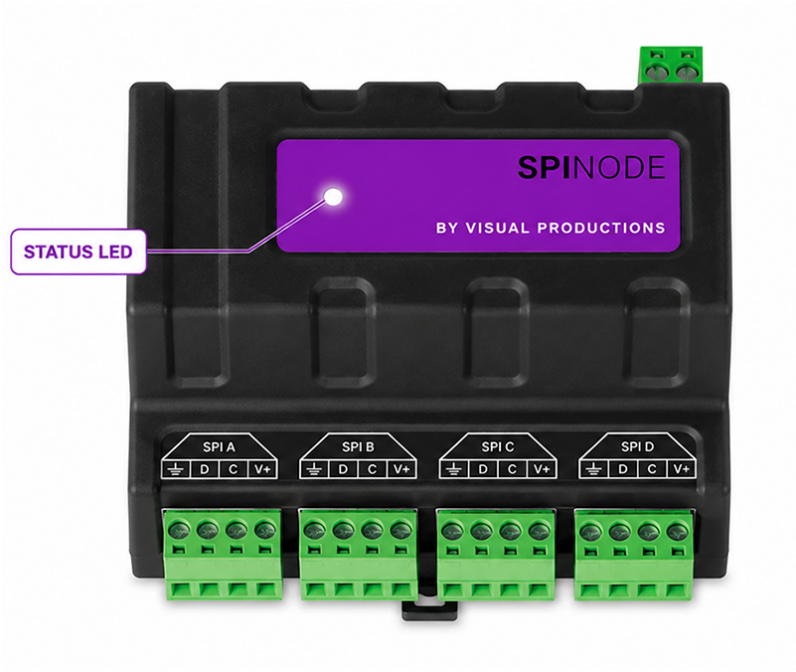


Figure 4.4: Status LED

LED Status guide:

- **Red** Normal behavior, DHCP mode
- **White** Normal behavior, Static IP mode
- **Purple** Factory Default reset in progress
- **Cyan** Firmware upgrade in progress
- **Orange** Error, consult tech support

4.5 SPI Ports

The four galvanically isolated SPI ports provide power to the connected pixel products through their V+ and GND terminals. Each port also provides the DATA output and, where required by the selected pixel protocol, the CLOCK signal for directly driving SPI pixels.

Warning: Do not exceed the maximum current rating of 20A on the DC input. Exceeding this rating may result in fire and/or damage to the equipment.

The SPI connector wiring is shown in figure 4.5.

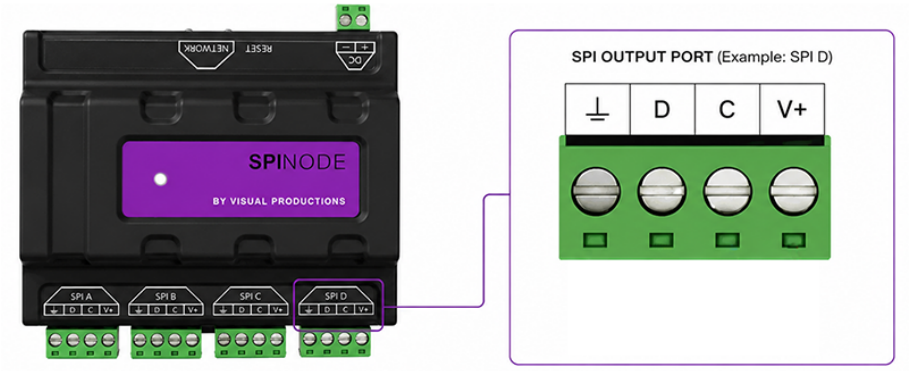


Figure 4.5: SPI Connector

Label	Description
⏚	**GND**: Common reference for power and signal.
D	**DATA OUT**: Data output. Connect to the data input of the pixel device.
C	**CLOCK OUT**: Clock output. Used by clocked (synchronous) pixel protocols.
V+	**POWER OUT**: Power output for the connected pixels. The output voltage follows the voltage applied to the SpiNode power input.

4.5.1 Power to the LED pixels

There are multiple strategies to provide power to LED pixels, please refer to figure 4.6.

The power through feature allows you to power your led strip from the SpiNode DC power supply.

Warning: The SpiNode power outputs are not protected against over-current conditions, such as those caused by short circuits. It is required to install a suitable fuse in each power line.

4.5.2 Maximum cable length

The quality of the connection between the SpiNode and your first pixel will mainly depend on the quality of the cable you are using, the frequency/speed of the pixel driver and the electromagnetic environment.
For a reliable installation it is recommended to not have any connection between your SpiNode

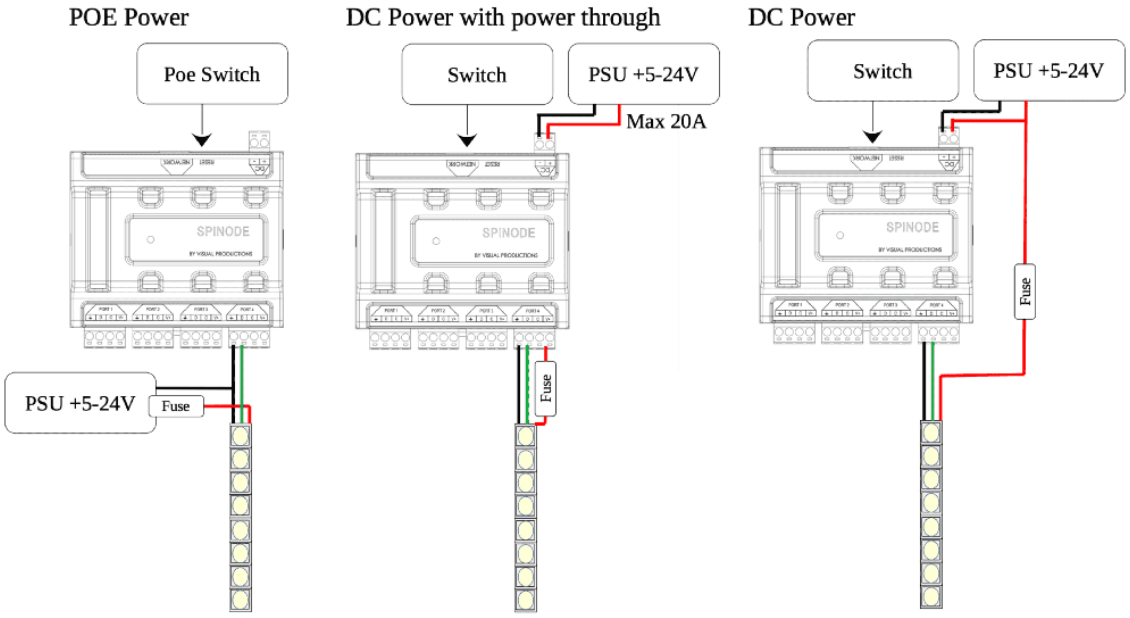


Figure 4.6: SpiNode wiring

and your first pixel longer than 1m.

If your project requires a cable connection longer than 1m you can use Visual Productions SpiExtender which allows you to reach distances up to 250 meters using a standard Cat5 cable.

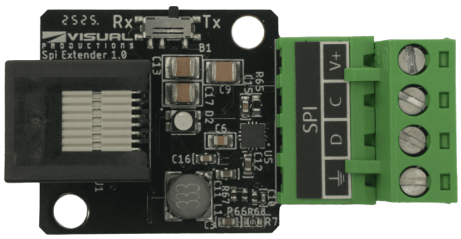


Figure 4.7: SpiExtender

Chapter 5

Network Configuration

This chapter explains the network configuration options available on the SpiNode. It describes IP addressing, DHCP operation, and the methods available for configuring or restoring network settings.

5.1 IP Address

The SpiNode supports both static IP addressing and automatic IP addressing. By default, the SpiNode is set to 'DHCP' in which it will be automatically assigned an IP address by the DHCP server in the network.

If the SpiNode is set to DHCP mode and no DHCP server is present in the Network, it will automatically fall back to a random IP address in the range 169.254.xx.xx after a few seconds.

Static IP addresses are useful, for instance when there is a direct peer-to-peer connection between a SpiNode and a computer. It is also useful in permanent installations where the IP address of the SpiNode is known by other equipment and therefore should not change. When using DHCP there is often the risk of automatically being given a new IP address in the event that the IP lease time runs out. When using static IP addresses, make sure that all equipment on the network has a unique IP addresses within the same subnet.

The SpiNode's LED helps to determine which kind of IP address is set. The LED will indicate red when using DHCP and it will indicate white in the case of a static IP address.

There are three ways to change the IP address setting of the SpiNode.

- **vManager** can be used to detect a SpiNode on the network. Once found, the vManager software (Chapter **??**) allows for changing the IP address, subnet mask and DHCP settings.
- If the IP address is already known then browsing to this address using the computer's browser will show the SpiNode's **web interface**. The *Settings* page of the web interface enables changing the same network related settings.
- Briefly press the **reset button**. As described in the next section.

5.2 Reset Button

The *Reset Button* is located on the side of the device.

Figure 5.1: Reset button

The reset button provides several functions depending on how it is used:

Short press Toggles the IP address mode between *DHCP* and *Static IP*.

Long press Press and hold the button until the status LED starts flashing white. The SpiNode will revert its IP settings to the default static IP address of `192.168.1.10`.

Power-on reset Press and hold the reset button while applying power to the SpiNode. Release the button when the purple status LED stops flashing. The device will be restored to its factory default settings. All user settings, configuration data, and IP settings will be erased.

5.3 Network Connector LEDs

The SpiNode has status LEDs integrated in the RJ45 network connector. These LEDs provide a quick indication of the Ethernet link and network activity.

network_leds.png

Figure 5.2: Network connector LEDs

The LEDs are located at the top-left and top-right of the RJ45 connector.

LED	State	Meaning
Left	Yellow on	10/100 Mbit/s link
Left	Yellow blinking	10/100 Mbit/s activity
Right	-	-

Table 5.1: Network connector LEDs

Chapter 6

Web-interface

This chapter explains how to access and use the SpiNode web interface. It describes each configuration page and provides guidance on routing, pixel configuration, testing, grouping, and system settings.

6.1 Saving data to memory

This manual will describe how to configure the SpiNode and set its internal routing. The unit's web-interface is used for editing these kinds of elements.
When changes are made, these changes are automatically stored into the memory of the SpiNode This memory copy process is conducted automatically every 10 seconds by the SpiNode. Take into account to not disconnect the power from the device within 10 seconds from making a programming change.

6.2 Access

There are 2 ways to access the SpiNode web interface:

- Directly type the IP address of the SpiNode in the address bar of your usual web-browser.
- Use the "browse" function of the vManager application (See "vManager" chapter p. **??**)

Recommended web browser:

- Mozilla Firefox (v54 or higher)
- Google Chrome (v102 or higher)
- Apple Safari (v15 or higher)

6.3 Home Page

The *Home* page provides global information about the SpiNode in a read only mode. This is the only page available, along with the *About* page, when password protection is activated.

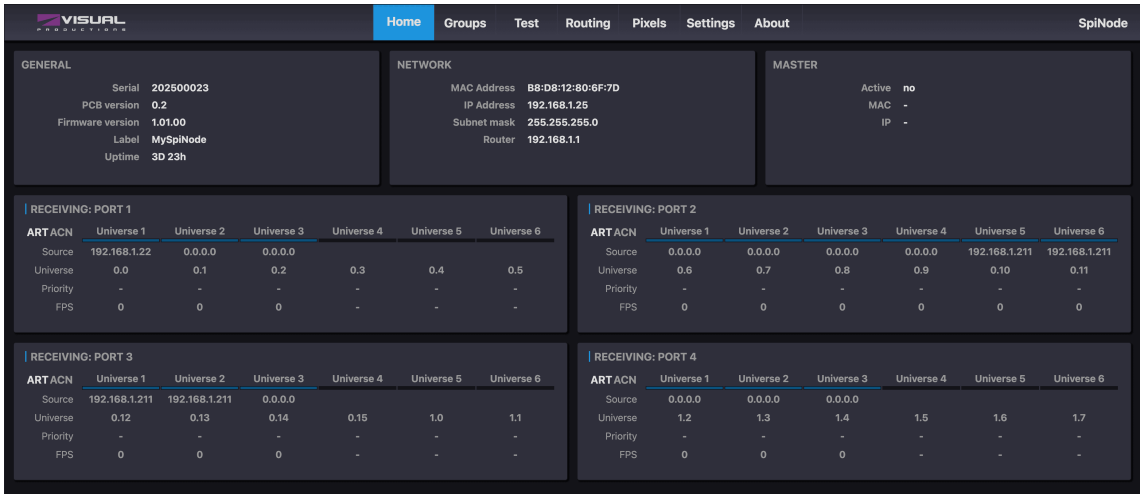


Figure 6.1: SpiNode's 'Home' webpage.

GENERAL: indicates general information about the SpiNode, like its serial number, the PCB version, the firmware version, the label associated with it and the uptime (time since the last reboot) of the unit.

NETWORK: indicates the network settings of the SpiNode. Those settings (except the MAC address) can be changed from the "Settings" page or via "vManager".

MASTER: the SpiNode can be claimed by a CueCore3 to enable 16 additional universes for this specific CueCore3 unit.
The "Master" section indicates if the SpiNode is currently claimed by a CueCore3, and if so it will show the MAC and IP addresses of the claiming CueCore3.
The SpiNode can be claimed by only one CueCore3 unit at a time.
A CueCore3 cannot extend its number of universes over 32.

RECEIVING: Indicates information about the input of each port. The blue indicator in front of the port number indicates if the port is activated (see "Routing page" p**??**).

- **ART/ACN:** Indicates the expected protocol for the port
- **Color segment:** Indicates the expected protocol for the port
  - No data is expected for this universe
  - Data is being received for this universe
  - Data is expected for this universe but not received
  - 2 different sources are sending data for this universe
- **Source:** Indicates the IP address or label of the controller sending the universes
- **Universe:** Indicates the universe number expected
- **Priority:** In case of sACN protocol indicates the priority value of the currently received universe
- **FPS:** Indicates the frame rates of the received frames

6.4 Groups Page

The *Groups* page will allow you to group your pixels into regular size groups or custom size groups.

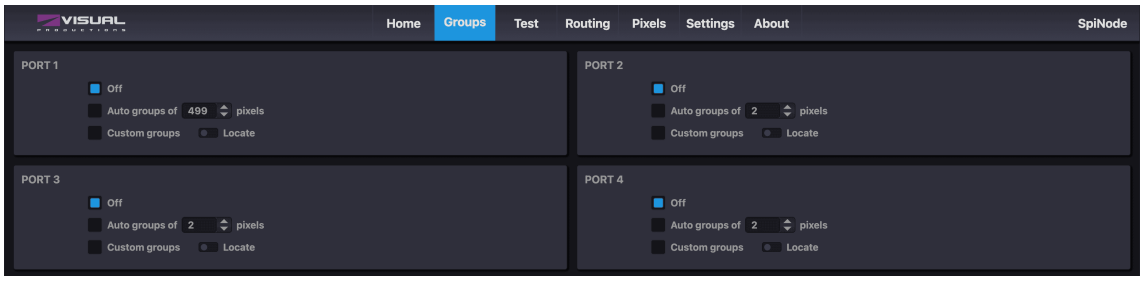


Figure 6.2: SpiNode s 'Groups' webpage.

- **Off:** This is the default mode of "groups". Each pixel is controlled by a set of channels.

Channel	1	2	3	4	5	6	7	8	9
Pixel	1			2			3		
Color	Red	Green	Blue	Red	Green	Blue	Red	Green	Blue

- **Auto Groups:** Each group will contain the amount of pixels set in the pixel setting.

Example for auto groups of 2 pixels

Channel	1	2	3	4	5	6	7	8	9
Pixel	1 and 2			3 and 4			5 and 6		
Color	Red	Green	Blue	Red	Green	Blue	Red	Green	Blue

- **Custom Groups:**You can create up to 64 groups and set the size of each of them individually.

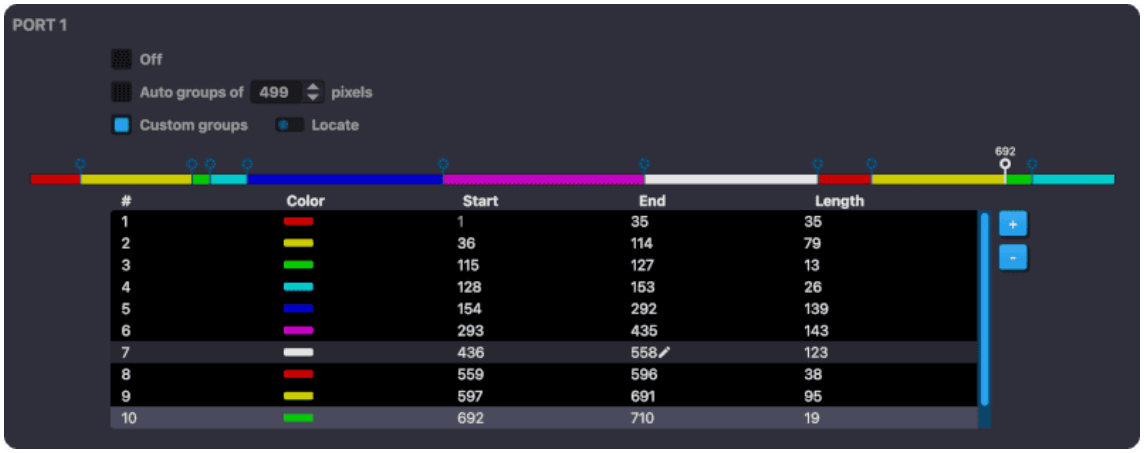


Figure 6.3: Custom Groups.

  - **Add group:** Click on the "+" button. The new group marker will be placed in the middle of the following group.

If no group is selected in the tab, then the new group will be added at the end.
You can add up to 64 groups.

- **Remove group:** Select the group you want to remove from the tab or click on the ”end of group” pin in the horizontal indicator, and press the ”-” button.
  The minimum number of groups is 1.

- **Edit group:** You can directly edit the start, end and length of each group from the tab or drag and drop the ”end of group” pin on the horizontal indicator.

  * The start of the first group cannot be edited.
  * The end of the last group cannot be edited
  * The end of a group cannot be higher than the end of the next group -1
  * A group has a minimum length of 1 pixel

- **Visualize groups:** Use the ”locate” function to get the SpiNode displaying the group colors on the assigned pixels.
  Group size modifications can be done while the ”locate” function is activated.

6.5 Test Page

The “Test” page will allow you to easily test your wiring and settings by quickly selecting one or multiple pixels.

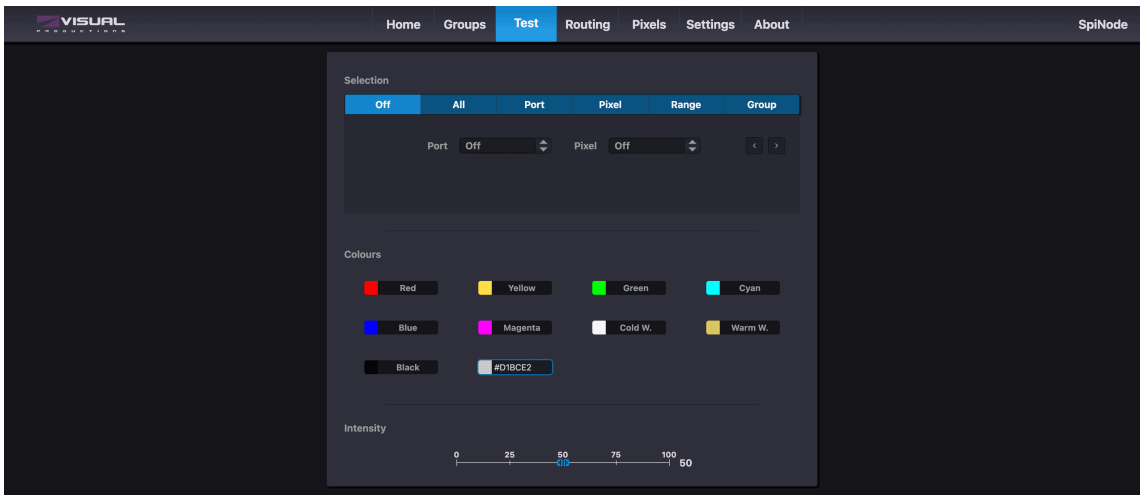


Figure 6.4: SpiNode’s ’Test’ webpage.

- **Selection:**
  - Off: Deactivate the testing mode and re-activate control from Art-Net or sACN.
  - All: Testing color will be applied to all pixels of all ports.
  - Port: Testing color will be applied to all pixels of the selected port
  - Pixels: Testing color will be applied to the specific pixel of the selected port.

- Range: Testing color will be applied to all the pixels between “start” pixel and “end” pixel (the range selection can go through multiple ports)
- Group: testing color will be applied to the selected group depending on the ”group” page settings

Hint: When using ”Port”, “Pixel”, “Range” or ”Group” selection you can use the arrow keys of your keyboard to easily browse your pixels.

- **Colors:** Select the desired color from the 8 standard colors or use the custom color to use the specific desired color
- **Intensity:** Set the desired intensity of the test color. This setting will be applied on top of the master intensity of each port (see “Pixels page” p**??**)

6.6 Routing Page

The *Routing* page is the place where you will assign a specific protocol and universe to each port of the SpiNode.

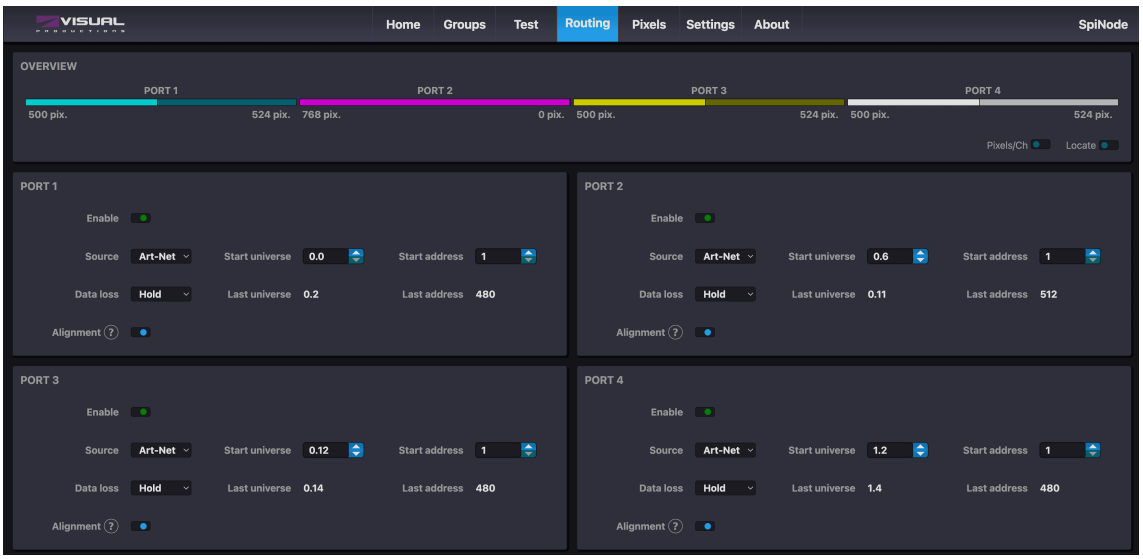


Figure 6.5: SpiNode’s ’Routing’ webpage.

- **Overview (Also available in the “Pixels” page)** Provides visual feedback about the level of use of each port. Indicating the number of pixels or channels already used and the amount still available.
  You can use the “Pixels/Ch” switch to display pixels or channel values.
  The “Locate” function will automatically set each pixel to the color associated to the port they are connected to for an easy identification.
  NOTE: The maximum output frame rate depends on the number of pixels assigned to a port. The more pixels the slower the frame rate will be.
  When a port is set with its maximum number of pixels the output frame rate will be 30fps.
  To avoid unsynchronized displays, all ports will be synced to the fps of the slowest port.

- **Ports**
  - Enable: Activate the reception of data for this port

- Source: Select the source protocol between Art-Net and sACN
- Start universe: Select the first universe you want to assign to this port
- Start address: Select the first channel used in the selected universe
- Data loss: choose behaviour of the port when the SpiNode stops receiving control data. You can choose between:
  * Black: all pixels are turned off
  * White: all colors of each pixel will go full
  * Hold: the pixels will keep displaying the last frame received
- Last universes: Depending on the start universe, address and the number and type of pixels the SpiNode will calculate and display the universe used by the latest pixel connected to the port.
- Last address: Indicates the last channel used by the last pixel connected to the port.
- Alignment: Some pixel controllers or softwares do not patch pixels/fixtures over 2 different universes. When "alignment" is activated the SpiNode assumes that no pixels are patched across 2 universes. In this mode the maximum number of RGB pixels per port is limited to 1020.
  When deactivated, all channels of each universe will be used.

Alignment activated:

Universe	1					2			
Channel	508	509	510	511	512	01	02	03	04
Pixel	170			/	/	2			3
Color	Red	Green	Blue	/	/	Red	Green	Blue	Red

Alignment deactivated:

Universe	1					2			
Channel	508	509	510	511	512	01	02	03	04
Pixel	170			171			1		
Color	Red	Green	Blue	Red	Green	Blue	Red	Green	Blue

- - Warning

Figure 6.6: Routing page warning

The SpiNode can receive up to 6 universes per port. However, if you patch the maximum number of pixels on one port and do not use 1 as a start address, you will need to receive 7 different universes.
In this case an error message will appear indicating that you exceed the limit of 6 universes.

6.7 Pixels Page

The *Pixels* page allows you to select for each port the pixel protocol you want to use and various color settings.

Figure 6.7: SpiNode's 'pixels' webpage.

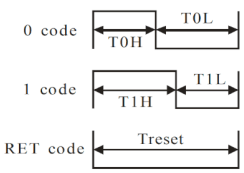
- **Overview (Also available in the "Routing" page)** Check the "Routing page" informations on page **??**.
- **Ports**
  - Chip: Select the type of pixel protocol you want to use for each specific port.
    See Appendix A for the list of available pixel protocols.
    If the pixel protocol you need is not in the list you can use the "Custom" input and directly type the protocol timings from the manufacturer data sheet in the opening pop up window.

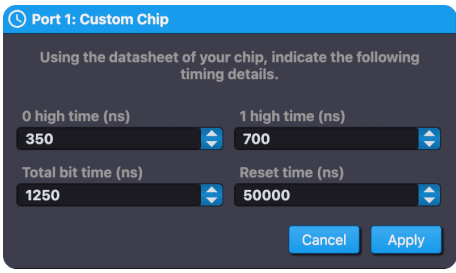
    Example for WS2812 timings:

Data transfer time(TH+TL=1.25µs±600ns)

T0H	0 code ,high voltage time	0.35us	±150ns
T1H	1 code ,high voltage time	0.7us	±150ns
T0L	0 code , low voltage time	0.8us	±150ns
T1L	1 code ,low voltage time	0.6us	±150ns
RES	low voltage time	Above 50µs	

Sequence chart:





To modify again the timing click on the "Edit" button that will appear close to the "Chip"

label.

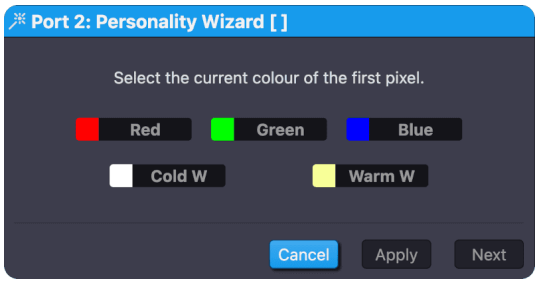
- Frequency: Depending on the pixel protocol, the transmission speed can be adjusted. Note that a higher speed can have effects on the maximum length of the connection.
- Personality: Type or use the “personality wizard” to indicate the order of the colors in the pixel connected to the port.

Available colours are:

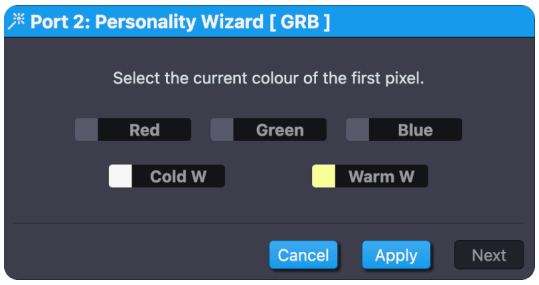
Red	Green	Blue	Cold White	Warm White
R	G	B	C	W

Example:
If the order is Green, then Red, then Blue type GRB
If the order is Red, then Green, then Blue, then Cold White type RGBC

- Personality wizard: This tool will help you know what the color order of your pixel is. Open it by clicking on the Magic wand button close to the personality input.



Once open, the wizard will turn on the first color of your first pixel. Select the currently displayed color and press next.



Repeat until, the first color of the second pixel turns on. Then click “Apply”, to apply the corresponding color order and close the wizard.

- No. of pixels: type in the number of pixels connected to the specific port. The maximum number of pixel depends on the number of colors in the pixels.

Number of colors	1	2	3	4	5
Max. number of pixels	1024	1024	1024	768	614

- Master: Set the maximum intensity that will be applied to all pixels connected to the port.
- Maximum: Set the value used as maximum for each color.
- Gamma: Set the gamma correction for each color.

  Gamma correction extends the use of the lower values of the intensity dynamic range, improving the visibility of intensity variations for the human eye.

Recommended value is between 1 and 2.

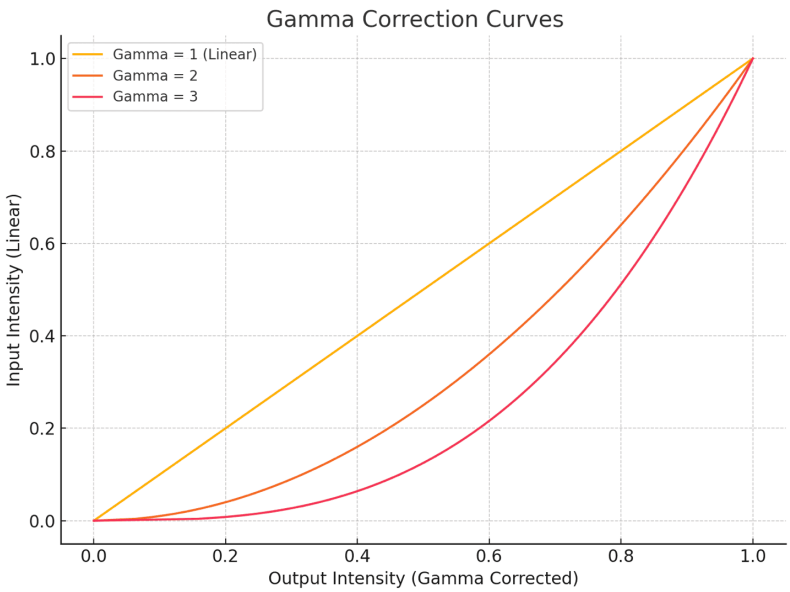


Figure 6.8: Gamma correction

Note: Using the "Master", "Maximum" and "Gamma" settings will reduce the dynamic range of intensity, potentially making intensity fading less smooth.

- Graph: It will help you to see in real time the effect of the Maximum and gamma correction applied to the intensity range of each color of the pixel.

6.8 Settings Page

The *Settings* page allows you to modify various parameters and behavior of the SpiNode.

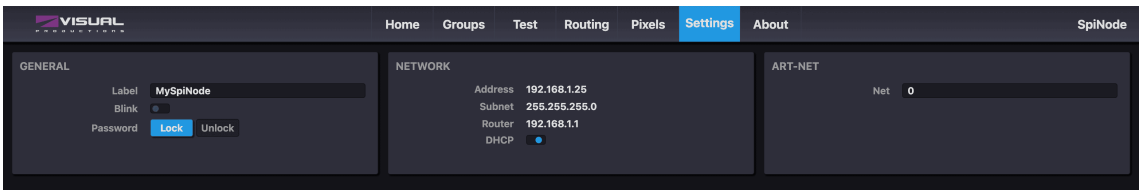


Figure 6.9: SpiNode s 'Settings' webpage.

- **General**
  - Label: Custom name you can give to your SpiNode for easy identification. The label will be displayed in the home page, in the Webpage title of the web-interface and in vManager. The length of a label is limited to 32 characters.
  - Blink: Will activate blinking on the status LED of the SpiNode for identifying the particular unit amongst multiple devices.
  - Password: You can activate or deactivate a password protection to protect the data/programming of the SpiNode. When password protection is activated it is not possible to modify any settings of the SpiNode but the pages are still accessible and visible.

To remove the password protection in case of a lost password do a long press on the “Reset” button until the status LED blinks white. This will also set the SpiNode to its default IP settings. (See the “Reset Button” section on page 16)

- **Network** Indicates the IP settings of the SpiNode: IP address, subnet mask, and router/gateway IP address.
  The SpiNode can be set in Static IP mode or in DHCP depending on the position of the DHCP switch button.
  By changing the position of the DHCP switch you will automatically change the IP address of the SpiNode and lose the connection to it.
  When going from DHCP mode to static IP mode, you will be requested to provide the new IP settings.
  If you activate the DHCP mode without a DHCP server in your local network, the SpiNode will automatically assign itself an IP address in the range 169.254.xx.xx after a timeout.

- **Art-Net** The “Net” parameter allows you to change the net number the node will be using to receive and send Art-Net messages. The “Net” can be set between 0 and 127.

6.9 About Page

The *About* page gives various information about the SpiNode itself, but also about official Visual Productions support channels, development credits and legal protection.

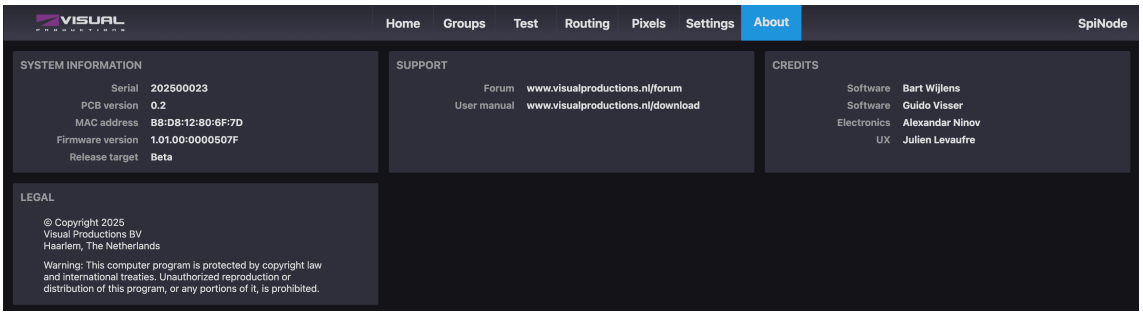


Figure 6.10: About page

Chapter 7

vManager

A free-of-charge software tool called vManager has been developed to manage the devices. vManager allows for:

- Label your device with a distinguishable name
- Configure the IP address, subnet mask, router and DHCP
- Backup and restore the device's data and settings
- Perform firmware upgrades
- Identify a specific device (in a multi device set-up) by blinking its LED
- Revert to factory defaults

Figure 7.1: vManager

The following section explain the buttons in the vManager, as seen in figure **??**.

7.1 Backup

Backups of all the programming data inside the device can be made. This backup file (an XML) is saved on the computer's hard-disk and can be easily transferred via e-mail or USB stick. The data of the backup can be restored via the *Restore* button.

Figure 7.2: Creating a backup

Apps distributed by app stores are not allowed to access files outside their designated location. It is important to know where vManager is storing its files, in case you wish to transfer a backup file to a memory stick or dropbox.

«««< .mine The designated file location differs per operating system and is likely to be a long and obscure path. For this reason, vManager provides you with a shortcut to the correct file location. A *Folder* button can be found in the file related dialogs. Clicking this button will open a file browser at the appropriate folder. ||||||| .r20831 The designated file location differs per operating system and is likely to be a long and obscure path. For this reason, vManager provides you with a shortcut to the correct file location. A *Folder* button can be found in the file related dialogs.

Clicking this button will open a file browser at appropriate folder. ======= This file location differs per operating system and can be a long and obscure path. For this reason, vManager provides you with a shortcut to the correct file location. A *Folder* button can be found in the file related dialogs. Clicking this button will open a file browser at the appropriate folder. »»»> .r21043

7.2 Upgrade Firmware

To upgrade the firmware, first select the device and press the *Upgrade* button. The dialogue allows for selecting from the list of firmware versions available.

Figure 7.3: Firmware upgrade

Warning: Make sure the power to the device is not interrupted during the upgrade process.

7.3 Set Date & Time

The computer's date and time can be quickly copied to the unit by selecting a device and clicking the *Set Date & Time* button. Not all Visual Productions devices feature an internal real-time clock. The SpiNode does not have such an RTC.

7.4 Blink

The device's LED can be set to *Blink* fast for identifying the particular unit amongst multiple devices. The blinking is enabled by double-clicking on a device in the Devices list or by selecting a device and then clicking the Blink button.

7.5 Factory Defaults

All the user data, like cues, tracks and actions are stored in the on-board memory. They will be completely erased and all settings reverted to their defaults by pressing the *Factory Defaults* button. This action does not affect the device's IP settings.

7.6 Reboot

The *Reboot* button allows you to remotely restart the device. This is useful for testing the unit's behaviour after a power-cycle.

7.7 Installing vManager

The vManager app is available on the most common range of operating systems.

The software is distributed through app-stores to make receiving future software updates automatically very easy.

7.7.1 Windows

Visit the Microsoft store at `https://www.microsoft.com/en-us/p/vmanager/9nblggh4s758`.

Windows 10 is required.

7.7.2 macOS

Visit the Apple macOS app store at `https://apps.apple.com/us/app/vmanager/id1074004019`.

macOS 11.3 is recommended.

7.7.3 Ubuntu

You can acquire the vManager from Snapcraft at `https://snapcraft.io/vmanager`.

Alternatively, it can be installed by using the command-line:

```
snap find vmanager
snap install vmanager
```

To update the apps later on via the command-line type:

```
snap refresh vmanager
```

Ubuntu 22.04 LTS is recommended. The software is only available for the amd64 architecture.

Appendices

Appendix A

Supported SPI Chipsets

This appendix lists the SPI pixel protocols currently supported by the SpiNode. Protocol availability may change with firmware updates.

Protocol	Clocked	Frequencies
APA102	✓	400 KHz 800 KHz 1 MHz
APA107	✓	400 KHz 800 KHz 1 MHz
SC6803	✓	400 KHz 800 KHz 1 MHz
GS8304D		Default
HD107S	✓	400 KHz 800 KHz 1 MHz
HD108	✓	400 KHz 800 KHz 1 MHz
LC8823	✓	400 KHz 800 KHz 1 MHz
NS108	✓	400 KHz 800 KHz 1 MHz
SK6812		Default
SK6813		Default
SK9822	✓	400 KHz 800 KHz 1 MHz
SK9826	✓	400 KHz 800 KHz 1 MHz
TM1804		400 KHz 800 KHz
TM1809		555 KHz 1100 KHz
TM1812		Default
TM1824		Default
TM1834		Default
TM1903		Default
UCS1903		400 KHz 800 KHz
UCS2903		Default
UCS2904		Default
UCS8903		Default
UCS8904		Default
UCS9812		Default
WS2801	✓	400 KHz 800 KHz 1 MHz
WS2803	✓	400 KHz 800 KHz 1 MHz
WS2811		400 KHz 800 KHz
WS2812		Default
WS2813		Default
WS2814		Default
WS2815		Default

Appendix B

Certifications

This appendix contains the declarations of conformity and regulatory certifications applicable to the SpiNode.

EU Declaration of Conformity

We, **Visual Productions BV**, as the manufacturer, hereby declare under our sole responsibility that the following device:

Product Name: SpiNode
Product Type: Lighting Controller

complies with the requirements of the following directives and standards:

Applicable Directives:
- 2014/30/EU – Electromagnetic Compatibility (EMC)
- 2011/65/EU (as amended by 2015/863) – Restriction of Hazardous Substances (RoHS)

Applied Harmonised Standards:
- EN 61000-6-1:2019 – Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial, and light-industrial environments
- EN 63000:2018 – Technical documentation for the assessment of electrical and electronic products concerning the restriction of hazardous substances

This declaration is issued under the sole responsibility of the manufacturer, confirming that the object of the declaration complies with the relevant Union harmonisation legislation.

Authorised Representative:
Full name and identification of the person responsible for product quality and compliance with standards on behalf of the manufacturer:

Date: March 28, 2025
Place: Haarlem, The Netherlands

Ing. Maarten Engels
Managing Director
Visual Productions BV

VISUAL PRODUCTIONS BV
IZAAK ENSCHEDEWEG 38A
NL-2031 CR HAARLEM
THE NETHERLANDS
TEL +31 (0)23 551 20 30
WWW.VISUALPRODUCTIONS.NL
INFO@VISUALPRODUCTIONS.NL
ABN-AMRO BANK 53.22.22.261
BIC ABNANL2A
IBAN NL18ABNA0532222261
VAT NL851328477B01
COC 54497795