

# **MaNima Interface**

#### The State of the Art LED Interface



# MaNima Ignis Manual V1.2

#### Industrial Applications

The MaNima Ignis is designed with industrial applications in mind. And that is why it is stable and reliable.

#### Segments

The MaNima Ignis is able to create segments of LEDs without the use of an lighting controller. These segments can then be edited and controlled individually.

#### External inputs

Scenes can be started via external inputs. These are digital inputs or analogue inputs; 4-20mA or 0-10V.

#### Custom API

A custom API makes it possible to let all systems communicate with the MaNima Ignis.

#### UDP commands

UDP commands can be sent to the MaNima Ignis to let it perform certain actions.

#### Synchronization

Multiple MaNima LED Interfaces can synchronize when playing scenes through a master and slave setup.

#### System Integration

The MaNima Ignis can be integrated into existing systems with the use of INP, UDP commands and Custom APIs.

#### Easy-to-use GUI

The settings of the MaNima Ignis can easily be changed by a user via the MaNima Configurator.

#### Multiple protocols at once

Due to the available multiple ports, there is also the possibility of sending different protocols over different ports.



MaNima Technologies Hastelweg 260B 5652CN Eindhoven



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### Foreword

First of all, thank you for using the MaNima Ignis Industrial LED Interface!

The MaNima Ignis is a very powerful and reliable product made specifically for Industrial applications.

This manual has been made for the MaNima Ignis Industrial LED Interface. It is important that anyone, who has to work with the MaNima Ignis Industrial LED Interface, has read this manual.

MaNima Technologies





# **Safety Instructions**

To make sure the product is properly handled, these precautions and safety instructions must be followed:

- Read the entire manual before installing the MaNima Ignis.
- These instructions should be handed out to the technicians/end-users responsible for installing and/or operating this product.
- The installations of this product should only be carried out by certified personal.
- Do not repair this device. Any unapproved modifications or reparations conducted by anyone other than MaNima Technologies B.V., will void product warranty.
- Do not connect the wiring to this product in any other manner than described in this manual.
- Never use this product when it is damaged, has visible damage, does not work correctly or when the product shows any other questionable behaviour that is out of the ordinary with electrical devices.
- Make sure the power source has no short-circuit.
- Make sure the input voltage is between 12-48VDC when power is turned on. Higher voltages might damage the product.
- Do not use more than one power source for the MaNima Ignis.
- To turn-off the MaNima Ignis, it must be disconnected from the power source.
- The MaNima Ignis must be protected against wet environments. Any moist will damage the product.





# **Technical Specifications**

Weight	360 Gr
Dimensions	90 x 159 x 58 mm
Mounting	Din rail
IP class	IP10
Wiring	Max. 2.5mm2   14 AWG
Connectors	Power: 12-48 VDC terminal connector, Ethernet terminal connector:RJ45 bus, IO port 5- input/ Output terminal connector, analogue 6-pin terminal connector, +1- volt terminal connector.
Input voltage	12-48V DC 200mA max
Max. power consumption	9.6W
Channels	13.312 SPI channels and/or up to 1024 DMX channels
Ethernet	RJ45 compatible, for 10/100 Base-TX Ethernet with Static IP address or DHCP
Input	DMX512 (2 Inputs)  MaNima Configurator   5 Digital Inputs   6 Analogue Inputs   UDP commands   Custom API
Output	47+ SPI protocols (supported ICs list)   DMX512 (2 outputs)   SPI (6 outputs)
Directives	CE, RoHs
Operating temperature	10°C ~ 60°C
Storage temperature	10°C ~ 60°C
Warranty	5 Years
Gui	MaNima Configurator





# The MaNima Configurator

In this chapter there will be everything you need to know about The MaNima Configurator.

#### The MaNima Configurator

The MC (MaNima Configurator) is the program used by the operator to configure the MaNima Ignis. The MC must be installed on a computer on the same network where the MaNima Ignis is connected. To work with the MC it is recommended to first install and connect the MaNima Ignis to the network, since most (if not all) options won't be available without a connection between the computer and the MaNima Ignis.





# The MaNima Configurator - Opening the MC

The MC is opened by adding the "GUI" file to the computer. In this file the user will find all of the files needed to use this program. You can place the "GUI" in any file, but for this manual, the file will be placed in the desktop.

The computer on which the MC will be installed on, needs the newest version of Java. Java can be downloaded on: https://www.java.com/en/

- Open the file with the left mouse button and double click on "ManimaSetupTool" (Highlighted blue on the image below)



 To open the MC directly from your desktop, you can create a shortcut using the right mouse button on the "ManimaSetupTool" file. The "ManimaSetupTool" can't be placed outside the file, if done so, the MC will have an error.





# The MaNima Configurator- The UI (User Interface)

On the left side of The MC window there are multiple tabs which are used to configure the MaNima Ignis. A short explanation is given to each tab below:







### **The MaNima Configurator-Scanner**

The Scanner is the tab used to search for different MaNima LED Interfaces. Follow the instructions below to configure your own device.

Make sure your computer and MaNima Ignis are connected to the same Ethernet/Wi-Fi network! The Interface should be in the scanner no matter what IP-adress it has.

Scai	nner				Currently editin	ng: ManimaInt	erface (	192.168.1.1	85)
	Device name		IP Address	МАС	Version	Software V	ersion	Identify	
	ManimaInterface	е	192.168.1.18	5 70:B3:D5:DD:90:30	Magnus 8	V 2.0.7	,		
ManimaInterface 192.168.1.13		6 70:B3:D5:DD:90:22	Magnus 8	V 2.0.	7	0			
	The IP-Address is the device. Using this ac which device is whic <u>have the same IP!</u>		e number given to a Idress the user will know h.! <u>Multiple devices can</u>	This shows the ver license in the MaN	rsion of the used lima Ignis.	<i>If identify is switched on you can see which LED is controlled by that device.</i>			
Devic devic devic devic	Device name is the name given to a device. The user will know which device is which. You can change the device name in the "settings" Tab.		The MAC address is the r MaNima Ignis by the ma addresses are, unlike IP c identical to each other.	name given to the nufacturer. MAC addresses, never	This shows the s version of the co MaNima Ignis.	oftware nnected	This shows wh device is curre being edited.	hich ently	

**To connect to The MaNima Ignis, Left click on the Interface.** If the connection is successful, there should be "Currently editing: (IP-address)" instead of "Currently editing: None".

#### **Failure to Connect**

If the MC is unable to find the MaNima Ignis, there are multiple things that may have gone wrong. So, make sure the following are correct:

- 1. The Connected MaNima Ignis is connected to the same network as the computer.
- 2. The network has a DHCP.
- 3. The IP-address is in the IP-address range of The MC.
- 4. The MaNima Ignis is powered or has the correct voltage.





#### **Error Warning**

The error warning is shown when the Interface has encountered a problem. In the example given here, the Interface has encountered a problem where there are to many universes in a port. This can be fixed by lowering the FPS in the live playing software.

		– 🗆 X
Currently editing	g: New Wand (19	2.168.0.106)
Version	Software Version	Identify
INTERNAL ONLY	V 2.0.8	-
INTERNAL ONLY	V 2.0.8	-
INTERNAL ONLY	V 2.0.8	-
TATEDNAL ONLY	¥244	~

When such an error occurs, but it isn't noticeable in real life, you can press 'clear errors' and keep the program playing.

When the errors are noticeable in real life, follow the instructions in the 'Error window'.

192.168.0.201	70:B3:D5:DD:90:1C	INTERNAL ONLY	
192.168.0.10	Errors	LY	
192.168.0.20	- time: 76710983 message: Coul - time: 76728929 message: Coul - time: 76788952 message: Coul	d not transmit d d not transmit d d not transmit d	
192.168.0.20	- time: 76872985 message: Coul	d not transmit d > >	
192.168.0.10		Ok Clear errors	
192.168.0.106	70:B3:D5:DD:90:14	INTERNAL ONLY	





# **The MaNima Configurator - Network Configurator**

The Network tab is used to edit the IP-address of the device. The IP-address can be edited manually by disabling the DHCP, or automatically by enabling the DHCP.







# The MaNima Configurator – Port Configurator

The Mapping tab is used to configure the SPI-output ports on the MaNima Ignis.



#### Multiple protocols at once

Due to the multiple available ports, there is also the possibility of sending different protocols over different ports. This is done by selecting a different protocol for each port.

#### **Colour sequence**

You have the possibility to change the colour sequence of the protocols.

#### **SD-Card**

The SD-Card saves all the mapping configurations. When there is no SD-Card, the MaNima Ignis cannot be configurated.

| WS2812 - |
|----------|----------|----------|----------|----------|----------|
| R-G-B ▼  | R-G-B ▼  | R-G-B 💌  | R-G-B 💌  | R-G-B 💌  | R-G-B ▼  |





# The MaNima Configurator – DMX Input / Output

The DMX tab is used to configure the MaNima Ignis between three different DMX-modes. These modes are:

Disabled: The Interface will not be or be affected by different Interfaces and will operate by itself.

Master: Master mode will enable the output of the DMX connections. This has to be enabled to send DMX protocols to devices.

Slave: This mode will enable the DMX input channels on the Interface. Using this, the interface can be commanded with DMX.

#### Master Mode:

The master mode sets the DMX port as an output to be connected to other devices.



Slave Mode:







### **The MaNima Configurator - Segments**

Segments can be used to define certain channels as a segment. These segments can then be given a variety of effects. These segments can be set to activate immediately after the MaNima Ignis starts, and play until the MaNima Igniis turned off. Or they can be activated by UDP commands.

A total of 26 universes (13312 SPI channels or 4437 RGB channels) of segments can be added.

The segments are individually displayed in the segment tab.

The ID is the number given to each segment and can be edited by pressing 'edit segment ID'. The ID is important for the UDP command.

ID	Port	Start LED	Lenght	Current Effect	Default Effect	Actions
0	1	1	15	Effect name: Color Parameters: Red : 200 Green : 200 Blue : 200 White : 200	Effect name: Color Parameters: Red : 200 Green : 200 Blue : 200 White : 200	set effect edit segment remove segment edit segment ID
1	1	16	15	Effect name: Color Parameters: Red : 200 Green : 0 Blue : 0 White : 0	Effect name: Color Parameters: Red : 200 Green : 0 Blue : 0 White : 0	Set effect edit segment remove segment edit segment ID
L						~
						Create new segment

'Port' is the port on which the segment is connected to.

'Start LED' is the first LED in the segment, keep in mind the direction of the data.

'Length' is the total amount of LEDs in the segment including the 'Start LED'.

'Current effect' is the effect that is currently being played.

'Default Effect' is the effect which has been given to the segment, the first time it was created.

'Actions' are buttons that will let you edit the segment after it was created.

To control segments with UDP commands, read the API documentation on the MaNima website: <u>Technical support | Manima Technologies (manima-technologies.com)</u>





# The MaNima Configurator - Groups

#### Group configuration

Use a group to make several interfaces work together. This is used when using synchronised recording and synchronised playback.

To add MaNima Interfaces in a group, make sure you have connected the MaNima Interfaces into the same network. Open the Wiring Diagram PDF-file on the MaNima site and go to 'Cascade Interfaces diagram' for more information.

Link: Technical support | Manima Technologies (manima-technologies.com).

If you want to work with multiple interfaces at the same time, you can do this via the "Group" tab. In the box " Group Number " you fill in the number at the devices you want to use together. Also enter the number you entered in the other device that you want to use together.

Group		Currently editing: ManimaInterface (19	2.168.1.185
Use a grou	ip to make	several interfaces work together. This is used when using synchronized recording and synchronized playback.	
Interfaces	in group 0	0	Identify group
IP Ac	ldress	Name	GroupNumber
192.16	8.1.185	ManimaInterface	0
192.16	8.1.186	ManimaInterface	0
		Set a group here. Only gro Interfaces are able to see other	ouped each

#### Synchronized master-slave groups

If you want multiple groups of master-slave setups, and don't want to interfere with other groups of Interfaces when using synchronised recording or playing, use the 'group' function. When a certain set of Interfaces is set under a certain group, a synchronised recording won't allow for other Interfaces (outside the group) to be recording.





# The MaNima Configurator – Analog/digital Inputs/Outputs

#### Scenes can be started via external inputs. There are digital or analogue inputs; 4-20mA or 0-10V.

The Digital and Analog inputs can be configurated with the inputs tab.

#### **Digital Inputs:**

To set the Digital Inputs, follow the steps below:

- 1. Set the Digital inputs mode to 'Enabled'.
- 2. Press 'Add channel' on the bottom of the screen.
- Set the channel to the corresponding connector. (see chapter 'Installation and wiring - port descriptions')
- 4. Select the action you want to happen when the input is triggered.
- 5. Done.

Mode		Enabled	•		
			Functions:		
Ch _	1	Player 1 start	-	Ŵ	
Ch _	2	Player 1 stop	-	Ŵ	
Ch _	3	Player 2 start	-	Ŵ	
Ch	4	Player 2 stop	-	圃	
			Add chan	nel	





#### **Analog Inputs**

There are three different modes for the Analog Inputs. These are:

**Disabled:** This disables the Analog Inputs. Set this mode to disabled when not using the analog inputs.

**Functions:** With functions, you can set the required input signal to a voltage signal or a current signal for the required channel.

Channels can be added at the bottom of the screen by pressing 'Add channel'.

The channels can be configurated by changing the number. The action of the channel can be changed by pressing the arrow, which will show a dropdown menu with all the possible actions.

Analog	Inputs				
Mode	Functions	-			
Channel 1	0 - 10V	*			
Channel 2	0 - 10V	•			
Channel 3	0 - 10V	•			
Channel 4	0 - 10V	-			
Channel 5	0 - 10V	-			
Channel 6	0 - 10V	-			
		Functions:			
Ch 1	Player 1 start	-	Ŵ		
Ch 2	Player 1 stop	-	圃		
Ch 3	Player 2 start	-	圃		
Ch 4	Player 2 stop	•	圃		
		Add channe	-		

#### **LED Data:**

When mode 'LED data' is selected, the analog inputs will be coupled with a universe. When this has happened, you can control digital LEDs with the SPI or DMX ports (depending on the configurations of the universe)

Every input correspondents with one channel. This means that 6 channels or 2 RGB LEDs can be controlled with all the Analog Inputs together.

The amount of light depends on the amount of volt or ampere, with 0V being 0% light (0/255) and 7V being 70% (179/255) light.

#### Analog Inputs

Mode	LED data	•
Channel 1	0 - 10V	•
Channel 2	0 - 10V	•
Channel 3	0 - 10V	*
Channel 4	0 - 10V	*
Channel 5	0 - 10V	•
Channel 6	0 - 10V	•
Universe	5	
Offset	0	





# The MaNima Configurator - Update

Because MaNima Technologies B.V. is constantly improving their products, there is an update tab available which allows the user to update the software version of the Interface without needing access to the physical Interface. This is only possible if there is an ethernet connection to the Interface.

#### Step by step:

- 1. Download the latest (or required) update from the MaNima website: <u>http://manima-technologies.com/software</u>.
- 2. Select the downloaded file by pressing the 'Select file' button.
- 3. Make sure the correct file is selected, then press 'Start update'.

Update	Currently editing: ManimaInterface (192.168.1.185)
To update the firmware from http://manim	firmware of the interface, please download the latest our website: a-technologies.com/software
Current firmwa Licence: Magnu	are version: V 2.0.7 JS 8
Update	Select file
	Start update

When encountering problems during your use of the MaNima Interface, make sure the latest update of the software is downloaded on the MaNima Interface. Also make sure the latest version of the MaNima Configurator is installed.

Make sure that the downloaded update file has the correct license. A standalone14u update file can't be used on a standalone 8u file.





# **Installation & Wiring**

In this chapter there will be a description about every available port on the MaNima Ignis.

For additional wiring diagrams, visit the MaNima website  $\rightarrow$  support and download the wiring diagrams.





# **Installation & Wiring - Port Descriptions**

#### Descriptions of ports from top left to bottom right:



**12/48V Input:** Connect 12/48 Volts to this connector to power the MaNima Ignis.

**Digital Inputs:** Digital Inputs are inputs used to control the MaNima Ignis with voltages between +3,3V and +12V. Inputs can be configured using the 'Inputs' tab.

**SPI-ports (1-6):** These ports are used as outputs for the Data (D) Ground (G) and the Clock (C). Every port has a D, G and a C output. These ports make sure the LEDs will receive the Digital Signal.

**SD-Slot:** An SD card can be placed inside this slot. All scenes are recorded and saved here.

**LAN/Ethernet:** To connect to a network, a LAN or Ethernet cable must be connected to the MaNima Ignis, using this port.

**Analog Inputs:** These inputs are used as Analog Channels. The +10V is used for these connections (It can also be used for the Digital inputs).

**DMX 1-2:** These ports are used for devices that need DMX signals.





# **Installation & Wiring – SPI-Ports**

There are six SPI-ports on the MaNima Ignis. These ports are used as outputs for the Data (D) Ground (G) and the Clock (C). Every port has a D, G and a C output. These ports make sure the LEDs will receive the Digital Signal. If the device is using an SPI-protocol, these connectors should be used. These ports should be directly and correctly connected to the device. If there are any mistakes made, the MaNima Interface could be damaged.

Notice that ports 5-6 are different from ports 1-4. This is because the ports 5 and 6 have no Grounds in between the Clock and Data. The Ground of 5 and 6 is marked on the previous chapter with a G. Keep this in mind while connecting the ports.





# Installation & Wiring – DMX-Ports

There are two different DMX-ports on the MaNima Ignis.

Each DMX port has three different connections:

-GND: Ground

-D+: Data +

-D-: Data –



DMX connections should only be used for devices that can receive the DMX-protocol.





# Installation & Wiring – Setting Digital/Analog Inputs

#### **Digital Inputs**

Digital Inputs are used to trigger certain actions. These actions are defined in The MC (See MC Inputs).

These Digital inputs need the same positive voltage from the same power supply as the MaNima Interface. Or you can use the +10V from the Analog Input side, which is recommended.

There are five Digital inputs, all of which are configurable in The MC.



#### **Analog Inputs**

The Analog Inputs can (just like the Digital Inputs) perform certain actions when triggered. These actions are defined in the MC. There is a total of six Analog Inputs, all of which are accessible through the MC

The Analog Inputs are activated by a voltage of 0 - +10V or by a current of 0-20 mA. Make sure to define this in the MC. The +10V can be used as a supply of +10V for the analog or digital inputs, this is also recommended.







# Installation & Wiring – Reset & Indications

In this chapter, there will be an explanation about the various buttons and indications that are present on the PCB of the IF. To access most indications and buttons, remove the top from the casing of the IF. ONLY OPEN THE MANIMA IGNIS INDUSTRIAL LED INTERFACE WHEN YOU HAVE BEEN GRANTED PERMISSION BY MANIMA TECHNOLOGIES B.V.



#### Reset:

To restart the IF, press the RESET button once for <1 sec. Only use when restarting from the MC is not possible.

#### **Factory Reset:**

To perform a Factory Reset of the IF. Hold the reset button down for 20 sec, until all LEDs on the right side of the RESET button are turned on.

The factory reset will return all settings (except the licence, MAC-address and recorded scenes) back to the original settings. Only use when a factory reset from the MC is not possible.



Error LED:

The Error LED is the 1<sup>st</sup> LED of the row of indication LEDs. The LED is turned off when the IF is functioning normally This LED is red (or starts flashing red) when the frame rate will be too high, or when the amount of data is too much for the IF to handle.

#### HB LED:

The HB (HeartBeat) LED is the 4<sup>th</sup> LED. If the HB LED is slowly blinking (like a heartbeat), the IF is healthy. If the HB doesn't blink, perform a factory reset.

Power LEDs:



The four LEDs next to the power supply, indicate if the IF is turned on. All four LEDs must be green if the IF is powered.





# **UDP Commands and Custom APIs**

With the open API of the MaNima Technologies products the product will be even more flexible than it already was. With the use of human readable JSON-RPC strings, packed in UDP packages the API is easy to implement on every system that can send packages over a network.

For more information about the use of UDP commands and Custom APIs, go to the MaNima Website  $\rightarrow$  Support and download the PDF-file 'API'. Or press on the link below:

Technical support | Manima Technologies (manima-technologies.com)





# **List of Supported ICs**

In the list below you can find every supported IC.

APA102, APA102_8bit, APA104, APA106, HD107S
B\$0901
D30301
CX808
DM412
GW6205_400kHz, GW6205_800kHz, GS8208
INK1003
LD1510. LPD6803
MBI6024, MB16120, MY9221, MY9231, MY9291
PC5X5301V0500
SK6812, SK6812RGBW, SK6822, SK8922
SM16703, SM16716, SM16726
TM1803, TM1804_400kHz, TM1804_800kHz, TM1809, TM1812, TM1814, TM1914A
UCS1903_400kHz, UCS1903_800kHz, UCS1904, UCS2903, UCS2904, UCS2912, UCS512B3, UCS5603A, UCS8904, UCS9812
WF\$9412, WF\$943

WS2803, WS2811\_400kHZ, WS2811\_800kHz, WS2812, WS2812B, WS2812S, WS2813, WS2818





# **MaNima Interface Models**

	dets 2 1/28/11/2 1/2 20/11/4				
	NO.	Nonin -	Alanin M	13 MIL	NSNIII.
Functions					
SPI outputs	~	~	×	×	
DMX	~	$\checkmark$	X	X	
SPI recording and playing	$\checkmark$	×	×	X	
Segments	×	$\checkmark$	×	X	
Digital Triggers	~	$\checkmark$	X	$\checkmark$	
Analog Triggers	~	~	×	$\checkmark$	
Sensor Inputs	×	X	×	$\checkmark$	5
PWM output	×	×	×	$\checkmark$	
Wi-Fi**	~	~	~	~	
DALI	×	X	~	×	
Ethernet	~	$\checkmark$	~	$\checkmark$	
Art-Net / sACN	~	×	$\checkmark$	×	
UDP	~	~	~	×	
Custom API	X	~	~	×	
MaNima Cloud	×	X	~	X	
Redundant setup	×	X	×	~	

\*The amount of universes depend on the licence

\*\*When yellow; WiFi is available with an additional module





# Overview

#### MaNima Ignis

#### Overview







### **MaNima Network Overview**



**MaNima Magnus Interface:** The MaNima Magnus Architectural LED Interface is a professional LED controller with an industrial design made for operating digital LED installations. The Interface is also able to control multiple protocols at once.

**MaNima Ignis Interface:** The MaNima Ignis Industrial Interface is a LED Interface designed for the Industrial market. The MaNima Ignis is a stable and reliable platform that is used in the process industry for operating LEDs. The MaNima Ignis can communicate with existing systems.

**MaNima Nexus Module:** The MaNima Nexus is a module used for connecting advanced and complex systems to a network of MaNima products.

**MaNima Pollux Module:** The MaNima Pollux is an Industrial PWM and LED Monitoring Module made for the professional market. The MaNima Pollux must be combined with a MaNima Ignis/Magnus in order to function. The MaNima Pollux is a versatile device which can fulfil many different tasks. The MaNima Pollux had been designed to be reliable, stable and fail-safe.





# YouTube Tutorials

#### YouTube Tutorial links:

MaNima Tutorial 1 Connecting the Interface - YouTube

- MaNima Tutorial 2 Mapping and Recording digital LEDs YouTube
- MaNima Tutorial 3 Synchronized recording and playing YouTube
- MaNima Tutorial 4 DMX Functions YouTube

MaNima Tutorial 5 Digital Triggers - YouTube

MaNima Tutorial 6 Analog Triggers - YouTube

MaNima Tutorial 7 Loop Functions - YouTube

MaNima Tutorial 8 Updating with Ethernet - YouTube

MaNima Tutorial 9 Using Segments - YouTube





# **Contact Info**

#### MaNima Technologies B.V.

#### Address:

Hastelweg 260-B 5652 CN, Eindhoven Netherlands

#### Contact:

E: info@manima-technologies.com W: www.manima-technologies.com T: 040 202 49 04

Dutch chamber of Commerce registration number/KvK-nummer: 71614605

#### YouTube

Link: MaNima Technologies - YouTube

