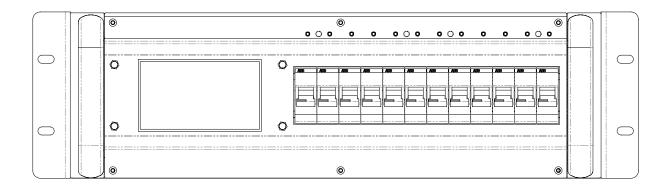
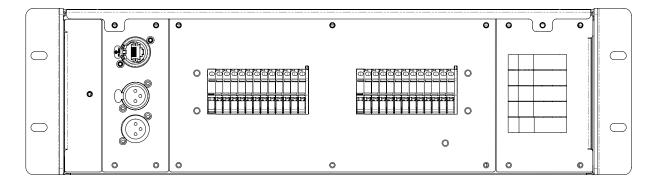


Omega Mk2





USER MANUAL



Company NA 9 Lambertu str.

Marupe, LV-2167, Latvia Phone: +371 67801111 Fax.: +371 67556505

e-mail: na@na.lv

www.na.lv

BEFORE YOU BEGIN

What's included

- ► 1 x OMEGA Mk2 dimmer unit
- ▶ 1 x Warranty Card
- ▶ 1 x User Manual

Unpacking

After receiving a package, carefully unpack the it, check the contents to ensure that all parts are present, and have been received in good condition. Notify the shipper immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton it self shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Power

Before powering on the unit, make sure the line voltage you are applying is within the range of accepted voltages. This fixture will accommodate 3 phase 230V AC power connected in phased bases L1+L2+L3+N+E. Fixture must be powered directly off a switched circuit and can not run off a rheostat (variable resistor) or dimmer circuit, even if the rheostat or dimmer channel is used solely for a 0% to 100% switch.

Safety instructions

- Please keep this user manual for future consultation. If you sell the unit to another user, be sure that they also receive this user manual
- Always make sure that you are connecting to the proper voltage.
- Make sure there are no flammable materials close to the unit while operating.
- Maximum ambient temperature (Ta) is (+40°C). Its not recommended to operate device at temperature higher than maximum ambient.
- In the event of a serious operating problem, stop using the unit immediately. Never try to repair the unit by yourself. Repairs carried out by unskilled people can lead to damage or malfunction. Please contact the nearest authorized technical assistance center. Always use the same type spare parts.
- Always make sure the power cable isn't crimped or damaged.
- Never disconnect the power cord, pulling the wire.

There are no user serviceable parts inside the unit. Do not open the housing or attempt any repairs yourself. In the unlikely event your unit may require service, please contact "Company NA" at: +371 6780 1111.

OMEGA Mk2 dimmer system specification

Setup

Omega Mk2 dimmer is designed for installation in the 19' rack or wall mount. Dimmer can be installed on the stage as well as it can be used in touring. It is not advisable to install the system in a public place where there is no possible access to the equipment without disturbing the show. It is not advisable to place these devices close to the sound hardware.

Like any other dimmer, the Omega Mk2 emits heat, so it must permit normal air circulation on site. The maximum operating temperature for Omega is +40 ° C.

Power supply

Omega Mk2 dimmer system must have 3 phase, 5 core supply the place of installation of the following: 3 phase, 5 core phase to phase supply to the TN-S wiring system (connection scheme L1 + L2 + L3 + N + E). Connection cable size depends on the dimmer fuse size (cutting size) and it can be up to 35mm2 copper wire (see: the power cable characteristics). Neutral cable should be large enough to lead the neutral current resulting from a phase shift as a result of the dimmer is used part-intensity (typically up to 130% of the maximum possible power phase). Strongly not recommended for smaller neutral cable, as it requires a dimmer system for feeding.

Maximum fuse (switches) dimensions:

Mono frame, with or without mains isolators	125A D-type auto fuse or equivalent (which may be a fuse switch)
Double frame system without mains isolators	250A D-type auto fuse or equivalent (which may be a fuse switch)
Double frame system is equipped with mains isolators	160A D-type auto fuse or equivalent (which may be a fuse switch)

Power requirements

Wire size and load to the circuit wiring should comply with the rules. Dimmer fuse (switch) size must comply with local cable overall dimensions (16A C-curve, or the 32A C-curve). If the run size of one channel is up to 6mm2, the dimmer system is used to 16A C-curve fuse on one channel, but if the run size is 10mm2, the system is used dimmers 32A C-curve fuse for each channel.

Cooling

To provide proper cooling solution, Omega Mk2 dimmer is equipped with two-high speed internal fans, casing on the left side of unit case. Fresh air is injected through holes in the left side of case, but warm air is discharged through holes located on the right side of case.

On the fan flow-in side there are also dust filters inserted which can be removed for cleaning.

Installation

Preparation of the necessary components

Omega dimmers are shipped without any attached cables. In order to properly carry out the installation of a dimmer, prepare the details mentioned below:

- Remove the wire connecting terminals by unscrewing two screws and at the same time holding the DIN cable path. Then remove the wire connecting blocks.
- Disconnect the cable from the main arrivals cable connecting the frame (to move the cable to the fuse side of 15mm, and move horizontally on 20mm)
- If the input cable is provided for detachable cable to the plate, remove it now.

Assembly of main cable

Mains power cable attach to a cable input terminal at the rear of the hull. The main power cable assembly can be connected to a five-strand copper cable with conductor sizes up to 35mm2. To do so requires a straight blade screwdriver with a width of 4mm. Insert the screw-blade main power cable assembly and press it. Now may be removed and a screwdriver with both hands, insert the main power cable to connect the strands in the block hole. Make sure the wires are placed correctly and outside the conductor connecting clamps are not visible purified cable conductor parts.

Omega phase wires are marked by their color:

red	yellow	blue	black	green/yellow
Phase L1	Phase L2	Phase L3	neutral	earth

Starting the system

Check incoming power cords

Check that incoming wires are connected properly and securely tightened.

Check whether the wires have the correct contact sockets.

Check the short circuit between phases, neutral and earth, using a multi meter.

Check power cords

Make sure all cables are properly connected and isolated and complies with both ends of the connection.

Make sure all ground wires are connected properly.

Using a multi meter check short circuit between phases, neutral and earth.

114	1 1 0	1 1 0	1 4	Fordersking
Level 1 Configuration	Level 2	Level 3	Level 4	Explanation Chaose out of the 3 possible data processing protocols
Comiguration	Data Source	Art-Net		Choose out of the 3 possible data processing protocols. Art-Net protocol data input
		sACN		sACN protocol data input
		DMX – IN		Regular DMX signal input
	Universe	Diff. II.		Insert universe number as needed
		VALUE (0-255)		
	DMX address			Sets DMX address for Omega Mk2 dimmer
		VALUE (1-512)		-
	Mode			Set Omega Mk2 mode
		Dimmer		Dimmer mode
		Relay		Relay mode
		Disabled		No functionality
Output curve				
		S-Curve		
		NA-Curve		Subjectively truly linear lighting output
		Inv Square		Finer control in bottom part of the curve
		Linear		Linear curve (voltage/ power level ratio is linear)
		Soft linear		
		Square		Provides finer control in top part of the curve
	Preheat level			Determines the preheat level provided to all dimmer
		OFF		channels
		OFF		No preheat. Use with caution!
		0.02		2% preheat
		0.04		4% preheat
		0.06 0.08		6% preheat
		0.00		8% preheat
	Soft-start time			This setting determines time needed for dimmer output to achieve DMX value changes
		OFF		output to acine ve Divin value changes
		50 ms		
		100 ms		
		150 ms		
		200 ms		
	On source loss action			Determines what action will be taken when data
		Hold output		source is lost Holds latest DMX output
		Blackout		No DMX output- blackout
		Recall scene		Recalls scene recorded manually
		recall secre		When the main source is lost, this determines how
	Source loss timeout			long will the device wait for taking on source loss action
		0 sec		
		10 sec		
		30 sec		
	Record scene			Submenu for custom scene recording
		Cancel		Return to previous menu
		Fade time		Set the fade time (how long will the fade be when
			0	source is lost)
			0	0 second fade time
			1	1 second fade time
			3	2 second fade time 3 second fade time
		Save	3	5 3COMUTAUE UME
		Channel 1 intensity	0-255	Sets channel output intensity level
		Channel 1 intensity Channel 2 intensity	0-255	Sets channel output intensity level
		Channel 3 intensity	0-255	Sets channel output intensity level
		Channel 4 intensity	0-255	Sets channel output intensity level
		Channel 5 intensity	0-255	Sets channel output intensity level
		Channel 6 intensity	0-255	Sets channel output intensity level
		Channel 7 intensity	0-255	Sets channel output intensity level
		Channel 8 intensity	0-255	Sets channel output intensity level
		Channel 9 intensity	0-255	Sets channel output intensity level
		Channel 10 intensity	0-255	Sets channel output intensity level
		Channel 11 intensity	0-255	Sets channel output intensity level
		Channel 12 intensity	0-255	Sets channel output intensity level
	Device ID			Set custom Device ID label
		Device ID label		
	IP address			Set custom IP address
		VALUE		
	Subnet mask			Set custom submask network
		VALUE		
Defaults	Touchscreen calibration			Setting to use when the touchscreen calibration is
				needed.
		Reset	01	
			Confirm	
			Retreat	This setting will restore factory defaults (will reset
		Factory defaults		ALL settings to device default)
			Confirm	ALL Settings to device deladity
			Retreat	

OMEGA MK2 MENU MAP

CONFIGURATION USING RESISTIVE LCD TOUCHSCREEN

OctoScene Mk2 can be configured locally on device by using control panel buttons or remotely through Ethernet port by accessing built-in web page with WEB browser.

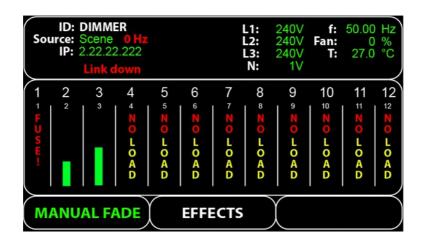
Navigation trough menus is done using resistive LCD touch screen.

When device is turned on, it shows this screen as a loading screen:



At this point, if pressed anywhere on the screen, a touch screen calibration screen will appear.

OMEGA MK2 HOME SCREEN



At the home screen you can see:

Overall information about dimmer:

ID: (the assigned name)

Source: current signal source + DMX rate (Hz)

IP: assigned IP address

L1, L2, L3, N: voltage for phases

F: voltage frequency; **Fan:** current fan speed;

T: current temperature of the dimmer

Status for 12 channels:

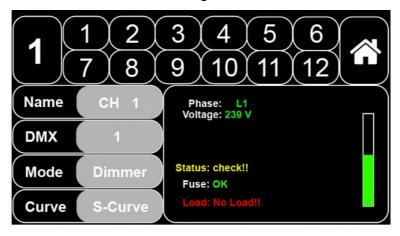
Green bar- there is incoming DMX signal (the height of the green bar determines DMX signal level input value level)

No load – there is no incoming DMX signal.

Fuse! - the fuse switch of the current channel is turned off.

INDIVIDUAL CHANNEL CONFIGURATION

Press on the middle square section (where 12 channel status information is shown) on the home screen to enter individual channel configuration.



In this sub-menu it is possible to change settings for each dimmer channel separately.

It is possible to change these individual channel settings:

Channel name:

DMX address for each channel;

Mode for each channel;

Dimmer curve for each channel.

Phase and voltage:

If there is no sufficient voltage or it is on critical level, then the status will show current voltage and it will be marked in red.

Status:

If one of the status items isn't at working state, then this field will show "check". At the example above it can be seen that there is no load at the dimmer channel so the status is currently at "check" state.

Fuse:

If the fuse state is **ON**, then the status indicator is GREEN.

If the fuse state is **OFF**, then the status indicator is RED.

Load:

If the load state is "**load**", then the status indicator is GREEN. If the load state is "**no load**", then the status indicator is RED.

Name:

Set custom name for the channel;

DMX:

Set DMX address for the channel;

Mode:

Choose from dimmer mode, relay mode, or disabled.

Curve:

Choose out of 6 dimmer curves.

To return to main state- press "**HOME**" button.

EFFECTS:

By pressing "**Take over**" button at home screen Omega Mk2 will use input from this mode for output.

Each of the presets (1-8) has pre-programmed effects available.

This mode is great for lamp testing purpose – you even don't need a lighting console to do lamp tests anymore.

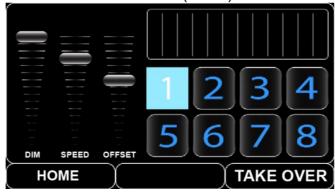
Virtual faders:

DIM- this fader option controls the output intensity level;

Speed- this fader option controls the speed of the effect chosen;

Offset- this fader option controls the offset between the chosen effect spikes.

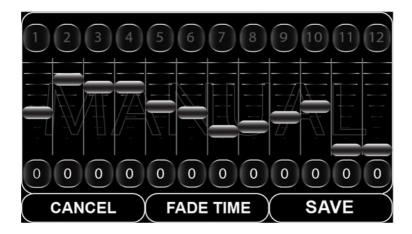
To end "EFFECT" mode, enter the "Take over" menu and select "OFF" option "HOME" button returns user to the main menu (home) screen.



By pressing "HOME" button, Omega Mk2 will return to the main (home) screen.



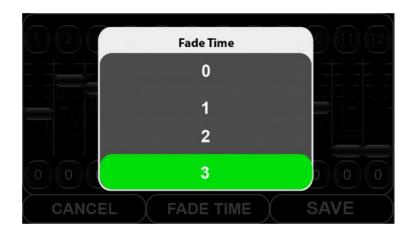
MANUAL FADE



It is possible to set intensity for all 12 dimmer channels in Omega Mk2 built in editor.

Fade time setting:

Fade time is the setting that determines how long will the fade be when source is lost.



Example:

when fade time is set at "3" (seconds), then when Omega Mk2 loses input signal, the fade between current controlling mode (DMX, Art-Net, sACN controls) and the backup mode will happen within 3 seconds.

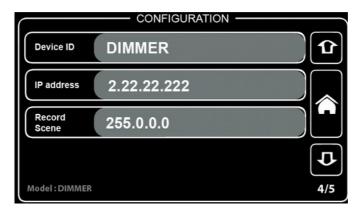
when fade time is set at "0" seconds, then when Omega Mk2 has lost its input signal, the fade between current controlling mode (DMX, Art-Net, sACN controls) and the backup mode will happen instantly and will take no fade time in between.

DEVICE CONFIGURATION

Press on the top square (where ID, Source, IP, etc is shown) on home page to enter the configuration menu.

Device ID:

Here you can exchange the node name, replace the default name (Omega Mk2 is the default one) with your desired name.



By pressing this button, a new window will pop up:



Using this keyboard you can set the name to your desired name.

IP address:

By pressing the "IP setup" section, a new window will pop up.



Here you can set the IP address for the Omega Mk2 dimmer.

Subnet mask:

By pressing the "Subnet mask" section, a new windows will pop up.

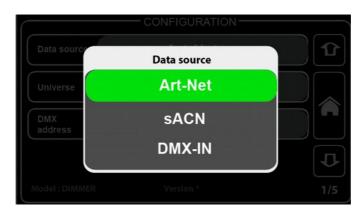


Here you can set the subnet mask of the Omega Mk2.

To exchange assigned subnet (sub network) mask, replace the current network subnet mask to your desired mask.

PROTOCOL SETUP:

By pressing the "Protocol" section, a new window will pop up.



Besides the industries standart DMX controlling option, you can select out of 2 "DMX over Ethernet" protocols: Art-Net and sACN (e1.31).

What is Art-Net and what is sACN?

Art-Net is an Ethernet protocol based on the TCP/IP protocol suite. Its purpose is to allow transfer of large amounts of DMX512 data over a wide area using standard networking technology

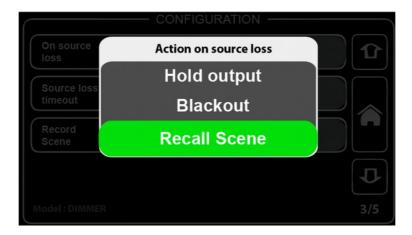
Streaming ACN (sACN) is a protocol to efficiently transport DMX universes over the network. It is comparable to ArtNET in many aspects. One nice thing is the multicast option allowing very easy configuration. sACN is a popular protocol to control large number of RGB LEDs.

So both of them are Ethernet protocols made to transport DMX universes over the network, with a few minor differences.

When using the sACN protocol, the universe 0 is not allowed to be used. The system will show a warning sign if the universe 0 + sACN protocol has been chosen.

On source loss:

By pressing the "On source loss" section, a new window will pop up.



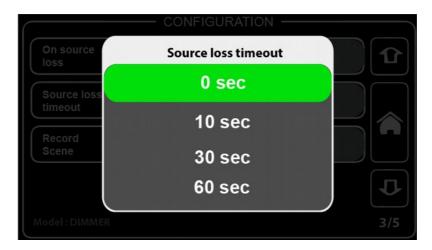
When "Hold values" setting is chosen, after source loss there is no action at all, old data remains in output

When "Blackout" setting is chosen, after DMX source loss the last value will not be held and there will be a "blackout" (after delay, drop all DMX channels to 0).

When "Recall Scene" setting is chosen, after source loss the

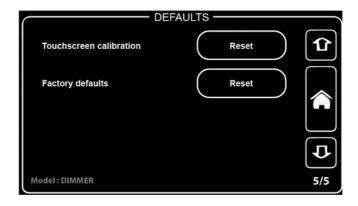
Source loss timeout:

By pressing the "Source loss timeout" section, a new window will pop up.



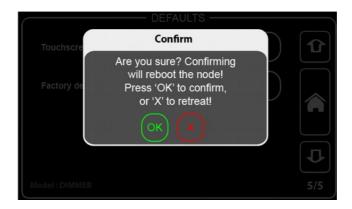
Here you can set the source loss timeout value. This setting will change the time after which the Omega Mk2 will start the blackout or stop DMX output on source loss. You can put a value from 5 to 120, which means from 5 to 120 seconds.

DEFAULTS:



Touch screen calibration will open touch screen calibration menu. **Factory defaults** will reset all settings and restart the system.

After pressing reset buttons, there will be a new confirmation window:



Where press "OK" to confirm your choice or "X" to retreat.

Universe:

Here you can assign the universe for Omega Mk2. By pressing this section, a new window will pop up



It is possible to set the universe from 0 to 255.

DMX address:

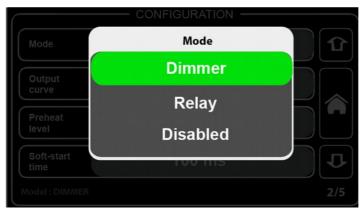
Here you can assign the DMX address for Omega Mk2. By pressing this section, a new window will pop up

It is possible to set the universe from 1 to 501 (the unit occupies 12 DMX channels as it is 12 channel dimmer).



Mode:

It is possible to select out of 3 main modes:



Dimmer- regular dimmer mode with all capabilities of the device;

Relay- relay mode

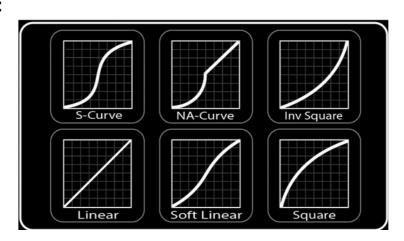
When relay mode is selected, lamps will have 2 statuses- ON or OFF.

When DMX value for channel is 50% or below- connected lighting fixtures will be at OFF position.

When DMX value for channel is 50% or above- connected lighting fixtures will be at full ON position.

Disabled- no lighting output, only stand-alone mode could be used to achieve lighting output.

Output curve:



"The design of most analogue dimmers meant that the output of the dimmer was not directly proportional to the input. Instead, as the operator brought up a fader, the dimmer would dim slowly at first, then quickly in the middle, then slowly at the top. The shape of the curve resembled that of the third quarter of a sine wave. Different dimmers produced different dimmer curves, and different applications typically demanded different responses.

Television often uses a "square law" curve, providing finer control in top part of the curve, essential to allow accurate trimming of the colour temperature of lighting. Theatrical dimmers tend to use a softer "S" or linear curve. Digital dimmers can be made to have whatever curve the manufacturer desires; they may have a choice between a linear relationship and selection of different curves, so that they can be matched with older analogue dimmers. Sophisticated systems provide user-programmable or nonstandard curves, and a common use of a nonstandard curve is to turn a dimmer into a "non-dim", switching on at a user defined control level."

Source: https://en.wikipedia.org/wiki/Dimmer#Dimming_curves

S- Curve - provides a finer control at lower and higher levels while being more coarse at medium levels. This dimming curve best emulates a typical incandescent lamp's dimming abilities. This curve is often considered the most natural dimming curve.

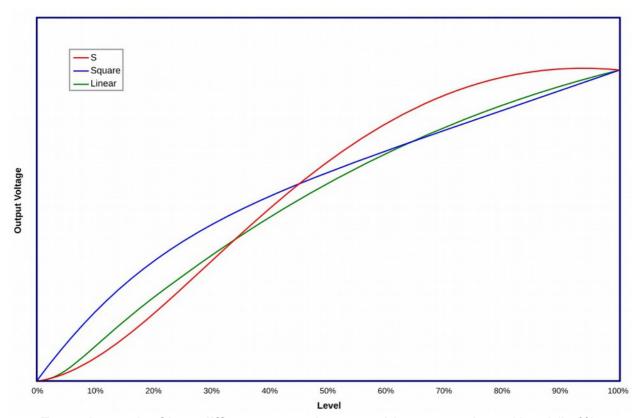
NA- Curve - when using the NA-Curve, subjectively (in our vision) this curve is truly linear when conventional tungsten lights are used.

Inv Square - provides a finer control at high levels and coarser at low levels. Useful when not dimming all the way out or when less low level control is desired (snap on/off).

Linear - The linear curve matches the control input percentage to Root Mean Squared (RMS) voltage output. Each percent increase in control level increases dimmer voltage output by the same amount

Soft Linear - based on linear curve principle but with a small addition from S-Curve – provides finer control at lower and higher levels.

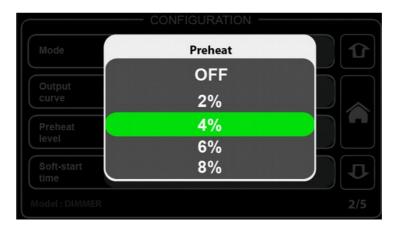
Square - (Square law curve) - At low control levels, much of traditional incandescent fixture's light output is in the invisible infrared spectrum. This results in poor visible response to low control levels. A square law curve applies a multiple derived from the square root of the control level (with full output equal to 1.00) to increase voltage response at low control levels to compensate for the infrared loss.



Example graph of how different curves interact with output voltage / level (in %).

Preheat level:

This setting determines the actual intensity the lights will be on what intensity at idle status. The preheat value must be chosen and analyzed by eye- when the bulb is too bright at idle mode, turn down the preheat level to lower.



Soft start time:

This setting determines the time needed for intensity changes to kick in.

Example:

Currently the DMX level for channel is set at 0% (0). When the DMX value is increased to 100% (255), light output will not change instantly but will cross fade at the soft-start time chosen.

Soft start usually makes lamp life longer but may be not needed for some fixture / lamp types.



Touch screen calibration:

There are 2 possible ways to open the touch screen calibration menu:

- 1) When device is turning on, press anywhere on the "Omega Mk2" illustration;
- 2) Open device defaults settings where "touchscreen calibration" reset setting can be seen.



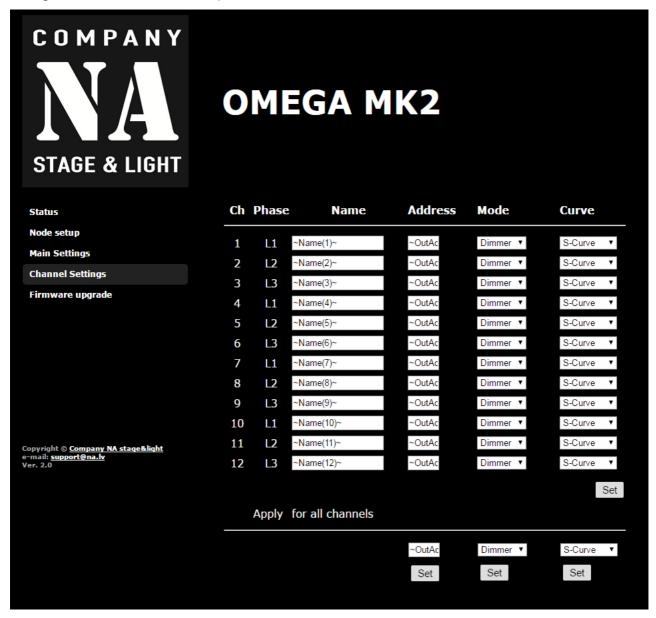
Now you have to press the red dots in order to calibrate the touch screen. There will be 4 dots in total- each dot in all 4 corners.

Press each of the red dot precisely as possible to ensure correct calibration.

Set up dimmer using built-in web-server:

Type current Omega MK2 IP address into your favorite web-browser (Microsoft Edge, Google Chrome, Mozilla Firefox, etc).

Omega Mk2 web-server will open.



Here it is possible to set almost all the same settings as via touchscreen.

This option might be useful if the controlling is done with Art-Net / sACN and the dimmer it-self is not directly accessible.

Upgrading the firmware.

Firmware upgrade is possible only by using Omega Mk2 built-in web-server.

To get the newest firmware, please, contact info@na.lv with subject "Omega Mk2 firmware upgrade" and we will send you up to date firmware as soon as possible.

Appendix

DMX-512 Protocol

DMX-512 protocol has 512 channels in one universe. Channels (addresses) can be committed in any way depending on the device. To operate equipment with DMX-512 protocol is necessary one channel or multiple channels in a row depending on type of device. User sets up the address of the equipment, which coincides with the light control panel installed. There are a lot of equipment, which can be controlled via DMX-512 protocol, and they may have different DMX channel number, so the start address must be selected in advance. DMX channels should never overlap with each other. If the DMX channels are overlapping, equipment can run not as expected.

Important:

EIA-485 standard requires that the device can be connected to one DMX universe with a series circuit. In accordance with the provisions of the standard in one DMX series circuit can connect only 32 devices. To be able to connect more than 32 devices in one DMX universe, you need to use the DMX signal splitter with recovery function, which both inputs and outputs are optically isolated. Otherwise, the DMX-512 signal may be distorted and device controlling from the lighting console might me interrupted.

DMX Data cable

Use a Belden© 9841 or equivalent cable which meets the specifications for EIA RS-485 applications. Standard microphone cables cannot transmit DMX data reliably over long distances. The cable will have the following characteristics:

2-conductor twisted pair plus a shield Maximum capacitance between conductors – 30 pF/ft. Maximum capacitance between conductor and shield – 55 pF/ft. Maximum resistance of 20 ohms / 1000 ft. Nominal impedance 100 – 140 ohms

CABLE CONNECTORS

Cabling must have a male XLR connector on one end and a female XLR connector on the other end.

Do not allow contact between the common and the fixture's chassis ground. Grounding the common can cause a ground loop, and your fixture may perform erratically. Test cables with an ohm meter to verify correct polarity and to make sure the pins are not grounded or shorted to the shield or each other.

3-PIN TO 5-PIN CONVERSION CHART

If you use a console with a 5 pin DMX output connector, you will need to use a 5 pin to 3 pin adapter. The chart below details a proper cable conversion:

3-PIN TO 5-PIN CONVERSION CHART

Conductor	3 Pin Female (output)	5 Pin Male (Input)
Ground / Shield	Pin 1	Pin 1
Data (-) signal	Pin 2	Pin 2
Data (+) signal	Pin 3	Pin 3
Do not use		Do not use
Do not use		Do not use

Return procedure

Returned merchandise must be sent prepaid and in the original packing, call tags will not be issued. Package must be clearly labeled with a Return Merchandise Authorization Number (RMA #). Products returned without an RMA # will be refused. Call Company NA and request RMA # prior to shipping the fixture. Be prepared to provide the model number, serial number and a brief description of the cause for the return. Be sure to properly pack fixture, any shipping damage resulting from inadequate packaging is the customer's responsibility. Company NA reserves the right to use its own discretion to repair or replace product(s). As a suggestion, proper UPS packing or double-boxing is always a safe method to use.

Note:

If the RMA # is given, please include the following information on a piece of paper inside the box:

- 1) Your name
- 2) Your address
- 3) Your phone number
- 4) The RMA#
- 5) A brief description of the symptoms

Claims

Damage incurred in shipping is the responsibility of the shipper; therefore the damage must be reported to the carrier upon receipt of merchandise. It's the customers responsibility to notify and submit claims with the shipper in the event that a fixture is damaged due to shipping. Any other claim for items such as missing component/ part, damage not related to shipping, and concealed damage, must be made within seven (7) days of receiving merchandise.