



LIGHT COMMANDER

SCM-LC-N2K NMEA 2000

SCM-LC-N2K-PLUS NMEA 2000 + Ethernet

INSTALLATION & OPERATION MANUAL



WWW.SHADOW-CASTER.COM

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LIGHT COMMANDER BOX CONTENTS

- SCM-LC-N2K or SCM-LC-N2K-PLUS Light Commander
- 4 x SS316 Pan Head #8 x 3/4" Mounting Screws
- Warranty and Registration Information
- Deutsch connector pigtail assemblies
- Standard Ethernet Cable (Plus ONLY)

PRODUCT SERIAL NUMBER

You can add your product serial number here for warranty and product registration purposes.

The serial number is located on the back of the Light Commander housing and on the packaging.

My Serial Number:

LIGHT COMMANDER OVERVIEW

The Shadow-Caster™ Light Commander (SCM-LC) is available in two models:

SCM-LC-N2K

For connection directly to MFDs with built in NMEA 2000 lighting support, or as an expansion model to "Light Commander N2K PLUS" installations.

SCM-LC-N2K-PLUS

Offers an integrated Ethernet interface along with an NMEA 2000 interface for network connections to Garmin, Simrad, Lowrance, B&G, Raymarine, Furuno and Humminbird.

This installation and operation manual covers both SCM-LC-N2K and SCM-LC-N2K-PLUS models.

SCM-LC-N2K FEATURES

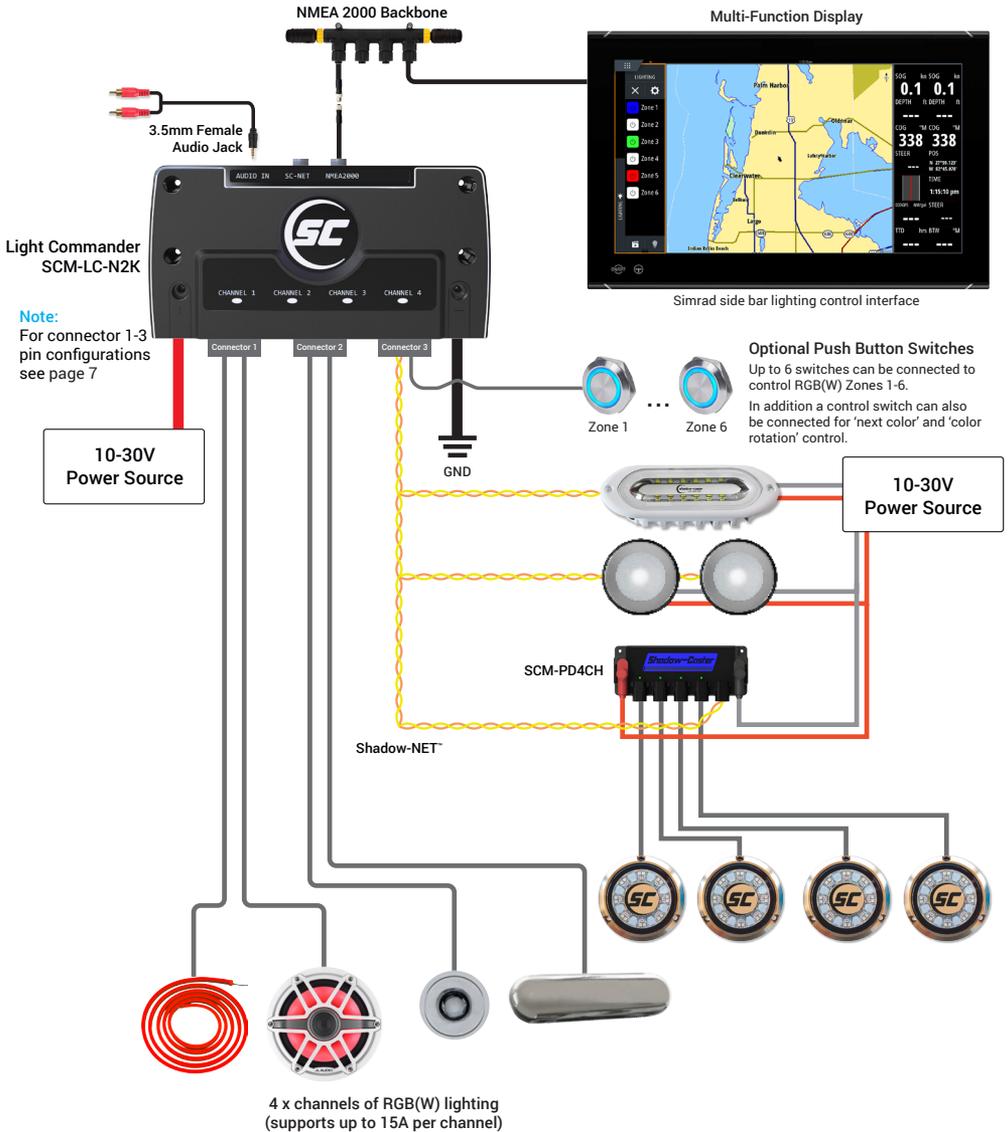
- Control up to 6 zones lights (expandable to 12 or 18 by adding one or two SCM-LC-N2K for 6 additional channels each).
- IP67 housing with LED indicators for channels 1-4 and logo backlight.
- Full independent color, brightness and multiple lighting modes including 4 types of music synchronization, fade and custom color rotations.
- Built in support for 4 channels of RGBW lighting up to 15 amps each.
- Digital overcurrent protection.
- Auto-detect for selection of RGB or RGBW channel configurations.
- Store and recall virtually unlimited lighting scenes.
- Integrated push button switch support. Control ON/OFF and brightness for each of the 6 zones.
- Global momentary push button color control.
- Deutsch connectors for lighting connections and switch inputs.
- Direct music input via 3.5mm audio jack.

SCM-LC-N2K-PLUS FEATURES

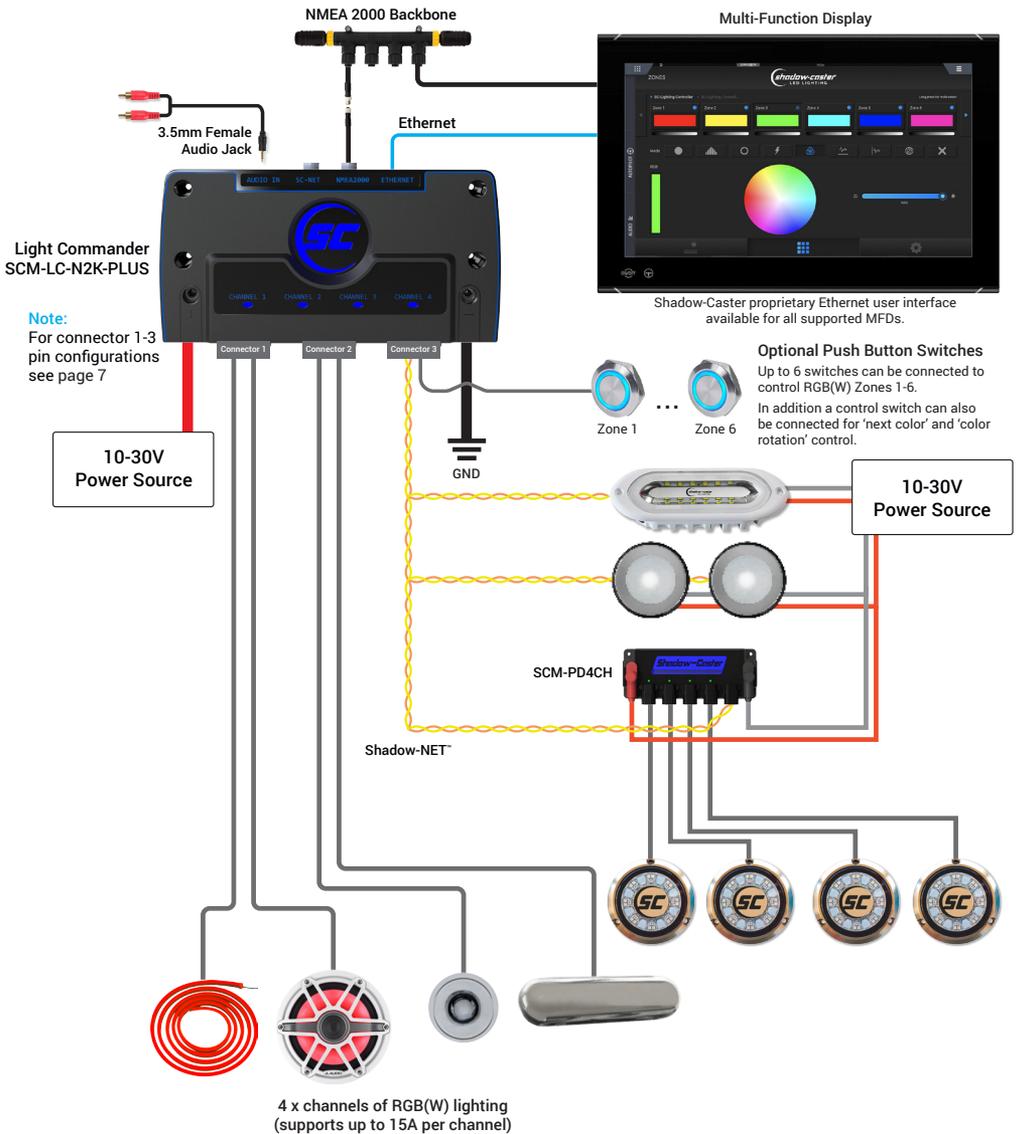
All the features listed above for the SCM-LC-N2K, plus:

- Ethernet port for MFD Ethernet connection to use the Shadow-Caster™ full lighting control interface.
- USB-C port for software upgrades

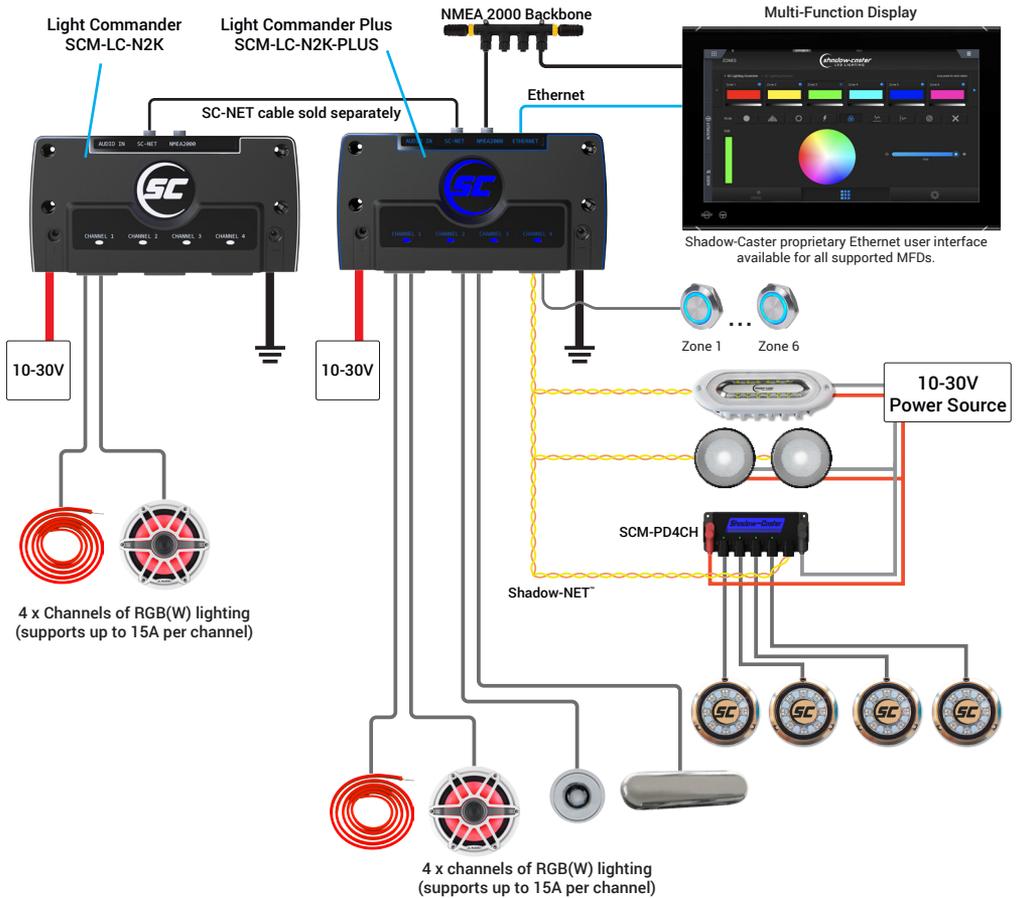
SCM-LC-N2K TYPICAL WIRING DIAGRAM



SCM-LC-N2K-PLUS TYPICAL WIRING DIAGRAM



CONNECTING TWO LIGHT COMMANDERS TYPICAL WIRING DIAGRAM



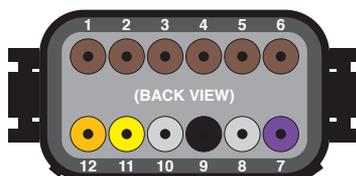
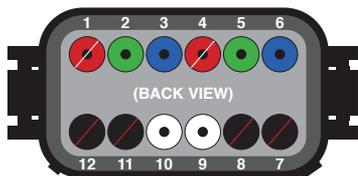
DEUTSCH CONNECTORS FOR LIGHTING AND SWITCH INPUTS

CONNECTOR 1 & 2

Mating connector - DT06-12SA "A Key"

CONNECTOR 3

Mating connector - DT06-12SB "B Key"



Connector 1 Pin Outs		
Pin	Description	Wire Color
1	Red Channel 1	Red
2	Green Channel 1	Green
3	Blue Channel 1	Blue
4	Red Channel 2	Red
5	Green Channel 2	Green
6	Blue Channel 2	Blue
7	PWR + OUT Channel 2 (1 of 2)*	Black
8	PWR + OUT Channel 2 (2 of 2)*	Black
9	White Channel 2	White
10	White Channel 1	White
11	PWR + OUT Channel 1 (1 of 2)*	Black
12	PWR + OUT Channel 1 (2 of 2)*	Black

Connector 3 Pin Outs		
Pin	Description	Wire Color
1	+ Input SW Zone 1	Brown
2	+ Input SW Zone 2	Brown
3	+ Input SW Zone 3	Brown
4	+ Input SW Zone 4	Brown
5	+ Input SW Zone 5	Brown
6	+ Input SW Zone 6	Brown
7	+12V Color Control Input	Purple
8	Not used	N/A
9	Ground	Black
10	Not used	N/A
11	Shadow-NET CAN-H (Yellow)	Yellow
12	Shadow-NET CAN-L (Orange)	Orange

* Combine these two outputs together when current exceeds 10A.

Connector 2 Pin Outs		
Pin	Description	Wire Color
1	Red Channel 3	Red
2	Green Channel 3	Green
3	Blue Channel 3	Blue
4	Red Channel 4	Red
5	Green Channel 4	Green
6	Blue Channel 4	Blue
7	PWR + OUT Channel 4 (1 of 2)*	Black
8	PWR + OUT Channel 4 (2 of 2)*	Black
9	White Channel 4	White
10	White Channel 3	White
11	PWR + OUT Channel 3 (1 of 2)*	Black
12	PWR + OUT Channel 3 (2 of 2)*	Black

* Combine these two outputs together when current exceeds 10A.



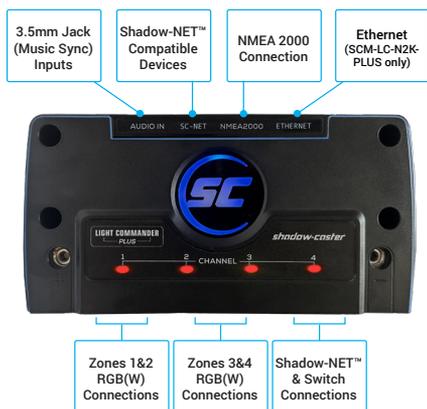
INSTALLATION

LIGHT COMMANDER INSTALLATION

Central mounting locations under the helm areas or in the bilges are acceptable.

1. The Light Commander should be mounted with Deutsch wire connectors facing down.
2. Use the included four 8 x 3/4" SS pan head screws for mounting.

LIGHT COMMANDER CONNECTIONS



The Light Commander has four built in RGBW channels. By default these RGBW channels correspond to zones 1-4, identified in the device list as "LOCAL 1-4" (see Configure Devices screen shot on page 11). However, they are independent and can be assigned to any of the configured zones 1-6 supported by the controller.

The Light Commander will support 15 amps on each of the 4 RGB(W) channels, for a total of 60 amps in the entire Light Commander.

Note: Shadow-NET™ lighting devices communicate through the orange and yellow Shadow-NET™ interface on connector 3, and can be assigned to any zone 1-6. As Shadow-NET™ devices do not draw power through the controller, they do not contribute to the Light Commander's total load calculation.

SELECTING RGB OR RGBW LIGHTING

The Light Commander is pre-configured for RGB output.

TO CONFIGURE FOR RGBW

1. Press and hold buttons 1 and 2.
2. Apply main power to the controller - the white channels should immediately start flashing.
3. Once detected, release switch 1 & 2 and cycle power to resume normal operation.

Note: The minimum detection level is 100mA.

LIGHT COMMANDER POWER REQUIREMENTS

See the Shadow-Caster™ wire AWG recommendations for detailed calculations. It is very important to have sufficient gauge wire feeds for RGB lighting. Typical installations use 8AWG or larger wire.

It is recommended to separate feeds for lighting and for sensitive stereo power feeds with direct runs to the battery or a heavy gauge distribution point.

The Light Commander uses digital current sensing to detect over current conditions. When this is detected, the Light Commander will disconnect RGBW channels from power and flash the backlit logo and channel lights red to indicate a fault condition.

The Light Commander will work in 12V or 24V systems. Please note that 12V or 24 compatible RGB(W) products should be used depending on the application.

RECOMMENDED WIRE GAUGES

Scan the QR Code or click [here](#) to view our recommended wire gauge chart.



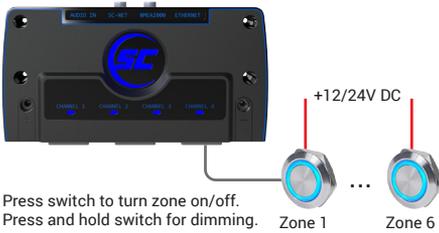
SWITCH INPUTS (OPTIONAL)

The Light Commander supports zone activation switches. This feature allows a lighting zone to be easily turned on, off and dimmed without using the control screen.

There are 6 zone switch inputs located on connector 3. The inputs are configured for momentary '+' inputs.

The first button press will turn the corresponding lighting zone on to white, the second press will turn the lights off.

Pressing and holding the input will toggle between dimming and stepping up brightness.

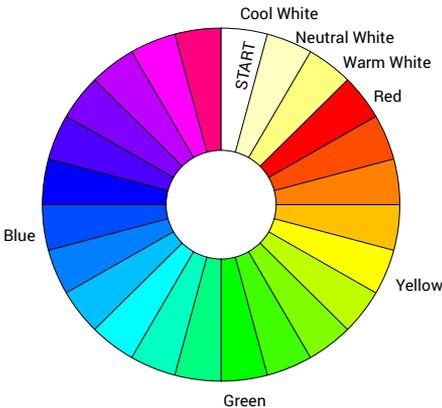


Press switch to turn zone on/off.
Press and hold switch for dimming.

There is one global control input, that will step between colors on subsequent presses.

Holding the control switch on for more than 1 second will start color rotation. Color rotation can be stopped by a subsequent button press.

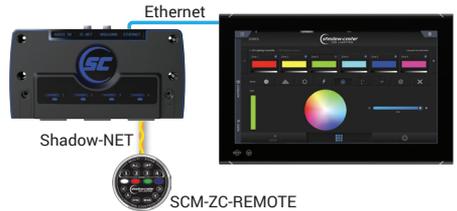
COLOR INDEX CYCLE



- Press to step to next color
- Press and hold to start color rotation

ADDING ADDITIONAL REMOTES AND MULTI-FUNCTION DISPLAYS

A SCM-ZC-REMOTE device can be added to the installation by connecting to the Shadow-NET™ cable.



SHADOW-NET™ DEVICES

Connect Shadow-NET™ enabled devices to the orange and yellow Shadow-NET™ wires coming from the Light Commander.

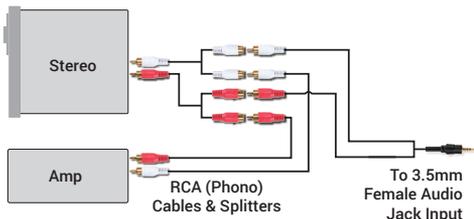
As soon as the Light Commander receives power, multiple channels of digital messages start broadcasting on these wires. These messages allow Shadow-NET™ enabled devices to be connected without a switch. Initially these commands are for attached lights to turn off. As soon as a command is given to the Light Commander to go to a color, these attached devices will receive a message to go to the corresponding color and brightness.

OPTIONAL PARTS

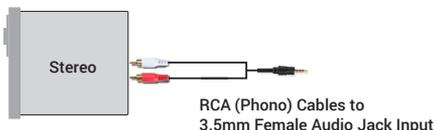
- **SCM-ZC-REMOTE** Additional Remote Control
- **SCM-MFD-BRIDGE** MFD Communications Bridge
- **SCM-SCNET-01** 1 meter Cable
- **SCM-SCNET-02** 2 meter Cable
- **SCM-SCNET-04** 4 meter Cable
- **SCM-SCNET-Y** Y Cable

CONNECTING STEREO INPUT FOR STEREO MUSIC SYNC INPUT

Connecting a stereo and amplifier



Connecting a stereo



MUSIC SYNC

The music sync feature samples the music directly from a 3.5mm stereo analog input. There are several modes available for syncing to amplitude or frequency content in the music.

OPTIMIZING MUSIC SYNC

1. Turn music to typical listening volume, and press PAUSE on your stereo system. This will provide the lighting controller with an input signal representative of the audio system background noise.
2. Adjust the sensitivity up until the lights start blinking/flickering.
3. Play the music and adjust the sensitivity and signal rate. This adjusts how quickly the lights respond.

OPTIMIZING MUSIC SYNC FROM SWITCHES

1. Press and hold buttons 1 and 3 before applying power to the unit. The unit will blink red and green to indicate that music adjustment mode is activated.
2. Set music to desired volume, then hit pause on the music so that only the background signal is detected.
3. Click button 3 until lights blink and flicker. Click button one to decrease sensitivity by one step at a time until lights stop flickering.
4. Press button 5 to store settings. Lights will flash green to indicate this is good.

FREQUENCY MODE

Frequency mode is the recommended sync mode as it offers the largest array of color options.

The lighting controller uses a digital signal processor to extract the relative intensities of low, mid and high frequency content.

The music mode defaults to an RGB color sequence. In this case, red corresponds to low frequencies, green to mid range frequencies, and blue to high frequencies. If no signal is present or below the threshold, the color will default to the last color in the sequence or a fourth.

Low Frequencies	Mid Range Frequencies	High Frequencies	Default Background Color
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BEST PRACTICES FOR MITIGATING NOISE ISSUES

Noise interference is common in systems with RGB lighting controls and amplified stereo systems. The advanced circuitry in the lighting controller does everything possible to protect from this.

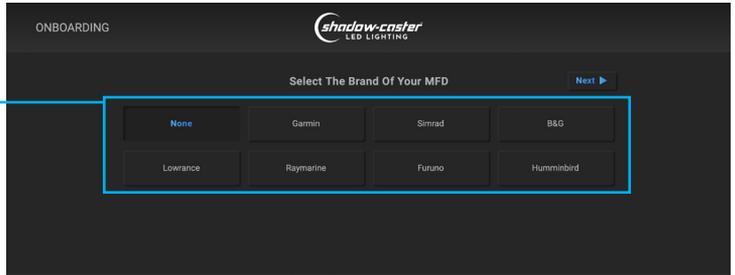
Utilizing installation best practices will further mitigate these issues.

1. Make sure to supply ample gauge power and separate distribution points from stereo power.
2. Run RGB power wires as far as possible from the speaker feeds for the stereo. Run separate bundles where possible.

BASIC OPERATIONS FOR SHADOW-CASTER MFD USER INTERFACE

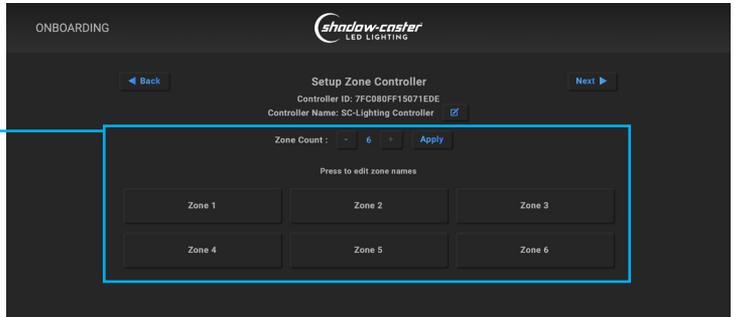
ONBOARDING

Select the make of your MFD



Setup Zone Controller

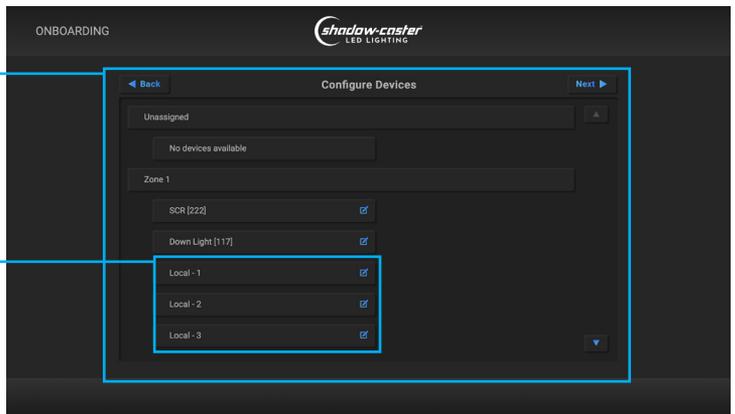
Set the number and names of required zones.



Configure Devices

Identify all of the lighting devices and then assign them to the desired zone.

"Local" refers to built in RGB channels.



SCENES (DEFAULT HOME SCREEN)

Name and save scenes

Select lighting scenes

View zone status for the scene

Turn on/off switches

Note: this section only appears if SCM-PWR6 switch module or other compatible devices are connected.



ZONES

Select zones

Select lighting mode

Select zone color



Zone mode indication

Zone brightness indication

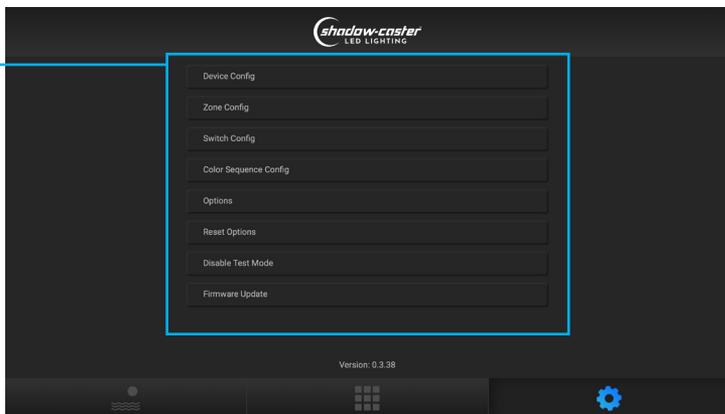
Select RGB mode to use color wheel selector

Edit mode parameters



SETTINGS

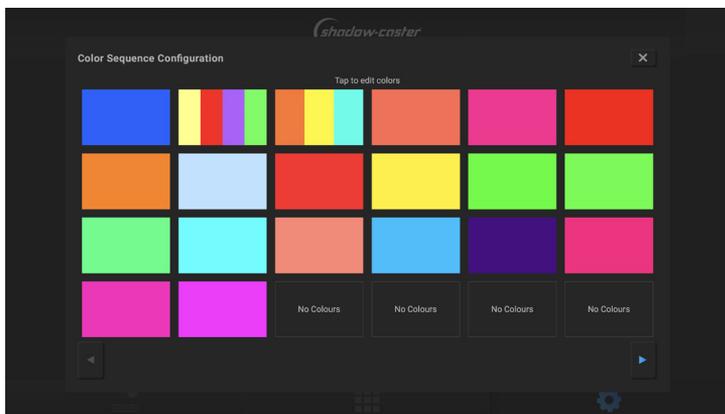
Edit general settings, reset and configure devices and update firmware.



COLOR SEQUENCE CONFIGURATION

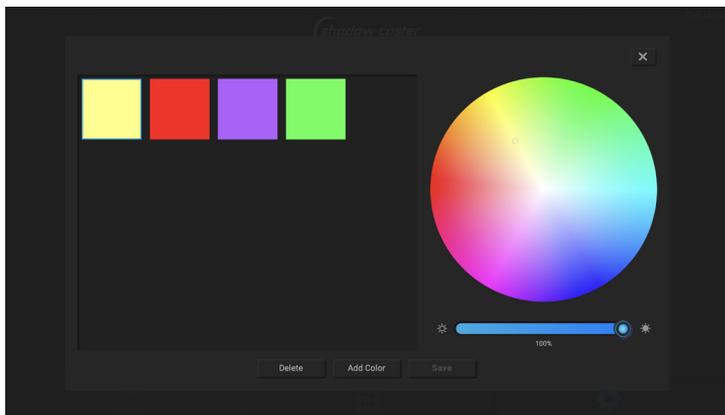
The Light Commander can store 60 custom colors or color sequences.

The first 30 of these are reserved for default colors and built-in sequences.



To add a single color or custom sequence simply select the color and hit "Add Color".

Up to 21 colors can be used in any given sequence.



BASIC OPERATIONS FOR SHADOW-CASTER MFD USER INTERFACE

LIGHTING MODES



SOLID COLOR

Easily recall colors and color sequences. If selecting a sequence, a rate will be applied to changing these.



COLOR FADE

Rotates colors with the overall brightness going up and down.



COLOR CHANGE

Transitions between colors and sequences but keeps overall brightness the same.



FLASH STROBE

Flashes single colors or sequences with changeable rate.



RGB COLOR WHEEL

Quickly select any color and brightness.



FREQUENCY MUSIC SYNC

Uses full spectrum digital signal processing to go with the music.



AMPLITUDE MUSIC SYNC

Sets the music to go with the beat of the music. Picks up on the volume peaks in the music, can use a single color or rotate through a sequence.



NO CHANGE

If you want to create a scene that does not affect other lights, Setting a zone to "No change" will leave them unaffected.



OFF

Simply sets a zone to off.

BASIC OPERATIONS FOR SIMRAD NMEA 2000 LIGHTING INTERFACE

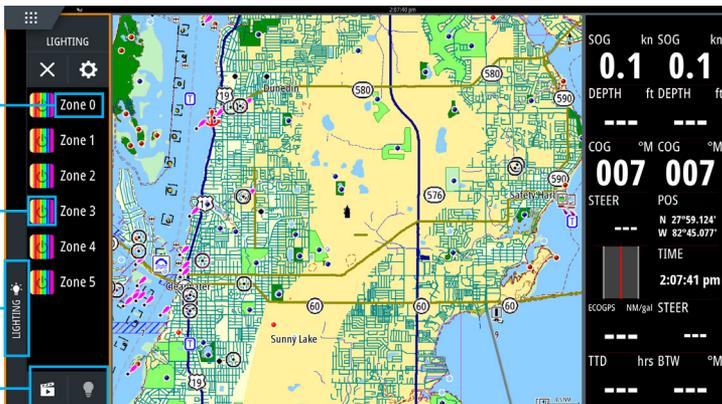
ZONE CONTROL

Zone names can be customized

Zone color indicates current zone color or function

Press to slide out lighting interface

Select between zones or scene selection



SCENE SELECTION

Customizable scene menu



**BRIGHTNESS
ADJUSTMENT SCREEN**

Adjust brightness

Brightness

Lighting effects

Color selection



**SINGLE COLOR
ADJUSTMENT SCREEN**

Adjust color and hue



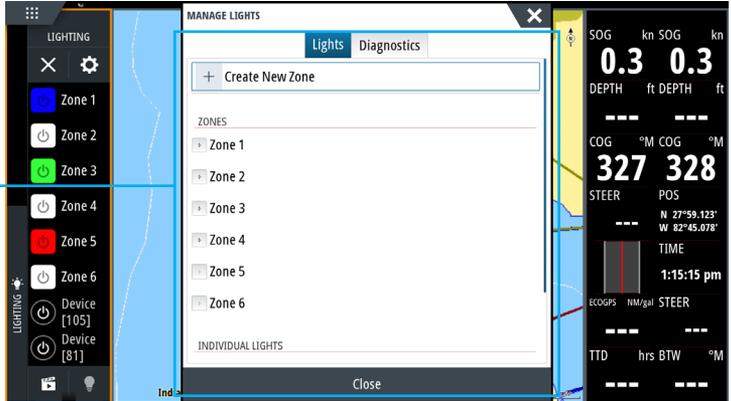
**DYNAMIC LIGHTING
EFFECTS SCREEN**

Dynamic function selection

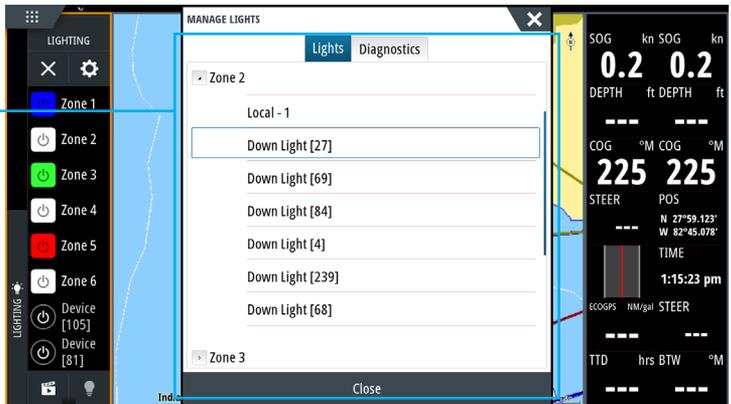


ZONE CONFIGURATION & LIGHT ASSIGNMENT SCREENS

Zone configuration and light assignment



Zone light assignment



TROUBLESHOOTING

MUSIC SYNC NOT WORKING

Verify that an appropriate 3.5mm stereo jack is being used and that there is a usable signal.

If a separate output zone is used, verify that the output is enabled and the output is set to a usable volume.

It is not recommended to use a subwoofer output, as certain sync modes require the full audio range.

SHADOW-NET™ LIGHTS WILL OCCASIONALLY LOCK UP AND STOP RECEIVING MESSAGES

This indicates that there is a noise issue on the Shadow-NET™ communication lines. Typically this is caused by insufficient gauge wire feeding one or more Shadow-NET™ connected lights.

SHADOW-NET™ LIGHTS STAY ON

If the connected Shadow-NET™ lights are not turning off at initial power up then there is a challenge with the Shadow-NET™ connection.

Check the orange and yellow wire connections are not reversed and are fully connected.

FACTORY RESET

Press and hold buttons 1 and 7 at start up.

DIMENSIONS

