

Maretron® MConnect®

Application Note:

Shadow-Caster

Revision 1.0.0

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1 Introduction

From version 1.2.0 MConnect supports integration with Shadow-Caster Lighting Systems through the NMEA 2000 interface.

MConnect does not support the configuration of the Shadow-Caster device.

The application note describes how the MConnect Lighting parameters may be used to control Shadow-Caster Lighting Systems.

Because Shadow-Caster Lighting communicates on the NMEA 2000 bus using standard NMEA 2000 PGNs 130330 (Lighting System Settings), PGN 130561 (Lighting Zone), PGN 130562 (Lighting Scene), 130563 (Lighting Device), PGN 130564 (Lighting Device Enumeration), PGN 130565 (Lighting Color Sequence), and PGN 130566 (Lighting Program), this application note may be applicable to other Lighting Systems as well.

This integration is limited to controlling the Lighting Zones, Lighting Programs, and Lighting Scenes. MConnect does not display or control individual Lighting Devices currently.

2 Software Version

This manual corresponds to MConnect Version 1.2.0 and later. It was tested against a Shadow-Caster Light Commander Multi Zone Lighting Controller (model version R6) running software version 0.61.

3 Lighting Zones

Lighting zones are set up in the Shadow-Caster device and are identified by a number. The first zone has the number zero.

The following parameter may be used with Shadow-Caster Lighting Zones:

3.1 Lighting Zone Parameter

The components that may be used to display the parameter are listed below. Note that not all components may be applicable to all the light types that may be installed. (e.g. the ability to change colors on a monochromatic light.) MConnect is not able to detect the light type so it is up to the screen designer to choose the appropriate components. The Zones may be named in the Shadow-Caster device. The “Use Label from Device” checkbox may be used to display this label on Dimmers, Push Buttons, and Indicators.

- Dimmer

The Dimmer may be used to switch the zone on and off and control the brightness of the lights.

- Indicators

Indicators may be used to show if the zone is ON or OFF.

- Lighting Beam (Glow)

The Lighting Beam will give a visual indication of the color of the light. It should be combined with images to show where the light is shining.

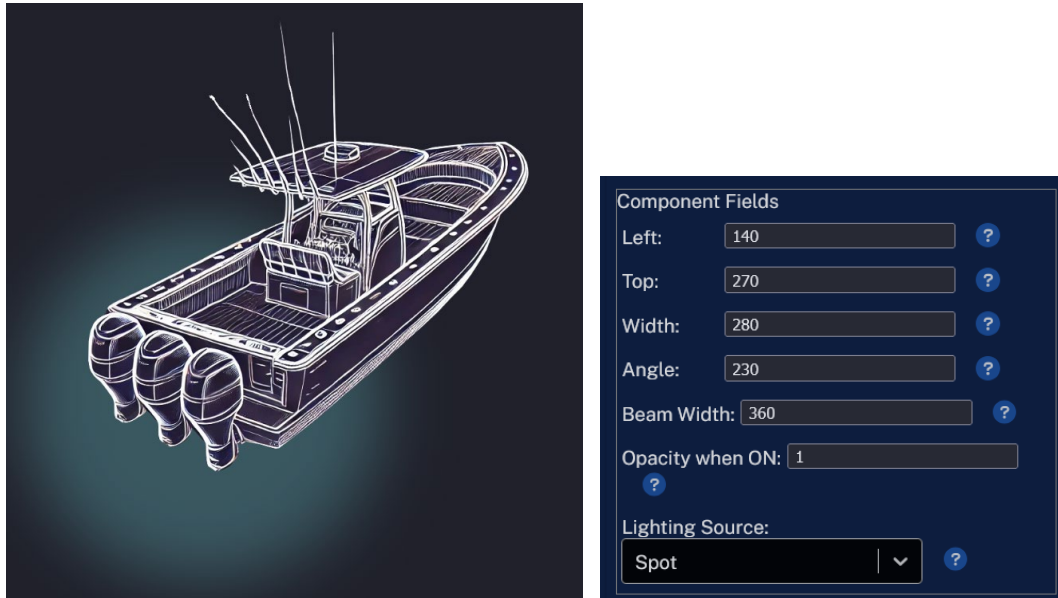


Figure 1 - Underwater Lights Example

This shows an example where the Lighting Beam covers a full circle (Beam Width = 360), such as Underwater Lights. The boat image is after the beam in the drawing order.

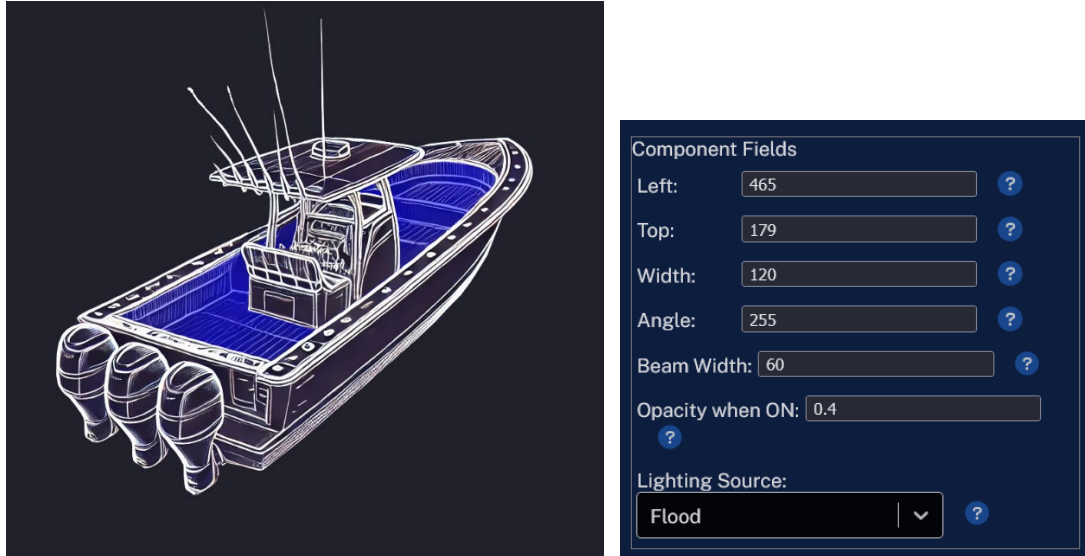


Figure 2 - Gunwale Lights Example

The Component Fields on the right show one of the beams under the gunwales. The glow under the gunwales is made up of several beams carefully placed around the boat, and with another image of the gunwales and superstructure on top of the beams. Note that if the “Opacity when ON” is set to 1, the detail under

the beams will be washed out by the beams when they are at full brightness, so this has been set to 0.4 for the best effect.

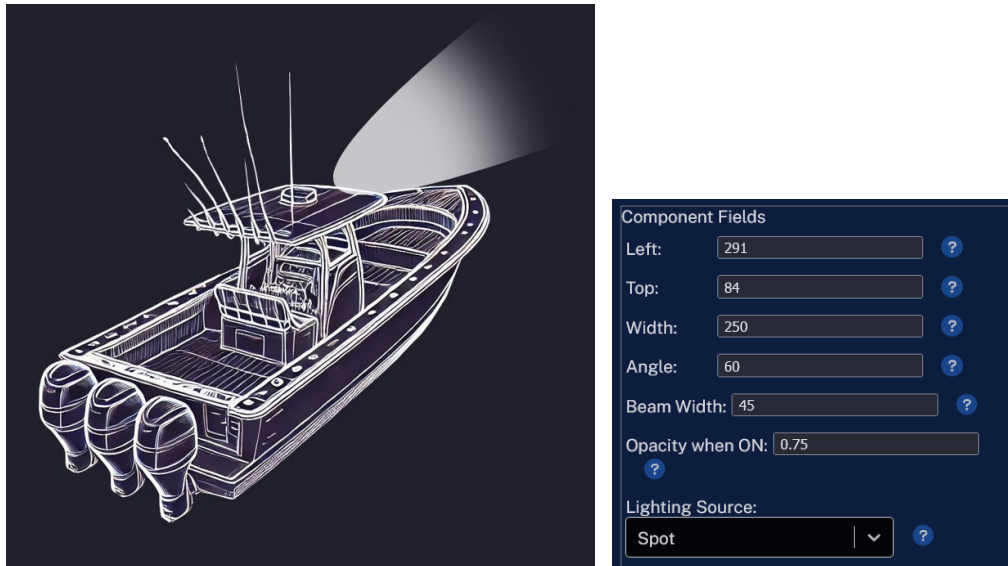


Figure 3 - Spotlight Example

Spotlights are best displayed by setting Lighting Source to Spot and using a small beam width.

A long press on a Lighting Beam will bring up the following dialog:

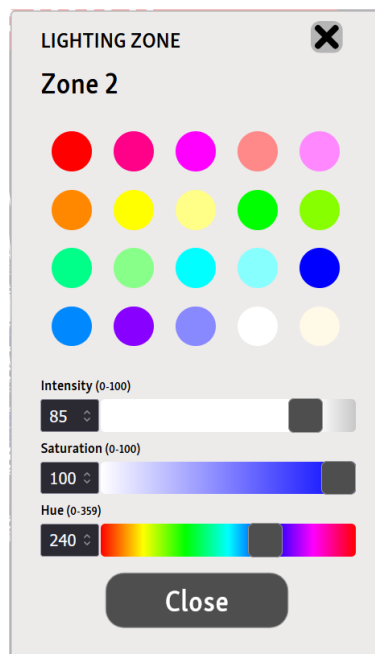


Figure 4 - Lighting Beam Pop-up

This enables full control of the zone without cluttering the screen with other buttons to change colors or intensity.

- Push Buttons

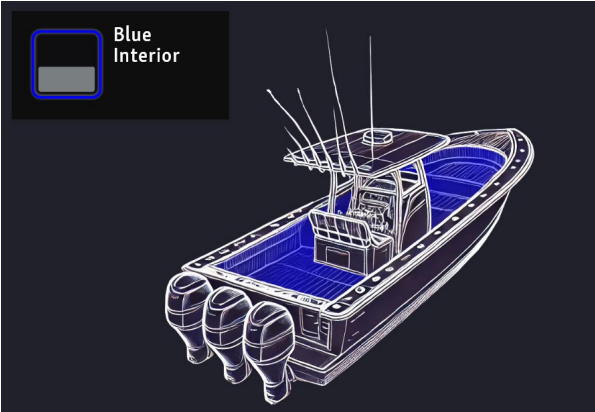
Push Buttons may be used to switch the lights ON and OFF.

- Rocker Switches

Rocker Switches Buttons may be used to switch the lights ON and OFF.

3.2 Lighting Zone: Set Color Parameter

This parameter may be used to change the color of the Zone to a preset value.



Parameter Fields

Comment:

Use Label from Device: ☐

Instance:

Channel:

Color:

Component Fields

Left:

Top:

Width:

Title:

Title when OFF:

Title when ON:

Title when ERROR:

Color when OFF:

Color when ON:

Color when ERROR:

Symbol:

Figure 5 - Lighting Zone example

In the Parameter Fields, set the color to the desired light color for the Zone (Channel). The Use Label from Device checkbox may be used to display the Zone Label on the Push Button.

In the Component Fields, only the Title field is required to show the title as the button will never go into the ON or ERROR states. The Color when OFF field should be set to

the same color as the Color in the Parameter Fields. This color will be displayed in the border of the Push Button. The Symbol should be set to None.

4 Lighting Programs

Lighting Programs are set up in the Shadow-Caster device and are identified by a Program Id, which is a number. The first lighting program has Program Id zero. A Lighting program applies to a Zone; when the button is pressed the program will be started.

The following Lighting Programs are pre-defined by NMEA.

- 0 = Off
- 1 = Solid (Instant Transition between colors in sequence)
- 2 = Fade (Transition through colors in sequence with fading to black in between)
- 3 = Strobe (Flashing quickly cycling through colors in sequence)
- 4 = Music Frequency
- 5 = Music Intensity
- 6-100 = NMEA Reserved
- 101-252 = Manufacturer Specific Programs

When a Program is running, Shadow-Caster does not report the changes in color on the NMEA 2000 bus. Unless there is only one color assigned to the Lighting Sequence, the Lighting Zone will display in white only.

The following parameter may be used with Shadow-Caster Lighting Programs:

4.1 Lighting Program Parameter

This parameter is displayed on the screen using a Push Button component. The button will show in the OFF state if the Program is available, and in the ON state if the program is executing. Pressing the button will start the Lighting Program.

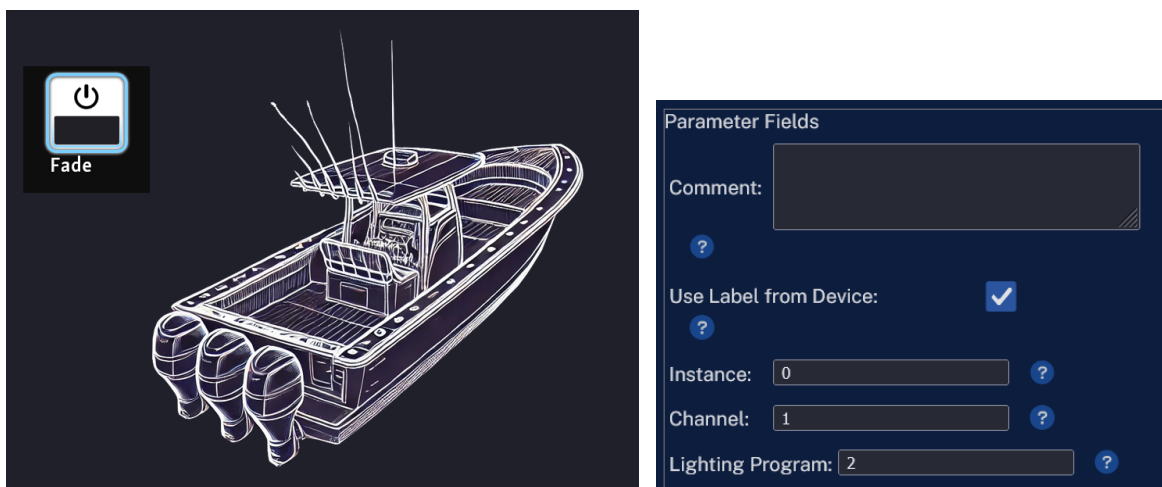


Figure 6 - Lighting Program example

When the Use Label from Device checkbox is checked, the name of the Lighting Program from the Shadow-Caster box will be displayed as the Push Button label.

5 Lighting Scenes

Lighting Scenes are set up in the Shadow-Caster device and are identified by a Scene Index, which is a number. When triggered, a Scene will command one or more Zones to a pre-defined state.

The following Lighting Scenes are pre-defined by NMEA.

- 220 = All Zones On (White)
- 221 = All Zones Off
- 222-252 = Reserved for NMEA

Where a scene references a Color Sequence Index that has more than one color, the active color is not reported on the NMEA 2000 bus; the Lighting Beam components will display white.

The following parameter may be used with Shadow-Caster Lighting Scenes:

5.1 Lighting Scene Parameter

This parameter is displayed on the screen using a Push Button component. The button will always show in the OFF state. Pressing the button will trigger the Lighting Scene.

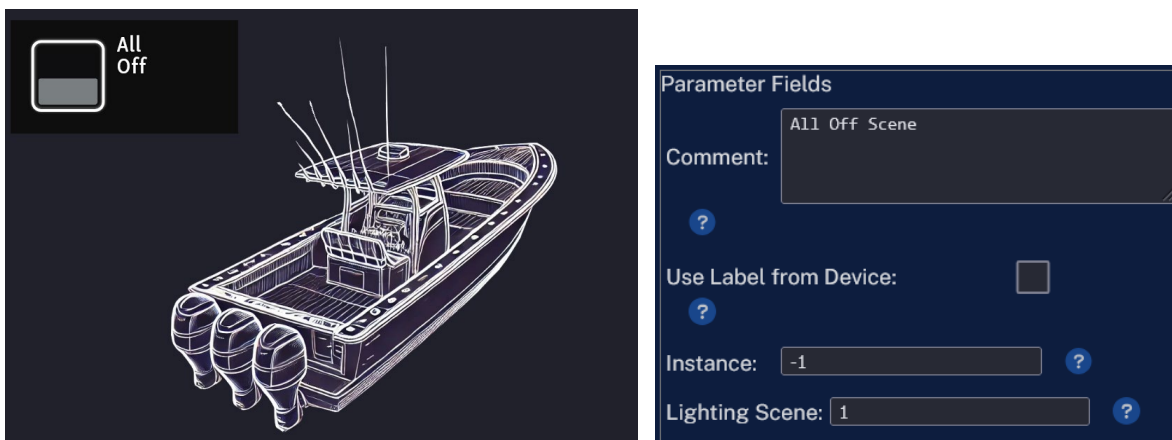


Figure 7 - Lighting Scenes

When the Use Label from Device checkbox is checked, the name of the Lighting Scene from the Shadow-Caster box will be displayed as the Push Button label.

6 Switch Channels

In addition to the NMEA Lighting PGNs, Shadow-Caster also supports the Binary Switch Status PGNs to control individual channels. This PGN can be seen in the Devices dialog. Make a note of the Indicator Bank Instance.

```
{
  "PGN Number": "127501 (Binary Switch Bank Status)",
  "Last received": "from CAN 1 at Thu Mar 06 2025 14:57:29 GMT-0500 (Eastern Standard Time)",
  "Raw Data": "[ 2, 127501, 92, 255, 3, 0, 84, 0, 0, 0, 0, 0, 3, 3, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 3, 3, 3 ]",
  "Bytes": "[ 0x54, 0x00, 0xc0, 0x03, 0x00, 0x00, 0x00, 0xfc ]",
  "Parameters": [
    "Indicator Bank Instance : 84",
    "Status 1 : 0",
    "Status 2 : 0",
    "Status 3 : 0",
    "Status 4 : 0",
    "Status 5 : 0",
    "Status 6 : 0",
    "Status 7 : 0",
    "Status 8 : undefined",
    "Status 9 : undefined",
    "Status 10 : 0",
    "Status 11 : 0",
    "Status 12 : 0",
    "Status 13 : 0",
    "Status 14 : 0",
    "Status 15 : 0",
    "Status 16 : 0",
    "Status 17 : 0",
    "Status 18 : 0",
    "Status 19 : 0",
    "Status 20 : 0",
    "Status 21 : 0",
    "Status 22 : 0",
    "Status 23 : 0",
    "Status 24 : 0",
    "Status 25 : 0",
    "Status 26 : undefined",
    "Status 27 : undefined",
    "Status 28 : undefined"
  ]
},
```

Figure 8 - Shadow-Caster Switch Status

Any of the channels that are transmitting a 0 may be assigned to a CZone Switch Parameter.

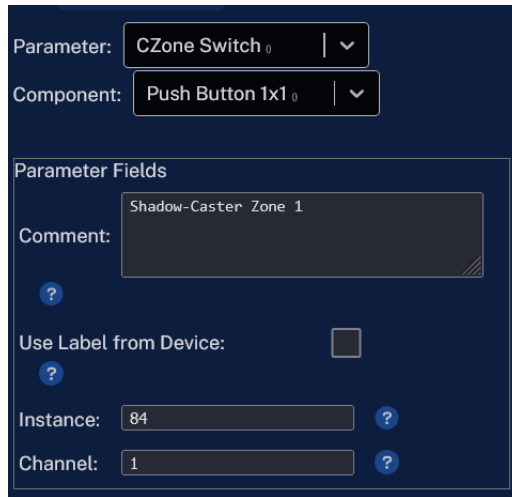


Figure 9 - CZone Switch Fields

The Instance must be the same as the Indicator Bank Instance in PGN 127501.

The Use Label from Device field is not used.

6.1 Zone Control

Status Buttons 1 through 6 are used to control the 6 channels on the box, with Channel 1 controlling Zone Index 0.

A quick press on the button will toggle the light ON and OFF.

A long press on the button will transition the light from dim to bright or from bright to dim. Releasing the press will stop the transition.

6.2 Color Change

Status Button 7 will cycle all the lights through a color sequence. Each time the button is pressed the lights will display the next color in the sequence.

6.3 Scene Control

Status Buttons 10-25 will activate scenes 0-15 in the Shadow-Caster box.

7 Technical Support

If you require technical support for Maretron products, you can reach us in any of the following ways:

Phone: +1-602-861-1707

Telephone: +1-866-550-9100

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