smartswitch
INFORMATION = CONTROL

SMART SWITCH TECHNOLOGIES

NV-2000
Navigational Light Monitor

Installation Manual

Model NV-2000
Installation Manual

Smart Switch Technologies Ltd
Po Box 272, Waikanae, New Zealand
Ph: 0064-4 293-4201 Fax: 0064-4 293-4201
Mobile: 0064-274-919-805
Email: info@smartswitch.co.nz Web: www.smartswitch.co.nz

Table of Contents

NV-2000 Nav Light Monitor

Introduction

Thank you for purchasing the NV-2000 Navigational Light Monitor. Smart Switch Technologies is very proud to be able to provide this product to you. You have selected a capable system designed to provide years of reliable service under the most demanding conditions.

Smart Switch Technologies is a pioneer in the design and development of distributable intelligence controller systems for the marine industry. The NV-2000 Navigational Light Monitor is a versatile, compact, modern, stylish, user-friendly intelligent network system. Our Research and Development Team has developed this system specifically for the marine environment using proven techniques and materials, which will ensure a long life at sea.

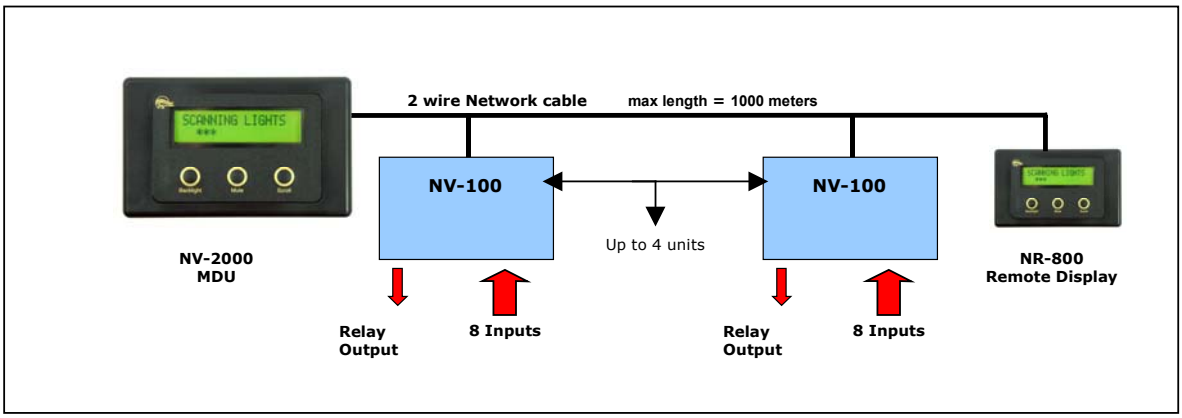
The NV-2000 provides features found only in expensive computer-based systems on mega-yachts, but does so for a fraction of the cost. It is an economical and capable alternative to simplistic monitoring systems. The NV-2000 allows builders and retrofitters to offer a system with maximum functionality thereby providing boat owners with excellent visibility into any alarm condition.

System Overview

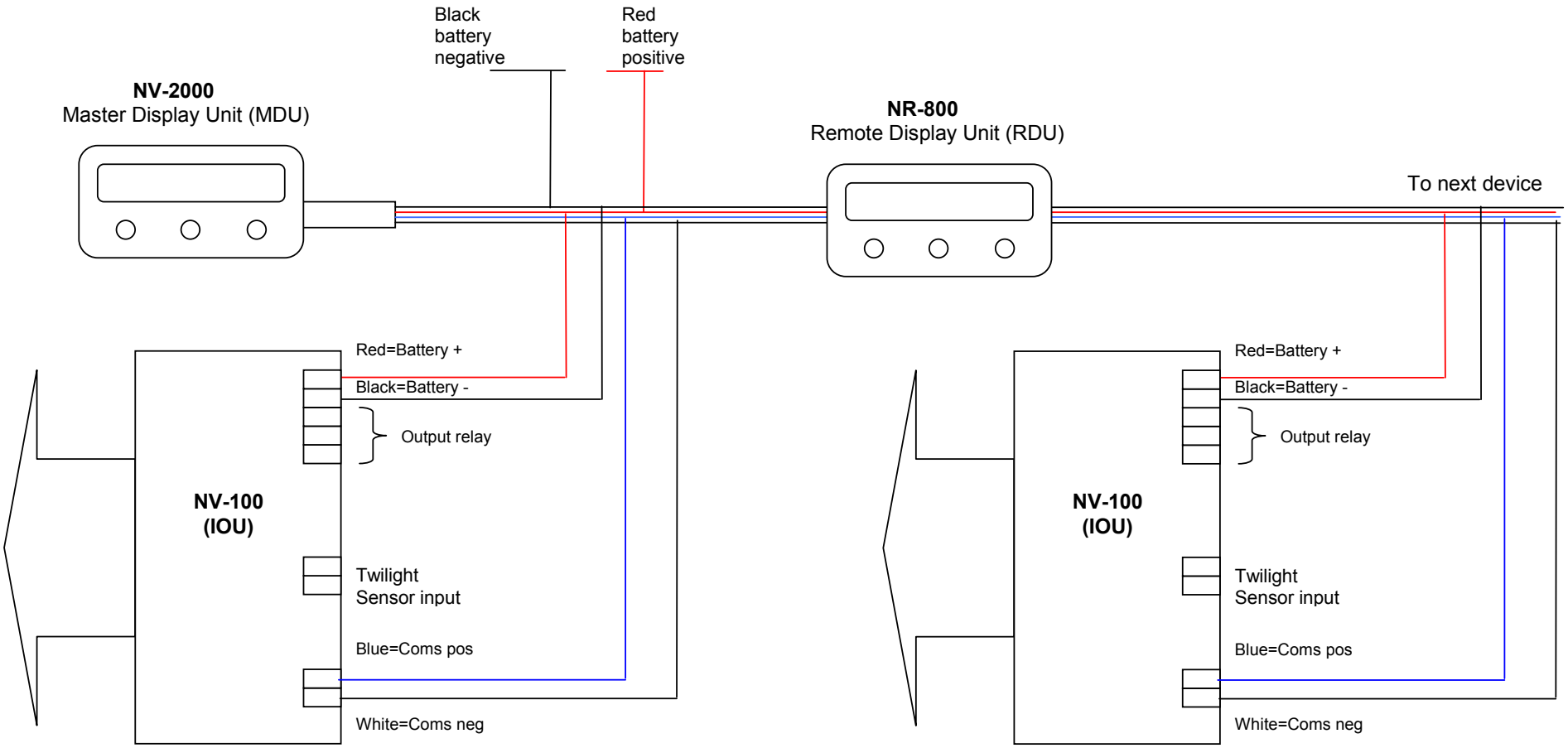
The NV-2000 Navigational Light Monitor has been developed to allow monitoring of up to 32 lights. It is a network system consisting of the NV-2000 Master Display Unit and up to 4 Input/Output Units located any where on the vessel. In addition, and as an option, any number of NV-200 Remote Display Units may be added to provide additional displays throughout the vessel.

A 2-wire network cable similar to that used for telephone installations interconnects all devices. The Master Display Unit (MDU) controls communication with all attached I/O Units. System components may be located anywhere on the network cable and the cable may be up to 1000 meters in length.

These features, unique to the NV-2000, provide boat builders and retrofitters maximum flexibility in locating components onboard the vessel while minimizing wiring costs.



Wiring Block Diagram



Installation Steps

Smart Switch Technologies Ltd recommends a Qualified Marine or Auto-Electrician installs this product.

Step 1:

Install and connect the Master Display Head Unit (NV-2000) page 2.

Step 2:

Install and connect the Input Units (NV-100) page 4.

Step 3:

Setup Rotary Switches page 5.

Step 4:

Program the Display Unit (NV-2000) page 7.

NV-2000 Master Display Unit:

Provides the following functions:

- Provides latched display for up to 32 lights
- All names are user programmable
- Network communication fault
- Visual alarm with tone

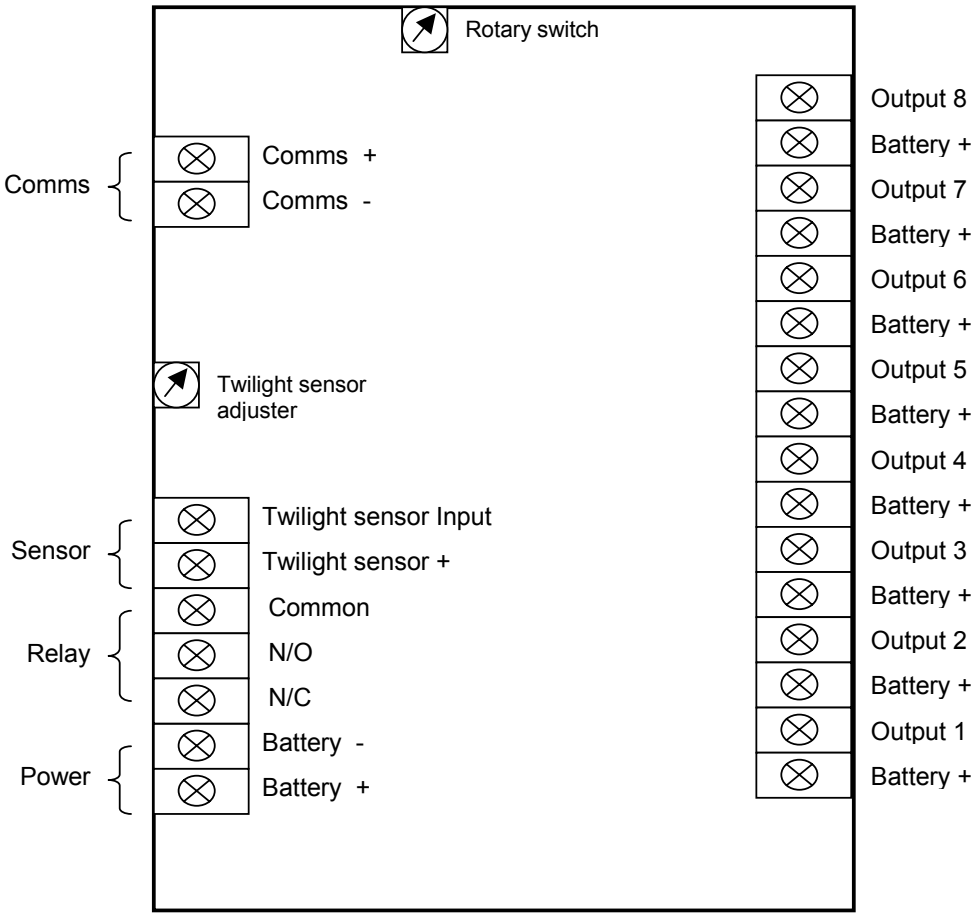
NV-100 Input Unit:

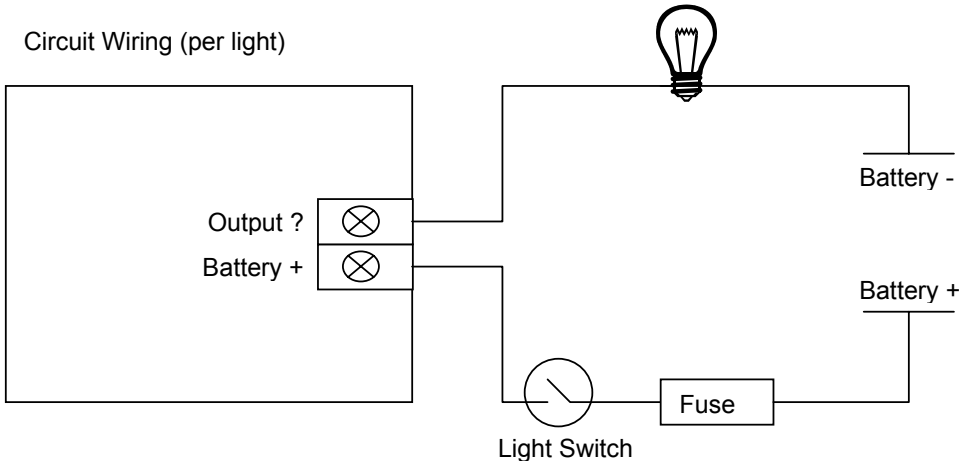
- 8 light inputs and one
- twilight sensor input
- output relay
    - 3 amp inductive
    - closes on any fault

RN-200 Remote Display Unit Option:

Allows for remote displays any where on the vessel.

Wiring Diagram for Model NV-100





Adjusting the Twilight Sensor:

After installing and programming the system, connect the twilight sensor as per the wiring diagram above. During daylight, turn the twilight sensor adjuster until the system alarms with the " NO NAV LIGHTS ON " message displayed. Now turn the adjuster back slowly until the alarm stops and the displayed message disappears. To test cover the sensor to simulate twilight.

Setting Rotary Switch (Network Address)

To enable the MDU to remotely monitor, each I/O (NV-100) unit must have a unique network address. This is accomplished by setting the rotary switch on the side of the I/O unit to either switch position 2, 3, 4 or 5 (ref to page 6).

Important: Each Input Unit NV-100 on the network must have the Rotary Switch set to a unique number. Two I/O units may NOT share the same Rotary Switch number.

For ease of reference please use the chart provided below, as this will enable quick reference when programming the Display Unit.

NV-100 (IOU) Rotary Switch position 2

Switch Position 2 Input	Alarm Input
1	
2	
3	
4	
5	
6	
7	
8	

NV-100 (IOU) Rotary Switch position 3

Switch Position 3 Input	Alarm Input
1	
2	
3	
4	
5	
6	
7	
8	

NV-100 (IOU) Rotary Switch position 4

Switch Position 4 Input	Alarm Input
1	
2	
3	
4	
5	
6	
7	
8	

NV-100 (IOU) Rotary Switch position 5

Switch Position 5 Input	Alarm Input
1	
2	
3	
4	
5	
6	
7	
8	

Programming Instructions

Step 1: Placing the unit in Program Mode

Press and hold down the Backlight & Scroll keys together for three seconds. This will place the unit in program mode.

Step 2: Selecting Which NV-100 to program (Rotary Switch see page 7/8)

The display will now show

Select Switch #
< Down Up >

Use the Backlight or Scroll key to change the switch number, which corresponds to the I/O unit being programmed (refer to page 7/8) for switch numbers.
Once the switch number has been selected push the “Mute” key to accept.

Step 3: Program or Erase

The display will now show

< Erase Prog >

Use the Backlight key to erase or the Scroll key to program. If Backlight is pushed go to step 8 if Scroll is pushed see Step 4.

Step 4: Select Output

Select Output = #
< Down Up >

Use the Backlight or Down keys to change the input number, which corresponds to the input being programmed.
Once the switch number has been selected push the “Mute” key to accept.

Step 7: Selecting /Creating Tank Name

The display will now show:

PORT NAV LIGHT
< Alarm Text >

Use the Scroll or Backlight key to scroll through the pre-named lights. Once you have found the text required or the text you would like to change, push the Mute key. If you want to choose the name on the display push the Mute key again this will take you to step 5. If you would like to change/create your own text name then use the Scroll key to scroll through the alphabet and the Backlight key to change to the next character. When finished push the Mute key this will take you to Step 4.

Step 7: Next or End

The display will now show. Push the Scroll key to program the next I/O unit which will return you back to Step 3 or push the Backlight key to exit from program mode.

< End Next >

Step 8: Erase Tanks

The display will now show " Are U Sure < Y N > " push the Scroll key for NO or the Backlight key for YES. If NO is selected the unit will return back to Step 2 if YES is selected the complete I/O box will be erased for that switch position and the unit will return you back to Step 7.

Are You Sure
<Y N>

Operating Instructions

Keyboard:

1/ Pushing the Backlight button will turn the backlight on, push again to turn off.

2/ Pushing the Mute button will mute any alarm.

Alarms:

Should an lamp cause a fault, the alarm text will flash on the display and the audible alarm will sound.

Pushing the mute button will mute all alarms. If the fault condition is still present the alarm text will stop flashing and stay on, should another fault occur the alarm will start again. If the fault condition has gone the fault text will disappear from the screen.

Normal Operation Screen:

```
SCANNING ALL LIGHTS

**************************
```

Electrical Specifications NV-2000

Supply Voltage	12 to 32 Volts DC (Auto-sensing)
Quiescent Current	0.028 Amps (backlight off)
Data Retention	50 years (without power)

Electrical Specifications NV-200

Supply Voltage	12 to 32 Volts DC (Auto-sensing)
Quiescent Current	0.03 Amps
Data Retention	50 years (without power)

Electrical Specifications NV-100

Supply Voltage	12 to 32 Volts DC (Auto-sensing)
Quiescent Current	0.024 Amps
Input Voltage (max)	30 vdc
High Relay Load	3 amps Inductive
Data Retention	50 years (without power)

Network Cable

The cable connecting the Display Unit to the Input/Output Units is referred to as the network cable and may run up to 1000 meters in total length.

“ Warning ”

If the display unit is being installed in an area where it may experience moisture or wetting, please ensure a bead of silicon is placed behind the unit to prevent water entering via the connection cable.