Installation Manual Marine Pro.

RPS

Redundant Power Selector





Installation Manual

for

RPS

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#### **Redundant Power Selector**

Revision 1.3 Revised November 29, 2017

**Revision history:** 

| Rev. | Date       | Description                               |
|------|------------|-------------------------------------------|
| 1.0  | Sept. 2014 | Initial Revision (former QIG)             |
| 1.1  | 16.01.2017 | Changed to Installation Manual.           |
| 1.2  | 27.09.2017 | Minor updates after review.               |
| 1.3  | 29.11.2017 | Minor updates after Product Sheet update. |

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# Marine Pro.

## Document Information

## About this Manual

This manual has been published primarily for professionals and qualified personnel.

The user of this material is assumed to have basic knowledge in marine systems, and must be able to carry out related electrical work. **Note!** Auto-Maskin continuously upgrades its products and reserves the right to make changes and improvements without prior notice.

All information in this manual is based upon information at the time of printing.

For updated information, please contact your local distributor.

### 🔥 Warning!

Work on the low-voltage circuit should only be carried out by qualified and experienced personnel.

Installation or work on the shore power equipment *must only* be carried out by electricians authorized to work with such installations.

### Responsibilities

#### Warning!

It is the *sole responsibility of the installer* to ensure that the installation work is carried out in a satisfactorily manner, that it is operationally in good order, that the approved material and accessories are used and that the installation meet all applicable rules and regulations.

## **Ordering Information**

The Marine Pro covers a wide range of compatible products within both the 200– and 400 Series. Please visit our web site for more information. http://auto-maskin.com/marine/

## Marine Pro.

# Installation of the RPS

This chapter covers installation of the RPS - Redundant Power Selector.

### Introduction

The RPS is a module with two 24 VDC inputs, PRI and SEC. It also has one 24 VDC output, OUT.

Its purpose is to select seamlessly between the PRI and the SEC inputs to the output OUT. The output voltage is about 0.5 V lower than the selected – PRI or SEC – input voltage.

Normally, the module selects the PRI input channel to the output OUT. At a certain low voltage on the PRI input, the unit switches to the SEC input. This happens without interruption and with zero or very little voltage drop on the output OUT.

The module also has potential free contacts for PRI OK and SEC OK that can be used for alarming purposes.

### Best Practice Installation and Maintenance

We recommend test of backup battery during yearly maintenance.

See over all screw connections for the RPS tighten if necessary.

We recommend using the PRI OK and SEC OK contacts sets for detecting any power issues, and in such cases if available use different power source than the RPS output for these alarms.

## Wiring

The RPS has these main connections:

- 24 VDC PRI (Primary supply)
- 24 VDC SEC (Secondary supply)
- 24 VDC OUT (Output supply)
- Optional PRI OK contact
- Optional SEC OK contact

There is no ON/OFF switch.

### Pin Layout

The RPS pin numbering is as follows:

| Pin# | Description             |
|------|-------------------------|
| 1    | Primary 24 VDC          |
| 2    | Primary 0 VDC           |
| 3    | -                       |
| 4    | -                       |
| 5    | -                       |
| 6    | Secondary 24 VDC        |
| 7    | Secondary 0 VDC         |
| 11   | Primary Good (Common)   |
| 12   | Primary Good;           |
|      | CLOSED; Primary OK      |
|      | OPEN; Primary FAULT     |
| 13   | Secondary Good (Common) |
| 14   | Secondary Good A:       |
|      | CLOSED; Secondary OK    |
|      | OPEN; Secondary FAULT   |
| 15   | -                       |
| 16   | Power Out 0 V           |
| 17   | Power Out 24 VDC        |

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## **Power Supply**

Power Supply Circuit Breaker



The RPS shall have 10 A or smaller circuit breaker on both PRI and SEC input channels to protect the unit.

Even the unit is capable to deliver higher output current under normal condition our recommendation is limit the design at 10 A to protect the RPS under various conditions.

There is no need for an extra circuit breaker on the OUT channel.

# Functional Description

Normally, the RPS will select the PRI voltage to the output OUT.

If the PRI voltage drops below a certain setpoint, then the RPS will select the SEC supply immediately, <u>if</u> this supply is better.

## Voltage Limits

See the table below for voltage limits and conditions.

| Changeover | Conditions                              |
|------------|-----------------------------------------|
| PRI -> SEC | PRI < 18.0 V <u>AND</u><br>SEC > 18.0 V |
| SEC -> PRI | PRI > 19.1 V                            |

## **Current Consumption**

Maximum current consumption on the output OUT <u>shall be limited</u> to 16 A. **Note!** There is no internal limiting circuitry or fuse.

### Power Switching Behaviors

The following oscilloscope pictures shows the voltage drop when switching from primary to secondary supply at different load.





• Yellow = PRI voltage

Please see the datasheet for further information.