



Product Manual 82017
(Revision NEW)
Original Instructions

Input Power Selector Switch

9900-471 for use with
8272-713 Generator Set Control Assembly

Operation Manual



General Precautions

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment.

Practice all plant and safety instructions and precautions.

Failure to follow instructions can cause personal injury and/or property damage.



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Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.



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Warnings and Notices

Important Definitions



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

- **DANGER**—Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING**—Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION**—Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE**—Indicates a hazard that could result in property damage only (including damage to the control).
- **IMPORTANT**—Designates an operating tip or maintenance suggestion.

WARNING

**Overspeed /
Overtemperature /
Overpressure**

The engine, turbine, or other type of prime mover should be equipped with an overspeed shutdown device to protect against runaway or damage to the prime mover with possible personal injury, loss of life, or property damage.

The overspeed shutdown device must be totally independent of the prime mover control system. An overtemperature or overpressure shutdown device may also be needed for safety, as appropriate.

WARNING

**Personal Protective
Equipment**

The products described in this publication may present risks that could lead to personal injury, loss of life, or property damage. Always wear the appropriate personal protective equipment (PPE) for the job at hand. Equipment that should be considered includes but is not limited to:

- Eye Protection
- Hearing Protection
- Hard Hat
- Gloves
- Safety Boots
- Respirator

Always read the proper Material Safety Data Sheet (MSDS) for any working fluid(s) and comply with recommended safety equipment.

WARNING

Start-up

Be prepared to make an emergency shutdown when starting the engine, turbine, or other type of prime mover, to protect against runaway or overspeed with possible personal injury, loss of life, or property damage.

WARNING

**Automotive
Applications**

On- and off-highway Mobile Applications: Unless Woodward's control functions as the supervisory control, customer should install a system totally independent of the prime mover control system that monitors for supervisory control of engine (and takes appropriate action if supervisory control is lost) to protect against loss of engine control with possible personal injury, loss of life, or property damage.

NOTICE**Battery Charging
Device**

To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery from the system.

Electrostatic Discharge Awareness

NOTICE**Electrostatic
Precautions**

Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts:

- Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control).
- Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards.
- Do not touch the components or conductors on a printed circuit board with your hands or with conductive devices.

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual **82715**, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

Follow these precautions when working with or near the control.

1. Avoid the build-up of static electricity on your body by not wearing clothing made of synthetic materials. Wear cotton or cotton-blend materials as much as possible because these do not store static electric charges as much as synthetics.
2. Do not remove the printed circuit board (PCB) from the control cabinet unless absolutely necessary. If you must remove the PCB from the control cabinet, follow these precautions:
 - Do not touch any part of the PCB except the edges.
 - Do not touch the electrical conductors, the connectors, or the components with conductive devices or with your hands.
 - When replacing a PCB, keep the new PCB in the plastic antistatic protective bag it comes in until you are ready to install it. Immediately after removing the old PCB from the control cabinet, place it in the antistatic protective bag.

Input Power Selector Switch

Introduction

The Input Power Selector, located on each of the turbine governor control panels, provides a choice of power supply to the 2301A load sharing and speed control.

The module accepts 115 V supply from the ship's service bus, and either 115 V or 25-30 V 50 to 500 Hz power from the turbine generator's permanent magnet generator. Both AC supplies are bridge rectified to direct current and the two voltage sources are supplied to the switch. If the PMG voltage is 25 to 30 Vac, it is stepped up through a transformer before being rectified. When the switch is to the left the supply from the permanent-magnet generator is selected to supply the control system with 115 V dc power. When the switch is to the right the rectified power from the ship service bus is used to supply the control. When the switch is in the center position the power supply with the higher voltage is selected to supply the 2301A control with power.

LEDs, visible through the Input Power Selector Switch cover, indicate the availability of power. When the green LED is lighted it indicates that power is available from the ship service bus. When the yellow LED is lighted it indicates availability of power from the permanent magnet generator. Under normal operation both LEDs will be lighted with the switch automatically selecting the source with the highest voltage to power the 2301A control. Should a power source be lost for any reason, including the selection of a single source through the manual switch, only the LED indicating the power source selected or available will light.

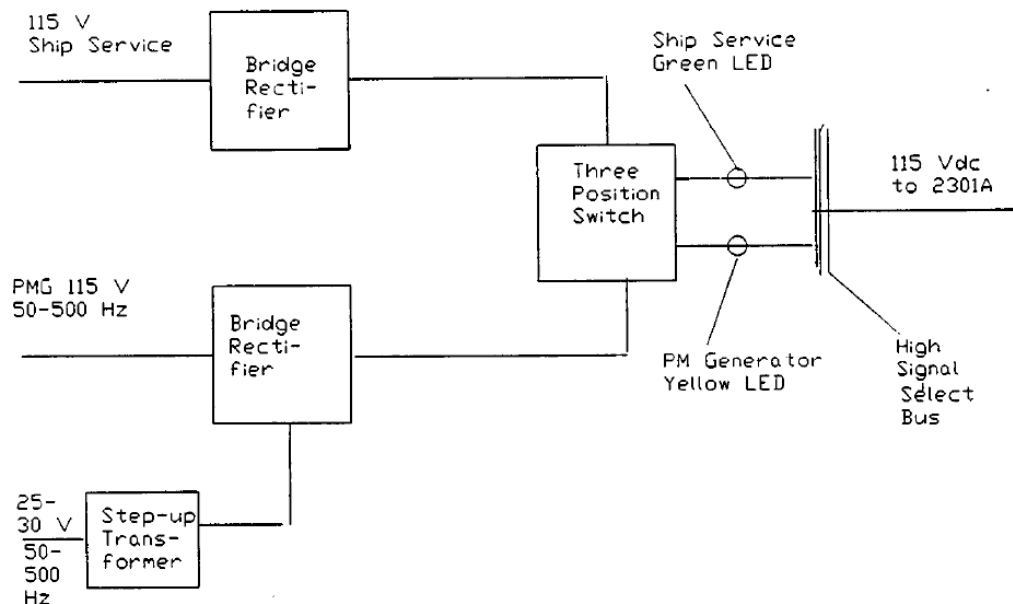


Figure 1. Input Power Selector Switch Block Diagram

Wiring the Switch

Power from the 115 Vac Ship Service bus should be supplied to terminals 1 and 2 on the Input Power Selector Switch. If the permanent magnet generator on the turbine provides 115 V output, connect to terminals 3 and 4 on the selector switch. If the permanent magnet generator provides 256 to 30 V output, connect to terminals 5 and 6 on the power selector switch.

NOTICE

Do not connect 115 V supply to terminals 5 and 6. The step-up transformer connected to these terminals could cause damage to the switch.

Connect terminal 7 on the switch (+) to terminal 16 (+) on the 2301A control.
Connect terminal 8 (-) on the switch to terminal 15 (-) on the 2301A control.

IMPORTANT

This wiring will be completed on the 9905-513 panel.

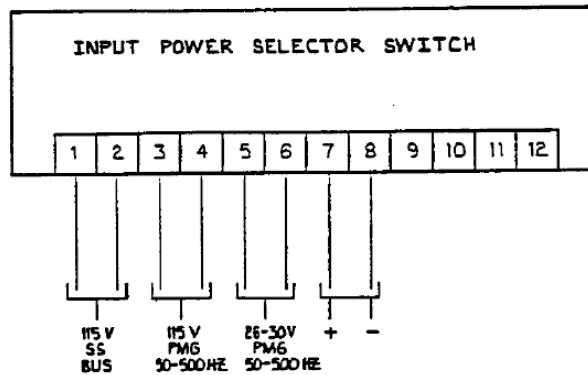
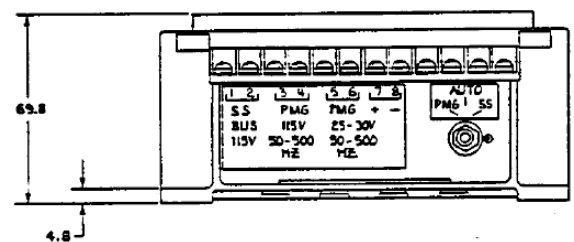
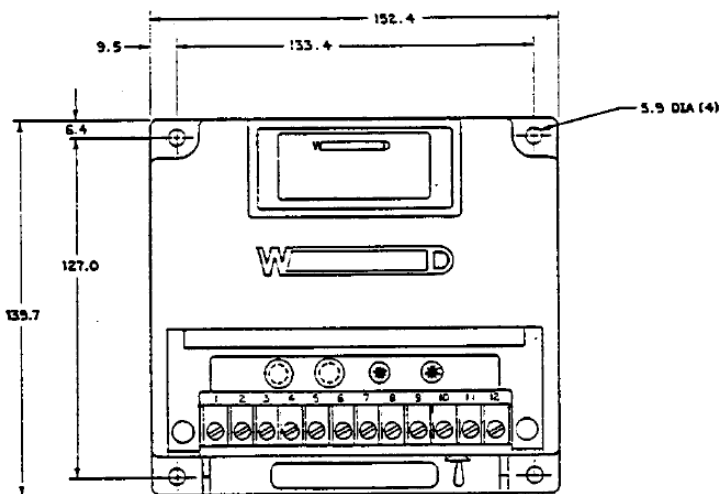


Figure 2. Plant Wiring



CONVERSION CHART	
MM	INCH
4.8	.188
5.9	.234
6.4	.250
9.5	.375
69.8	2.75
127.0	5.000
133.4	5.250
139.7	5.500
152.4	6.000

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Figure 3. Outline Drawing of Input Power Selector Switch

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PO Box 1519, Fort Collins CO 80522-1519, USA
1000 East Drake Road, Fort Collins CO 80525, USA
Phone +1 (970) 482-5811 • Fax +1 (970) 498-3058

Email and Website—www.woodward.com

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