

WOODWARD 9905-003

SPM-A synchronizer with voltage matching

Overview

WOODWARD 9905-003 is an SPM-A synchronizer for matching a generator to another generator or utility bus before paralleling. This 50/60 Hz version uses a +/-10-degree phase window and 5% voltage matching.

01 / Function

Matches generator phase and frequency before paralleling

02 / Function

Provides voltage raise/lower commands to the regulator

03 / Function

Permits a synchronizing check without breaker closure

04 / Function

Supports governor-specific speed-bias connections

PARAMETER		SPECIFICATION
Country of origin		USA
HS / tariff code		8537101190
Shipping origin		Xiamen, Fujian, China
Stock / delivery		1 / 3 days; fast shipment

Install the synchronizer with the switchgear and match its bus/generator inputs and speed-bias interface to the plant wiring drawing. Qualified personnel must complete the ordered calibration and checkout procedure before enabling breaker closure.

Technical parameter dashboard

WOODWARD 9905-003

PARAMETER	SPECIFICATION
Product family	SPM-A
Frequency	50/60 Hz
Phase matching window	+/-10 degrees
Voltage matching tolerance	5%
Bus / generator input	115 or 230 V AC rms
Input voltage tolerance	+/-10%
Maximum power consumption	5 W
Operating modes	RUN, CHECK, PERMISSIVE, OFF
Match-up time selections	0.125, 0.25, 0.5 or 1 s
Factory dwell-time setting	0.5 s

PARAMETER	SPECIFICATION
Breaker-close contact	Normally open
Breaker-close command duration	Approximately 1 s
Resistive contact rating, DC	10 A at 28 V DC
Resistive contact rating, AC	3 A at 120 V AC, 50/60 Hz
Inductive contact rating, DC	6 A at 28 V DC
Inductive contact rating, AC	2 A at 120 V AC, 50/60 Hz
Synchronizer reset	Automatic
Speed-bias interfaces	High impedance, low impedance and EPG
Maximum operating temperature range	-45 to +70 deg C
Optimal operating temperature range	+10 to +30 deg C

Control-interface planning

Match the speed-bias output to the installed governor/load-sharing control and select the input terminals for the actual bus and generator voltage. CHECK mode permits synchronization and voltage matching without issuing the breaker-close signal.

Technical source: Woodward Product Manual 82384, Revision U (10/2007), SPM-A Synchronizer; printed pages 1-3, 8-15 and 23. Commercial fields supplied by Apter Power.

Application and installation

WOODWARD 9905-003

Generator-to-bus paralleling

Match an offline generator to the utility or generator bus before enabling the breaker-close command.

Voltage-regulator coordination

Use the voltage-matching version's raise/lower contact commands with the installed voltage regulator.

Bus-to-bus synchronization

Apply the documented arrangement for an isolated bus with up to seven parallel generators.

Synchronizing checkout

Use CHECK mode to observe synchronizing and voltage matching without a breaker-close command.

Product Precautions

01 / Check

Confirm part number 9905-003 and its 50/60 Hz, +/-10-degree and 5% option values.

02 / Check

Isolate all synchronizer voltage inputs before removing the cover or changing internal dwell-time switches.

03 / Check

Wire bus and generator inputs for the installed voltage using the manufacturer's plant diagram.

04 / Check

Choose the speed-bias output that matches the actual governor or load-sharing control.

05 / Check

Connect the cable shield at the control end only as specified for the speed-bias wiring.

06 / Check

Keep the mode switch OFF while other engine-control units are being adjusted.

07 / Check

Use CHECK mode for synchronizing observation when breaker closure must remain inhibited.

08 / Check

Protect the unit from water and condensation; complete the specified calibration and plant acceptance checks before RUN operation.

Technical notes: Match the speed-bias output to the installed governor/load-sharing control and select the input terminals for the actual bus and generator voltage. CHECK mode permits synchronization and voltage matching without issuing the breaker-close signal.

Important Notice: Verify WOODWARD 9905-003 rather than another SPM-A option: the phase window and voltage tolerance are part-number-specific. Isolate voltage inputs and observe the manufacturer's electrical and ESD precautions before work.

Engineering FAQ

WOODWARD 9905-003 / same answers as the product page

Which synchronizing tolerances identify WOODWARD 9905-003?

The exact option chart lists 50/60 Hz, a +/-10-degree phase window and 5% voltage matching. Other SPM-A part numbers have different combinations.

How is dwell time selected on WOODWARD 9905-003?

The internal four-position switch selects 1/8, 1/4, 1/2 or 1 second; the factory setting is 1/2 second. All voltage inputs must be turned off before opening the cover to change it.

Can WOODWARD 9905-003 synchronize one isolated generator bus to another bus?

The manual describes bus-to-bus synchronization of up to seven generators already operating in parallel on the isolated bus. The control-specific resistor and wiring requirements still apply.

What input supply is specified for WOODWARD 9905-003?

The specification lists bus and generator inputs of 115 or 230 V AC rms, 50/60 Hz, with +/-10% voltage tolerance. Maximum power consumption is 5 W.

Does CHECK mode on WOODWARD 9905-003 close the breaker?

No. CHECK permits normal synchronizing and voltage matching but inhibits the breaker-closure signal. RUN is a separate operating mode.

How should the WOODWARD 9905-003 speed-bias output be chosen?

Use the high-impedance output for the documented 2301 arrangement, the low-impedance output for the listed compatible load-sharing controls, or the EPG output for EPG controls without load sensing. Follow the relevant wiring diagram.

Are the WOODWARD 9905-003 relay ratings identical for resistive and inductive loads?

No. At 28 V DC the ratings are 10 A resistive and 6 A inductive. At 120 V AC, 50/60 Hz, they are 3 A resistive and 2 A inductive.

What does the initial bench test establish for WOODWARD 9905-003?

The manual states that the bench test indicates basic operation only and is not a basis for adjustment. Complete the required calibration and checkout sequence for the installed system.

Catalogue and contact

Eight verified product links / navigation only, not approved substitutes

BRAND + MODEL	RELATION	PRODUCT LINK
WOODWARD 9907-186	Engine-control catalogue	Explore WOODWARD 9907-186 page
WOODWARD 8237-1246	Protection catalogue	Explore WOODWARD 8237-1246 page
WOODWARD 8200-203	Protection catalogue	Explore WOODWARD 8200-203 page
WOODWARD 8280-192	Speed-control catalogue	Explore WOODWARD 8280-192 page
WOODWARD 8280-4001	Engine-control catalogue	Explore WOODWARD 8280-4001 page
WOODWARD 8440-1947	Synchronizing catalogue	Explore WOODWARD 8440-1947 page
WOODWARD 8406-113	Operator-system catalogue	Explore WOODWARD 8406-113 page
WOODWARD 8440-2028	Expansion catalogue	Explore WOODWARD 8440-2028 page

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WOODWARD
9905-003

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The reference manual supplies the technical evidence. Catalogue links are separate navigation aids and do not imply compatibility.