Woodward 9905-003

01 Generator Synchronizer / system role

Product function

Woodward 9905-003 coordinates generator speed and voltage with the bus conditions and issues a breaker-close command only within the configured synchronizing criteria.

Selected configuration

The bus and generator sensing inputs use 115 or 230 V AC RMS at 50/60 Hz, with ±10% voltage tolerance. The exact 9905-003 variant uses a ±10° phase window and 5% voltage matching; the limits of adjacent SPM-A variants are different.

Functional path

Bus and generator sensing	Phase/voltage comparison	Governor correction	Breaker-close command

Matching	±10° phase and 5% voltage
Frequency	50/60 Hz generator systems
Command	Normally open breaker-close relay

The synchronizer provides control outputs for the appropriate Woodward governor/control interfaces and a normally open breaker-close relay. The close command lasts approximately one second, so the breaker circuit and timing must be coordinated with that behavior.

9905-003

02 Technical operating envelope

Nominal frequency	50/60 Hz
Phase-angle window	±10°
Voltage matching	5%
Sensing voltage	115 or 230 V AC RMS, ±10%
Power consumption	5 W maximum
Breaker-close contact	Normally open

Close-command duration	Approximately 1 s
Resistive contact load	10 A at 28 V DC; 3 A at 120 V AC
Inductive contact load	6 A at 28 V DC; 2 A at 120 V AC
Match-up time	1/8, 1/4, 1/2 or 1 s; factory 1/2 s
Operating modes	RUN, CHECK, PERMISSIVE, OFF
Operating temperature	−45 to +70 °C

9905-003 selects 50/60 Hz, a ±10° phase window and 5% voltage matching. Other SPM-A order variants have different matching limits.

Operating interpretation

The relay contact is a command interface; its pulse and load ratings do not establish the mechanical closing time or interrupting capability of the breaker.

Configuration boundary

No drop-in replacement is established for this obsolete configuration. Compare matching thresholds, governor interface and breaker logic before designing a migration.

Why are the resistive and inductive relay ratings of 9905-003 different?

Inductive loads impose different switching stress. Apply the inductive contact rating to a coil circuit rather than using the higher resistive rating.

9905-003

03 System integration and applications

Generator-to-bus synchronizing

Coordinate a 50/60 Hz generator with bus voltage and phase before paralleling.

Governor coordination

Use the supported SPM-A control interface for the installed speed-control system.

Breaker close permissive

Provide the configured normally open close command within the engineered breaker circuit.

Commissioning checks

Use the operating modes to test the matching sequence under a controlled generator procedure.

System and supply context

Woodward 9905-003 operates within the following defined system context. Preserve the 9905-003 matching limits and governor interface.

Application boundary

The applications below describe its technical role. Select associated hardware and configuration for the actual installation.

What voltage can the sensing inputs of 9905-003 accept?

The bus and generator inputs are rated for 115 or 230 V AC RMS at 50/60 Hz with ±10% voltage tolerance, using the correct installation arrangement.

9905-003

04 Engineering selection decisions

Which synchronizing limits distinguish 9905-003 from other SPM-A variants?

It combines 50/60 Hz operation, a ±10° phase-angle window and 5% voltage matching. Other order numbers can use different phase or voltage limits.

How long does the breaker-close command from 9905-003 last?

The command duration is approximately one second. Check the breaker control circuit against that pulse behavior.

Can 9905-003 be tested without immediately authorizing a live breaker closure?

Its operating modes include CHECK as well as RUN, PERMISSIVE and OFF. Use the appropriate controlled test arrangement and keep the breaker circuit secured during setup.

Can another SPM-A number be substituted directly for 9905-003?

Not solely because it belongs to the same family. Matching limits and control-interface arrangements differ, and the replacement requires an engineered comparison.

Assess the close pulse	Verify the approximately one-second close-command behavior using a controlled test circuit. Ensure that the receiving breaker circuit responds as intended without repeated unintended operation.
Retain the generator settings	Save sensing connections, matching variant, mode settings, match-up time and breaker-test results. Keep the governor and breaker configuration with the synchronizer replacement record.

9905-003

05 Configuration boundary and references

Lifecycle and support

9905-003 has been declared obsolete. A direct drop-in replacement is not identified; any migration requires an engineered comparison of synchronizing limits and control interfaces. Apter Power availability is separate from manufacturer production and support.

Replacement assessment

No drop-in replacement is established for this obsolete configuration. Compare matching thresholds, governor interface and breaker logic before designing a migration.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains selection and system context. The separate installation guide covers preparation, connection, tests and handover; use it together with the applicable manufacturer instructions.

Technical basis

Woodward SPM-A Synchronizer Manual 82384U.

Related product navigation

- Woodward 9907-018
- Woodward 9905-096

These are related references, not confirmed substitutes or an automatically approved assembly.

Product enquiries