

## SPM-A Synchronizer Specifications

### Woodward Part Numbers:

|                   |                                                             |
|-------------------|-------------------------------------------------------------|
| 9905-001/9907-028 | 50/60 Hz, $\pm 10^\circ$ phase angle, no voltage matching   |
| 9905-002/9907-029 | 50/60 Hz, $\pm 10^\circ$ phase angle, 1% voltage matching   |
| 9905-003          | 50/60 Hz, $\pm 10^\circ$ phase angle, 5% voltage matching   |
| 9905-004          | 50/60 Hz, $\pm 5^\circ$ phase angle, no voltage matching    |
| 9905-005          | 50/60 Hz, $\pm 5^\circ$ phase angle, 1% voltage matching    |
| 9905-006          | 50/60 Hz, $\pm 10^\circ$ phase angle, 0.5% voltage matching |
| 9905-008          | 400 Hz, $\pm 10^\circ$ phase angle, 1% voltage matching     |
| 9905-009          | 50/60 Hz, $\pm 10^\circ$ phase angle, 10% voltage matching  |
| 9905-107          | 50/60 Hz, $\pm 15^\circ$ phase angle, 5% voltage matching   |

### Inputs

|                             |                              |
|-----------------------------|------------------------------|
| Voltage (bus and generator) | 115 or 230 Vac rms, 50/60 Hz |
| Voltage Tolerance           | $\pm 10\%$                   |
| Power Consumption           | 5 W maximum                  |

### Outputs

|                       |                                                                                                                                                                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control Compatibility | high impedance output for 2301 load sharing controls<br>low impedance output for 2301A, EPG, and 2500 load sharing controls; and EGA, and EGM controls with external resistor<br>EPG output for EPG controls without load sharing<br>normally open contact provided |
| Breaker Close Relay   |                                                                                                                                                                                                                                                                     |
| Breaker Close Relay   |                                                                                                                                                                                                                                                                     |
| Contact Ratings       |                                                                                                                                                                                                                                                                     |

#### Resistive Loads:

|                          |
|--------------------------|
| 10 A at 28 Vdc           |
| 3 A at 120 Vac, 50/60 Hz |

#### Inductive Loads:

|                          |
|--------------------------|
| 6 A at 28 Vdc            |
| 2 A at 120 Vac, 50/60 Hz |

|                                |                  |
|--------------------------------|------------------|
| Breaker Close Command Duration | approx. 1 second |
|--------------------------------|------------------|

### Selections and Adjustments

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Operating Modes        | RUN, CHECK, PERMISSIVE, OFF                                                            |
| Synchronizer Reset     | automatic reset                                                                        |
| Phase Match Window     | $\pm 5^\circ$ , $\pm 10^\circ$ , $\pm 15^\circ$ available                              |
| Match-up Time          | 1/8, 1/4, 1/2, 1 second field-selectable internally<br>(factory default is 1/2 second) |
| Voltage Matching Range | 0.5%, 1%, 5%, 10% available                                                            |

### Physical Installation

|                                     |                                                                |
|-------------------------------------|----------------------------------------------------------------|
| Location                            | mount with switch gear                                         |
| Weight                              | 2.2 kg (5 lbs)                                                 |
| Maximum Operating Temperature Range | $-45$ to $+70^\circ\text{C}$ ( $-49$ to $+158^\circ\text{F}$ ) |
| Optimal Operating Temperature Range | $+10$ to $+30^\circ\text{C}$ ( $+50$ to $+86^\circ\text{F}$ )  |