



SPM-D10 Series

One Breaker Synchronizer

APPLICATIONS

The SPM-D10 is a microprocessor-based synchronizer designed for use on three phase AC generators equipped with Woodward or other compatible speed controls and automatic voltage regulators. The SPM-D10 synchronizer provides automatic frequency, phase and voltage matching using either analog- or discrete output bias signals.

Part-No. 8440-1668 SPM-D1040B/**XN** is a direct replacement of the SPM-A synchronizer.

DESCRIPTION

Synchronizing

- Phase match or slip frequency synchronization with voltage matching
- Two-phase sensing of generator and bus
- Selectable operating modes like SPM-A (Run, Check, Permissive, and OFF)
- Synchro-check possible
- Synchronization time monitoring

Isolated operation

- Frequency control
- Voltage control

DESCRIPTION

Dead bus operation

- Closing of CB on demand

Control outputs

Standard

- Discrete raise/lower for speed
- Discrete raise/lower for voltage

X & XN Packages

- Analog bias outputs for voltage and speed freely configurable for all levels (+/-1 V, +/-3 V, 0 to 5 V, 0.5 to 4.5 V, +/-10 V +/-5 V, 0 to 20 mA, +/-20 mA, and much more configurable)
- Speed bias output configurable as 500 Hz PWM output with adjustable voltage level
- Two raise/lower outputs configurable for either speed or voltage

Operating Features

- Two-line Liquid Crystal display for operation and alarm indication
- Synchroscope
- Indication of control activity and breaker state
- Multi-level password protection for parameters
- Configuration directly or via PC
- English or German language adjustable

FURTHER SPM-D SYNCHRONIZERS

- The SPM-D10/**YB** Series provides three-phase generator and bus measurement refer to product specifications 37298 for more information
- The SPM-D11 Series provides load/var sharing refer to product specifications 37292 for more information

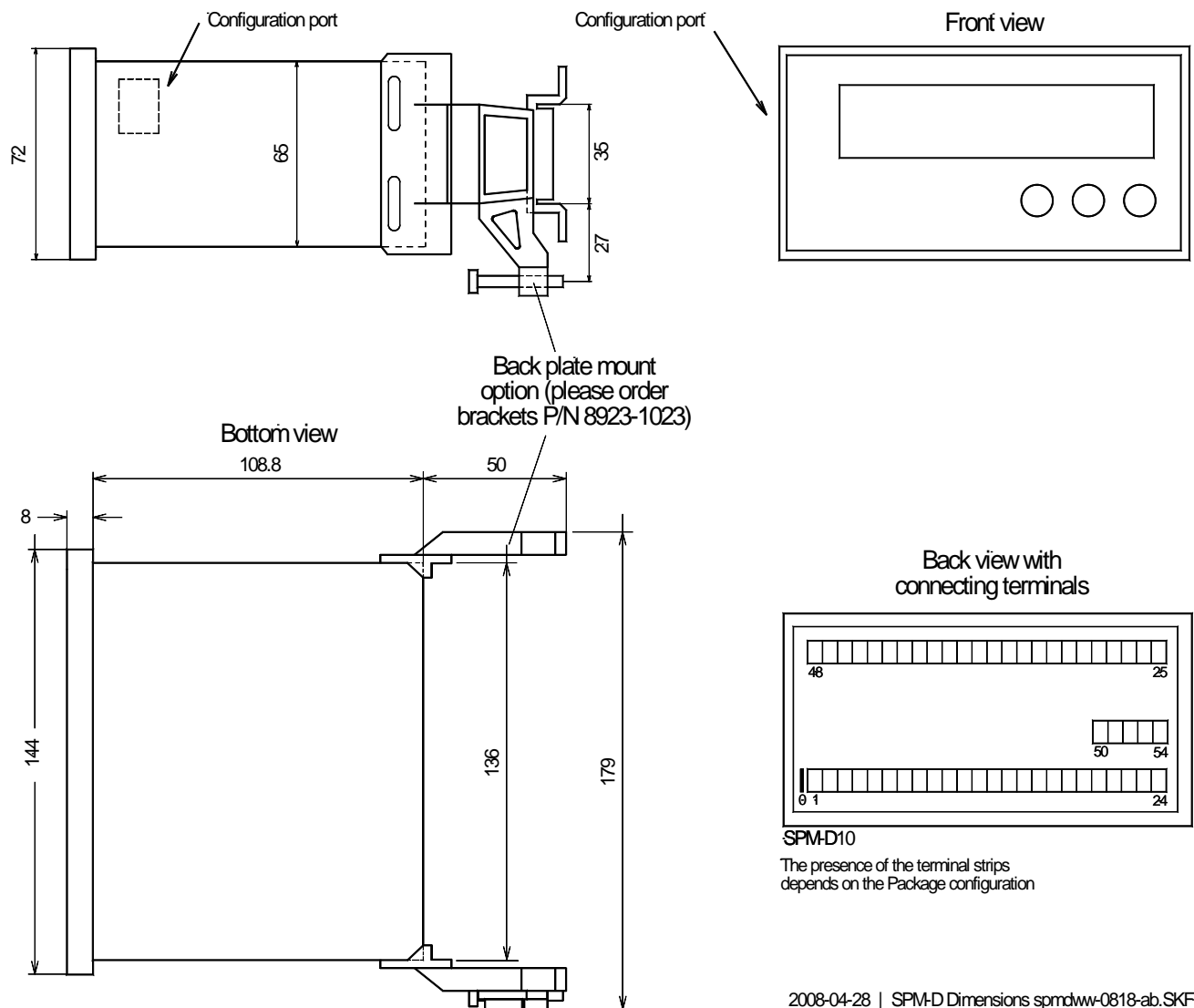
- Synchronization for one circuit breaker
- Frequency, phase, and voltage matching
- Selectable types of control output
- Digital display of generator and bus values
- Microprocessor technology for flexible and reliable operation
- Wide range power supply available
- Additional mains protection and display of mains values available
- PC and front panel configurable
- CE marked
- UL/cUL Listed

SPECIFICATIONS (for more see specific manuals)

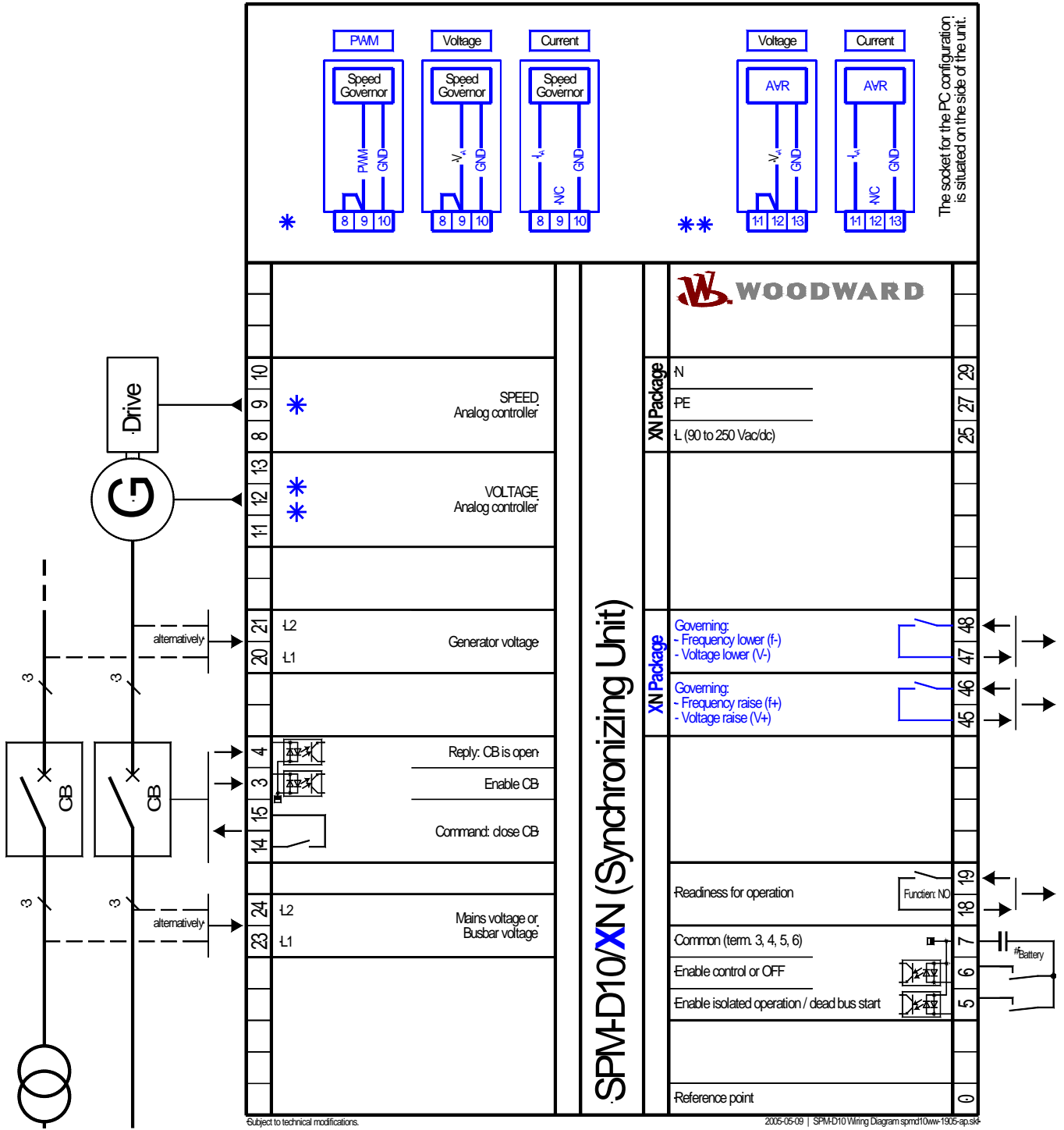
| | | |
|---------------------------------------|------------------------------------|--------------------------------------|
| Accuracy | Class 1 | |
| Power supply | [Standard] 24 Vdc (+/-25 %) | |
| | [N & XN Packages] 90 to 250 Vac/dc | |
| Intrinsic consumption | max. 10 W | |
| Ambient temperature | -20 to 70 °C | |
| | [N & XN Packages] -20 to 60 °C | |
| Ambient humidity | 95 %, non-condensing | |
| Voltage | Rated \sqrt{D} : | [1] 66/115 Vac or [4] 230/400 Vac |
| | Maximum value (V_{max}): | [1] 150 Vac or [4] 300 Vac |
| | Rated voltage $V_{ph-ground}$: | [1] 150 Vac or [4] 300 Vac |
| | Rated surge voltage: | [1] 2.5 kV or [4] 4.0 kV |
| Measuring frequency | 40 to 70 Hz | |
| Linear measuring range up to | 1.3× V_{rated} | |
| Input resistance | [1] 0.21 MW, [4] 0.696 MW | |
| Max. power consumption per path | < 0.15 W | |
| Discrete inputs | isolated | |
| Input range | max. 250 Vac or dc | |
| Input resistance | approx. 68 kW | |

| | |
|------------------------------------|--|
| Relay outputs | isolated |
| Contact material | AgCdO |
| Load (GP) | 2.00 Aac@250 Vac |
| | 2.00 Adc@24 Vdc / 0.36 Adc@125 Vdc / 0.18 Adc@250 Vdc |
| Pilot duty (PD) | 1.00 Adc@24 Vdc / 0.22 Adc@125 Vdc / 0.10 Adc@250 Vdc |
| Housing | Type APRANORM DIN 43 700 |
| Dimensions | 144×72×122 mm |
| Front cutout | 138[+1.0]×67[+0.7] mm |
| Connection | screw/plug terminals depending on connector 1.5 mm ² or 2.5 mm ² |
| Front | insulating surface |
| Protection system | with correct installation |
| | Front..... IP42 |
| | (sealed IP54; gasket kit = P/N 8923-1037) |
| | Back..... IP21 |
| Weight | approx. 800 g |
| Disturbance test (CE) | tested according to applicable EN guidelines |
| Listings | UL/cUL listed (voltages up to 300 Vac) |

DIMENSIONS



WIRING DIAGRAM



Subject to technical modifications.

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FEATURES OVERVIEW

| SPM-D10 Series Synchronizer #1 | SPM-D10 | SPM D10/N | SPM-D10/X | SPM D10/XN | |
|--------------------------------|-----------------------------|-----------|-----------|------------|-----------|
| Measuring/Display | | | | | |
| Generator voltage, 2phase | ü | ü | ü | ü | |
| Busbar voltage, 2phase | ü | ü | ü | ü | |
| Mains voltage, 3phase | | | | | |
| Control | | | | | |
| Breaker | 1 | 1 | 1 | 1 | |
| Synchronization, 2phase | ü | ü | ü | ü | |
| Isolated operation | ü | ü | ü | ü | |
| Controller | | | | | |
| Discrete raise/lower: speed | ü | ü | ü #2 | ü #2 | |
| Discrete raise/lower: voltage | ü | ü | ü #2 | ü #2 | |
| Analog output: speed | | | ü | ü | |
| Analog output: voltage | | | ü | ü | |
| PMW output: speed | | | ü | ü | |
| Listings/Approvals | | | | | |
| CE marked | ü | ü | ü | ü | |
| UL/cUL listed | ü | ü | ü | ü | |
| Accessories | | | | | |
| Configuration via PC #3 | ü | ü | ü | ü | |
| Power supply | | | | | |
| 24 Vdc | ü | | ü | | |
| Wide range 90 to 250 Vac/dc | | ü | | ü | |
| | English | 37215 | 37215 | 37215 | |
| | German | GR37215 | GR37215 | GR37215 | |
| Part numbers P/N | | | | | |
| | Measuring inputs 100 Vac | 5448-890 | 8440-1432 | 5448-893 | 8440-1667 |
| | Measuring inputs 400 Vac #4 | 8440-1019 | 8440-1433 | 8440-1301 | 8440-1668 |

#1 Information about the SPM-D10YB can be found in the separate product specs 37298

#2 Configurable to either speed or voltage

#3 Cable incl. software necessary (DPC)

#4 All units with 400V measuring inputs can also be used for 100V system voltage