



SPM-D10/YB

Three Phase Synchronizer

APPLICATIONS

The SPM-D10/YB 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/YB synchronizer provides automatic frequency and voltage matching using discrete output bias signals.

DESCRIPTION

Synchronizing

- Slip frequency synchronization with voltage matching
- Three-phase sensing of generator and bus (adjustable measurement three-phase or two-phase)
- Synchro-check functions possible
- Synchronization time monitoring
- A discrete input can utilize an adjustable closure relay for slip synchronizing or dead bus closure

Isolated operation

- Frequency control
- Voltage control

Dead bus operation

- Closing of CB on demand
- Dead bus check adjustable for any application
 - a) System 1 live – system 2 dead
 - b) System 1 dead – system 2 live
 - c) System 1 dead – system 2 dead

FURTHER SPM-D SYNCHRONIZERS

- The SPM-D10 Series provides two-phase generator and bus measurement refer to product specifications 37297 for more information
- The SPM-D11 Series provides load/var sharing refer to product specifications 37292 for more information
- The SPM-D21 Series provides synchronizing for two circuit breakers and load control refer to product specifications 37293 for more information

DESCRIPTION

Control outputs

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

Operating Features

- Two-line Liquid Crystal display for operation and alarm indication
- Synchroscope
- Indication of control activity and breaker state
- Configuration directly
- English or German language adjustable
- Blocking of configuration by digital input
- Check of parameter change by software sealing function

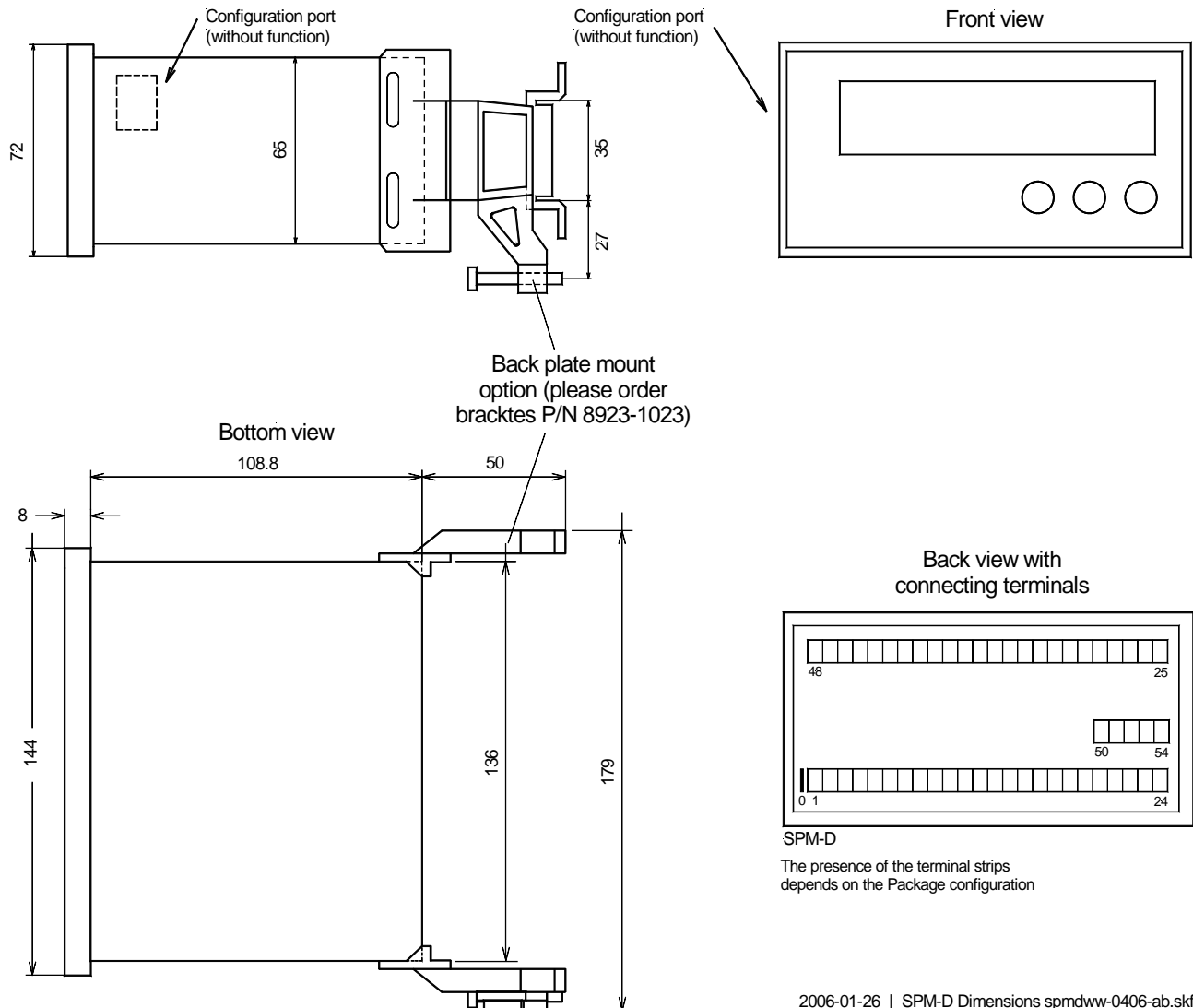
- Synchronization for one circuit breaker
- Frequency and voltage matching
- Discrete raise/lower control output
- Digital display of generator and bus values
- Front panel configurable
- Wide range power supply available
- CE marked
- UL/cUL Listed

SPECIFICATIONS (for more see specific manuals)

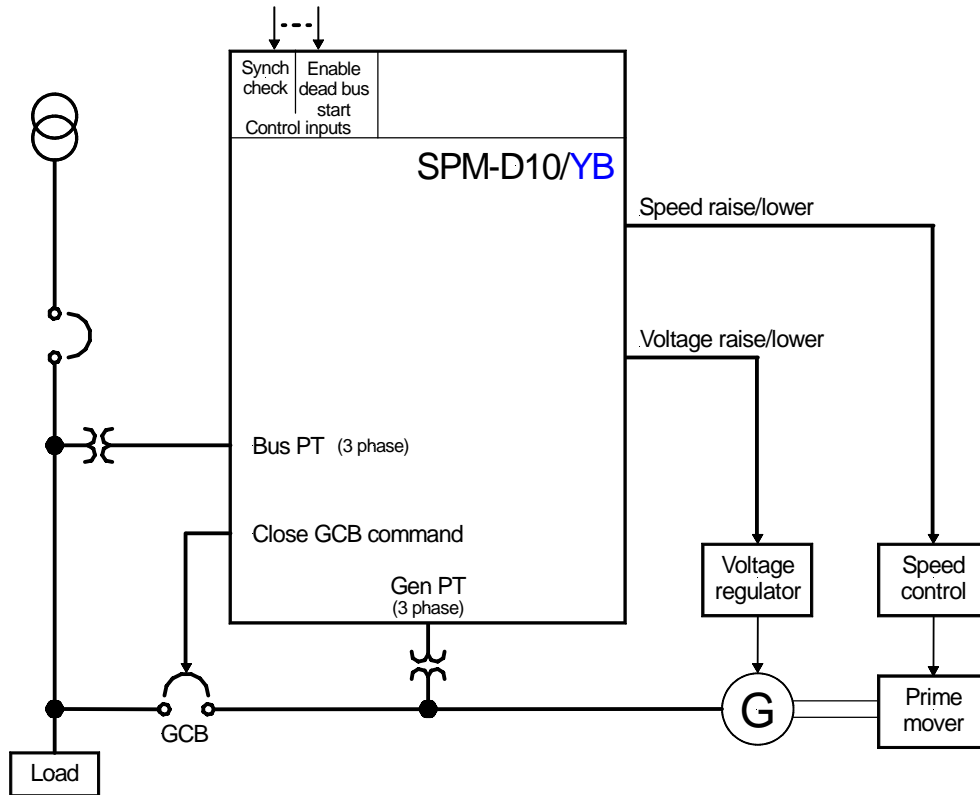
Accuracy	Class 1	
Power supply	[YB Package] 24 Vdc (+/-25 %)	[NYB Package] 90 to 250 Vac/dc
Intrinsic consumption	max. 10 W	
Ambient temperature	-20 to 70 °C	
Ambient humidity	95 %, non-condensing	
Voltage	Rated λ/Δ :	[1] 66/115 Vac or [4] 230/400 Vac
	Maximum value (V_{max}):	[1] 150 Vac or [4] 300 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 M Ω , [4] 0.696 M Ω	
Max. power consumption per path	< 0.15 W	
Discrete inputs	isolated	
Input range	max. 250 Vac or dc	
Input resistance	approx. 68 k Ω	

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 Aac@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
	(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

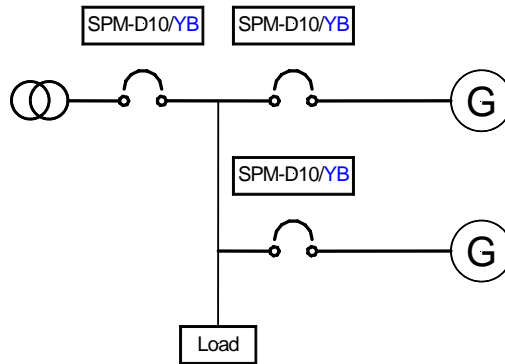


APPLICATION DIAGRAM

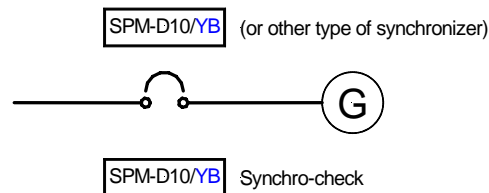


APPLICATION EXAMPLES

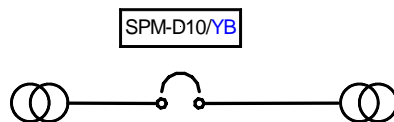
- generator synchronizer or mains synchronizer



- synchronizing with additional synchro-check



- power station: slip synchronizer with multiple dead bus operation



FEATURES OVERVIEW

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SPM-D10YB Synchronizer #1	SPM-D10YB	SPM D10NYB
Measuring/Display		
Generator voltage, 3/2 phase	✓	✓
Busbar voltage, 3/2 phase	✓	✓
Control		
Breaker	1	1
Synchronization, 3/2 phase	✓	✓
Enhanced dead bus start functionality #2	✓	✓
Isolated operation	✓	✓
Controller		
Discrete raise/lower: speed	✓	✓
Discrete raise/lower: voltage	✓	✓
Listings/Approvals		
CE marked	✓	✓
UL/cUL listed	✓	✓
Power supply		
24 Vdc	✓	
Wide range 90 to 250 Vac/dc		✓
Manuals		
	English	37134
	German	GR37134
Part numbers P/N		
	Measuring inputs 100 Vac	5448-906
	Measuring inputs 400 Vac #3	8440-1021
		8440-1434
		8440-1435

#1 Information about all other SPM-D10 models can be found in the separate product specs 37297
 #2 Black start (closing to de-energized second side of a breaker for following conditions):
 - dead system 1 - live system 2
 - live system 1 - dead system 2
 - dead system 1 - dead system 2
 #3 All units with 400V measuring inputs can also be used for 100V system voltage

Subject to technical modifications.

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