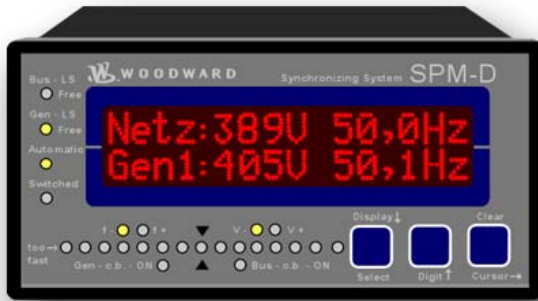


SPM–D Synchronizer



APPLICATIONS

The Woodward SPM–D is a micro processor based synchronizer designed for use on three phase AC generators equipped with Woodward or other compatible speed controls and compatible Automatic Voltage Regulators.

Optional Mains Failure Recognition and generator protection with addition of one Current Transformer input.

DESCRIPTION

Woodward's SPM–D synchronizer provides automatic frequency, phase slip using either analog- or discrete output bias signals.

Unit comes standard with discrete raise/lower outputs for frequency and voltage. Optionally available are analog bias signals of ± 3 Vdc to interface directly to Woodward speed controls, and ± 5 Vdc for voltage bias.

The optional Mains Failure Recognition and Generator Protection model includes:

- Three phase mains over-/under voltage monitoring
- Single phase generator over-/under voltage monitoring
- Over/under frequency monitoring
- Phase shift monitoring
- Reverse and overload power monitoring

- EU directive compliant
- Available with Discrete or Analog Bias outputs for frequency and voltage
- Adjustable dynamics
- Configurable for breaker or contactor
- Slip frequency synchronizing
- Dead bus connection
- LED Synchroscope
- Optional Mains Failure Recognition and Generator Protection
- UL listed

SPECIFICATIONS

Measuring voltage 110 Vac
Measuring current 40—70 Hz
Power supply 24 Vdc (+/-25%)
Power consumptionmax. 10 W
Ambient temperature -20—70 °C
Ambient humidity 95%, not condensing

Measuring inputs voltage.. Resistance 0.1 %
Voltage-carrying capacity 2.0 x V
Linear measuring range up to 1.3 x V
Input resistance 0.174 Mohm
Max. power consumption per path 0.15 W
Temperature Coefficient 15 ppm/K
Max. change after endurance test < 0.3 %

Measuring input

Current Consumption < 0.15 VA
Current carrying capacity 1.6 x I_n
Rated short time current 10 x I_n
Reference voltage +/-0.15%
Max. temperature deviation 12 ppm/K

Digital inputs metallically separated
Insulation voltage min. 2,200 V_{eff}
Input range 18—250 Vdc or Vac
Input resistance 68 kA

Disturbance test (CE) tested according to applicable EN guidelines

Potential free

Outputs Contact material: AgCdO
Electric life cycle (ohmic load) min. 100,000 switching cycles at 2 A / 250 Vac
Load max. 2 A at 250 Vac or 24 Vdc
Max. switching voltage 250 Vac
Insulation voltage 2,200 V_{eff}

Analog inputs freely scaleable resolution 10 Bit
Input 0/4..20 mA, load 250 A
Input 0..10 V, input resistance 10 kA

Analog outputs freely scaleable for actual value output, metallically separated, insulation voltage 2,200 V_{eff} ±10 V, 0—10 V, ±20 mA, 0/4—20 mA

Resolution PWM 8 Bit
Output 0/4—20 mA, max. load (V_n=24 V) 400 A
Output 0—10 V, ±5 V, internal resistance 1 kA

Housing Typ APRANORM DIN 43700
Dimensions 144 x 72 x 122 mm
Front cutout 138 x 67 mm
Connection Screw terminals 1.5 mm² or 2.5 mm²
..... (depending on terminal connector)

Protection system IP 21, front IP 54
Protection class II (protective insulation)
Overvoltage category III pollution degree 2

Weight (depending on model) ca. 800 g

Part numbers

5448-890

Digital Synchronizer, 1 synch point
Raise/Lower discrete outputs
UL Listed

5448-893

Digital Synchronizer, 1 synch point
Analog Bias signals
UL Listed

5448-891

Digital Synchronizer, 1 synch point
Raise/Lower discrete outputs
Mains Failure Recognition and
Generator Protection
UL Listed

5448-894

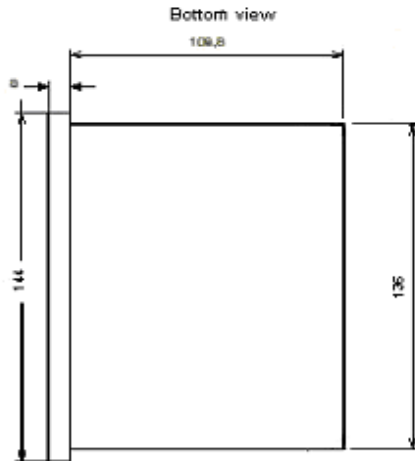
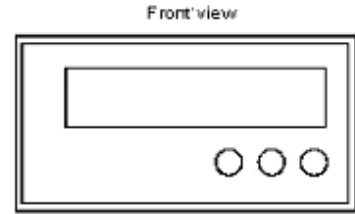
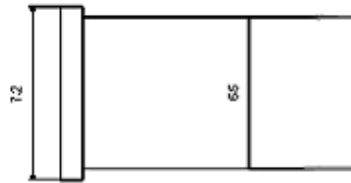
Digital Synchronizer, 1 synch point
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Distributors & Service
 Woodward has an international network of distributors and service facilities. For your nearest representative call (1)(800) 835-5182 or see the Worldwide Directory on our web site.

Corporate Headquarters
 Rockford IL, USA
 Ph: (1)(815) 877-7441

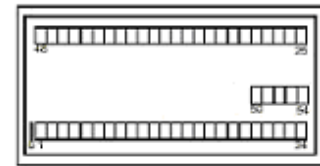
www.woodward.com



Backside of 5448-890 & 893 with connecting terminals



Backside of 5448-891 & 894 with connecting terminals



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For more information contact:

