



SYNCHROMAX 30....150V, Sincro equipment

Code: M14624.

> PID control: No

> Measurement Range (V): 30...150

> Frequency (Hz): 35...80

### Description

- All parameters can be programmed on the keyboard on the front panel.
- o Digital unit with 4-digit display and 30 auxiliary LEDs.
- Voltage, generator frequency and network measurement and display (TRMS), including the unbalance between the generator and the network.
- o Automatic synchronisation by simply programming the contactor closing time.
- O Wide range of frequencies (35...80 Hz)
- o Standard power supply: 110, 230 and 400 V ac
- o 2 operating modes: Manual, automatic and assisted
- Digital adjustment (without potentiometers)
- o PI / PID CONTROL (depending on the type) of the speed of the generator with built-in pulse output
- o Protection with password.

CIRCUTOR has two types of synchronism relays: SYNCHRO MAX and SYNCHRO MAX PID.

#### Synchro Max

Synchro Max is capable of adapting the generator's frequency with an integrated PI regulation algorithm, in order to connect it in parallel to the electrical network. In addition, it can be used to measure and display the voltage, phase and frequency parameters of the generator and network, as well as its differences.

### Synchro Max PID

Synchro Max PID offers excellent standard Synchro Max measurement, display and programming features, with a powerful PID algorithm to control the generator's frequency. This type of control turns Synchro Max PID into a quick synchronisation device and, therefore, it offers the ideal solution to reduce synchronisation costs, since it minimises the time invested in such procedures. This type of control is perfect for small-scale hydraulic power plants, among many other applications. Here is an example of how SYNCHRO MAX moves forward to a time tbrk (previously programmed by the user) to take into account the connection delay of the generator's contactor.

## **Application**

The SynchroMax is a synchronization relay which synchronizes the generator with either the network or with another generator, taken as a reference. This allows both services to be connected, in parallel, in emergency or support applications when it is necessary to provide more power.







Synchronization and marine applications equipment

Code: M14624.

# **Specifications**

Consumption	3 10 VA
Consumption	
Frequency	35 450 Hz
Nominal voltage	400 Vca (-10 + 15 %)
C power supply	
Consumption	1 1.5 W
Mechanical characteristics	
Size (mm) width x height x depth	96 x 96 x 62.9 (mm)
Envelope	Self-extinguishing ABS
Fastening	Panel
Weight (kg)	0,507
nvironmental characteristics	
Protection class	IP 54 (Front), optional IP 65
Storage temperature	-40 +70 °C
Storage temperature	40 170 C
Working temperature	-10 +65 °C
Working temperature  urrent measurement circuit	
Working temperature  urrent measurement circuit  Consumption	-10 +65 °C
Working temperature  urrent measurement circuit  Consumption  oltage measurement circuit	-10 +65 °C
Working temperature  urrent measurement circuit  Consumption	-10 +65 °C < 500 μA
Working temperature  urrent measurement circuit  Consumption  oltage measurement circuit  Sampling frequency	-10 +65 °C < 500 μA 35 80 Hz
Working temperature  urrent measurement circuit  Consumption  oltage measurement circuit  Sampling frequency  Frequency measuring range	-10 +65 °C < 500 μA 35 80 Hz 35 80 Hz
Working temperature  urrent measurement circuit  Consumption  oltage measurement circuit  Sampling frequency  Frequency measuring range  Nominal voltage	-10 +65 °C  < 500 μA  35 80 Hz  35 80 Hz  400 (Ph-N), 565 (Ph-Ph)
Working temperature  urrent measurement circuit  Consumption  oltage measurement circuit  Sampling frequency  Frequency measuring range  Nominal voltage  Maximum permanent measurement voltage	-10 +65 °C  < 500 μA  35 80 Hz  35 80 Hz  400 (Ph-N), 565 (Ph-Ph)
working temperature  urrent measurement circuit  Consumption  oltage measurement circuit  Sampling frequency  Frequency measuring range  Nominal voltage  Maximum permanent measurement voltage  tandards	-10 +65 °C  < 500 μA  35 80 Hz  35 80 Hz  400 (Ph-N), 565 (Ph-Ph)  800 Vac
Working temperature  urrent measurement circuit  Consumption  oltage measurement circuit  Sampling frequency  Frequency measuring range  Nominal voltage  Maximum permanent measurement voltage  tandards  Electrical safety, Maximum height (m)	-10 +65 °C  < 500 μA  35 80 Hz  35 80 Hz  400 (Ph-N), 565 (Ph-Ph)  800 Vac
working temperature  urrent measurement circuit  Consumption  oltage measurement circuit  Sampling frequency  Frequency measuring range  Nominal voltage  Maximum permanent measurement voltage  tandards  Electrical safety, Maximum height (m)  Standards	-10 +65 °C  < 500 μA  35 80 Hz  35 80 Hz  400 (Ph-N), 565 (Ph-Ph)  800 Vac
wrrent measurement circuit  Consumption  Coltage measurement circuit  Sampling frequency Frequency measuring range Nominal voltage Maximum permanent measurement voltage  tandards  Electrical safety, Maximum height (m) Standards	-10 +65 °C  < 500 μA  35 80 Hz  35 80 Hz  400 (Ph-N), 565 (Ph-Ph)  800 Vac  2000  IEC 61010, IEC 348, IEC 664, IEC 801, UNE-EN 50081-2, UNE-EN 50082-2
wrrent measurement circuit  Consumption  Coltage measurement circuit  Sampling frequency Frequency measuring range  Nominal voltage  Maximum permanent measurement voltage  tandards  Electrical safety, Maximum height (m)  Standards  Seer interface  Display format	-10 +65 °C  < 500 μA  35 80 Hz  35 80 Hz  400 (Ph-N), 565 (Ph-Ph)  800 Vac  2000  IEC 61010, IEC 348, IEC 664, IEC 801, UNE-EN 50081-2, UNE-EN 50082-2  Red, high efficiency







Synchronization equipment

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Measurement accuracy

Phase angle  $\phi$   $\pm$  0,5  $^{\circ}$ 







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Code: M14624.

Frequency measurement	± 0,01 Hz
Phase voltage measurement	CI 1 ±2 digit

### SYNCHROMAX

Synchronization equipment

CODE	ТҮРЕ	Frequency (Hz)
Power Supply 400 V		
M14624.	SYNCHROMAX 30150V	3580
M14625.	SYNCHROMAX 110600V	3580
M14634.	SYNCHROMAX-PID 30150V	3580
M14635.	SYNCHROMAX-PID 110600V	3580



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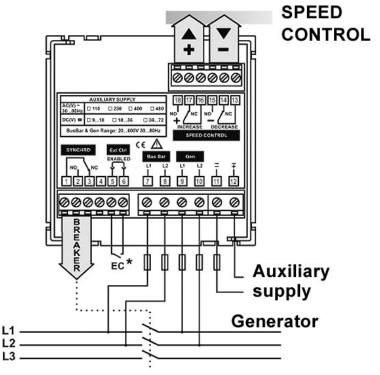




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### Connections



\* EC (External Control): The connection being opened disables the synchronisation relay (breaker)

