



## SYNCHROMAX 110...600V

SYNCHROMAX 110...600V, Sincro equipment

Code: M14625.

- > PID control: No
- > Measurement Range (V): 110...600
- > Frequency (Hz): 35...80

### Description

- All parameters can be programmed on the keyboard on the front panel.
- 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.
- Automatic synchronisation by simply programming the contactor closing time.
- Wide range of frequencies (35...80 Hz)
- Standard power supply: 110, 230 and 400 V ac
- 2 operating modes: Manual, automatic and assisted
- Digital adjustment (without potentiometers)
- PI / PID CONTROL (depending on the type) of the speed of the generator with built-in pulse output
- Protection with password.

CIRCUITOR 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.



## SYNCHROMAX 110...600V

Synchronization and marine applications equipment

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### Specifications

#### AC power supply

|                 |                          |
|-----------------|--------------------------|
| Consumption     | 3 ... 10 VA              |
| Frequency       | 35 ... 450 Hz            |
| Nominal voltage | 400 Vca (-10 ... + 15 %) |

#### DC 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                  |

#### Environmental characteristics

|                     |                               |
|---------------------|-------------------------------|
| Protection class    | IP 54 (Front), optional IP 65 |
| Storage temperature | -40 ... +70 °C                |
| Working temperature | -10 ... +65 °C                |

#### Current measurement circuit

|             |          |
|-------------|----------|
| Consumption | < 500 µA |
|-------------|----------|

#### Voltage measurement circuit

|                                       |                         |
|---------------------------------------|-------------------------|
| Sampling frequency                    | 35 ... 80 Hz            |
| Frequency measuring range             | 35 ... 80 Hz            |
| Nominal voltage                       | 400 (Ph-N), 565 (Ph-Ph) |
| Maximum permanent measurement voltage | 800 Vac                 |

#### Standards

|                                       |  |
|---------------------------------------|--|
| Electrical safety, Maximum height (m) | 2000   |
| Standards                             | IEC 61010, IEC 348, IEC 664, IEC 801, UNE-EN 50081-2, UNE-EN 50082-2 |

#### User interface

|                           |                      |
|---------------------------|----------------------|
| Display format            | Red, high efficiency |
| LED                       | 30 LED auxiliaries   |
| Resolution of the display | 4 digits             |
| Presentation cycle        | 2 / s                |



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### Measurement accuracy

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Phase angle  $\varphi$

$\pm 0,5^\circ$



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|                           |                    |
|---------------------------|--------------------|
| Frequency measurement     | $\pm 0,01$ Hz      |
| Phase voltage measurement | Cl 1 $\pm 2$ digit |

### SYNCHROMAX

Synchronization equipment

| CODE                      | TYPE                      | Frequency (Hz) |
|---------------------------|---------------------------|----------------|
| <b>Power Supply 400 V</b> |                           |                |
| M14624.                   | SYNCHROMAX 30...150V      | 35...80        |
| M14625.                   | SYNCHROMAX 110...600V     | 35...80        |
| M14634.                   | SYNCHROMAX-PID 30...150V  | 35...80        |
| M14635.                   | SYNCHROMAX-PID 110...600V | 35...80        |

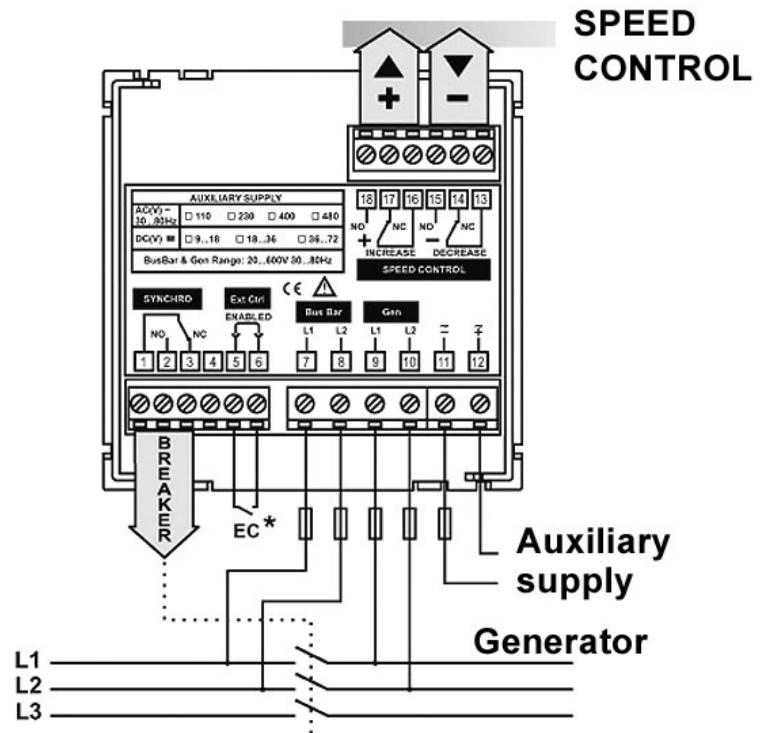


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## Connections



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