

Smartgen[®]

HPM110

Synchronizing Module



Smartgen Electronic

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Software Version

Version	Date	Note
1.0	2004-07-10	Original release.

CONTENT

1. Summary	4
2. Performance and characteristics	4
3. Working principle	4
4. Main technical indices	4
5. Typical application	5
6. Installation	6

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1. Summary

HPM110 Synchronizing module is designed for automatic synchronizing; It can automatically check conditions (Voltage difference, frequency difference, phase difference) for synchronization. And send synchronized signal when conditions are OK. Applicable for synchronization of Grid-Grid, Grid-Genset, Genset -Genset.

2. Performance and characteristics

HPM110 Synchronizing module adopts a large scale integrated circuit and its characteristics are as follows:

- a) Input voltage for 220VAC or 380VAC, applicable for various voltage systems.
- b) Accurate synchronization, low impulse current when switch on.
- c) Fast action will switch on within the first period of allowed differential phase.
- d) Circuit set interlock, safe and reliable, no misoperation.
- e) Modular design, compact structure, small volume, light weight, guide rail installation or with four screws fastness, convenient installation.

3. Working principle

Circuit is made of voltage difference circuit, phase difference circuit, frequency difference circuit and synchronized interlock.

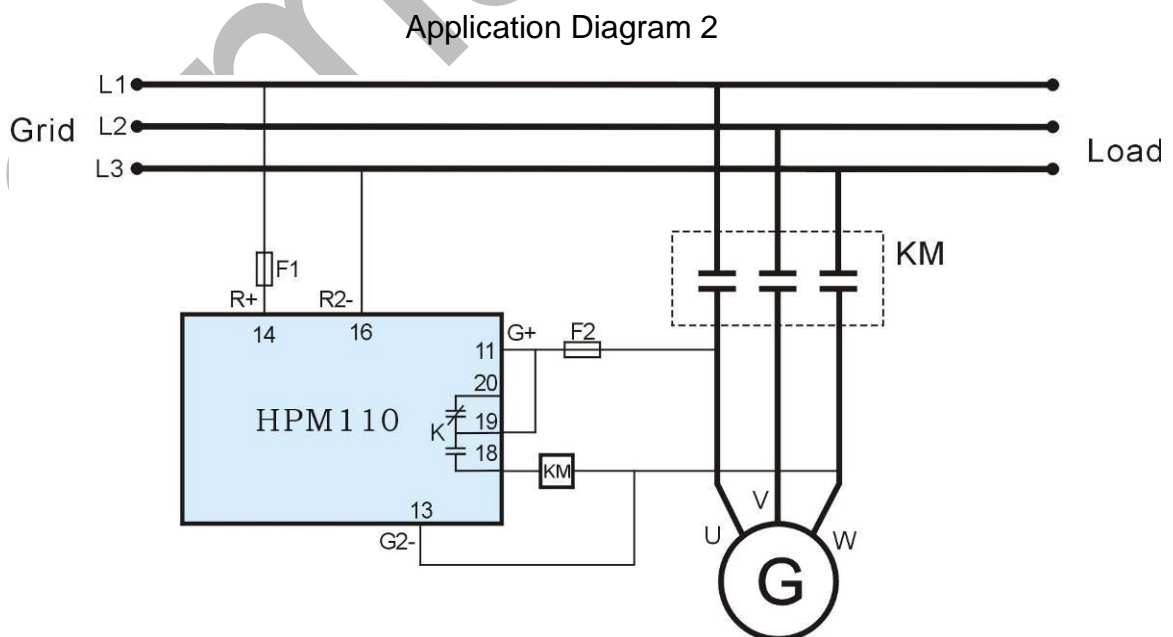
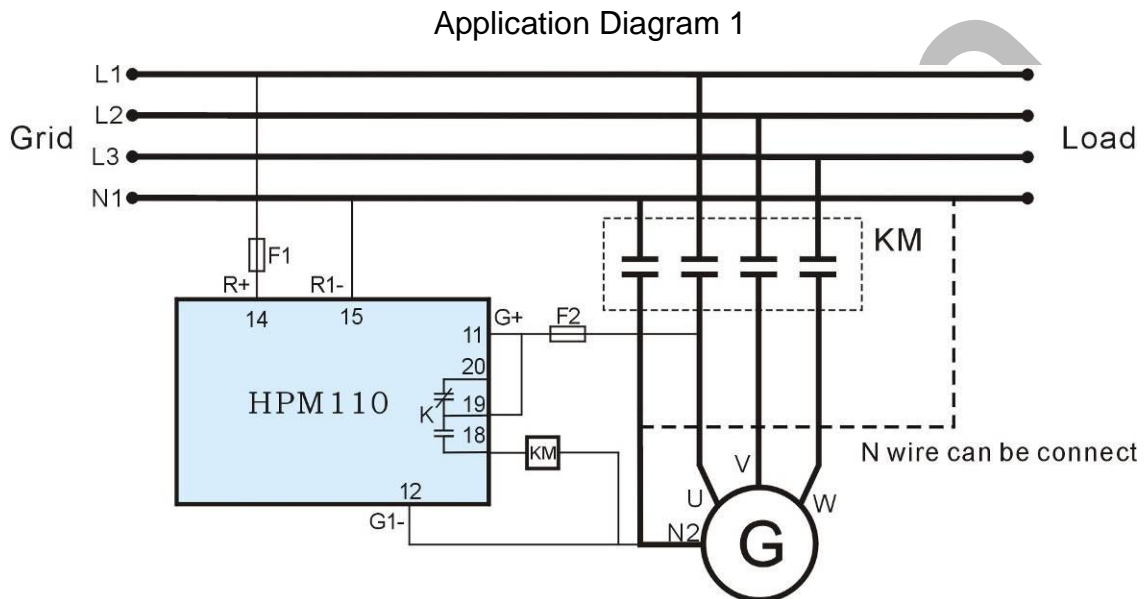
When the current device is approaching synchronization to grid, and all conditions such as the differential frequency, differential phase, differential voltage and synchronized interlock are suitable for switch on, the relay of switch on is pulled in, then synchronized into grid.

4. Main technical indices

- a) Input voltage and frequency:
(220±20%) VAC (Phase-N) and
(380±20%) VAC (Phase-Phase)
45Hz~55Hz
- b) Allowed switch on differential frequency: (0.1~0.5) Hz (corresponding pulse vibration period is 10s~2s) and continuously adjustable.

- c) Allowed switch on differential voltage: ($\pm 5-15\%$) and continuous adjustable.
- d) Power consumption: Generator set $< 2W$, Mains Grid $< 3W$.
- e) Contacts performance: the outputs contacts in the device can communicate not greater than 250V reliable connect 10A current.

5. Typical application



6. Installation

