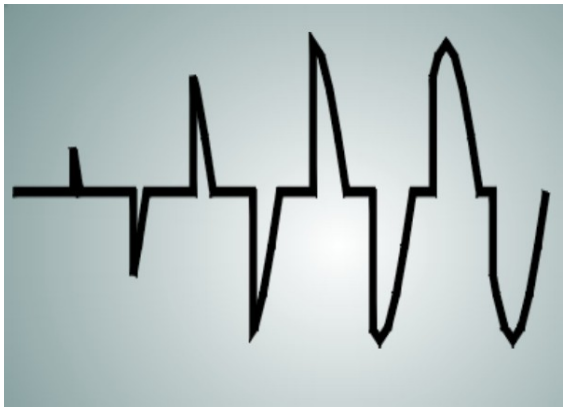
MFR SERIES

MF SERIES WITH PHASE ANGLE CONTROL



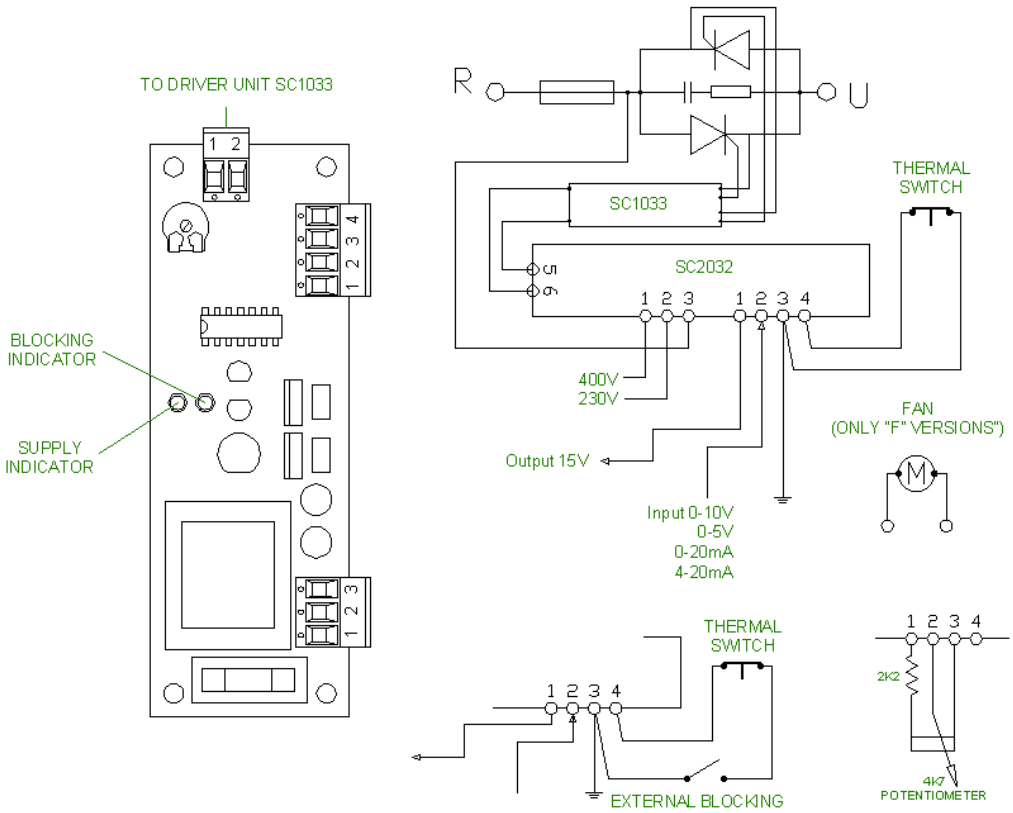
HIGHLIGHTS

- Appliable to MF-W1C and MF-W3C references.
- 230V_{AC} & 400V_{AC} , 50Hz applications
- Reliability.
- Short delivery time.
- Phase angle delay control
- Control input 0-10V (standard option).
- Optional input control 0-5V, 0-20mA & 4-20mA.

DESCRIPTION

MFR Series, consists in single phase and three phase power stacks, composed of power modules with a phase angle regulation firing board for AC controls. Power stacks standards are named as MF Series, and the firing board is used to control the power resistive loads with a simple driving. Refer to MF Series datasheets for working limits and technical characteristics.

SINGLE PHASE TYPES (W1C)



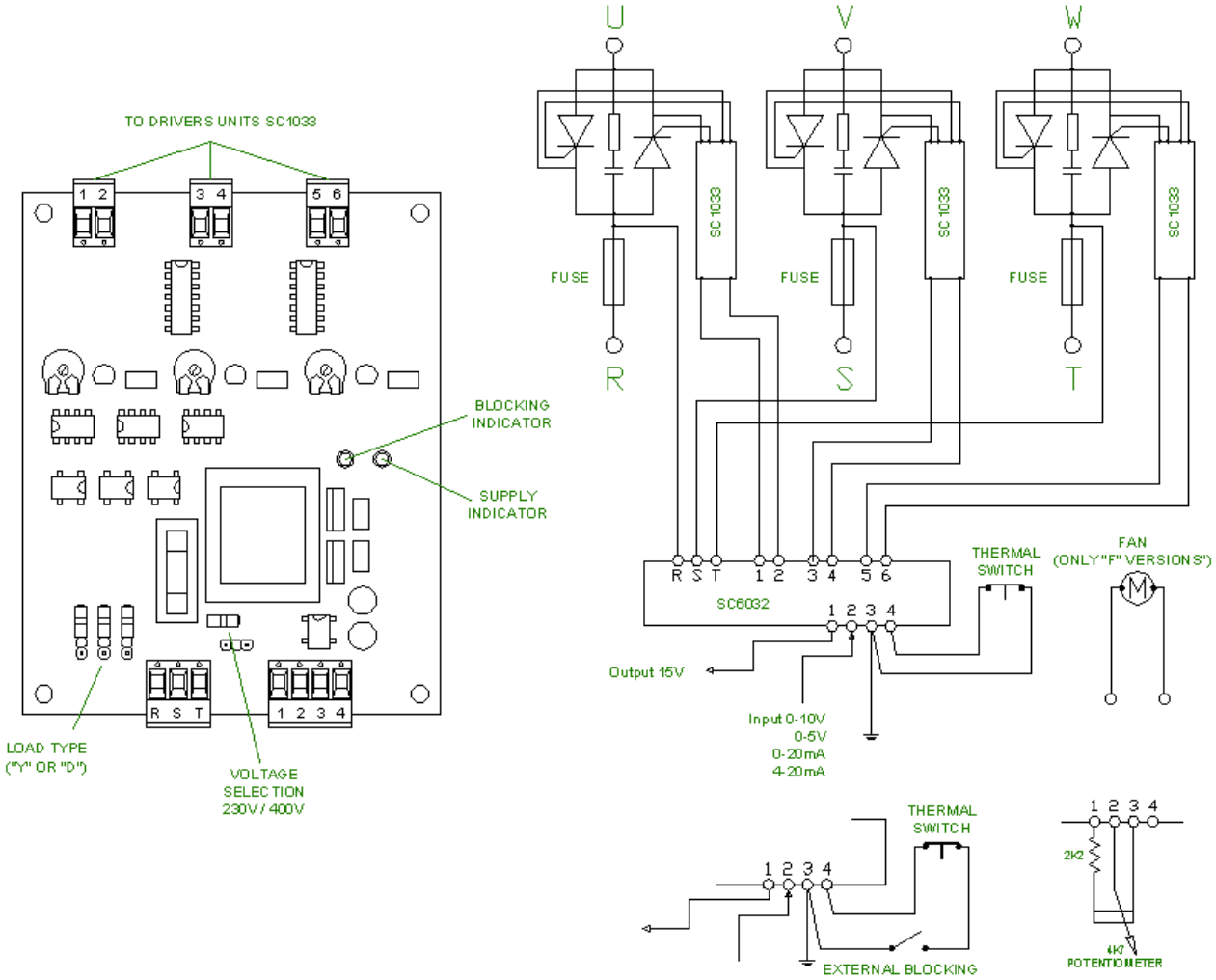
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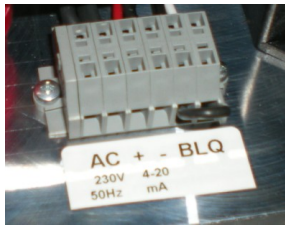
THREE PHASE TYPES (W3C)



CONTROL CONNECTIONS

Depending on the type, the control connection is made directly to the control board or through terminal blocks (WAGO series 260).





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LOAD CHARACTERISTICS AND CONNECTIONS

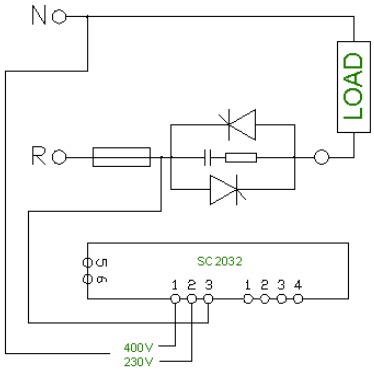
MFR series are intended only for resistive loads. There is not any guarantee that other loads will work properly.

Factory default value is 400V, as an option 230V is available by changing the connections (single phase types), or the jumpers position (three phase types).

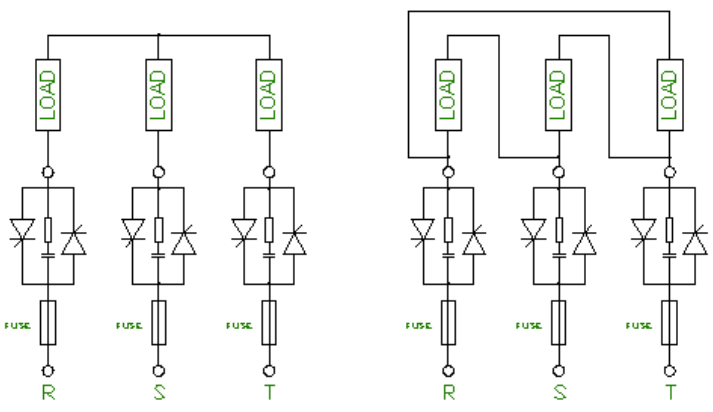
Optimum frecuency working is 50Hz. Working up to 60Hz is possible with derating the control signal.

Working with low conduction angle values produce inestability in applications without neutral point (star without neutral or delta loads), use external blocking for guarante 0 voltage output.

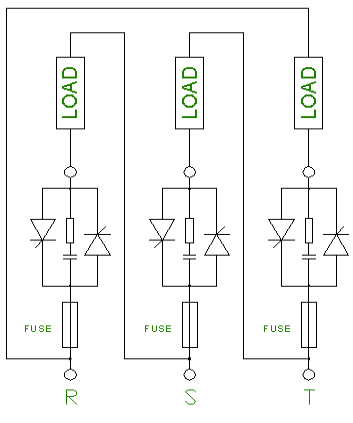
For single phase loads, there is only one power cable in the assembly, the user must provide the other pole (see figure below).



For three phase loads, pay special attention for star (“Y”) or delta (“D”) connections (see figures below).



SC6032 CONFIGURATION: "Y" (STAR)



SC6032 CONFIGURATION: "D" (DELTA)

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ORDER CODES & OPTIONS

Adding a “R” to MF-W1C and MF-W3C references, becomes the MFR series for phase angle control systems.

The standard control signal is from 0 to 10V. For other optional control signals, the standard reference is modified by adding at the end “/05”, “/020”, “/420” which means: 0 to 5V, 0 to 20mA and 4 to 20mA respectively.

As an example:

MFR-W3C0028N12RCVTF/420

The example refers to a MF Series power stack, MF-W3C0028N12RCVTF, with a phase angle regulation firing board, and a control signal from 4 to 20mA.

EMC DIRECTIVE

MFR Series are considered components without any direct function as defined in the EMC Directive. However, the end system or installation where these devices are used must complies with the essential protection requirements of the EMC Directive.

MAXIMUM CURRENT

Due to, supply voltage variations and heating element resistance dispersion, a safety coefficient of 0.8 must be considered on the thyristor to determine the load’s maximum nominal current at which the unit can operate safely.

PERSONNEL

The installation, configuration, and maintenance of this power unit, must be supervised by a qualified and authorized person capable to perform in an industrial low voltage electrical environment.

INSTALLATION AND USE SAFETY

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-The installation and use must be done inside an electrical and cooled cabinet, with guarantees of protection from condensation and pollution. The cabinet must be closed and connected to safety earth according to applicable National Standards.

- MFR Series has included high speed fuses, which are only designed to protect the thyristors. These fuses

aren't a substitute of installation and wiring protection fuses. Remind that thyristors are not isolated devices, so it is necessary to provide an additional protection, i.e. electromechanical contactor, and extra isolation in accordance with wiring regulations in order to allow safe interventions.

-Please pay attention, only qualified personnel is allowed to access into the internal parts of this device.

-It is the user's responsibility to ensure that the installation, wiring and protection of the device are in accordance with the relevant standards and wiring regulations.

- Before proceeding any connection or disconnection, be sure that the cables and wires are insulated from the supply voltage.

- The earth connection must be connected first and disconnected last.

- Control signal wiring must be kept separate from power cables.

- Before dismounting, MFR assembly must be completely disconnected.

- While this device is operating, the heatsink reaches high temperatures, it is mandatory do not touch the heatsink and protect it from any accidental contact during the ON state. It is advisable to consider a safety prudential time, after the unit disconnection, until the temperature has decreased.

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