



USER'S MANUAL

THYRISTOR GATE PULSE CONTROL CIRCUIT

EU-10013E

DYNAPOWER INVENTORY NUMBER
EUE-7-10013000

DYNAPOWER CORPORATION
85 MEADOWLAND DRIVE
SOUTH BURLINGTON, VERMONT 05403
PHONE: 802-860-7200
TOLL FREE: 800-292-6792
FAX: 802-652-1371
www.dynapower.com
techsupport@dynapower.com

THYRISTOR GATE PULSE CONTROL CIRCUIT

The EU-10013E circuit has been designed to provide gate firing control pulses to firing circuits used in thyristor controlled power supplies. The circuit may be configured to operate in 6-pulse, 6-pulse reversing, or 12 pulse power supply circuits.

The output of the circuit is arranged in two groups, each group can be used for any 6-pulse power supply configuration.

In 12-pulse mode, Group 2 pulses lag Group 1 by 30 degrees. Group 1 is used for the 'delta' circuit and Group 2 is used for the 'wye' circuit.

In 6-pulse mode, both output groups are in phase.

CIRCUIT CONFIGURATION

The default circuit configuration is 12-pulse.

12 volt logic levels applied to the terminal strip select the following:

MODE - an open circuit selects 12-pulse mode.

12 volts selects 6-pulse mode.

REV SEL- selected by a 12 volt signal.

50/60 - an open circuit selects 60 hz.

12 volts selects 50 hz operation.

LOCAL - a 12 volt signal will allow circuit output control with an on-board 10 turn potentiometer.

This is a trouble-shooting mode that allows output control of a power supply without the use of a regulator or an external voltage source.

CONTROL INPUTS

There are additional inputs to the board. These inputs are isolated from the circuit through on-board Opto-22 type modules.

Standard modules are AC input modules requiring 115 Vac for:

INHIBIT – will inhibit all output from the circuit.

FORWARD – allows output from Group 1 when in 6-Pulse FOR Mode.

REVERSE – allows output from Group 2 when in a 6-Pulse REV Mode.

If FORWARD and REVERSE are selected simultaneously the output of the circuit will be inhibited as indicated by the 'INHIBIT' LED and a contact closure.

The Opto modules are plug-in type, they may be replaced with any IAC15 or IDC15 modules to interface to User control circuits.

CIRCUIT POWER

The circuit is powered by a 115 Vac source that must be referenced to L1-L2 of the three-phase power connected to the power supply. In addition, this control power must be of the proper polarity, referenced to L1-L2. If these two conditions are not met, improper operation of the power supply will result.

SYNCH LOSS

The gate pulse output of the circuit must be synchronized or locked to the power supply input voltage, i.e. the circuit control power. Without the lock, the power supply will not operate properly. A green lamp labeled 'SYNCH' will be ON when the circuit is line locked. If synch is lost, the output from the circuit will be inhibited resulting in power supply output shutdown. The 'SYNCH' lamp will be OFF and the 'INHIBIT' lamp will be on. An 'INHIBIT' contact closure is provided at the terminal strip. This contact may be used to interface to other circuits and equipment.

CIRCUIT OUPUT

In 12-Pulse or 6-Pulse Rev mode, each group has two parallel outputs at 20 pin ribbon cable headers. In 6-Pulse mode there are four parallel outputs.

The output connection interface directly to Dynapower Firing Circuit Output Boards, P/N EU-10013PO (EUP-7-100130202) through ribbon cables.

Group 1 outputs are labeled G1 – G6, Group 2 outputs are labeled G7 – G12. The firing order of Group 1 is 1-4-5-2-3-6. The firing order of Group 2 is 10-11-8-9-12-7. The gate labeling and firing order is consistent with the Dynapower standard of wiring and labeling of thyristor circuits.

OUTPUT CONTROL

A DC control voltage is required to control the output of the circuit, ~3 volts will give maximum output from any thyristor circuit.

FIGURE 1

12-PULSE

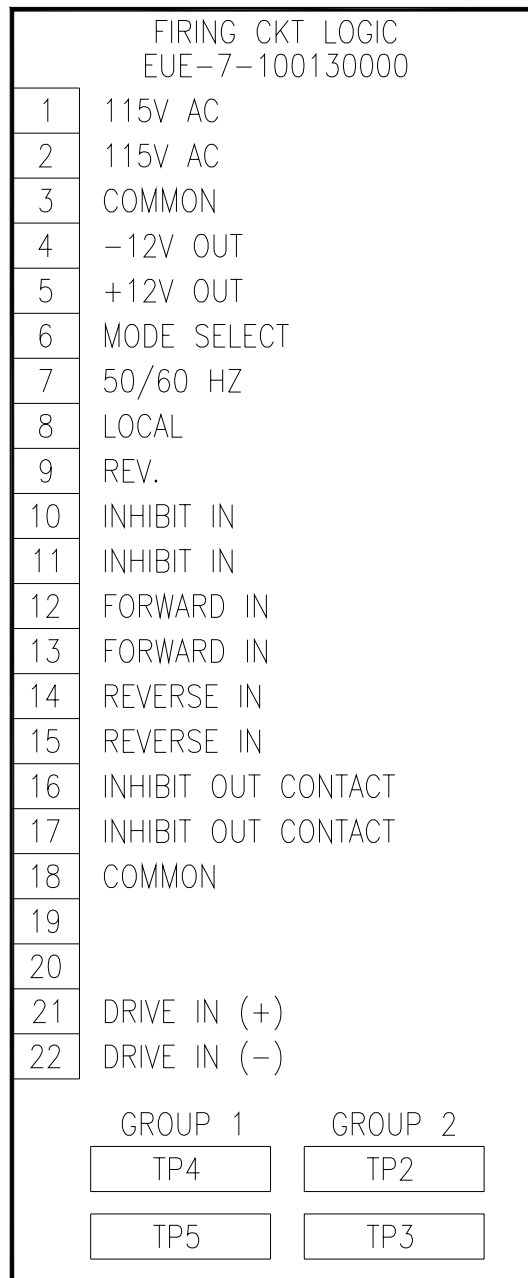


FIGURE 2

6-PULSE

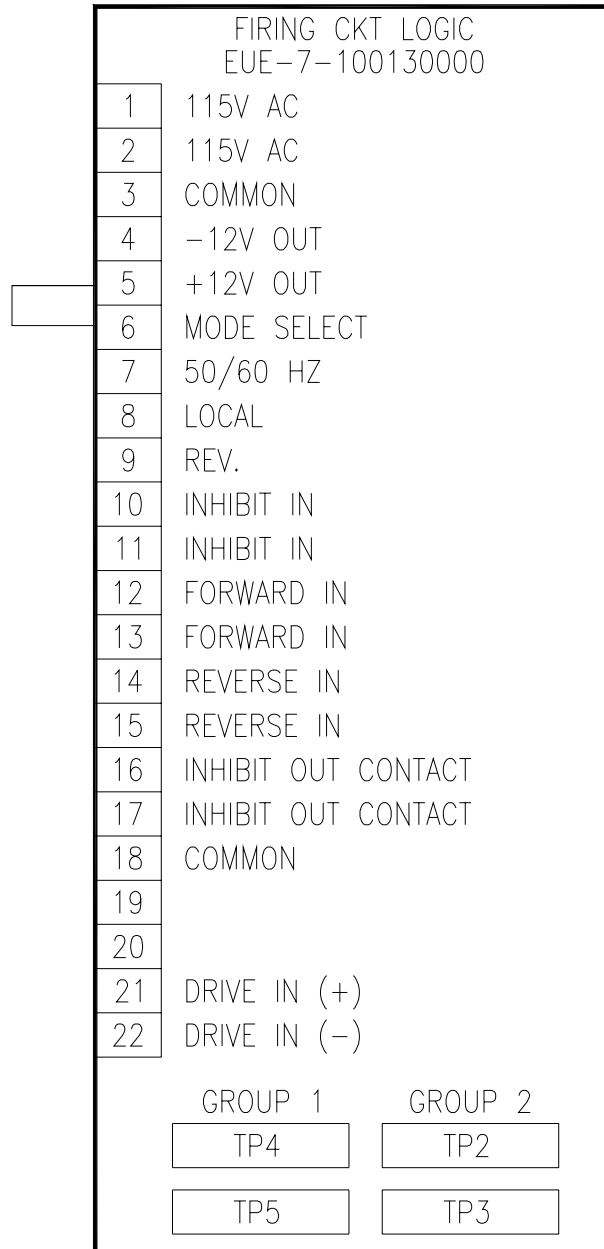


FIGURE 3
6-PULSE REVERSING

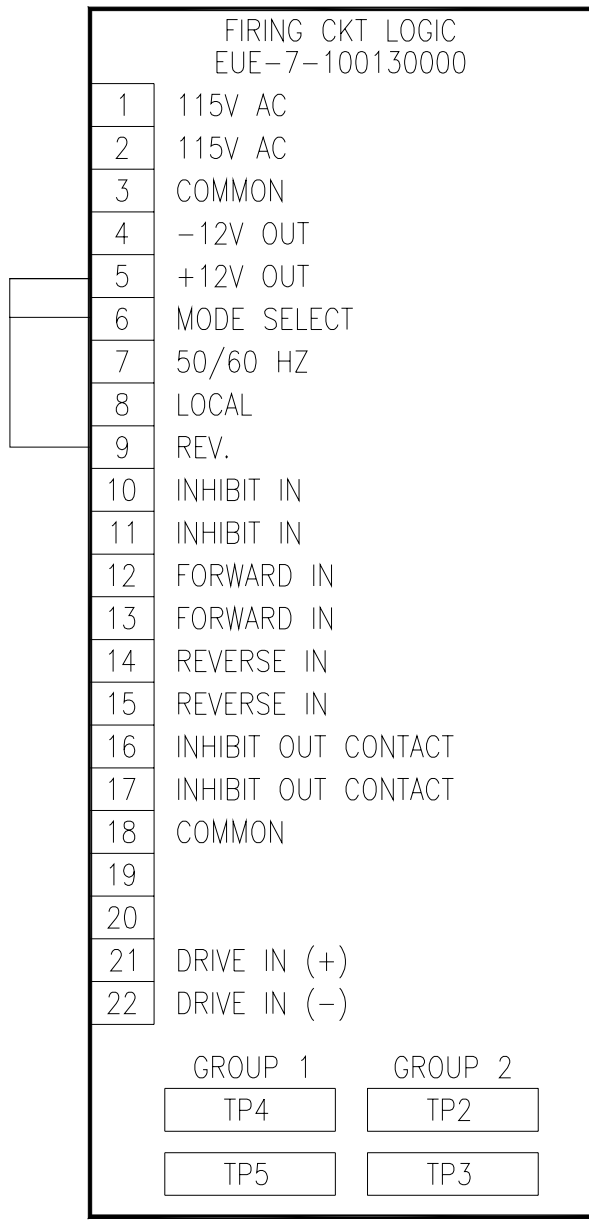


FIGURE 4 EU-10013E, 12-PULSE CONNECTION

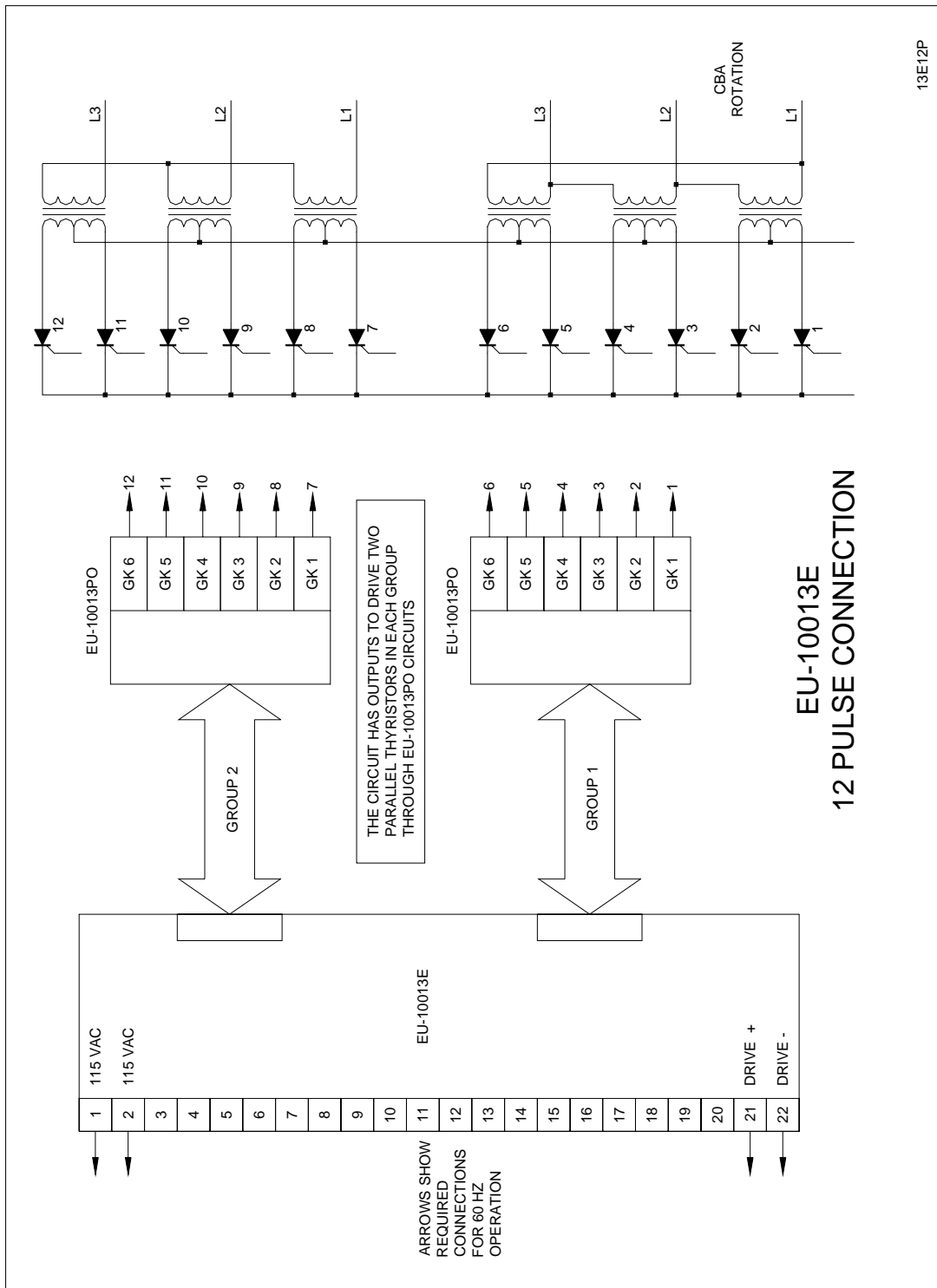


FIGURE 5 EU-10013E, 6-PULSE CONNECTION

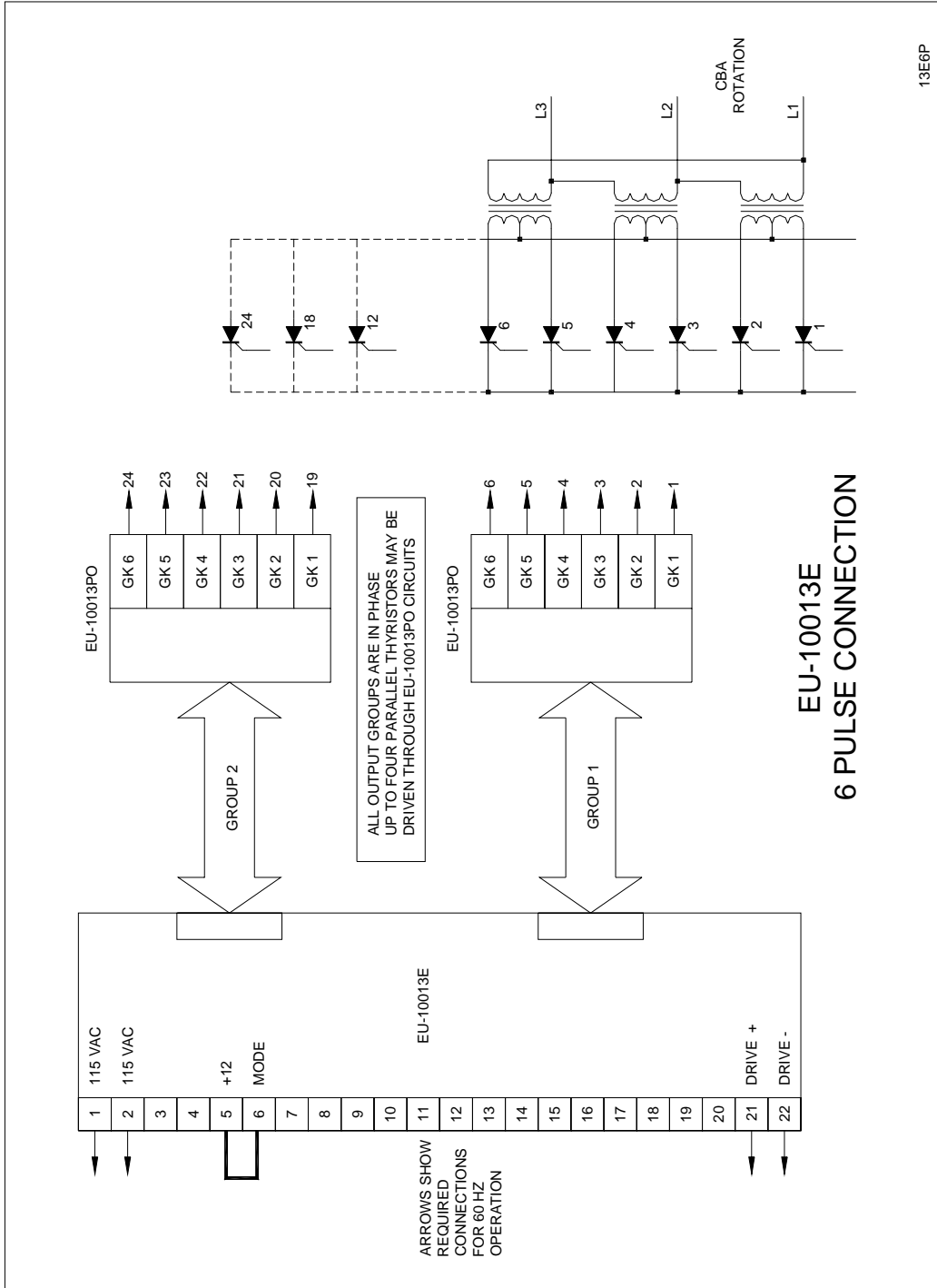


FIGURE 6 EU-10013E, 6 PULSE REVERSING

