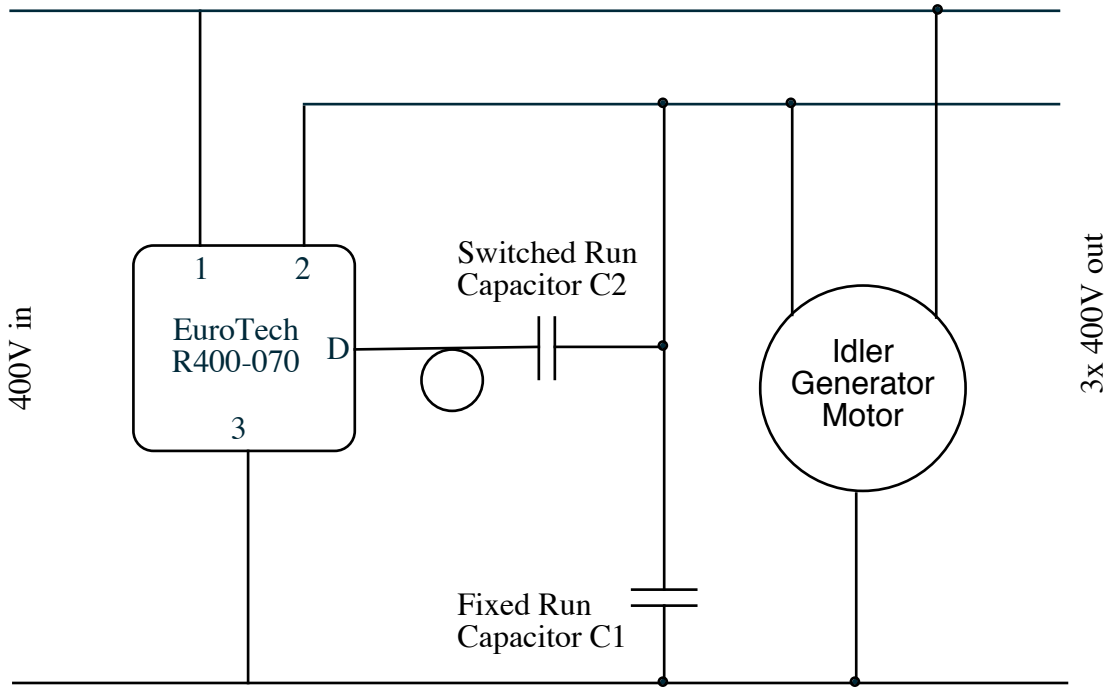
EUROTECH
DIGITAL POWER ENGINEERING

R400-070 controller with any single to three-phase converter



Improve the output voltage symmetry of any rotary converter. This version is for 400V - 415V. Works with any start circuitry, contact or SCR or high impedance motor:

C2 is added when the generated phase (pin 2-3) is 6% below the supplied phase (pin 1-3). It will turn off when 6% above the supplied phase. In-between, the status of C2 does not change.

First lower C1 to about 1/2 of the usual run capacitance. Voltage symmetry should be at about 1/3 load. Then first connect C2 in parallel to C1. Voltage symmetry should be at around 2/3 load. Then use with R400-070 and the coil.
Symmetry is less precise as with F controllers but may be sufficient for CNC and inverters.

Make an air coils diameter 8 inch and 22 turns (~200uH). Never run a controller without a coil.
Install the SCR on aluminium heat sink or on an aluminium ground plate or the frame.
Should the generated output voltage oscillate: The idler motor is too small.

Safety: Operating voltage on C2 is peak DC voltage. Connect a 200kOhm 5W discharge resistor in parallel to C2. C2 must discharge to 50V within 10 minutes.
Danger: Discharging takes time. Measure the voltage before touching anything.

C2 can be up to 100uF with the SCR on a frame or up to 400uF with the SCR on a heat sink.