

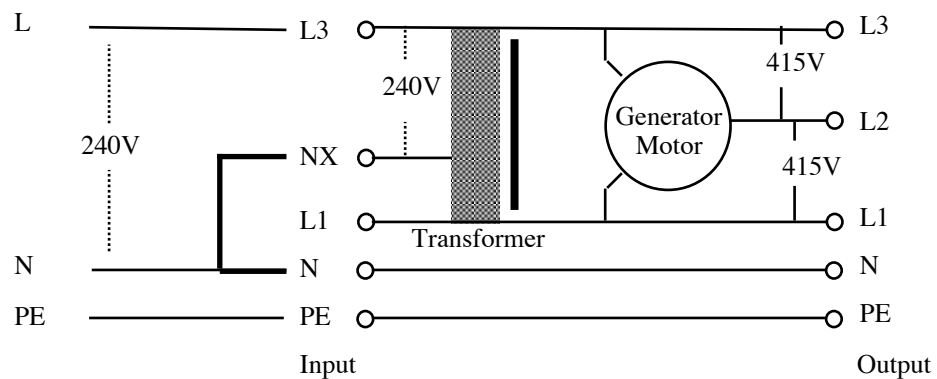


## Check before connecting a Booster

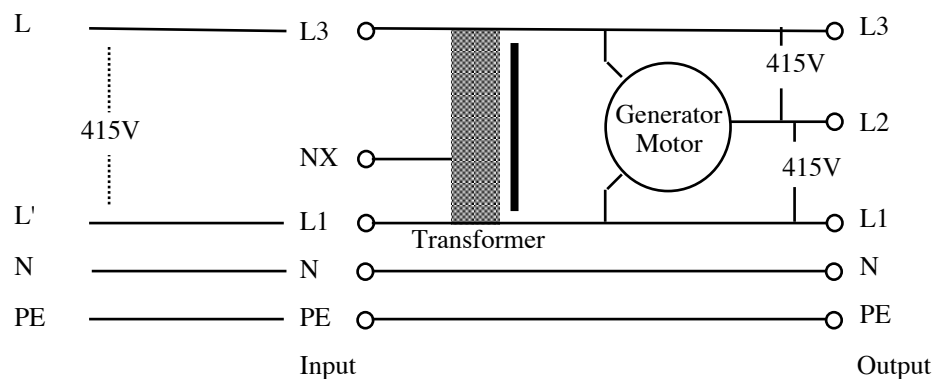
There are two versions for different supply voltages: Standard 240V single phase and, for 8kW and above, optional 480V split phase. Both can be wired to run on 415V two-phase.

### Supply 240V to a 240V Booster:

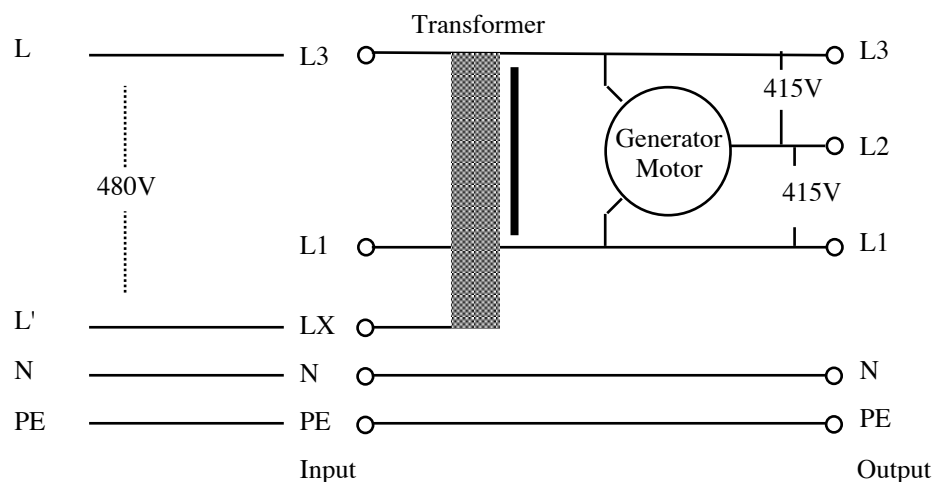
Use a wire bridge between N and NX.



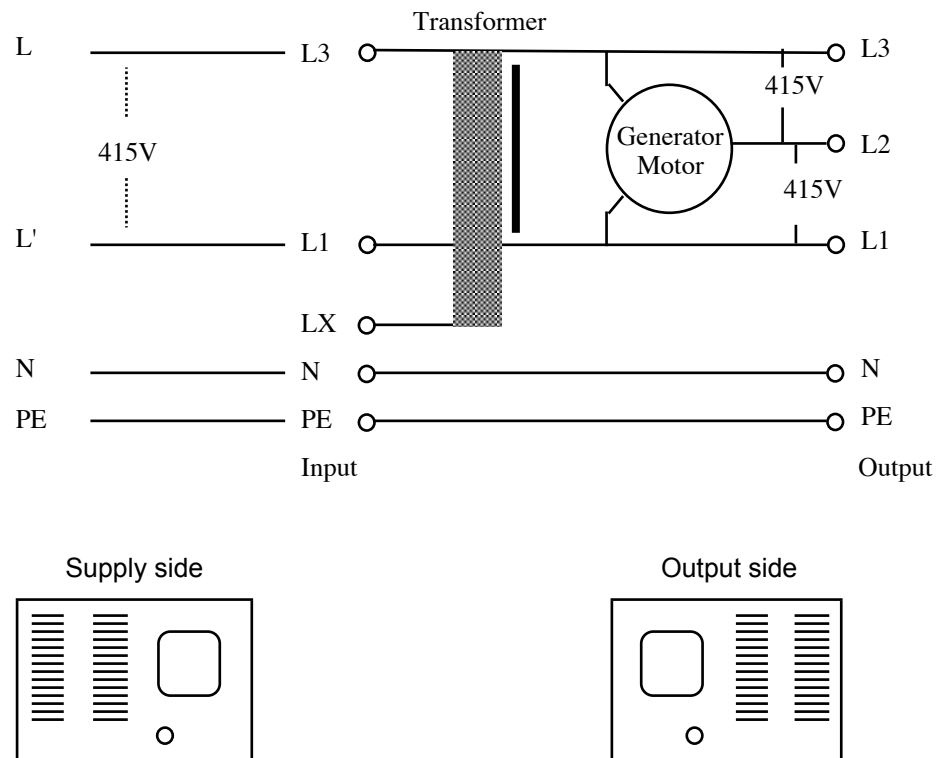
### Supply 415V two-phase to a 240V Booster:



### Supply 480V split-phase to a 480V Booster:



## Supply 415V two-phase to a 480V Booster:



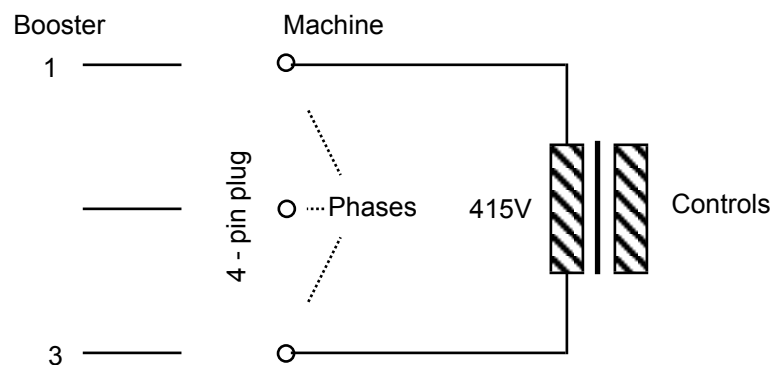
## Connect a machine:

Control transformers in machines must be connected to certain outputs of a converter. Machines with five-pin plugs have a 240V control transformer, machines with a four-pin plug have a 415V control transformer.

The phases, the transformer is connected to, can be found by using a multi meter measuring the transformer's coil resistance on a machine's plug.

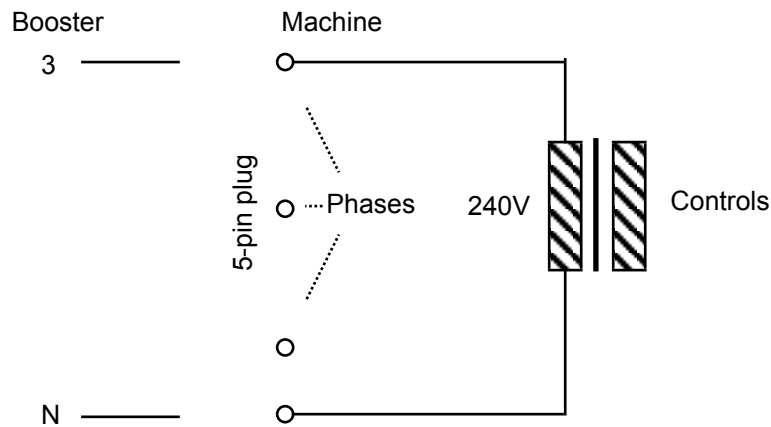
Machines with 415V control transformers (4 pin plug):

Use only Booster output L1 and L3 only to supply power to a control transformer:



Machines with 240V control transformers (5 pin plug):

Only L3 to Neutral is 240V. The other two phases to Neutral are too high or too low! Never connect a 240V single phase loads to any other converter output.



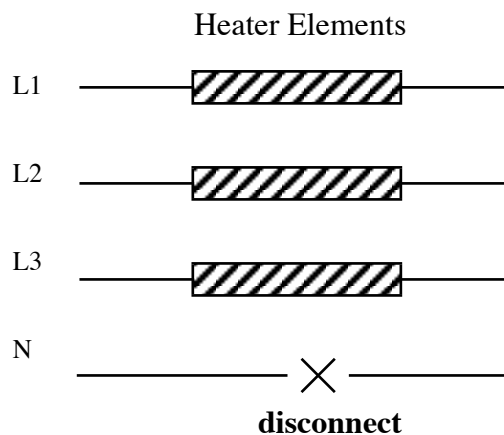
### Motor rotation:

If a motor rotates in the wrong direction, swap any two phases in the machine's plug and then rotate the phases in the plug until the transformer is connected correctly. See above.

### Internal heaters:

Edge Bander for example have a single-phase heater. Best is to connect a heater directly to a single phase supply, use a converter to run motors only. Alternatively use a larger converter and supply power to the heater from output L3.

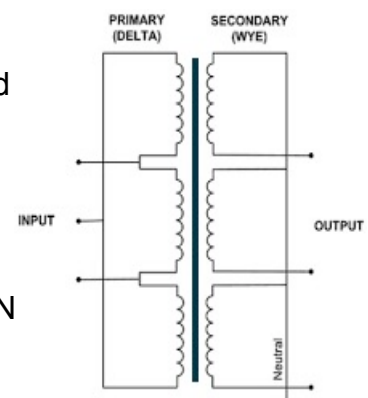
If a machine has three heater elements 3x 240V star-connected to all three phases (415V heater), separated the centre connection from Neutral:



If not possible, use an isolation transformer between the output of a Booster T and the machine. Never connect such a machine directly to a Booster's output:

### When 3x 240V to Neutral is required:

Use a Booster T only. Use an isolation transformer connected between the Booster output and transformer input L1 L2 L3. Transformer outputs are L1 L2 L3, N and PE. The three transformer output voltages to N are 240V. The most stable voltage for machine control transformers can be found between transformer output L3 and N. Connect the transformer's output centre N to Booster output N



## Large VFDs with a Booster T:

When a Booster starts, a large motor or a powerful VFD, the voltage on the generated phase 2 may sag for a fraction of a second. VFDs may trip or pause.

Reprogram a VFD to be less sensitive to short voltage sags.

Alternatively increase the size of the rotating generator motor by adding a free-running external motor up to size of the converter's kW rating or use a larger converter.

## The supply cable and fuses:

Motor inrush currents are at least three times the maximum nominal current. Position a Booster™ close to the power source to prevent losses on the supply line. Use a motor-rated d-curved protective circuit breaker or fuse in the house fuse box.

Install a single-phase switch or switch-socket combination near the converter.

For two- phase supply use circuit breakers and switches disconnecting both phases.

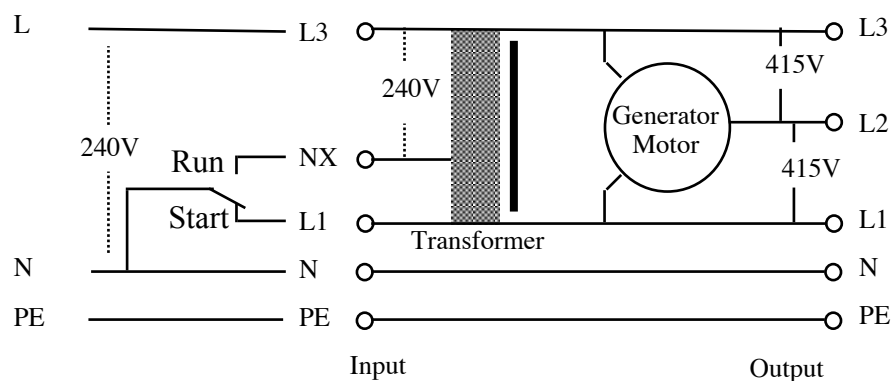
Max. input current:	240V	Circuit breaker	460/415V	2-phase circuit breaker
Booster 3kW	14A	16A	2x 8A	10A
Booster 4kW	19A	20A	2x 12A	16A
Booster 6kW	30A	32A	2x 16A	20A
Booster 8kW	38A	40A	2x 22A	25A
Booster 16kW	76A	80A	2x 44A	50A
Booster 24kW	115A	125A	2x 66A	80A
Booster 32kW	-	-	2x 88A	100A
Booster 40kW	-	-	2x 100A	125A

Label the phases in all three-phase outlets the same as the the converter's output phases.

## Reduce inrush current (light flicker):

The Booster's internal generator-motor accelerates within about 0.3 sec and momentarily draws about three times the maximum current. Similar currents are drawn when accelerating a large motor, a large machine or a large VFD. A low impedance single phase-supply line (increased cable size) will reduce light flicker in workshops.

Only with 240V-input converters a changeover switch can be used to soft-start a Booster. At start, the switch supplies Neutral to L1. After change-over, Neutral is supplied to NX. Such a switch should be installed on the converter. This does not eliminate inrush currents when load motors start. Use a three-phase motor soft-starter for this.



**Danger:**

Never run a Booster without a cover, voltages inside are up to 1600V peak. Before opening, wait for at least ten minutes after you disconnected from power. The discharge resistors on capacitors need time to fully discharge. Measure before touching anything.

# SUPPLIER DECLARATION OF CONFORMITY (SDoC)

In accordance with ISO/IEC 17050- 1:2004

SDoC Identification Number<sup>1</sup>: **Booster E 2-8kW, Booster T 4-48kW**

## Issuer details

Name <sup>2</sup> (of New Zealand manufacturer or importer): <b>EuroTech Machinery Ltd</b>	Contact Address: <b>140 Victoria Street Cambridge 3434</b>
Telephone: <b>07-823 7234</b>	
New Zealand Company No. (if applicable):	
Email Address: <b>contact@eurotech.co.nz</b>	

## Medium Risk Article – Details<sup>3</sup> (Product name, type, rating, brand, model, batch numbers, and serial numbers, as applicable):

**Booster E2, E3, E4, E8. Booster T4, T8, T12, T16, T24, T36, T48**

## The Medium Risk Article listed above, fully complies:

With cited standard(s), as listed <sup>4</sup> :	
Standard number and issue year: <b>AS/NZS3100:2009</b>	Standard number and issue year: <b>AS/NZS2064:1997</b>
Edition / Amendment status: <b>Amendment 1,2,3 and 4</b>	Edition / Amendment status: <b>Amendment 1, Group I</b>
Standard title: <b>Approval and test specification - General requirements for electrical equipment</b>	Standard title: 
AS/NZS ZZ modified Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	AS/NZS ZZ modified Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
OR Complies with the Conformity Cooperation Agreement <sup>5</sup> Yes <input type="checkbox"/> No <input type="checkbox"/>	

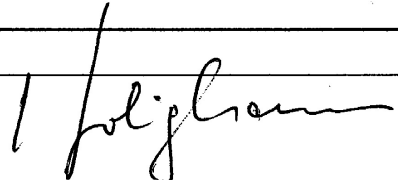

## Names and addresses of any testing organisation or body

Name(s): <b>EMC Technologies (NZ) Ltd</b>	Address(es): <b>47 MacKelvie Street, Grey Lynn, Auckland</b>
Name(s):	Address(es):

## Reference to relevant test reports/certification and the issue date that show how compliance is achieved

Standard(s) or document(s) used, to show how compliance with cited standard is achieved: <b>AS/NZS2064:1997</b>	Report Certification or Document reference N°(s): <b>Test Report No 10204.1</b>	Issue dates(s): <b>15 Februar 2001</b>
Reference to any management quality system involved: <b></b>		
Additional information <sup>6</sup> : <b></b>		

## Declaration (signed for and on behalf of)

Name and position as authorized by the issuer <sup>7</sup> : <b>Helmut Holighaus, Director</b>	Signature: 
Issuer Identification (as affixed to the article):  <b>EUROTECH</b> DIGITAL POWER ENGINEERING	Date: <b>23.Aug 2017</b>