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Installation instructions for a single to three-phase converter

Read this before connecting a machine

There are two converter versions: One for 240V single-phase or 415V two-phase, the other one for 480V split-phase or 415V two-phase. Please check first if the version is correct.

Supply cable and inrush current:
The input inrush current of a converter will be several times the rated current. Use a slow-blow motor-rated or d-curved circuit breaker in the house distribution box and a heavier than normal supply cable. Mount the converter near the single phase source.

Install a switched single-phase wall outlet or a switch-socket combination.
For two- or split-phase, use a two-phase circuit breaker and a two-phase switch.

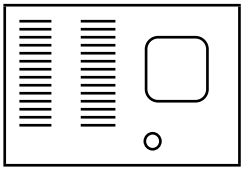
Use d-curved overload circuit breakers:

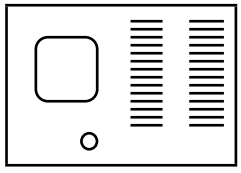
D-curved circuit breakers for converters:

	240V input	480V and 415V input
3kW	20A	2x 10A
4kW	25A	2x 16A
6kW	32A	2x 20A
8kW	40A	2x 25A
12kW	63A	2x 32A
16kW	80A	2x 40A
24kW	100A	2x 50A
32kW		2x 80A
40kW		2x 100A

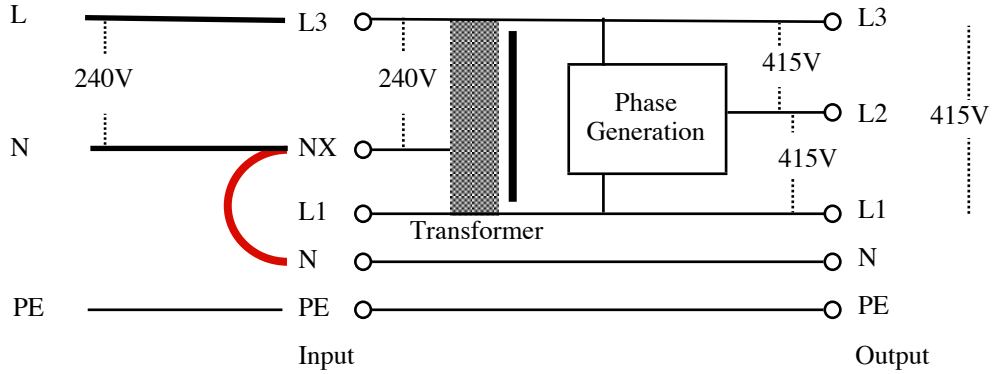
All three-phase wall outlet phases must be as as the converter's output phases: L1 L2 L3.

Two enclosures are used for 12kW and 16kW converters, three for 24kW, and four for 32kW. They are supplied with well marked link cables to be connected between them.

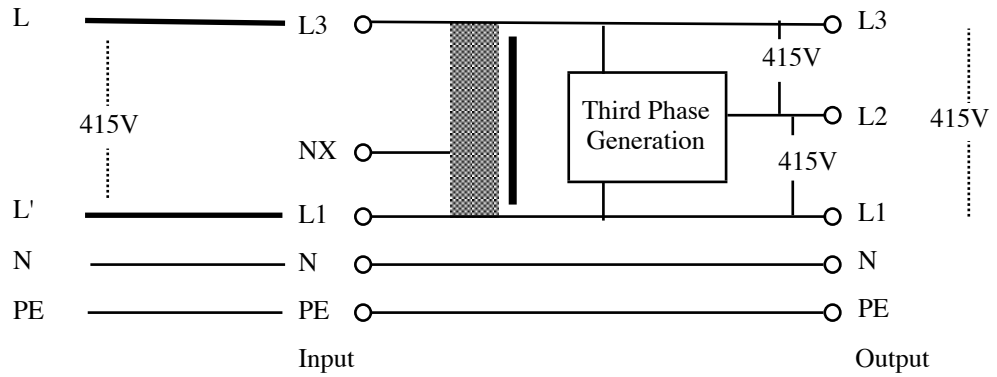




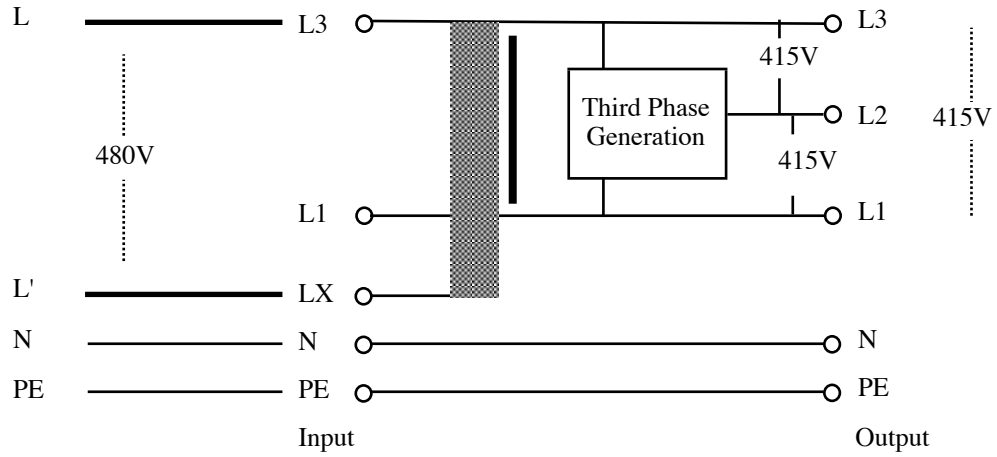
Version for 240/415V. Supply is 240V single-phase: Add a wire N to NX:



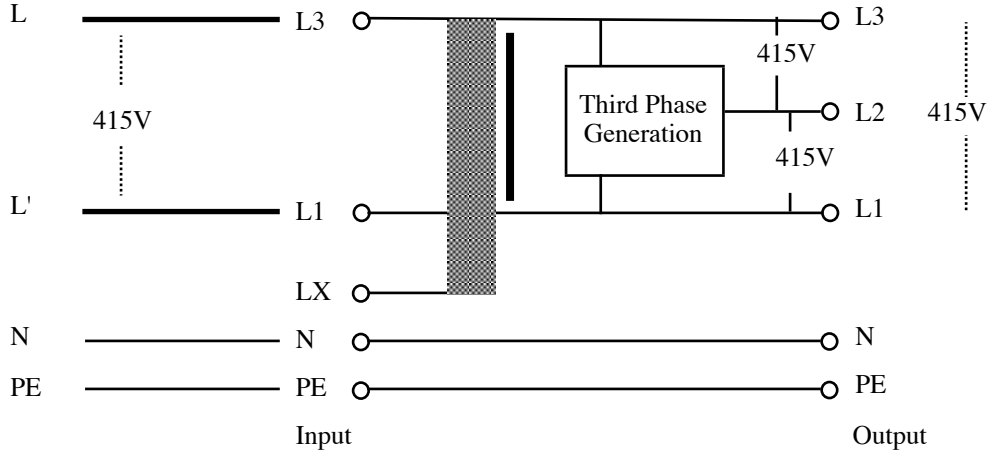
Version for 240/415V. Supply is 415V two-phase:



Version is for 415/480V. Supply is 480V split-phase:



Version is for 415/480V. Supply is 415V two-phase:



Danger. A wrong installation may damage the control circuit inside a machine:

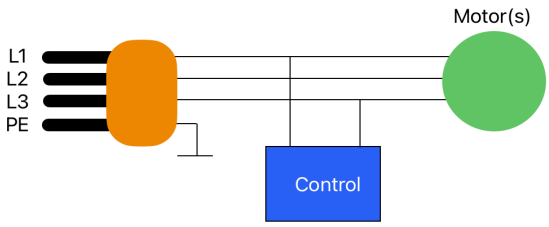
Output voltages are 415V between phases, correct for all three-phase motors. 240V phase to Neutral is only found on L3, voltages on the other two phases are too low or too high. Incorrect connections can damage control circuits in a machine.
Find the control circuitry on a three-phase plug of a machine by measuring the resistance of a control transformer. This can be hundreds of Ohm and a few Ohm.

Machines with a five-pin plug: They have a control transformer with a 240V primary coil, connected between one of the phases and Neutral. In the machine's plug, connect this control transformer (after you measured) wire to converter phase L3. Start a machine briefly. Should a motor rotate in the wrong direction, swap phases 1 and 2 in the plug.

A few machines have multiple internal single phase loads connected to more than one phase. Change this inside a machine to have all single phase loads connected to L3.

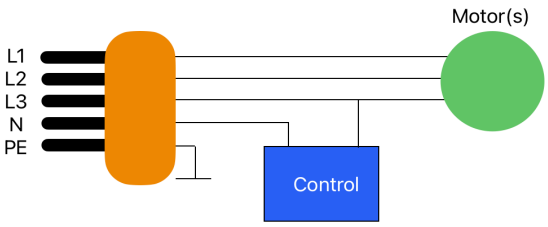
Machines with a four-pin plug: Their control transformers have a 415V primary coil, connected between two of the three phases. In the machine's plug, connect these control transformer wires (after you measured) to converter phases L1 and L3. Start a machine briefly. Should a motor rotate in the wrong direction, swap phases 1 and 3 in the plug.

Machine with a four pin plug



The control circuit is connected to two of the three phases. It runs on 415V.

Machine with a five pin plug



The control circuit is connected to one of the three phases and Neutral, it runs on 240V.

Machines with heaters: It is best to disconnect any heaters and connect them to single phase supply directly. This reduces the required kW rating of a converter.

Soft starters: Soft starters can be used but are not required.

Converter cooling. Avoid a fire:
In order to avoid damage or fire, install a converter inside a well-ventilated room. Ensure that the converter's air intake and air outlet are always free of any obstacles.

Danger:
Voltages inside a converter can peak at up to 1600V. Before opening the unit, wait at least ten minutes after disconnecting from power. Always measure the DC voltage on the capacitors prior to doing any work.

SUPPLIER DECLARATION OF CONFORMITY (SDoC)

In accordance with ISO/IEC 17050-1:2004

SDoC Identification Number[1]: Booster E 2-8kW, Booster T 4-48kW

Issuer details

Name[2] (of New Zealand manufacturer or importer): EuroTech Machinery Ltd

Telephone: 07-823 7234

New Zealand Company No. (if applicable):

Email Address: contact@eurotech.co.nz

Contact Address: 140 Victoria Street, Cambridge 3434

Medium Risk Article – Details[3] (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[4]:

Standard number and issue year:	AS/NZS3100:2009	Standard number and issue year:	AS/NZS2064:1997
Edition / Amendment status:	Amendment 1,2,3 and 4	Edition / Amendment status:	Amendment 1, Group1
Standard title:	Approval and test specification - General requirements for electrical equipment	Standard title:	
AS/NZS ZZ modified	Yes ☐ No ☐ N/A ☑	AS/NZS ZZ modified	Yes ☐ No ☐ N/A ☑

OR Complies with the Conformity Cooperation Agreement[5] Yes ☐ No ☐

Names and addresses of any testing organisation or body

Name(s):	EMC Technologies (NZ) Ltd	Address(es):	47 MacKelvie Street, Grey Lynn, Auckland
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:	Report Certification or Document reference N°(s):	Issue dates(s):
AS/NZS2064:1997	Test Report No 10204.1	15 Februar 2001

Reference to any management quality system involved:

Additional information[6]:

Declaration (signed for and on behalf of)

Name and position as authorized by the issuer[7]: Helmut Holighaus, Director

Issuer identification (as affixed to the article):

EUROTECH
DIGITAL POWER ENGINEERING

Signature:

Date: 23.Aug 2017