

BFG ENGINEERING
di Bettin, Fazia e Ghirardello
Studio Tecnico di consulenza e progettazione

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POWER STAGE FOR MOTOR CONTROL INVERTER REV 1

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INTRODUCTION

This document describes the new three-phase inverter dedicated to motor control application as it is using three or a single shunt for the current detection.

This inverter is able to drive 3-phase Permanent Magnet Synchronous Motor (Brushless Motor) or AC induction motor by using an advanced sensorless or sensed Field Oriented Control algorithm.

The phase currents measurement is done via three shunts or single shunt which offers a very low cost solution avoiding any expensive current sensor.

The main focus applications for this type of algorithm are compressors, air conditioning, fans, industrial drives, washer, electric traction, etc.

The power stage is able to drive up to 1.5KW motors using the IPM and the heat sink.

The inverter is fully compatible to the well-know MCRP05, MCRP06 , YRMCKITRX62T, and YRMCKITRL78G14 based on the Renesas Microcontrollers.

The new inverter designed by BFG Engineering is using the Intelligent Power Module (IPM) from Fairchild FSBB30CH60C, the voltage & current ratings are 600V, 30A.

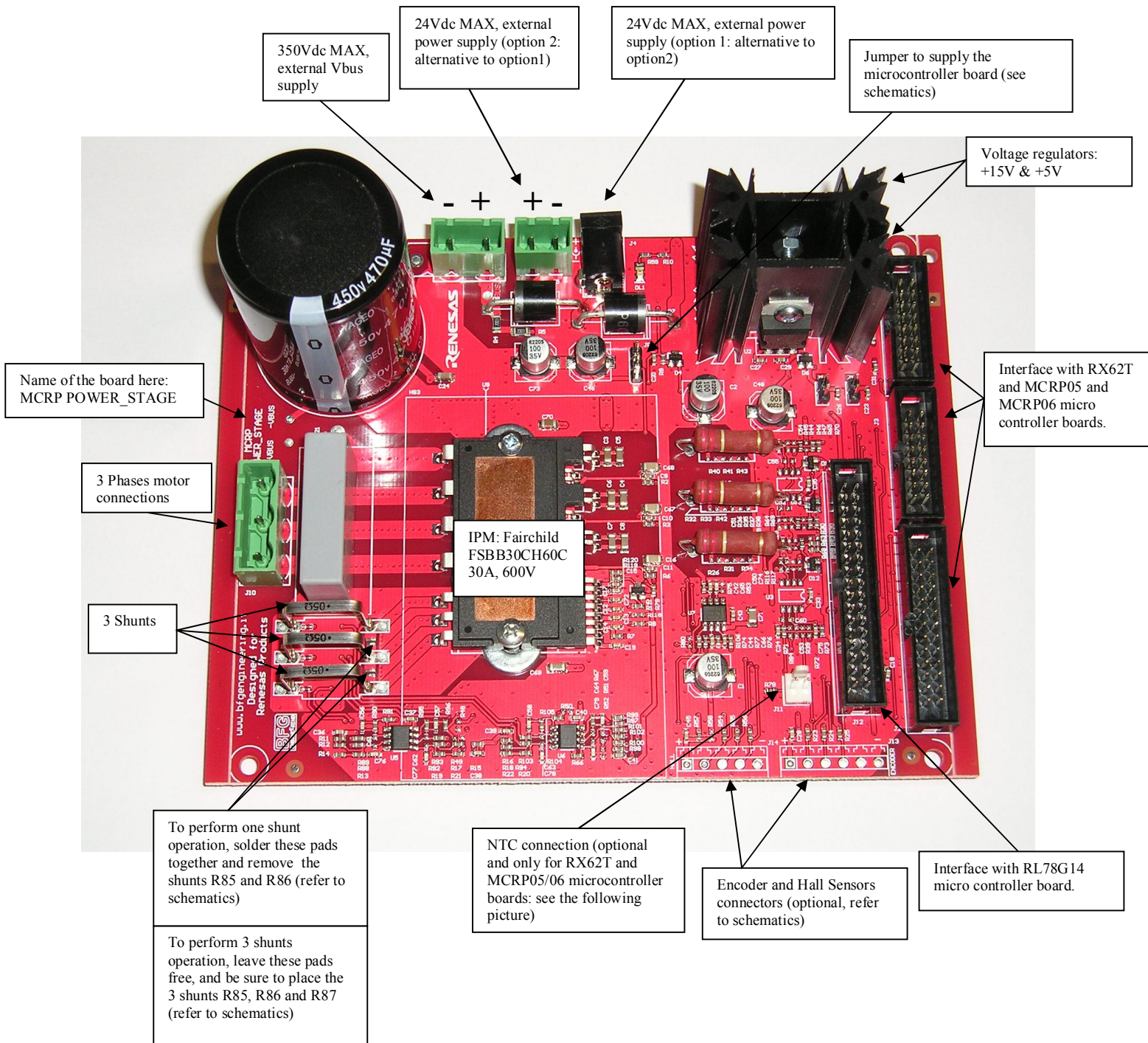
The information package includes the following files:

- a) Schematics: "IPM Fairchild Power stage E6108A schematics.pdf"
- b) Map: "IPM Fairchild Power stage E6108A map.pdf"
- c) IPM datasheet : "FSBB30CH60C Datasheet.pdf"
- d) Schematics: "E6092_SCH_rectifier.pdf"
- e) Map: "E6092_SCH_rectifier_map.pdf"

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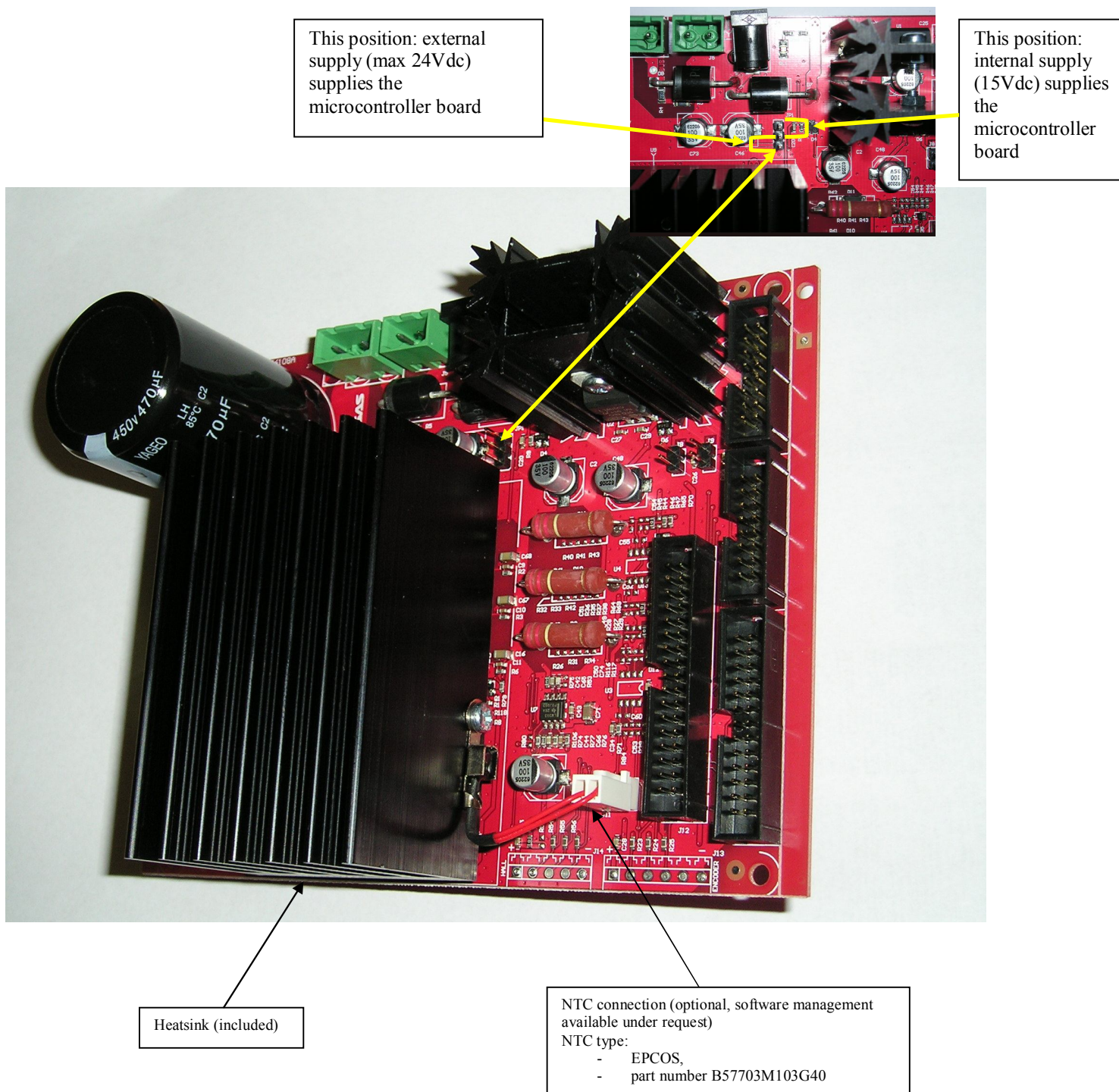
Power Stage Overview:



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Microcontroller board supply jumper setting (JP1) and NTC connection:



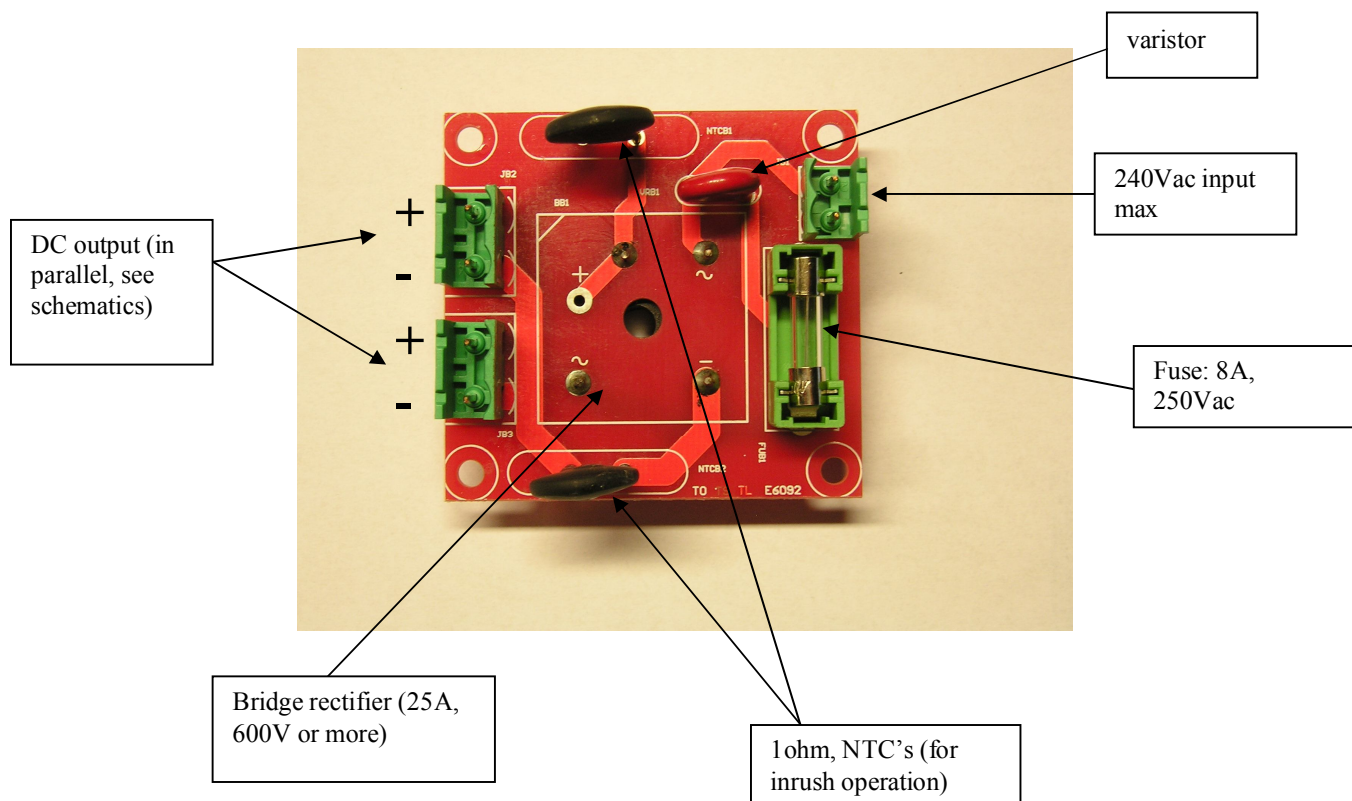
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Optional board available under request

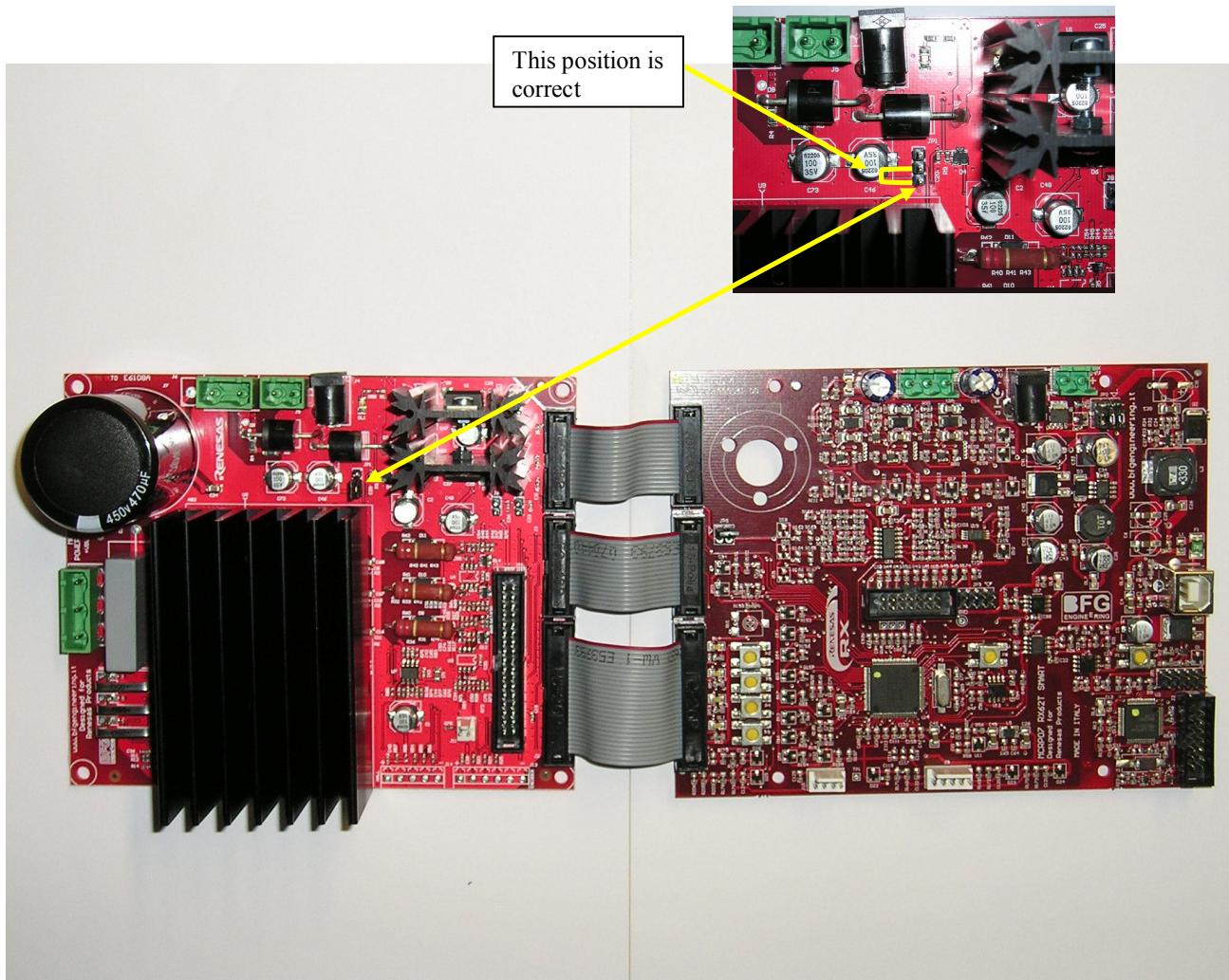
One option board is available on request:

- Bridge rectifier: for high voltage (230Vac) including fuse, NTC's, varistors and connections (p/n E6092)



Power Stage Connection Examples:

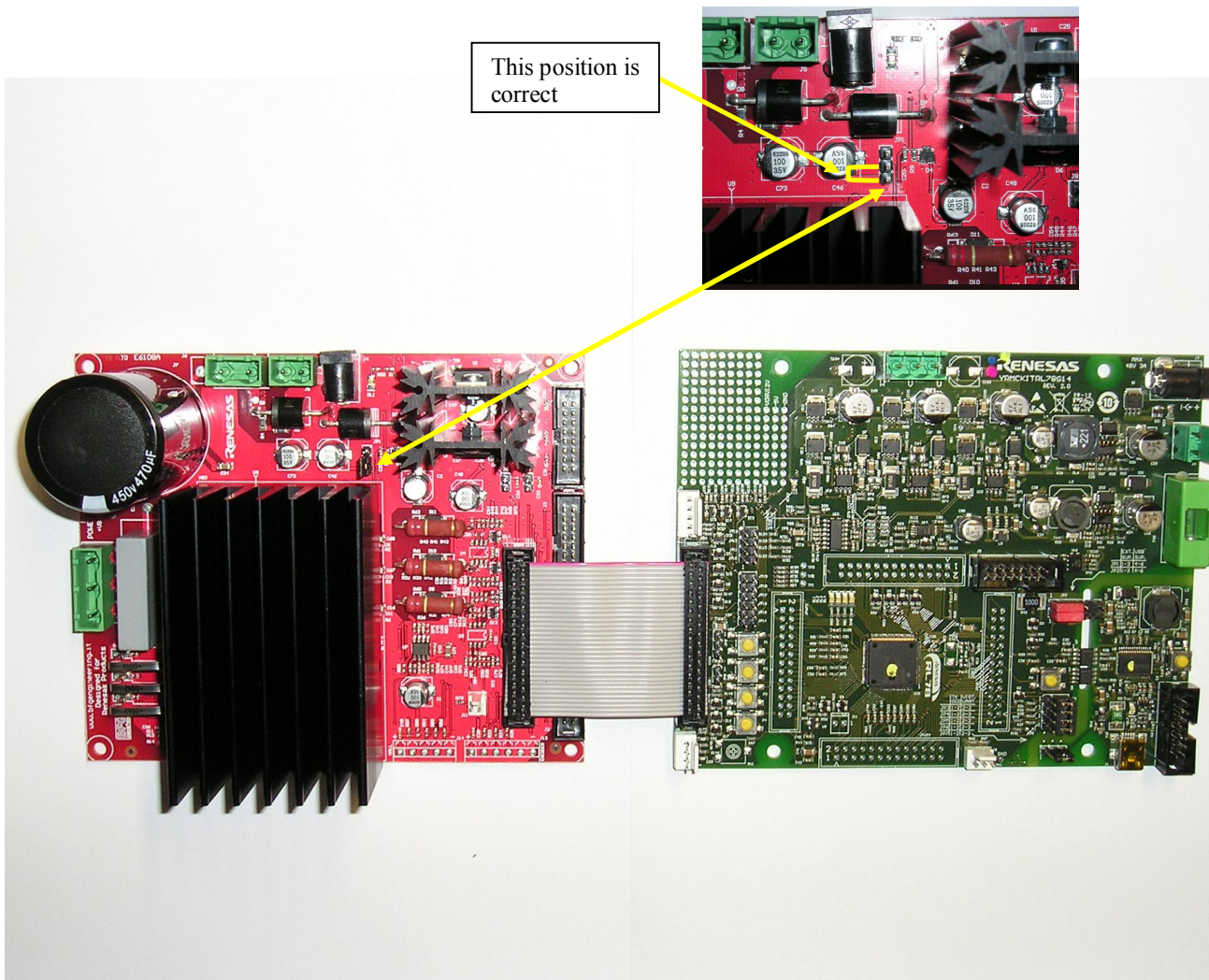
Example 1: RX62T Microcontroller board connection



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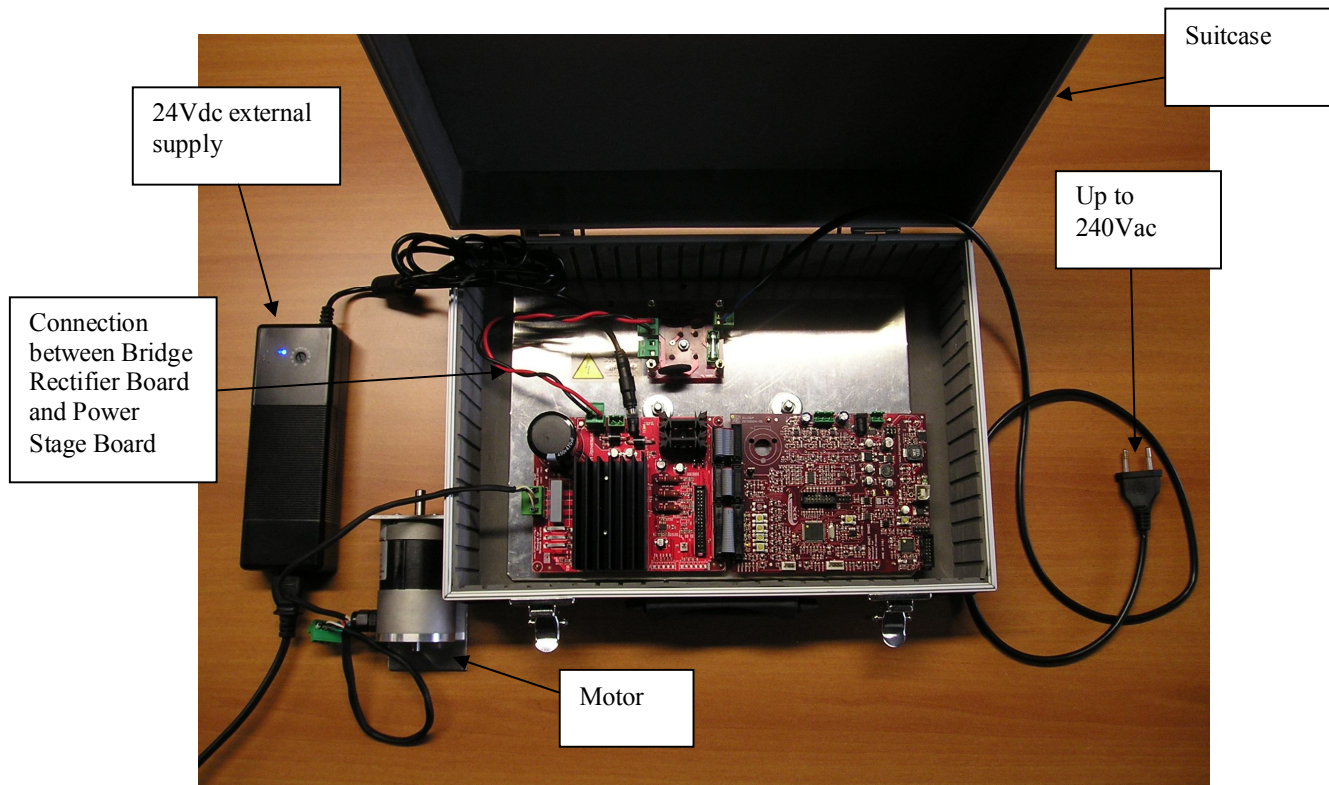
Example 2: RL78G14 Microcontroller board connection



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Complete Kit Example:



For more information please contact:

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