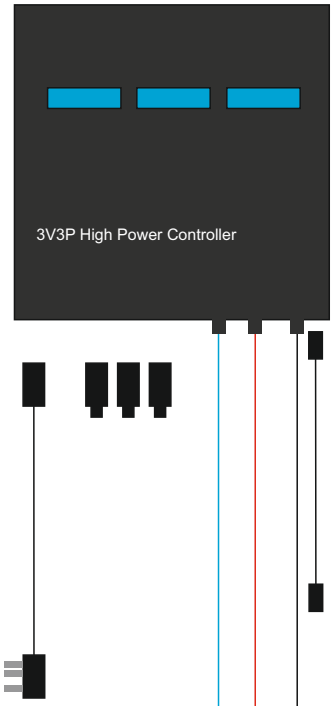
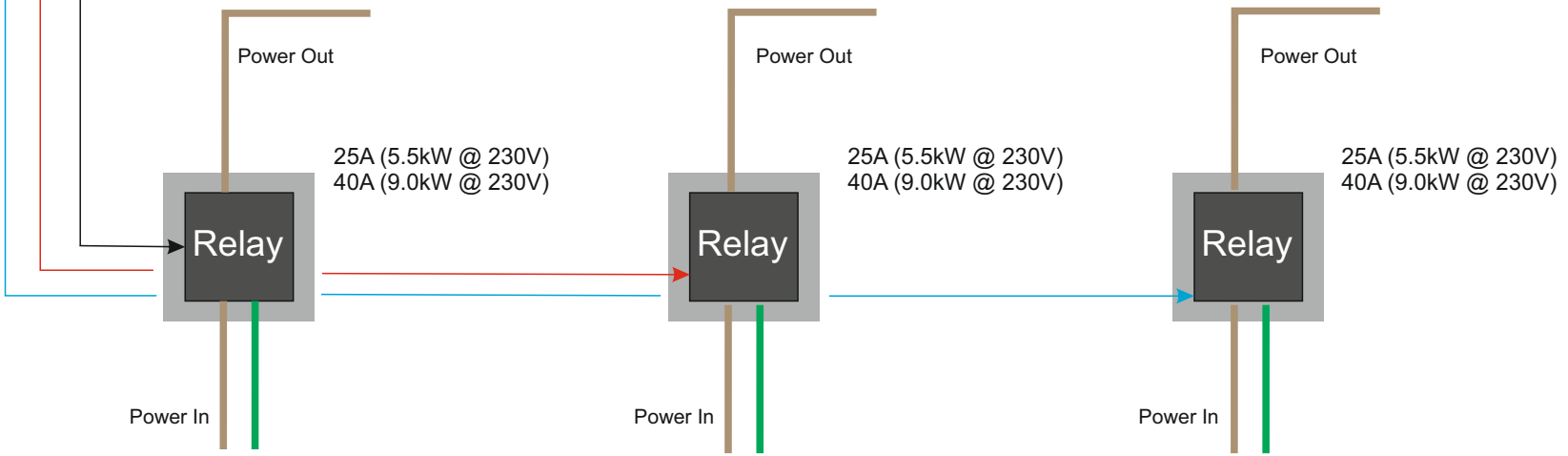
EINBREW 3V3P What you get.



1 x Control Panel wall mountable.
1 x IEC C13 power input lead for controller.
3 x IEC C14 power output plugs for pumps.
3 x PT100 temperature sensors with leads and ‘flight connectors’.
3 x 25A or 40A Relays with 4mm^2 or 6mm^2 Live & Earth, control signal leads, heatsinks and covers.
1 x USB-A to USB-A lead.
1 x User guide.



EINBREW 3V3P High Power Control Panel General Information.

The 3V3P is 3 controllers in one, an HLT controller, an MT controller and a BK controller.

The left screen is the HLT controller, it uses the temperature from the HLT probe and controls the relay 1 (HLT) output.
Pump 1 is loosely tied to the HLT controller, pump 1 will be stopped by the controller if you stop or pause the HLT controller,
if you subsequently restart the HLT controller pump 1 must be manually started. It will also be stopped at the end of the keep-warm stage.

The middle screen is the MT controller, it uses the temperature from the MT probe and controls the relay 2 (MT) output.
The MT controller controls pump 2, to facilitate grain resting. Pump 2 is more closely tied to the MT controller, pump 2 will be
stopped by the controller if you stop or pause the MT controller, if you subsequently restart the MT controller pump 2 must be manually started.

The right screen is the BK controller, it uses the temperature from the BK probe and controls the relay 3 (BK) output.
Pump 3 is loosely tied to the BK controller, pump 3 will be stopped by the controller if you stop or pause the BK controller,
if you subsequently restart the BK controller pump 3 must be manually started. It will also be stopped at the end of the cooling stage
(when set temperature is reached).

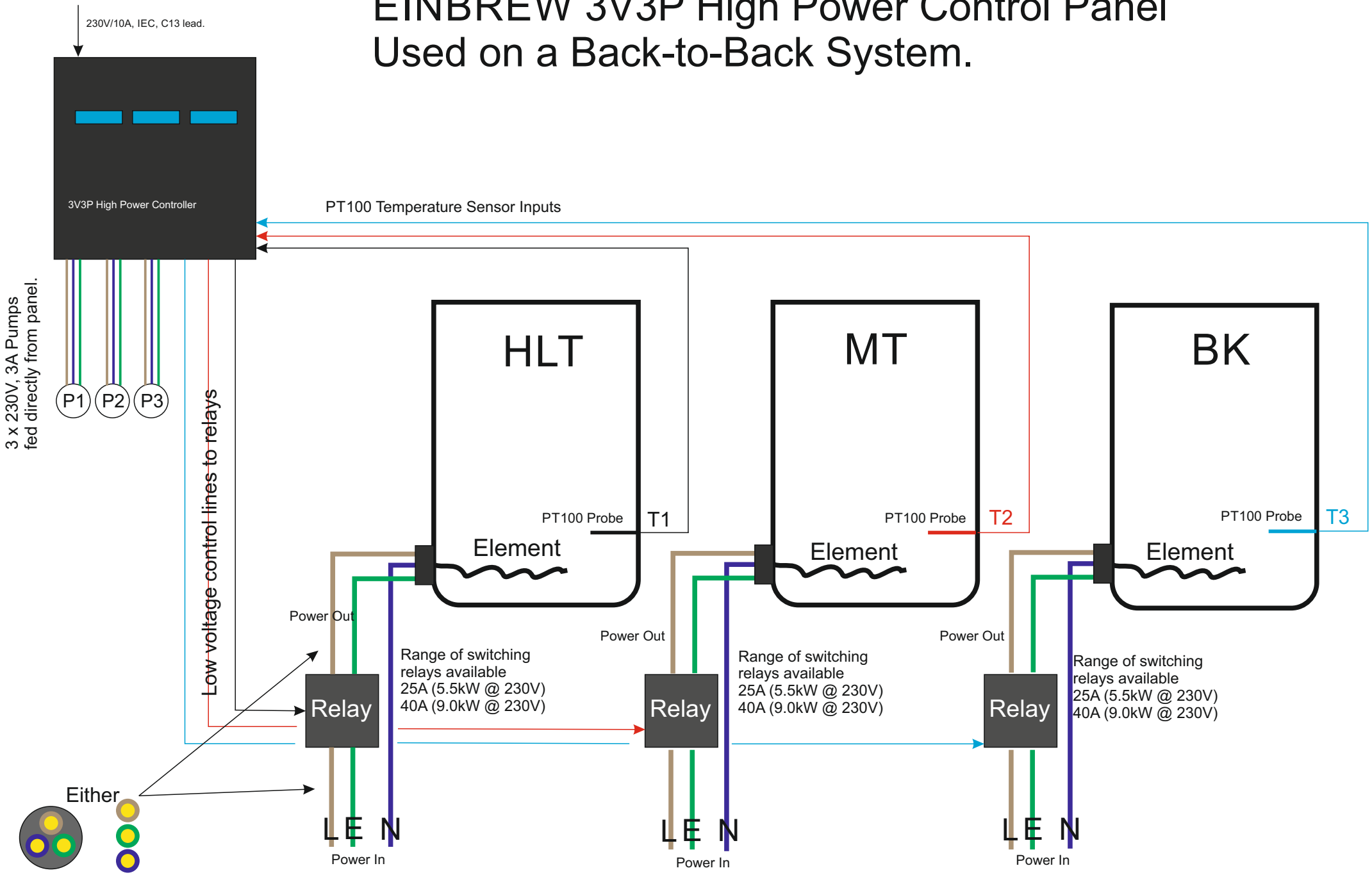
Pumps can be started and stopped at any time from their respective buttons. Pumps are all subject to the set max pump run temperature.

Systems with heat exchange components, particularly HERMS coil systems can be subject to temperature overshoots, due to the time lag inherent in these types of systems. Ensure the pump rate is high, MT temperature probe is positioned to very near the in-flow from the coil. Where possible, use a pump to mix the contents of the HLT. Ensure large water volume in the HLT to submerge the coil, keep the lid on at all times.

In RIMS systems, the MT temperature probe must be positioned on the out-flow of the RIMS heater; good circulation must be ensured at all times. When the 3V3P performs a grain rest, the RIMS heater Or any heater controlled by the MT controller is turned off in advance of pump 2 being turned off, this it to dissipate any latent heat in the RIMS element, likewise the heater will only come on after the pump venting has finished.

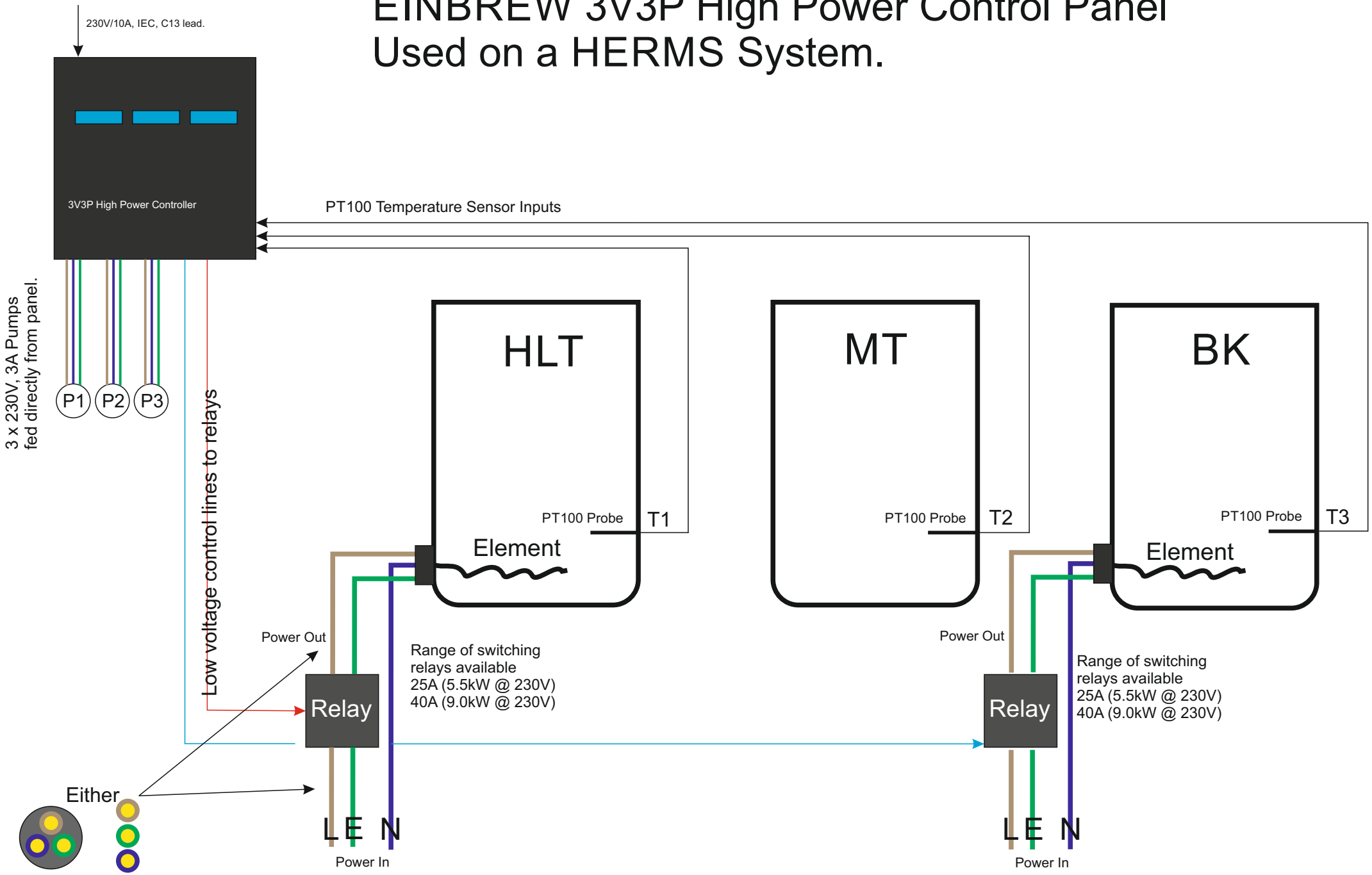
The BK controller has automatic ‘Boil Detect’, which senses the wort boiling and ramps the power down to a simmer, to stop boiling over. You can then adjust the set power manually. For Boil Detect to work consistently we advise the pump to be turned off at 93C and the lid to be kept on the BK until the controller has alarmed that the boil has been detected. Note there is a pre-boil alarm at 95C, this is simply to alert you that the boil is getting close.

EINBREW 3V3P High Power Control Panel
Used on a Back-to-Back System.



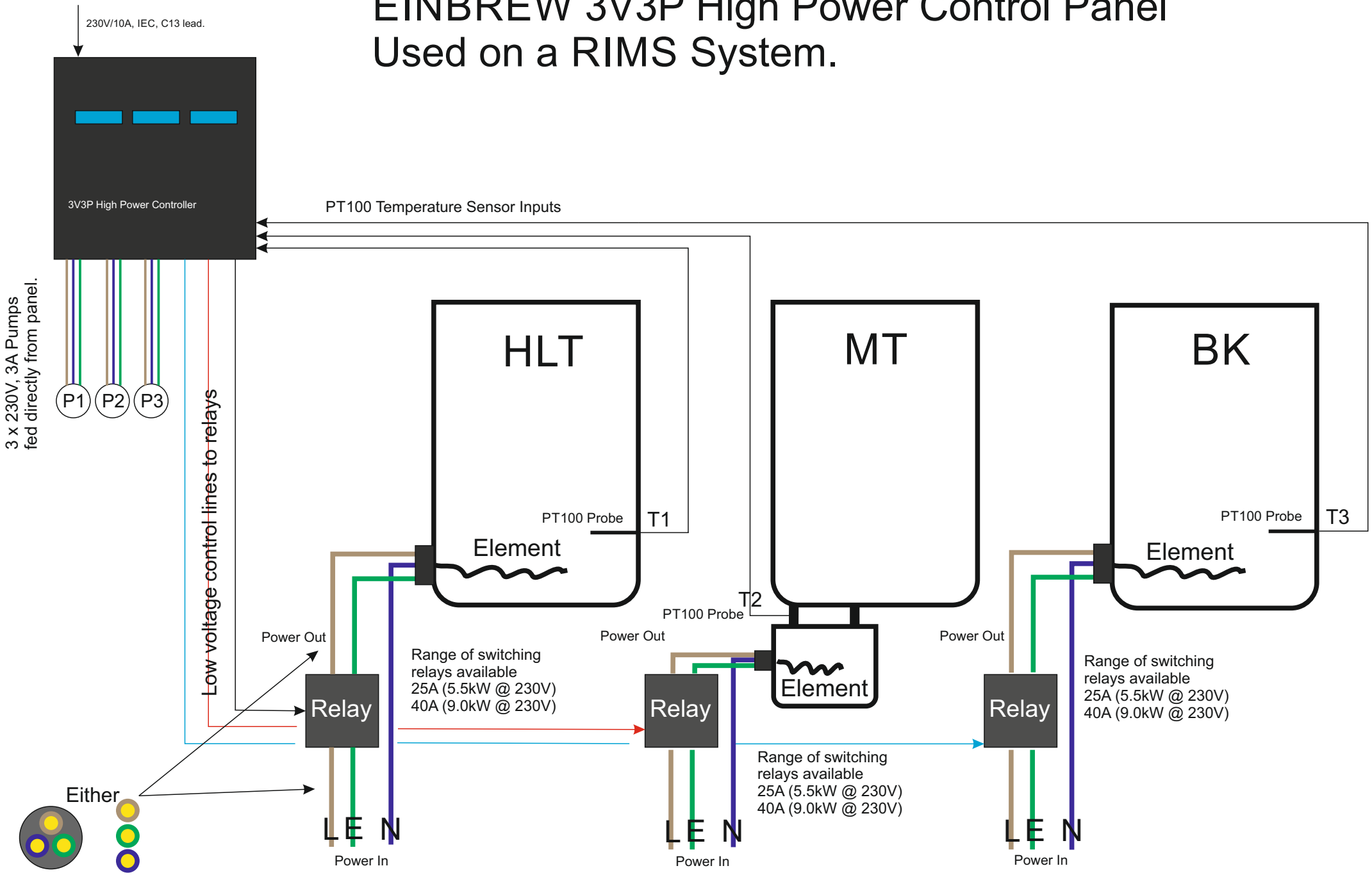
Separate 220-240Vac, supply to each relay & element.

EINBREW 3V3P High Power Control Panel Used on a HERMS System.



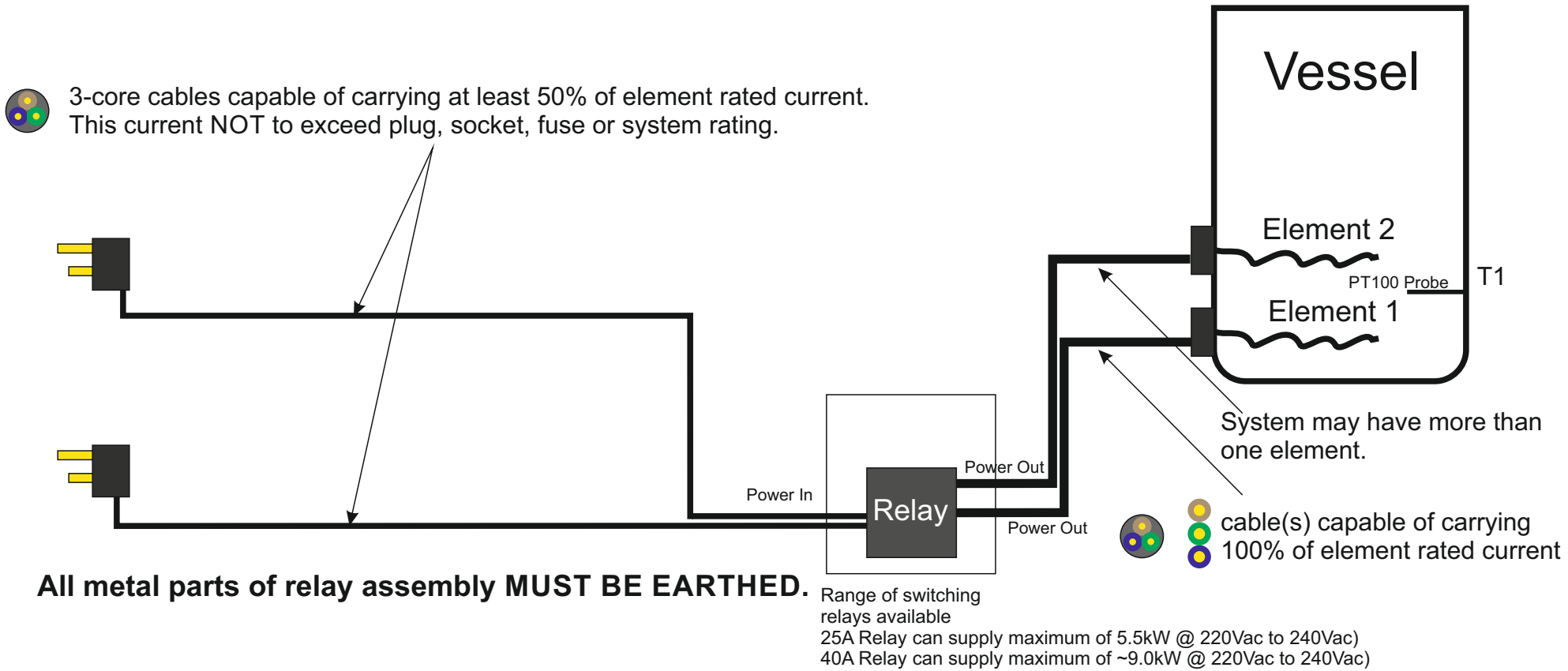
Separate 220-240Vac, supply to each relay & element.

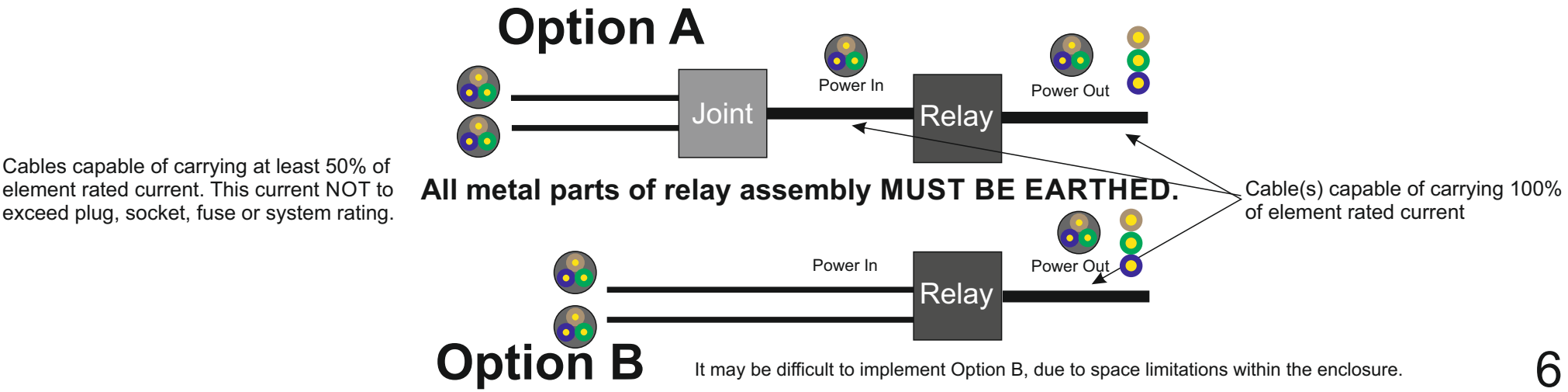
EINBREW 3V3P High Power Control Panel Used on a RIMS System.



Separate 220-240Vac, supply to each relay & element.

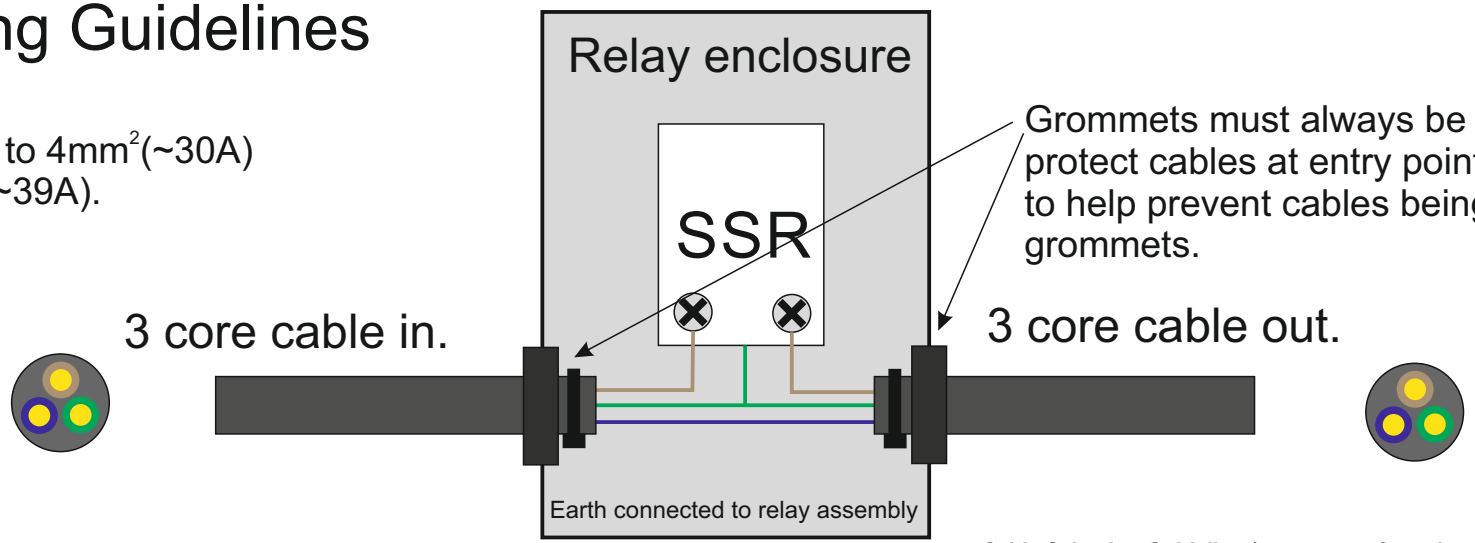
Split supply suggestion, subject to local regulations - ALWAY CONSULT A QUALIFIED EXPERT.
These ‘split’ arrangements may NOT conform to regulations in some regions.





Relay Wiring Guidelines

For 3-cores cables to 4mm^2(~30A)
or possibly 6mm^2 (~39A).



All metal parts of relay assembly MUST BE EARTHED.

3-Core cables over 4mm^2 or 6mm^2 become difficult to keep cool, they are also unwieldy and difficult to route and connect, we suggest for cables over 4mm^2 (~30A) or 6mm^2 (~39A), use single core, multi-strand cables, cliped to cable tray side by side, not bundled together.

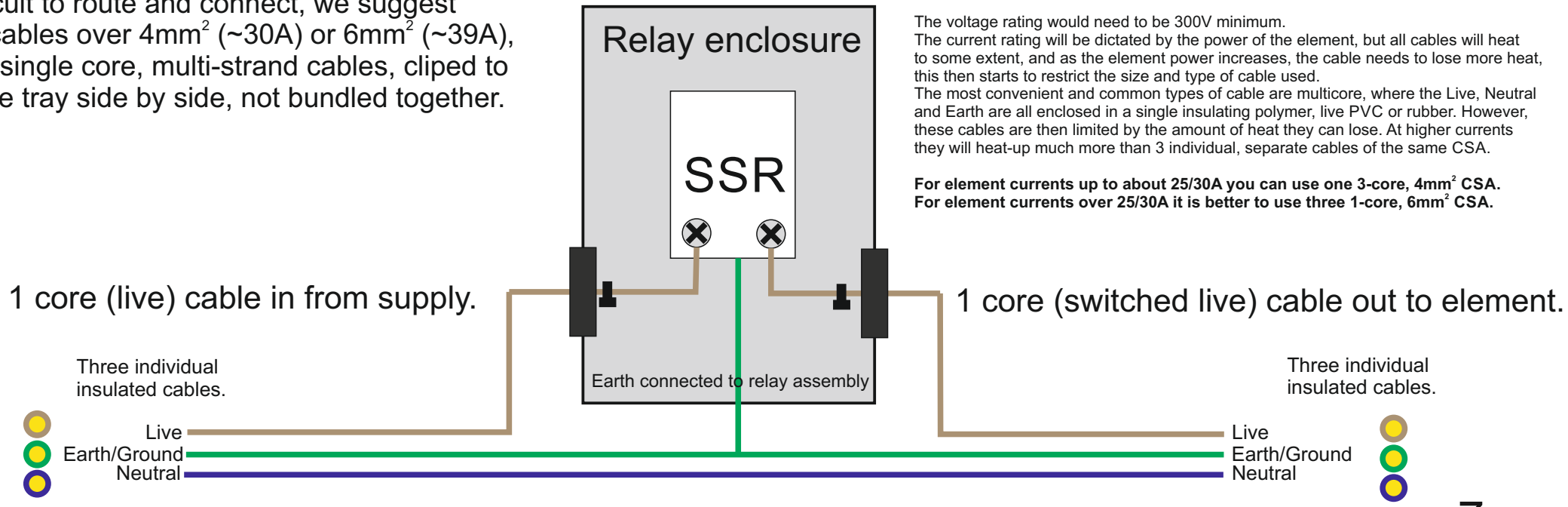
Cable Selection Guideline (you must refer to local regulations and experts)

There are 3 main factors that determine the type and size (cross sectional area, CSA) of a cable:-

1) Voltage to be used at, in our case the cables will be 300V, 60C cable.
2) The quantity of current to be carried to the element.
3) The ability of the cable to stay cool, warm & not overheat.
   (This may determine how the cable is mounted.)

The voltage rating would need to be 300V minimum.
The current rating will be dictated by the power of the element, but all cables will heat to some extent, and as the element power increases, the cable needs to lose more heat, this then starts to restrict the size and type of cable used.
The most convenient and common types of cable are multicore, where the Live, Neutral and Earth are all enclosed in a single insulating polymer, live PVC or rubber. However, these cables are then limited by the amount of heat they can lose. At higher currents they will heat-up much more than 3 individual, separate cables of the same CSA.

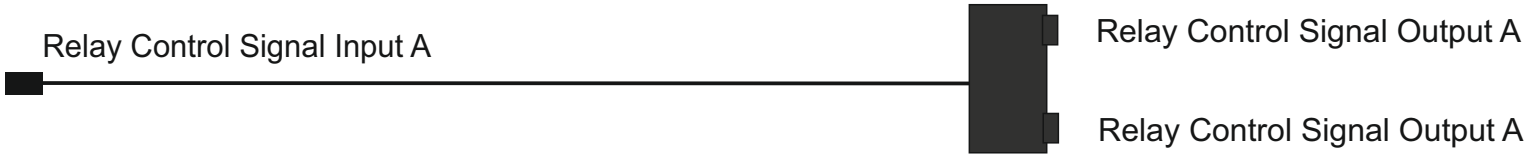
For element currents up to about 25/30A you can use one 3-core, 4mm^2 CSA.
For element currents over 25/30A it is better to use three 1-core, 6mm^2 CSA.



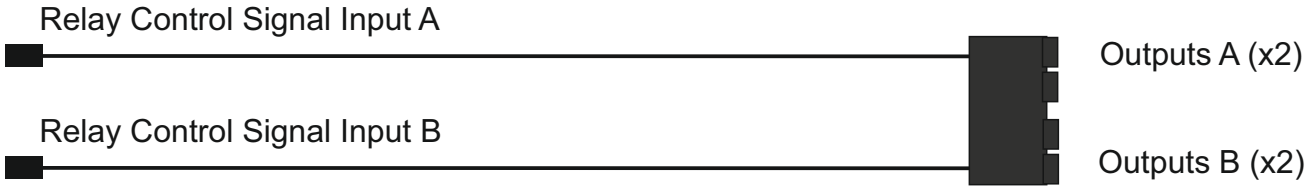
All metal parts of relay assembly MUST BE EARTHED - DO NOT OPEN THE RELAY ENCLOSURE.

Splitter Boxes are used to split a single control signal for use by two relays; used when the total power of both elements exceeds a single relay's capacity.

Single Control Signal Splitter

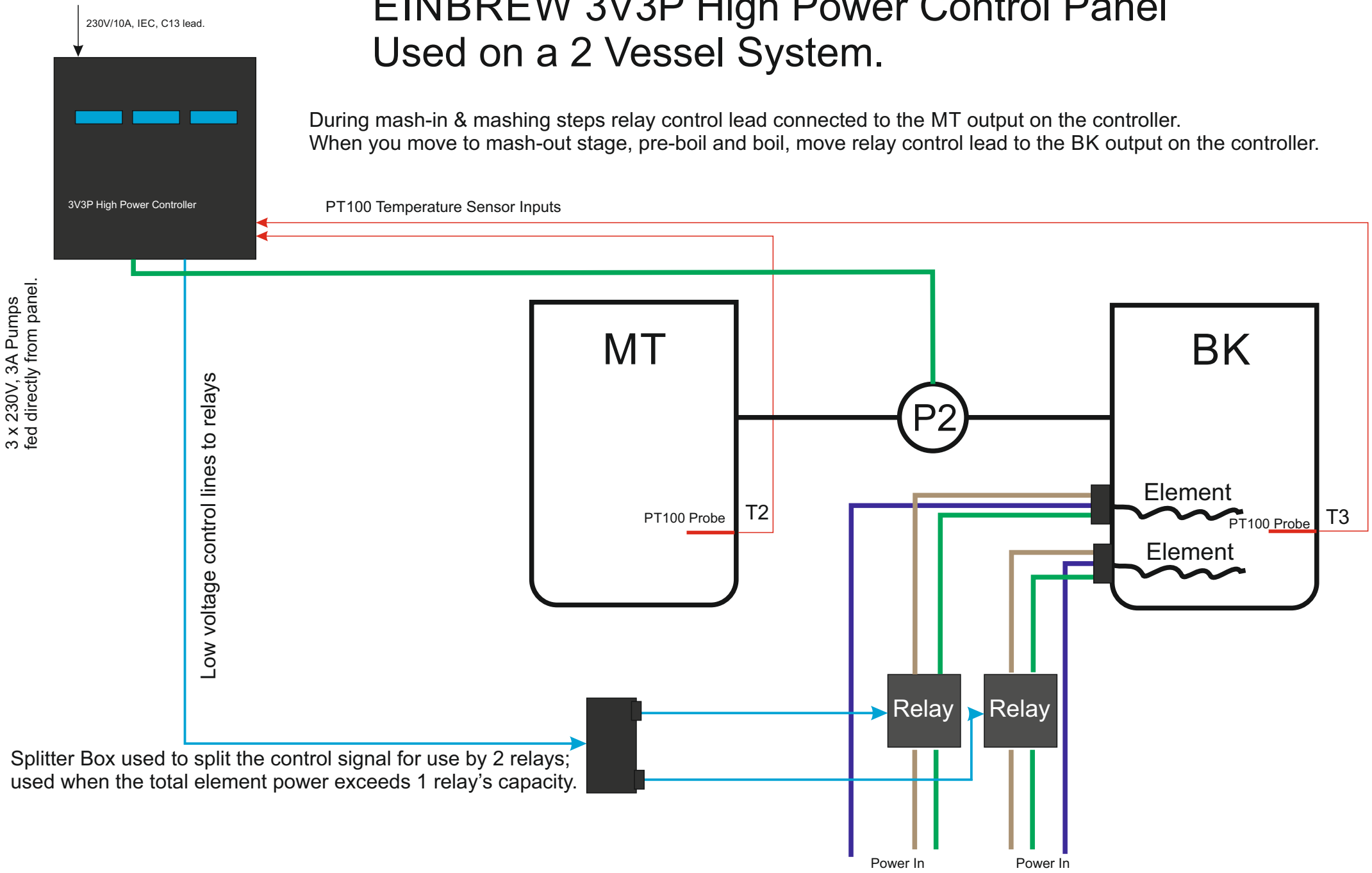


Double Control Signal Splitter



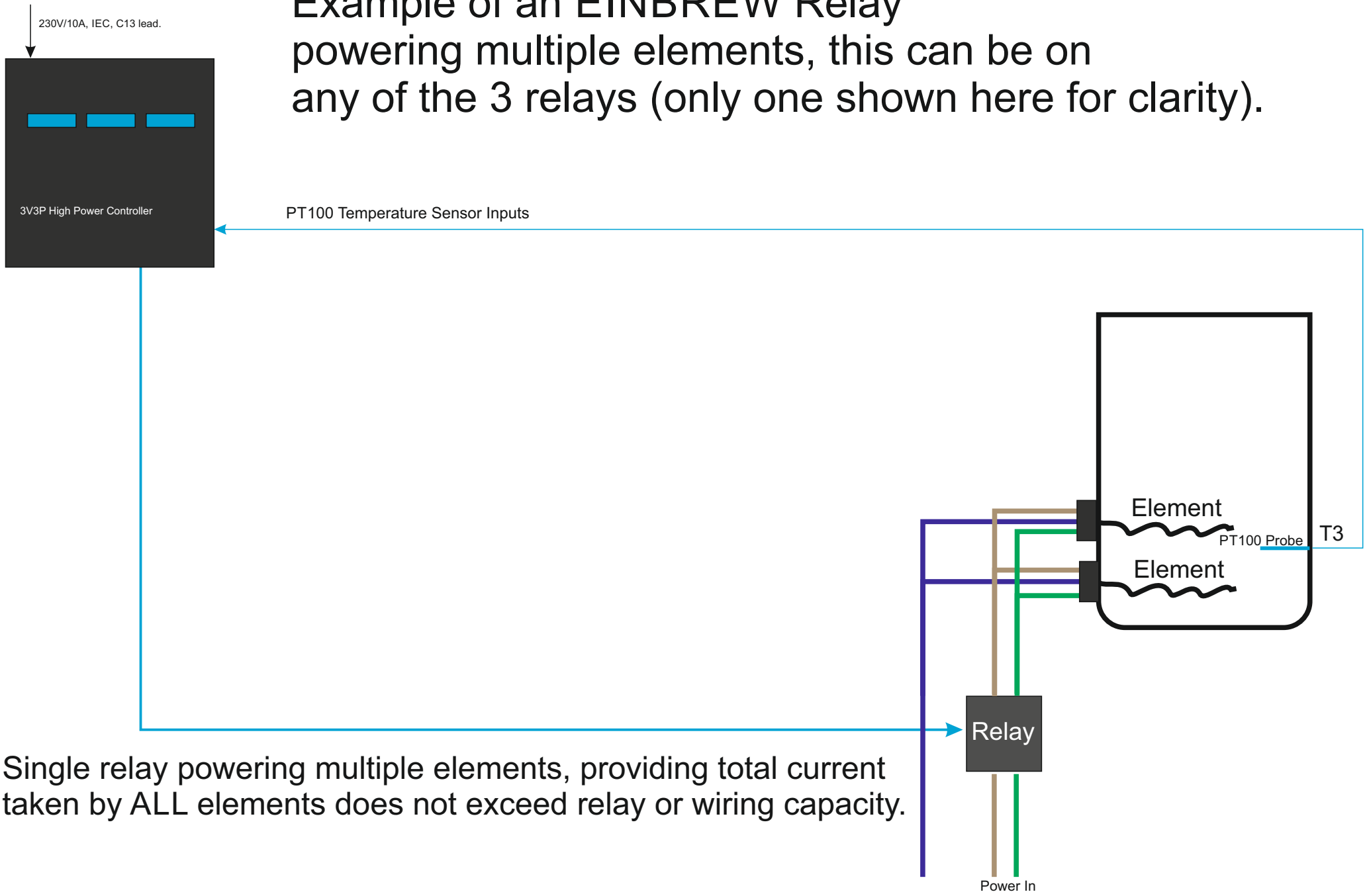
EINBREW 3V3P High Power Control Panel Used on a 2 Vessel System.

During mash-in & mashing steps relay control lead connected to the MT output on the controller.
When you move to mash-out stage, pre-boil and boil, move relay control lead to the BK output on the controller.



Separate 220-240Vac, supply to each relay & element.

Example of an EINBREW Relay powering multiple elements, this can be on any of the 3 relays (only one shown here for clarity).



Single relay powering multiple elements, providing total current taken by ALL elements does not exceed relay or wiring capacity.

Relay Wiring Guidelines - Using 3-core to and from relay

3-Core cables over 4mm2 or 6mm2 become difficult to keep cool, they are also unwieldy and difficult to route and connect, we suggest for cables over 4mm2 (~30A) or 6mm2 (~39A), use single core, multi-strand cables, cliped to cable tray side by side, not bundled together.

Any joints and jointing materials must be sufficiently rated to carry the correct element current.

Keep the number of joints to a minimum.

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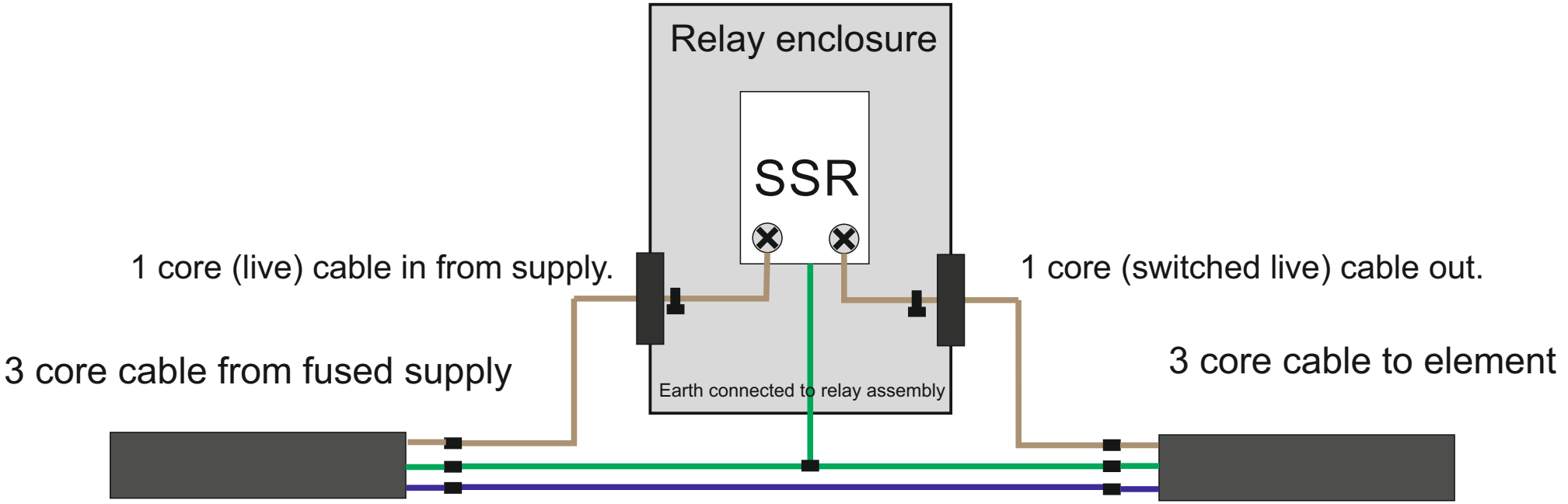

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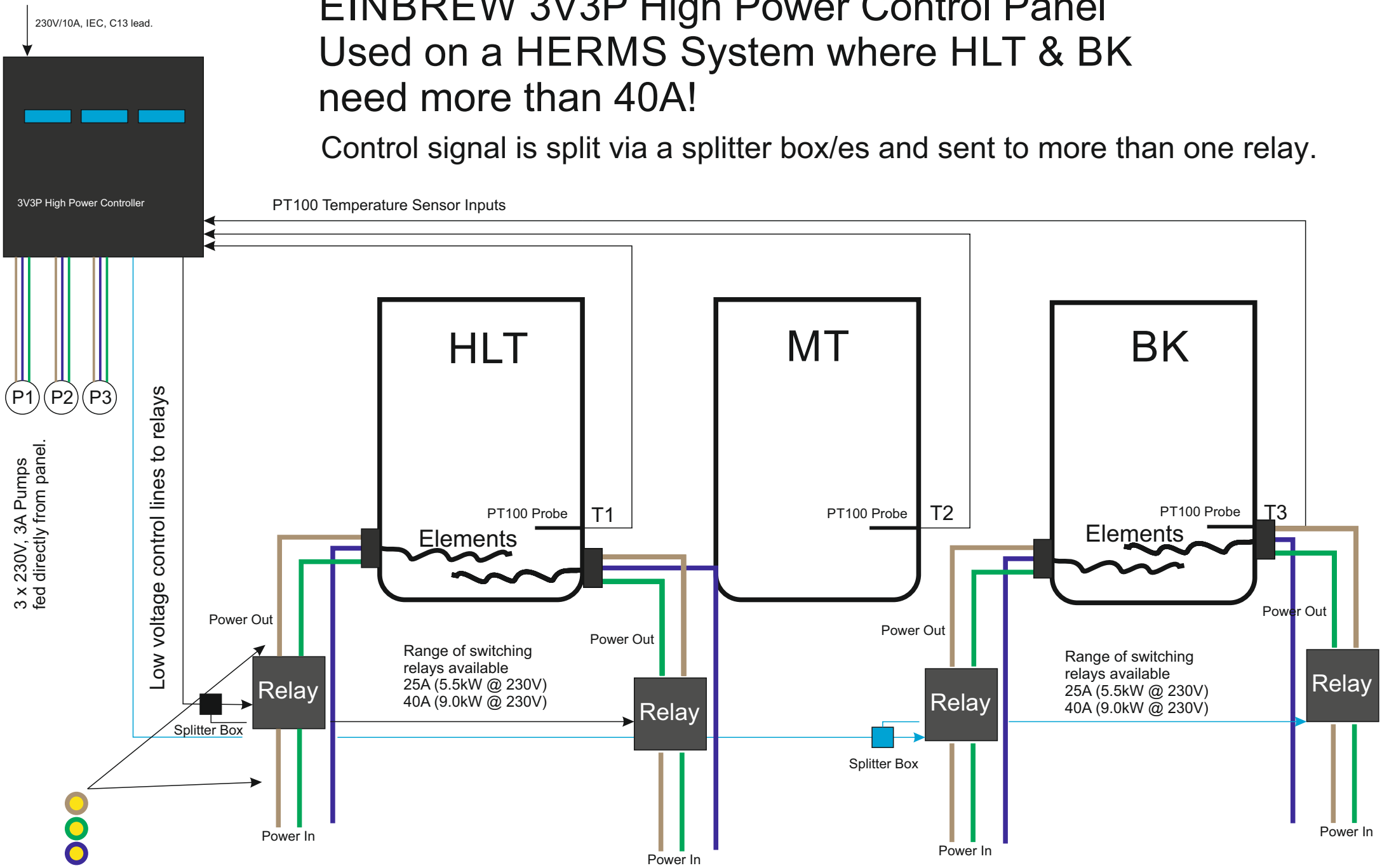
EINBREW 3V3P High Power Control Panel Used on a HERMS System where HLT & BK need more than 40A!

Control signal is split via a splitter box/es and sent to more than one relay.



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