



## **BLOCKING DIODE INSTALLATION INSTRUCTIONS**



## BLOCKING DIODES

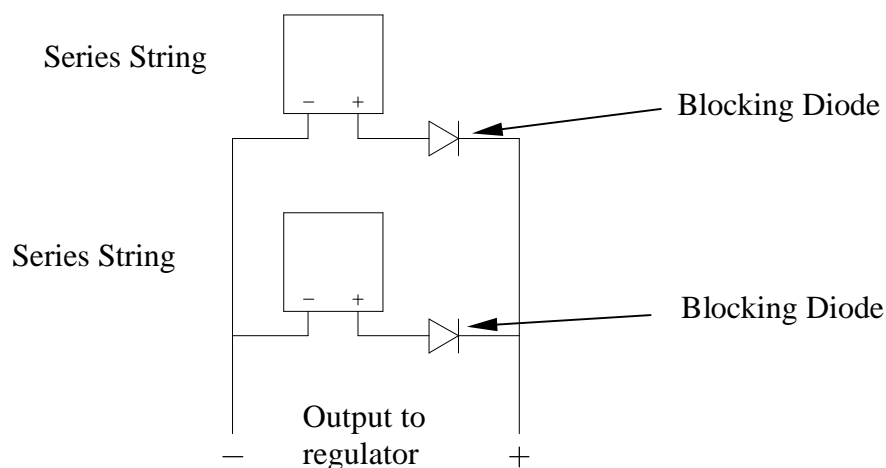
A blocking diode is required in each 'series string' of solar modules between the modules and regulator/battery, to prevent current flowing back through the modules when the modules are shaded or during darkness. The blocking diode acts like a one-way valve, allowing current to flow only one way, out of the solar module.

If a Solar module is connected directly to a battery, during sunlight hours the module will charge the battery but during darkness or shading, the module will act as a load on the battery and discharge it.

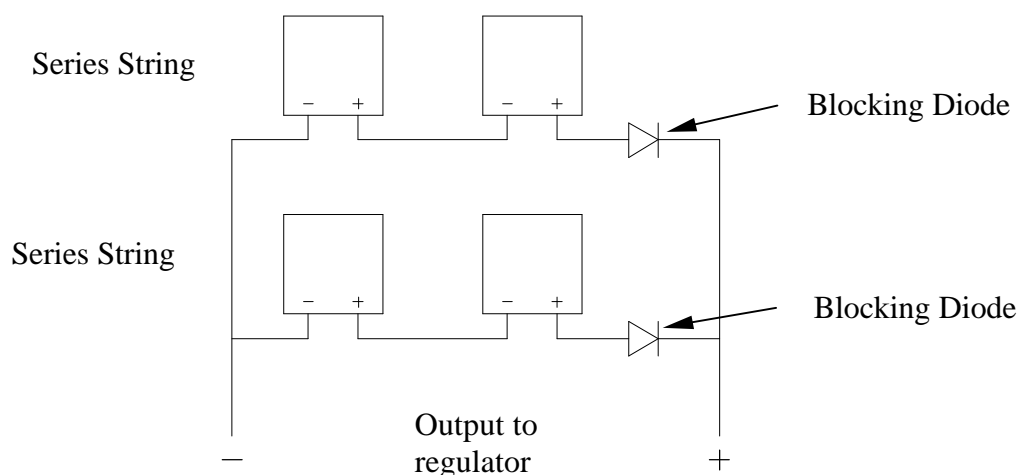
In a simple single module and regulator system, a separate blocking diode is not normally required since one is normally incorporated into the regulator.

Whenever more than one module or a module and another charge source (eg wind generator) are directly connected in parallel, a blocking diode is required in each 'series string' of solar modules.

A 'series string' can be one or more solar modules connected in series. Any number of 'series strings' can then be connected in parallel. Modules are connected in series to increase voltage, and parallel to increase current.



**Fig 1. Typical 12v Solar Array**



**Fig 2. Typical 24v Solar Array**

## Fitting Blocking Diodes

### Framed Modules

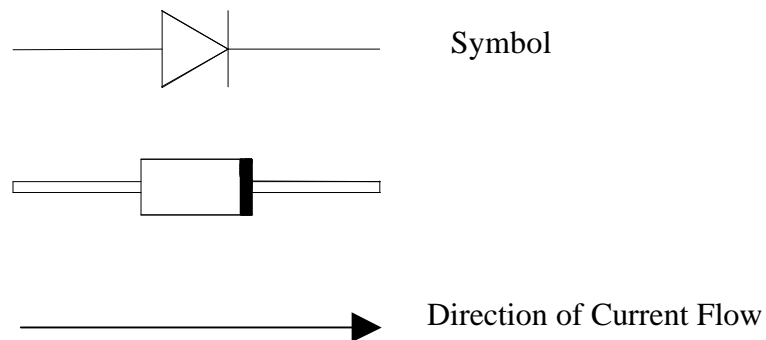
It is usual to fit the blocking diode into the positive output inside the terminal box of the solar module at the positive end of each series string.

In order to minimise voltage drop and power loss it is recommended that Schottky diodes are used.

Modules up to 60W  
Modules up to 100W

5A Schottky Diode  
8A Schottky Diode

Marlec Part No 913-005  
Marlec Part No 913-012



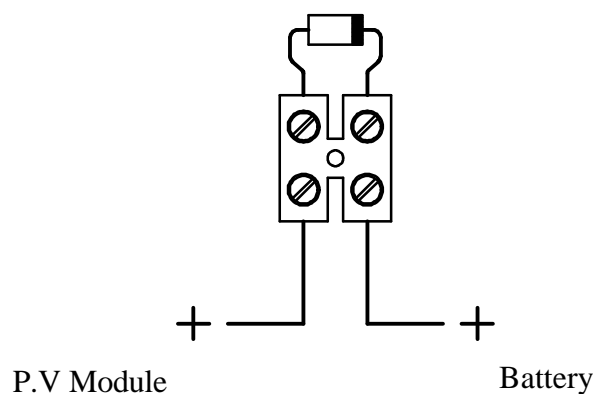
### Lite Series Modules

Lite series modules do not have terminal boxes fitted, therefore the blocking diode needs to be fitted externally to the module, usually within a junction box where the modules are terminated. The diode can be conveniently fitted into a terminal block as shown in Fig 3. in series with the positive output of the solar module.

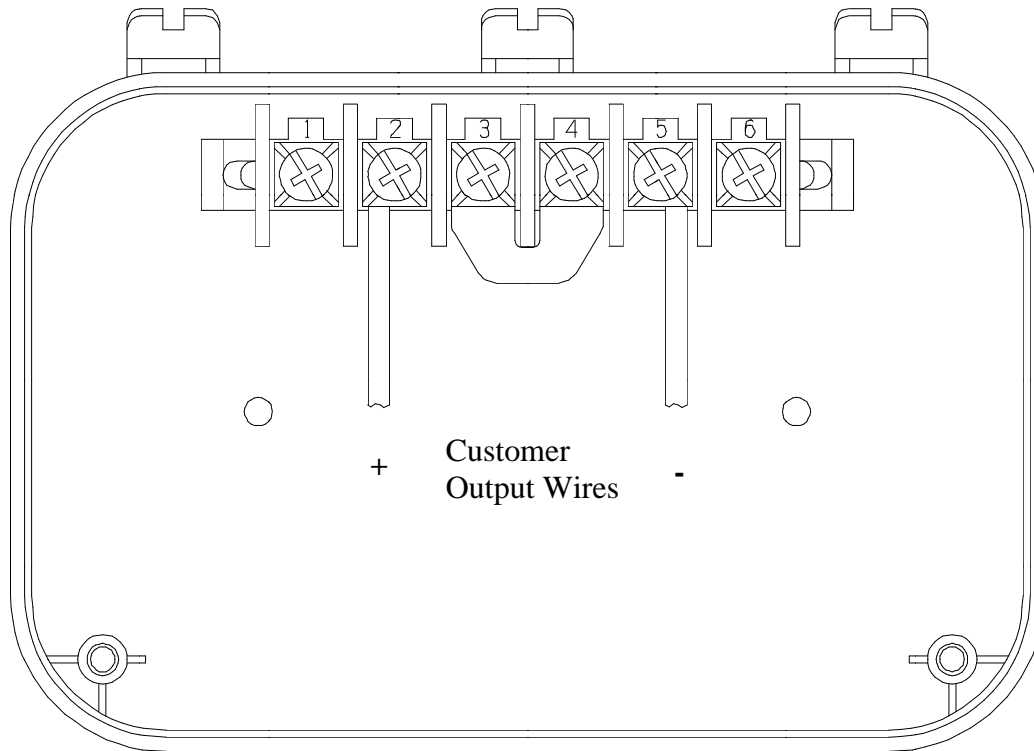
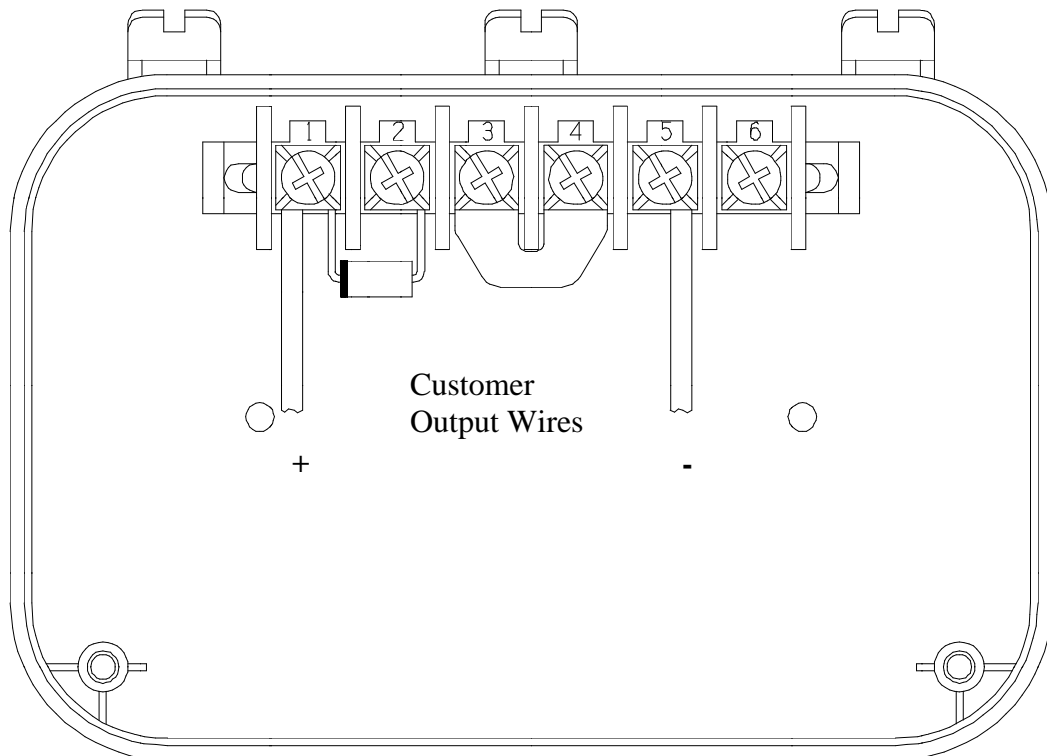
The blocking diode kit includes a 2 way terminal block:

Schottky Diode Kit 5A

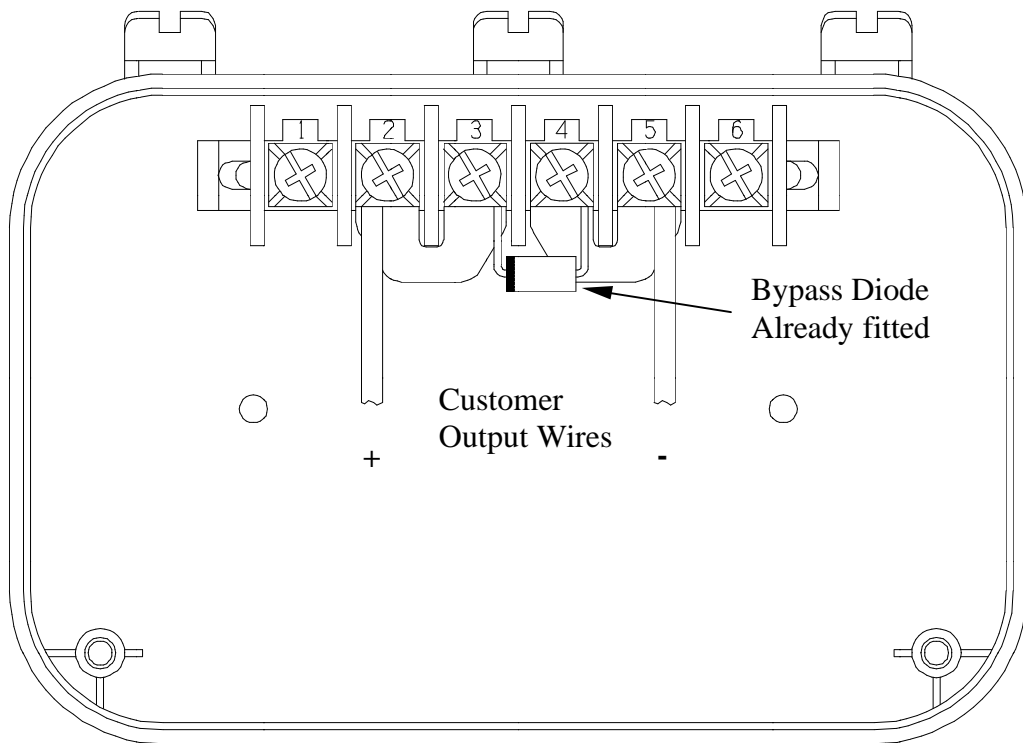
Marlec Part No CA-11/01



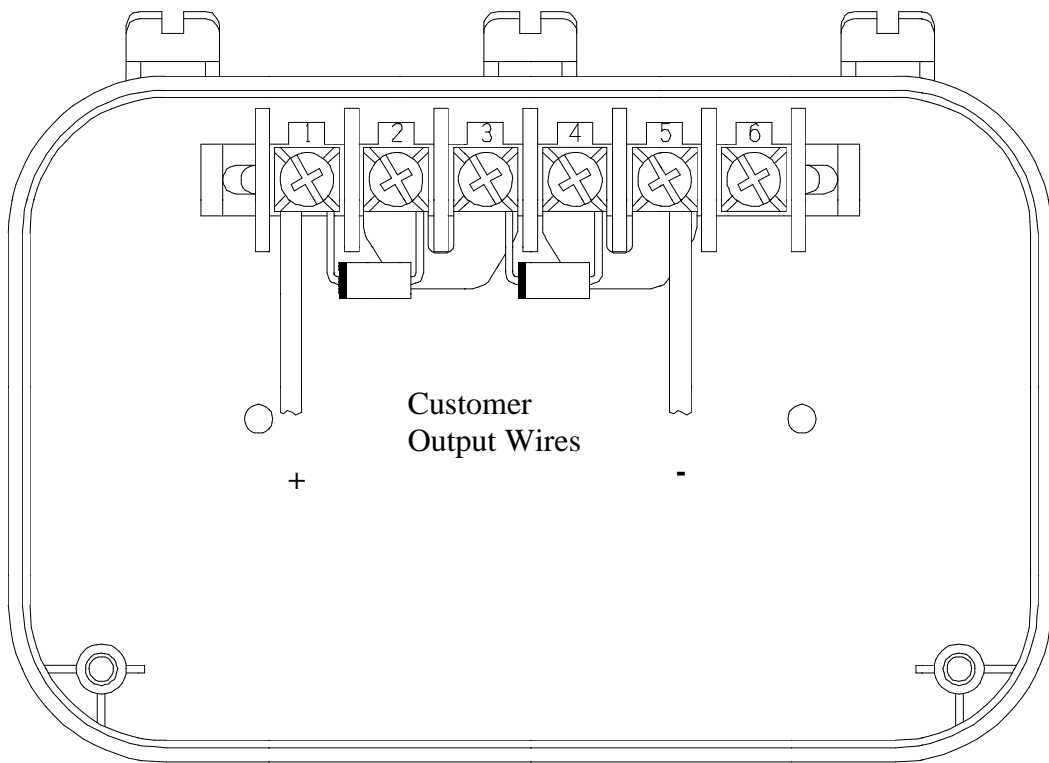
**Fig 3.**

**SX SERIES & BP 340 MODULES****Terminal Box Without Blocking Diode Fitted****Terminal Box With Blocking Diode Fitted**

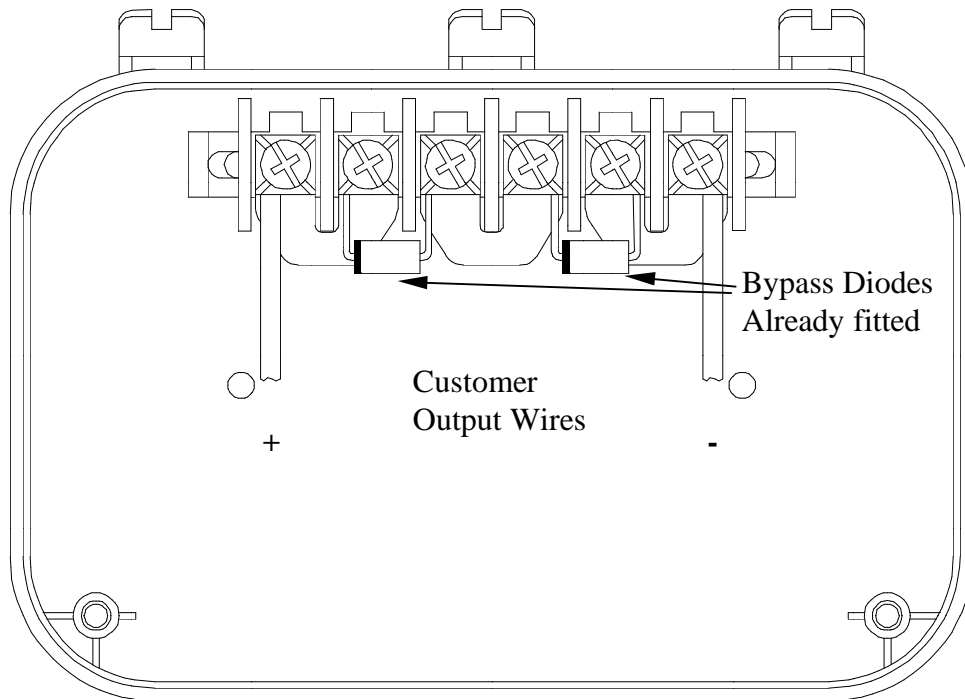
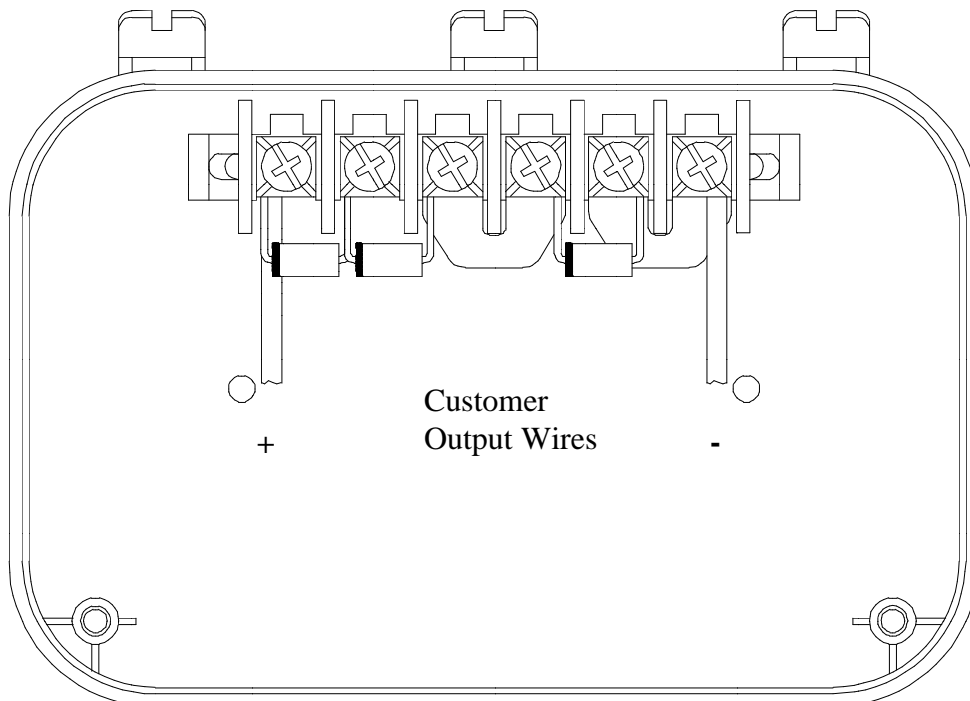
**BP 350 Module**



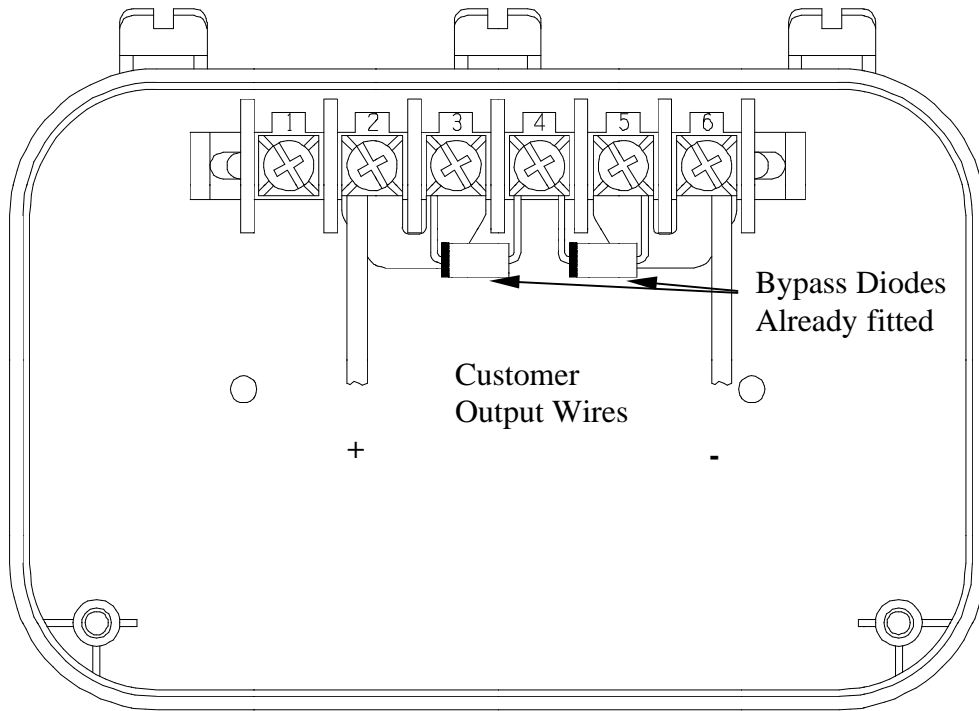
**Terminal Box Without Blocking Diode Fitted**



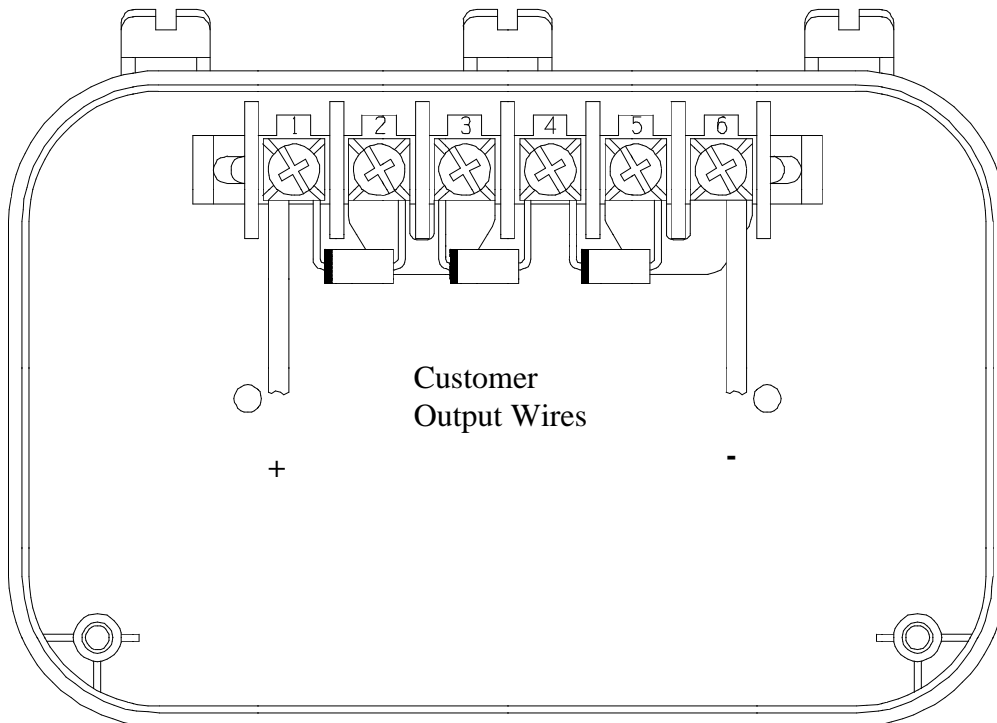
**Terminal Box With Blocking Diode Fitted**

**BP 365 Module****Terminal Box Without Blocking Diode Fitted****Terminal Box With Blocking Diode Fitted**

**BP 380 Module**



**Terminal Box Without Blocking Diode Fitted**



**Terminal Box With Blocking Diode Fitted**