

The soft charge resistor, or current-limiting resistor, works together with the soft charge contactor to slowly charge the DC bus capacitors and minimize the inrush current, when power is applied to the inverter. With no power applied to the inverter, the DC bus is discharged and the contacts on the soft charge contactor are open.

The function of the softcharge contactor is to bypass the soft charge resistor after the DC bus voltage has reached ~ 60% of its normal operating level. Once input power is applied to the inverter, the DC bus voltage starts to increase. The contacts on the contactor are open, so the current that is charging up the DC bus capacitors is passing through the soft charge resistor. This soft charge resistor acts like a control valve, and allows the DC bus capacitors to charge slowly. When the DC bus voltage has risen above the under detection point (190 VDC for 230V units, 380 VDC for 460V units, and 546 VDC for 600V units), the contacts on the contactor close bypassing the soft charge resistor. If a soft charge resistor was not used, the large inrush current drawn by the bus capacitors would damage the input diodes.

For more information, refer to page 17 of document PP.P5G5.01.Troubleshoot.

## *Soft Charge Resistor/Contactor*

*typical for 0.4kW through 15kW models*

