ENTRON Controls Conduction Monitoring

Application Note 700245

This application note describes the Conduction Monitoring features included in the iPAK2, EN7000, and EN6001.

Conduction Monitoring provides an indication of the condition of the welding secondary circuit. The process begins with establishing a baseline performance level of the control on a welder with a new or refurbished secondary. Using constant current regulation, the percent conduction is noted for a given weld current. The monitoring feature is then enabled and high and low limits are set.

The secondary welding circuit will degrade over time which causes the resistance to increase. This is primarily caused by loose connections and broken strands in cables. As the resistance increases, the control will have to increase the percent conduction to maintain the constant current value in the weld program. Exceeding the high conduction limit will generate a high conduction fault.

Conversely, if the weld current is shunted through a separate path in the secondary that does not contribute to the weld (e.g. the body of a manual gun touching the work piece, or a buildup of expulsion material), the percent conduction in the control will decrease. This will generate a low conduction fault.

The chart below lists the names of the parameters required to be set in the different controls.

Control	iPAK2	EN7000	EN6001
Features Setting	Extended	Extended	N/A
Low Limit Enable	C-Monitor Shunt = On	C-Monitor Shunt = On	PW1 / PW2 = On
High Limit Enable	C-Monitor Wear = On	C-Monitor Wear = On	PW1 / PW2 = On
Low Limit	C-Monitor Shunt Limit = %	C-Monitor Shunt Limit = %	PW1 / PW2 High = %
High Limit	C-Monitor Wear Limit = %	C-Monitor Wear Limit = %	PW1 / PW2 Low = %
Weld Monitored	Main Heat	Main Heat	Weld 1 / Weld 2

Refer to the following documents for further information:

- IPAK2 Technical Manual version 2.02 and above
- EN7000 Technical Manual version 1.13 and above
- EN6001 User Manual 700230E

All documents are available on the Entron Controls website:

https://www.entroncontrols.com/