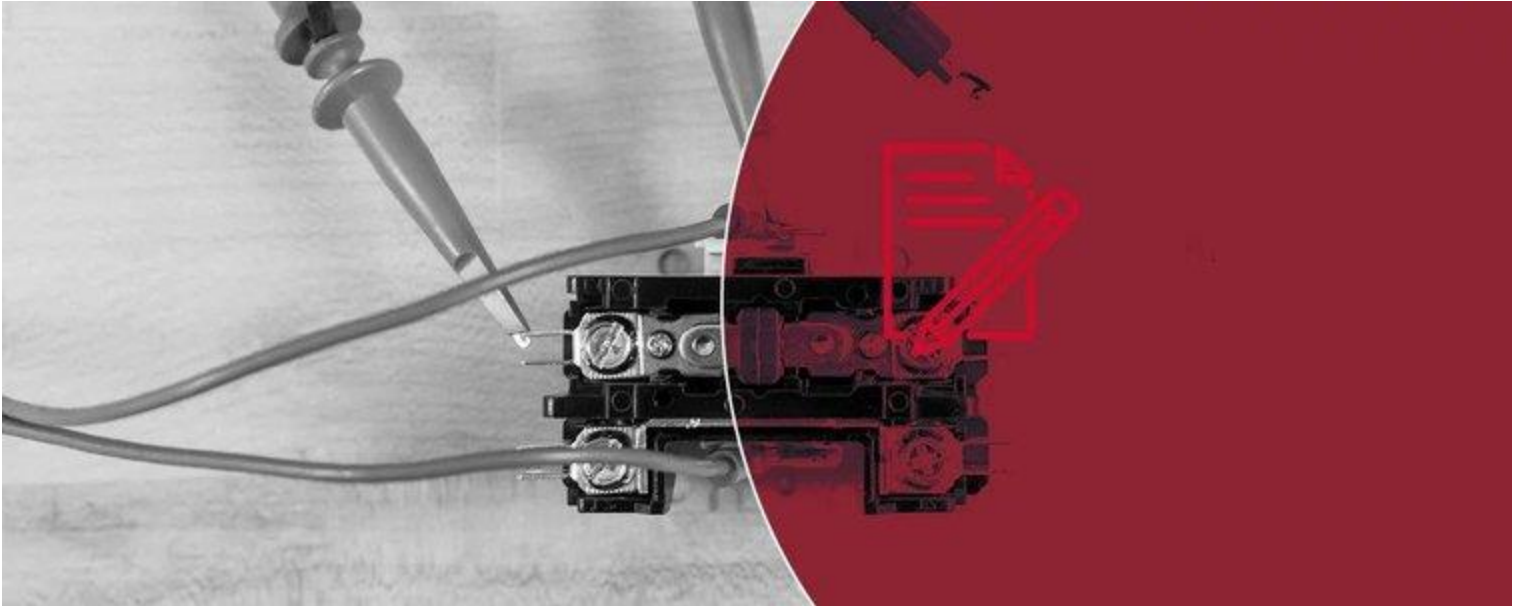




Application Note: Continuity

June 26, 2018

How often has this happened during your manufacturing process? Your product has been assembled and is going through final quality checks, including a continuity check. You then run a dry resistance test and it appears the contactor is not working. The assumption is the contactor is defective.

Here's what we've learned—**it may not be the product, it may be your process.**

Power contactor manufacturing & logistics

To understand why the dry resistance test doesn't work, it's helpful to understand power contactors. Power contactors are used in large equipment for motor controls. Unlike contactors used to start smaller equipment, power contactors are not enclosed, which can lead to several issues during manufacturing and logistics which can impede connections:

- Normal oxidation of the silver contact tips can occur during shipment and warehousing
- To meet demand, Hartland Controls inventories a large number of contactors. Oxidation can also occur when the products are in inventory for several months
- The contactors are packed in cardboard containers—cardboard dust accumulates on the contact points during shipping and warehousing
- As the plastic on the contactor moves, plastic dust accumulates

When any of these conditions are present the contactor will appear to not operate during a dry resistance check. If a full load is applied, there is sufficient power to cause an arc when the contacts make and/or break. This arc will remove the oxidation and dust and the contactor will operate normally. However, it can be a safety issue when applying a full load on the manufacturing line.

How to assess power contactors

So how can power contactors be accurately and safely assessed during the manufacturing process? We recommend applying some level of load to remove dust and oxidation. We find that 24 volt, 4–5 amp is enough current flow to clean the contactors while maintaining a safe environment within the manufacturing process.