

“Direction of Current Flow for Contactors”

We often get asked by our customers “what is the difference between Polar and Non-Polar contactors” the main functional difference between the two types of product is that the non-polar version, sometimes known as “bidirectional” will comfortably switch loads when the current is flowing in either direction, i.e. from the positive (+) terminal to the negative (-) terminal, or the other way, from the negative (-) terminal to the positive (+), without effecting the life of the product.

Traditional polarized contactors, when switching loads in the opposite direction to how they were designed, will suffer a reduced life, this is due to the orientation of the “blow-out” magnets inside the contactor. Blow-out magnets are strong magnets designed to draw and extinguish the arc which is created when opening or closing contacts in high voltage environments. In polarized products these magnets work only when the current is flowing in the specified direction. If we switch loads in the opposing direction, the life of the product will be significantly reduced due to the damage the arc causes to the contact surface.

The main physical changes inside a non-polar contactor are how the magnets are arranged. For a non-polarized contactor, the blow-out magnets are arranged in a way that ensures the arc will be adequately extinguished regardless of the direction of the current flow.

For this reason, customers of Altran Magnetics have the option of using traditional polarized contactors for their application, and for applications that demand bidirectional switching, we are here to support with a full range of bidirectional products to meet their needs.

