Intertech·Rail®

DC TRACK CIRCUITS FOR TRAIN DETECTION

Rectifier

Vital relay

DC (direct current) track circuits are the simplest, least costly and most reliable type of track circuit and are therefore the natural first choice for non-electrified railways applied in branches between stations or in the main lines of crossing yards. However, the geographical limits of each section must be defined by insulated rail joints installed in the rails section ends.

The basic form of DC track circuit, follows the fundamental signaling concept of “fail safe” procedures. The power is applied to the rails at one end of section and is transmitted via the rails to a vital DC track relay at the other end as shown in the figure bellow.

The DC power, obtained from a main transformer / rectifier, is fed through a feed resistor to the rails. The resistor is necessary to limit the current drawn from the feed unit when the track circuit is shunted by the train , and to permit the track circuit sensitivity to be adjusted. The performance of DC track circuit is determined by the minimum ballast resistance of the tracks and the length of the section where the maximum distance reached is up to 1,200 meters.

DC track circuits are designed and supplied complete including relay, transformer, rectifier, resistors, arresters, and accessories such as terminals boards connectors. Not included, interconnection cables, cross bonds, rail bonds and insulated rail joints.