

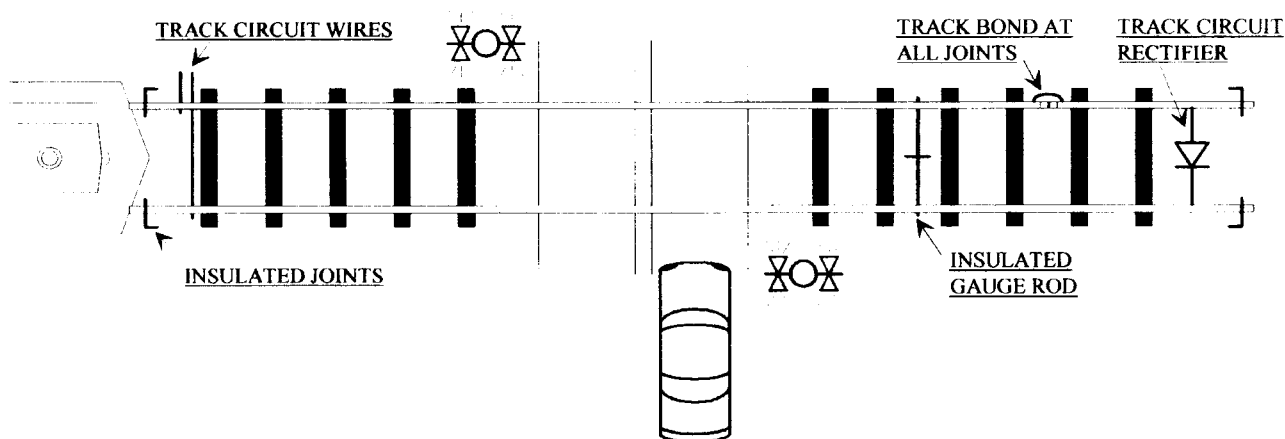
Island AC/DC Track Circuit Control System

Principal of operation:

The warning area is defined by the placement of the insulated track joints. Low voltage AC current is applied to the rails. This current travels along the rails until it is stopped by the insulated joints. A half wave DC rectifier is placed ahead of the insulated joints. The AC current is rectified to DC current. This DC current travels along the rails and back to the control enclosure and energizes a DC relay. When this relay is energized, the crossing signals are dark.

When a train enters the warning area, the wheels and axle of the train creates a shunt across the rails. When this occurs, the relay de-energizes and the crossing signals start. Once the train leaves the warning area, the current flow is re-established and the relay energizes to turn the signals off.

Anything that prevents the flow of current, such as a broken track lead wire or broken track bond, will cause the signals to turn on. The rails must be totally insulated from each other, all rail joints must be bonded to insure electrical integrity and the ground ballast within the warning area must be well drained and free of debris which may cause shunting or grounding of the track circuit current.



Required W-C-H equipment

Two (2) Western-Cullen-Hayes Type A-479 Flashing Light Crossing Signals.
 One (1) Western-Cullen-Hayes 37-1001-200 Island AC/DC Track Circuit Control Enclosure for Single Track.
 One (1) Western-Cullen-Hayes 50-0863-30 Control Enclosure Mounting Mast.
 One (1) Western-Cullen-Hayes 3982-TG Track Circuit Rectifier.
 Three (3) Western-Cullen-Hayes 1181-9 Galvanized Steel Signal Foundation.

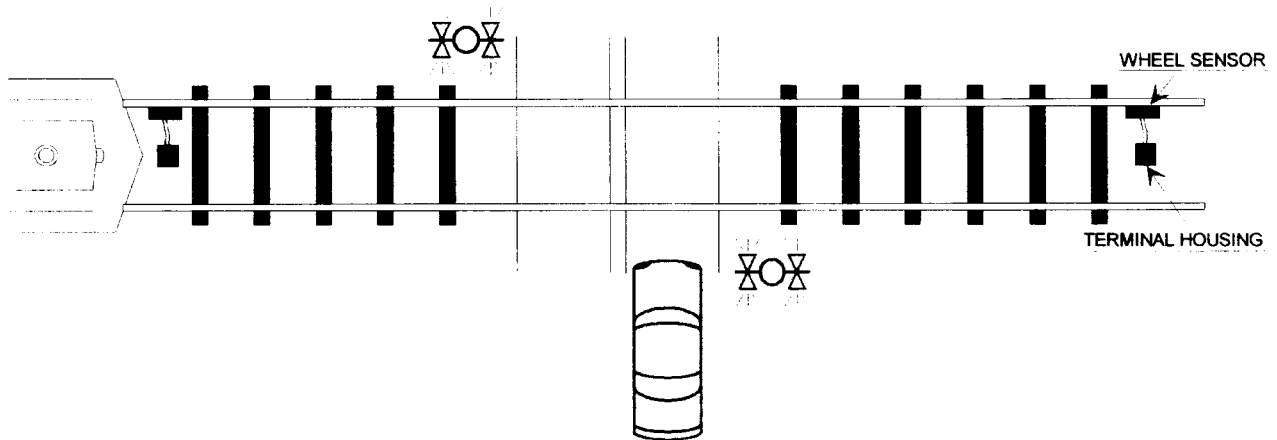
Required equipment not supplied by W-C-H

Insulated Track Joints
 Insulated Gauge Rods
 Insulated Gauge Plates
 Insulated Switch Rods
 Track Bonds
 Field Wire and Conduit

Wheel Sensor Circuit Control System

Principal of operation:

The warning area is defined by the placement of the wheel sensors. Each sensor is connected to the control enclosure by a four conductor cable. A signal is sent to the control enclosure each time the flange of a train wheel passes completely over the sensor. A programmable controller receives this information and operates the crossing signals. The program is selected per the application. A counting program counts the number of axles which enter and exit the warning area. The signals start when the first axle is detected entering the warning area and turn off when the last axle is detected leaving the warning area. A latching program starts the signals when a train enters the warning area. The signals turn off when the train exits the warning area and a time delay expires. The rails do not need to be insulated or bonded. The wheel sensor system operates in the worst of track conditions and is ideally suited for industrial applications where paved track is abundant and track drainage is difficult to achieve. Any number of wheel sensors can be connected to a single control enclosure to control multi-track areas and switching areas.



Required W-C-H equipment

Two (2) Western-Cullen-Hayes Type A-479
Flashing Light Crossing Signals.
One (1) Western-Cullen-Hayes 37-1001-4002
Wheel Sensor Control Enclosure for Single Track.
Two (2) 50-0902-7 Wheel Sensors.
One (1) Western-Cullen-Hayes 50-0863-36
Control Enclosure Mounting Mast.
Two (2) Western-Cullen-Hayes 1155-161-E
Terminal Housings.
Three (3) Western-Cullen-Hayes 1181-10
Galvanized Steel Signal Foundation.

**Required equipment
not supplied by W-C-H**
Field wire and conduit.

WESTERN-CULLEN-HAYES, INC.

2700 W. 36TH PLACE
(773) 254-9600

CHICAGO, IL. 60632
FAX (773) 254-1110