Railroad Crossing Systems

Control Unit, Train Depart Detection

RDSC Series

FEATURES

- Train detection without track circuits
- Zero speed and bi-directional sensing
- Duplex microprocessor system
- Relay outputs
- Solid state technology
- RS 232 diagnostic output
- Passed testing at Transportation Technology Centre

BENEFITS

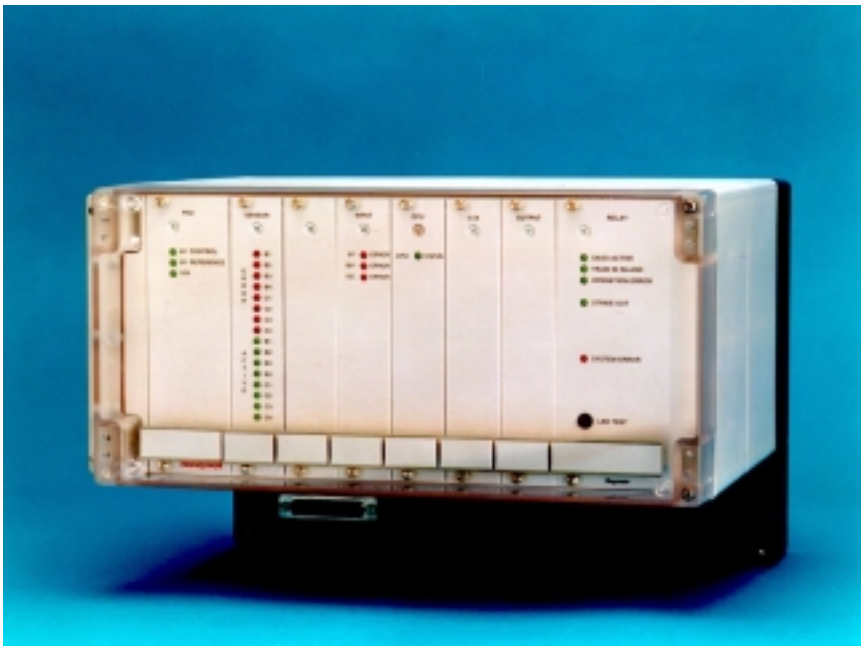
- Greatly reduces problems with leaves, rust, snow, salt, grit, dust and oil on rails
- Robust design
- Provides fail-safe train depart output
- Interfaces with existing crossing controls
- High reliability
- Allows proactive maintenance and fault monitoring

⚠ WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.



A road crossing system comprises a microprocessor based control unit and Honeywell railwheel sensors to monitor trains entering and leaving the crossing. The control unit outputs a signal to confirm that a train has cleared the crossing. This signal can then be used to start the sequence of actions to open the crossing to road traffic.

The system carries out a triple direction count of wheels as they enter and leave the crossing. Providing these counts are equal, the control unit will output a signal to show that the crossing is clear (momentary relay contact closure). This output is fail-safe (see definition on page 2).

The control unit will determine if the train has:-

a) continued to proceed in its initial direction
b) stopped on the crossing
c) reversed on the crossing

The control unit employs a duplex microprocessor system and is designed to be used as the sole method of detecting train clearance of crossing.

INSTALLATION

The control unit is designed for mounting on relay racks in trackside cabinets. Sensors are attached to rails using Honeywell clamps or brackets. No rail cutting, drilling or insulation is required if clamps are used. The new system can be installed in parallel with the old system allowing minimal changeover time.

The system can either be permanently active or in a standby mode. Entry to the active mode from standby is controlled by an external signal to the 'system active' input. This signal will indicate to the system when a train is approaching or can be used to keep the system permanently active. When in standby mode, the control unit will not react to railwheel sensor inputs.

In the event of a control unit fault (see Note 1) which may lead to a hazard, the system will revert to a safe state and no train depart output will be given. No further actions will take place until the system is reset manually.

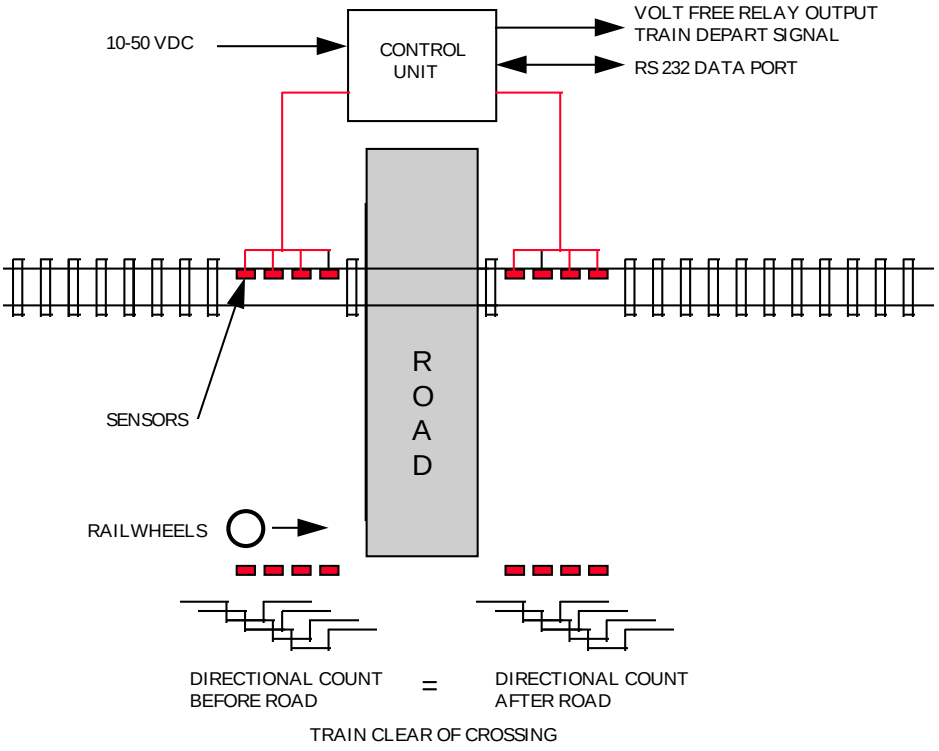
FAILSAFE

A single component fault in the control unit (with possible consequential faults) must never lead to a hazard. If a single component fault occurs, the system must go to a safe state. The time from the occurrence of the single component failure until this has been detected and the system has switched to the safe state is named the negation time. The probability of the occurrence of further faults, which together with the first fault can lead to a hazard, during the negation time must be less than 10^{-8}.

SYSTEM DIAGRAM

The system uses four railwheel sensors on either side of road crossing to count wheels (refer to 926FS30 Series railwheel sensor data sheet). The control unit processes these wheel counts to determine direction. The sensors are located as shown in Figure 1, with distance between the two innermost sensors always greater than the distance between any two train axles. The cable run between sensors and control unit can be 10 km (or more, subject to local conditions).

Figure 1



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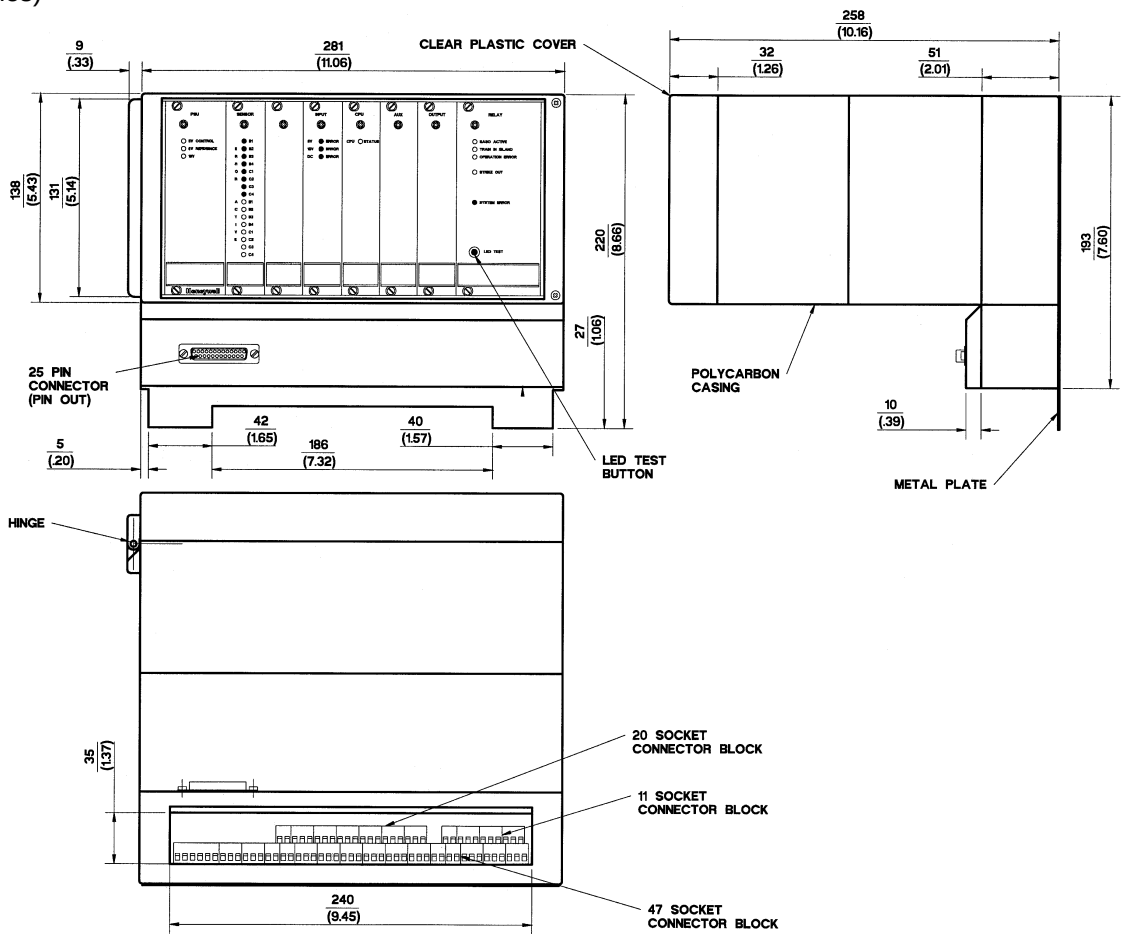
CONTROL UNIT INPUTS AND OUTPUTS

Inputs	Description
Sensors	Honeywell 926FS30 Series
Power Supply	10 - 50 VDC
System Active	Sets system to active state, ready to count wheels
Data Request	Print stored data for last 15 - 20 trains
System Reset	Rest to start up conditions
LED Test	Push button to check LEDs Reset from error state Status report Start up procedure

Outputs	Description
Fail-safe Train Depart	Momentary relay output
Train in Island	Relay output (any part of train in island)
System Error	Relay output (Control Unit error)
Operation Error	Relay output (wheel count error)
System Active	Relay output
Printer Output (RS232)	Serial data
LED Indicators	Visual status display

CONTROL UNIT MOUNTING DIMENSIONS

mm (inches)



Operating temperature -25ºC to +70ºC

NOTE

See 926FS30 Series High Speed Railwheel Sensors (ENOM-0384) for sensor parameters.

ORDER GUIDE

Control units, railwheel sensors, rail clamps etc. are ordered separately and are tailored to suit individual system requirements.

For more information contact your nearest Honeywell sales office.

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WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is **in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose**.

For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact a nearby sales office. Or call:

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Printed with Soy Ink
on 50% Recycled Paper

100421-1-EN UK07 GLO 898 Printed in USA

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