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Level 3 Module

Signalling Installation – Points: Detection

Endorsement and Authorisation

For endorsement and authorisation, please refer to NR/L3/SIG/11303.

This module is a reformatted version of the previous Signalling Installation Handbook with no change to the content other than correction of terminology.

It represents historic best practice which may no longer be relevant.

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Issue record

Issue	Date	Comments
2	September 2010	Reformatted version of previous document incorporating the text of the installation handbook.
1	August 2000	First issue

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 4 December 2010.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

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1 Introduction

Point switch rails need to have moved fully to their correct positions before signalled movements are allowed over them. Detection is the means of checking if the points are in the right position. If the points are facing points, then the detection also checks that they have been locked in that correct position.

Where signals are mechanically operated, it is often convenient to have mechanical detection in series with the signal wire, but most installations nowadays are electrical, and this form of detection will be dealt with in this module.

2 Electrical Detection

A detector consists of a number of electrical contacts which are made to open or close according to the position of the point switch and the facing point lock (where fitted).

The contacts are operated by mechanisms so designed that the positions of the tongues and lock have to be correct within small tolerances in order to operate the switch contacts. This quick change action (where a small movement of the tongues or lock produces a large movement of the contacts) may be obtained by cams, notched slides, or the switch itself may be of the micro type. In a micro switch, the contacts are spring loaded and change from one position to another over a very small movement of their operating plunger.

In all cases, the mechanism is adjustable so that the detection can be set up precisely.

3 General Arrangement

The electrical detection contacts may be contained within the machine that moves the points, or they may be separate and within their own detector box (fixed adjacent to the points and mechanically connected to them).

Figures 1 shows a typical layout for connection to detection within a point machine. Figure 2 shows a three slide detector coupled to mechanical points with a facing point lock. Figure 3 shows how detection is provided in the Rail Clamp Point Lock.

Detection of the switch toe in relation to the stock rail is the main essential, and the layout should (within reason) try to prevent the detection being affected by overall vibration or track movement. All components need to be firmly bolted down, and the mechanical connections between them secure.

To allow reliable detection, the points, sleepers, track fittings and foundations, need to themselves be in good condition and well maintained. The switch toe needs to be complete and undamaged. If anything is wrong, report it to your SM(S) who will advise the SM(T) and ask him to correct any deficiencies.

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