

Railway Group Standard
GK/RT0192
Issue Two
Date December 2012

Level Crossing Interface Requirements

Synopsis

This document mandates the control, command and signalling requirements for level crossing equipment, so that level crossing functionality is compatible with infrastructure manager operations at stations and railway undertaking operations.

This document contains requirements that are amended under the Railway Group Standards Code (Issue Three) as a small scale change. Reference to the amended requirements is made in the 'Issue record'. All other parts of the document are unchanged from the previous issue.

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Railway Group Standard**GK/RT0192****Issue Two****Date** December 2012**Level Crossing Interface Requirements****Issue record**

Issue	Date	Comments
One	06 February 2010	Original document
Two	01 December 2012	Small scale change to amend clause 4.1.1.1, to provide clarification to the compliance requirements of this document

Superseded documents

The following Railway Group document is superseded, either in whole or in part as indicated:

Superseded documents	Sections superseded	Date when sections are superseded
GK/RT0192 issue one Level Crossing Interface Requirements	All	02 March 2013

GK/RT0192 issue one Level Crossing Interface Requirements, ceases to be in force and is withdrawn as of 01 December 2012.

Supply

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Railway Group Standard**GK/RT0192****Issue Two****Date** December 2012**Level Crossing Interface Requirements****Part 1 Purpose and Introduction****1.1 Purpose**

1.1.1 This document mandates:

- a) The control, command and signalling requirements for level crossing equipment, so that level crossing functionality is compatible with infrastructure manager operations at stations and railway undertaking operations, and
- b) Some of the operational measures that relate to the operation and use of level crossings by railway undertakings and infrastructure managers operating stations.

1.2 Introduction**1.2.1 Background**

1.2.1.1 Level crossing systems are provided by the infrastructure manager to manage the risk at the intersection at the same elevation of a road, footpath or bridleway and one or more rail tracks.

1.2.1.2 The infrastructure manager provides level crossing equipment to display warnings to level crossing users, and signalling equipment to display movement authorities at level crossings to train drivers.

1.2.1.3 Where the infrastructure manager wholly operates the level crossing equipment and the signalling equipment:

- a) Railway undertakings control train movements at level crossings by complying with the movement authorities displayed by signals, lineside operational signs and indicators, and
- b) Level crossing users cross the railway when the level crossing warning devices provided are not activated.

1.2.1.4 Some types of level crossing require operation of level crossing equipment by authorised railway staff employed by railway undertakings (typically train crew operated level crossings and locally monitored automatic level crossings).

1.2.1.5 Staff level crossings are provided at some locations for use by railway staff employed by railway undertakings (typically as part of authorised walking routes and where barrow crossings are provided for use by platform staff).

1.2.1.6 This document defines the level crossing equipment requirements at the interfaces between:

- a) The infrastructure manager providing the level crossing and railway undertakings, and
- b) The infrastructure manager providing the level crossing and other infrastructure managers operating stations.

1.2.1.7 GE/RT8270 Assessment of Compatibility of Rolling Stock and Infrastructure, sets out the requirements for assessing compatibility between level crossing systems and railway operations.

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1.2.2 Related requirements in other documents

- 1.2.2.1 The following Railway Group Standards set out requirements that are relevant to the scope of this document:

GI/RT7033 Lineside Operational Safety Signs

GK/RT0045 Lineside Signals, Indicators and Layout of Signals

GK/RT0075 Lineside Signal Spacing and Permissible Speeds

GE/RT8037 Signal Positioning and Visibility

1.2.3 Supporting documents

- 1.2.3.1 The following Railway Group document supports this Railway Group Standard:

GK/GN0692 Guidance on Level Crossing Interface Requirements

1.3 Approval and authorisation of this document

- 1.3.1 The content of this document was approved by Control Command and Signalling (CCS) Standards Committee on 13 September 2012.
- 1.3.2 This document was authorised by RSSB on 25 October 2012.

Railway Group Standard**GK/RT0192****Issue Two****Date** December 2012**Level Crossing Interface Requirements****Part 2 Requirements for Level Crossing Interfaces****2.1 Requirements for stop signals and ETCS block markers at level crossings****2.1.1 Stop signals and ETCS block markers at controlled level crossings worked by signallers or crossing keepers**

- 2.1.1.1 A stop signal or ETCS block marker shall be provided on each signalled approach to controlled level crossings that require movement authorities to be withdrawn before being opened to road traffic. Further requirements for stop signals are set out in GK/RT0045. Further requirements for ETCS block markers are set out in GI/RT7033.
- 2.1.1.2 Stop signals and ETCS block markers shall be located within 600 m of the level crossing, except where the risk associated with an increased distance is acceptable.
- 2.1.1.3 Stop signals and ETCS block markers shall be positioned at least 50 m from the level crossing, except where either:
 - a) The level crossing is immediately beyond a station platform, in which case the stop signal or ETCS block marker associated with the platform shall be positioned at least 25 m from the level crossing, or
 - b) The signalling system is configured so that movement authorities towards the stop signal or ETCS block marker are only displayed when the level crossing is closed to road traffic.

2.1.2 Stop boards at train crew operated level crossings

- 2.1.2.1 A stop board shall be provided on each signalled approach to train crew operated level crossings. Further requirements for stop boards are set out in GK/RT0045.
- 2.1.2.2 The stop board shall be positioned at least 50 m from the level crossing, except where the crossing is immediately beyond a station platform, in which case the stop board associated with the platform shall be positioned at least 25 m from the level crossing.

2.1.3 Stop signals and ETCS block markers at automatic level crossings remotely monitored by the signaller

- 2.1.3.1 A stop signal or ETCS block marker shall be provided on each signalled approach to automatic level crossings that are remotely monitored by the signaller.
- 2.1.3.2 Except where alternative arrangements are provided on Radio Electronic Token Block (RETB) signalled lines (see 2.1.3.3) or lines with ETCS level 2 (see 2.1.3.4), stop signals shall be positioned so that the running time at permissible speed from the signal to the level crossing does not exceed 10 minutes.
- 2.1.3.3 On RETB lines, the stop board at the previous token exchange point shall protect the level crossing. In this case, it shall not be necessary to apply the 10-minute criterion set out in 2.1.3.2 if either:
 - a) A continuous voice communication system is available between the stop board and the level crossing for the signaller to contact the train driver, and the risk of a train not being stopped is acceptable, or

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- b) Before passing a designated point within 10 minutes running time on the approach to the level crossing, the driver of each train is required to contact the signaller to obtain permission to proceed over the level crossing.
- 2.1.3.4 On ETCS level 2 fitted lines (without lineside signals), the previous ETCS block marker shall protect the level crossing. In this case, it shall not be necessary to apply the 10-minute criterion set out in 2.1.3.2.
- 2.1.3.5 Where all trains are required to stop between the strike-in point and the level crossing, the stop signal or ETCS block marker shall be positioned to indicate the stopping point for the train.
- 2.1.3.6 Where the stop signal between the strike-in point and the level crossing is a stop board, a driver's level crossing indicator shall also be provided to authorise the train to proceed. Further requirements for driver's level crossing indicators are set out in GK/RT0045.
- 2.1.3.7 The stop signal, ETCS block marker or stop board shall be positioned at least 50 m from the level crossing, except where the crossing is immediately beyond a station platform, in which case the stop signal, ETCS block marker or stop board associated with the platform shall be positioned at least 25 m from the level crossing.
- 2.1.4 Stop signals and ETCS block markers at automatic level crossings locally monitored by the train driver**
 - 2.1.4.1 Where provided, stop signals, ETCS block markers and stop boards shall be positioned at least 50 m from the level crossing, except where the crossing is immediately beyond a station platform, in which case the stop signal, ETCS block marker or stop board associated with the platform shall be positioned at least 25 m from the level crossing.
 - 2.1.4.2 A stop board, or signal capable of displaying a stop aspect, shall be provided on the approach to the level crossing to indicate the stopping point for the train if either:
 - a) There is an operational requirement for all trains to stop on the approach to the level crossing (for example, at a station), or
 - b) The available visibility of the level crossing area is insufficient to enable a safe crossing speed to be set.
 - 2.1.4.3 Where the level crossing is initiated by train crew using a control device (see 2.8.1), the stop board shall include written instructions that set out the actions to be taken (for example, 'Press plunger and obtain white light before proceeding').
- 2.1.5 Shunting movements over level crossings**
 - 2.1.5.1 Where shunting movement authorities can be issued over a level crossing, stop signals, ETCS block markers and shunt entry boards shall be positioned so that:
 - a) Shunting movements can pass completely over the level crossing before reversing, and
 - b) Trains are not required to stop over the level crossing.

Railway Group Standard**GK/RT0192****Issue Two****Date** December 2012**Level Crossing Interface Requirements****2.1.6 Delayed clearance of signals, delayed display of driver's level crossing indicators and delayed issuing of ETCS movement authorities**

- 2.1.6.1 Where it is necessary to delay the clearance of a stop signal, delay the display of a flashing white light indication or delay the issuing of an ETCS movement authority, the required time delay shall be determined using acceleration data obtained from the relevant railway undertakings for a light locomotive or any existing or proposed rolling stock which has better acceleration characteristics, which is operated, or is likely to be operated, on the line.

2.2 Train crew operated barrier level crossings**2.2.1 Default position for barriers**

- 2.2.1.1 The default position for barriers at train crew operated barrier level crossings shall be barriers raised.
- 2.2.1.2 The control of the barriers shall be arranged so that they remain raised if there is a loss of power.

2.2.2 Control and indication system

- 2.2.2.1 A level crossing control and indication facility shall be provided for use by train crew.
- 2.2.2.2 The control and indication system functionality and interface shall be determined using the process for assessment of compatibility set out in GE/RT8270, which shall include an assessment of all of the following:
- a) The requirement for train crew to initiate the barriers lower sequence
 - b) The requirement for train crew to initiate the barriers raise sequence
 - c) The requirement for train crew to stop the level crossing barriers at any position during the lower and raise sequences
 - d) The requirement for train crew to observe that the barriers are fully raised
 - e) The requirement for train crew to observe that the barriers are fully lowered
 - f) The requirement for train crew to observe that the road traffic light signals are operating correctly
 - g) The requirement for train crew to detect a loss of a primary power supply to the telephone system, where level crossing telephones are provided.
- 2.2.2.3 The level crossing control and indication facility shall be located so that the train crew:
- a) Can conveniently operate the level crossing, and
 - b) Have a clear view of the approaching road traffic and the whole crossing area.
- 2.2.2.4 The level crossing control and indication facility shall be secured to prevent unauthorised operation.
- 2.2.2.5 If an operating device is provided for drivers to operate the level crossing from the driving cab (for example a pull cord), that operating device shall only initiate the closing sequence when a train is detected to be present at the associated stop board.