

Ref:	SSI8003-62
Issue:	7
Date:	05/09/2015
Compliance date:	06/12/2015

Module

Automatic and Distant Signals

For endorsement, authorisation and issue record of this document, please refer to the SSI Applications Manual Contents, NR/L2/SIG/17002.

This document is the property of Network Rail. It shall not be reproduced in whole or part nor disclosed to a third party without the written permission of Network Rail.

© Copyright 2015 Network Rail.

Uncontrolled copy once printed from its electronic source.

Published and Issued by Network Rail, 2nd Floor, One Eversholt Street, London. NW1 2DN.



Ref:	SSI8003-62
Issue:	7
Date:	05/09/2015
Compliance date:	06/12/2015

User information

This Network Rail standard contains colour-coding according to the following Red–Amber–Green classification.

Red requirements – No variations, could stop the railway

- **Red requirements shall** always be complied with and achieved.
- Red requirements shall be presented in a red box **with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of red requirements lies with the Professional Head/Standard Owner.
- Red requirements are monitored for compliance.
- Corrective actions shall be enforced if deviations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Amber requirements – Controlled variations, approved risk analysis and mitigation

- **Amber requirements shall** be complied with unless variation has been approved in advance.
- Amber requirements shall be presented with an amber sidebar **and with the word “shall” or expressed as a direct instruction**.
- Accountability for the efficacy of these requirements lies with the Professional Head/Standard Owner, or their nominated Delegated Authority.
- Amber requirements are monitored for compliance.
- Variations **may** be permitted. Variations are approved by the Standard Owner or through existing Delegated Authority arrangements.
- Corrective actions shall be enforced if **non-approved** variations are discovered through functional checks (e.g. engineering verification visits, audit or Operations Self-Assurance).

Green – Guidance

Guidance is based on good practice. Guidance represents supporting information to help achieve **Red** and **Amber** requirements.

Guidance shall be presented with a dotted green sidebar **and with the word “should” (usually in notes) or as a direct instruction**.

Guidance is **not mandatory** and is not monitored for compliance.

Alternative solutions may be used. Alternative solutions do not need to be formally approved.

Decisions made by a competent person to use alternative solutions should be backed up by appropriate evidence or documentation.

Ref:	SSI8003-62
Issue:	7
Date:	05/09/2015
Compliance date:	06/12/2015

Issue record

Issue	Date	Comments
5	August 2004	5 th Issue
6	03/03/2012	6 th Issue
7	05/09/2015	Clause 5 amended to distinguish between interlocked and non-interlocked signal button controlled signals

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 06/12/2015.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

Disclaimer

In issuing this document for its stated purpose, Network Rail makes no warranties, express or implied, that compliance with all or any documents it issues is sufficient on its own to ensure safe systems of work or operation. Users are reminded of their own duties under health and safety legislation.

Supply

Copies of documents are available electronically, within Network Rail's organisation. Hard copies of this document may be available to Network Rail people on request to the relevant controlled publication distributor. Other organisations may obtain copies of this from an approved distributor.

Ref:	SSI8003-62
Issue:	7
Date:	05/09/2015
Compliance date:	06/12/2015

Contents

1 Automatic Signals	5
1.1 Identities	5
1.2 Input Telegram Data	5
1.3 Panel Request Data	6
1.4 Output Telegram Data	6
1.5 Panel Indications	7
2 Semi-Automatic Signals	8
3 Distant Signals	8
3.1 Output Telegram Data	8
3.2 Panel Indications	9
4 Automatic Operation Of Controlled Signals	10
4.1 Identities	10
4.2 Interlocking Data	10
4.3 Panel Processor Data	11
5 Single Button Control Of Signals	11
5.1 Identities	11
5.2 Interlocking Data	12
5.3 Panel Processor Data	13
6 Referenced Standards	15

Copyright Network Rail

Ref:	SSI8003-62
Issue:	7
Date:	05/09/2015
Compliance date:	06/12/2015

1 Automatic Signals

In an SSI scheme there are no hardware differences between controlled and automatic signals. The controls required for an automatic signal are defined using the Input Telegram Data, Panel Request Data and Output Telegram Data as for a controlled signal. Note that the terms “controlled” and “automatic” in the SSI Applications Manual refer to the functionality of a signal rather than whether it is plated as automatic (i.e. passable) or not.

See Section 5 for the special type of automatic signals that are controlled by an entrance button.

Where automatic (and semi-automatic) signals occur on bi-directionally signalled lines, directional clearance controls have to be added to those controls shown below. See [SSI8003-77](#) for details.

1.1 Identities

A Signal Identity is allocated to each automatic signal in the usual way in the SIG file. In the FLG file, a latch identity should also be allocated for each signal post replacement switch (if provided) and any other special controls on the signal. All these latches should be used on the basis that the latch must be set to allow the signal to clear from its most restrictive aspect. This ensures that these controls are initially applied after a "Mode 1" or "Mode 2" start of the Central Interlocking but are preserved through a power failure which results in a "Mode 3" start (see [SSI8003-10B](#), Section 3.7 for an explanation of start-up modes).

For the facility of replacement of automatic signals from the Signaller's panel, Panel Request Identities are required in the QST file for "Replacement Application" and "Replacement Cancellation". Also required are BUT file identities for the F & FM contacts of the button and an IND file identity for the red indication showing that the signal has been replaced. The "auto" bit in signal memory is used instead of a latch to record the state of the Signaller's replacement facility. This results in the control being applied after any mode of start-up, until cancelled by the Signaller, thus ensuring that the signal is replaced by the operation of a Signaller's Emergency Signals On control.

Current practice for all automatic signals is either to provide replacement from the Signaller's panel, or to control the signal's clearance by an entrance button alone. Signal post replacement switches have been provided in the past but are now not usually provided – for completeness data methods to include this feature are shown.

1.2 Input Telegram Data

The lamp proving for the signal is set up using the “Input Telegram for Signal” special data type:

"S32 7

If required, the latch memory associated with any lineside inputs such as signal post replacement switches is set up using the “Input Telegram for Latch” special data type:

"S32 7 , "L32 (OCC) N 4