

Ref:	NR/L2/SIG/11201 – Mod A19
Issue:	4
Date:	04/06/2011
Compliance date:	03/09/2011

Level 2

Signalling Design: Module A19 - Symbols for Signalling Circuit Diagrams

Endorsement and Authorisation

For endorsement and authorisation, please refer to
NR/L2/SIG/11201

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Published and Issued by Network Rail, Kings Place, 90 York Way, London. N1 9AG.



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Issue record

Issue	Date	Comments
4	June 2011	Modularisation of handbook and guidance notes, contains content of former NR/GN/SIG/11205.

Compliance

This Module is mandatory and shall be complied with by Network Rail and its contractors if applicable from 03/09/2011.

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.

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1 INTRODUCTION

This module is applicable to new and redrawn diagrams. Its application should be considered when circuit diagrams of existing installations are to be altered, provided that no confusion is likely to arise by the use of these symbols within design, installation, commissioning or maintenance activities.

The mixing of different symbol conventions on an individual sheet is not permitted but different symbol conventions may be acceptable within a set of circuit diagrams. Alteration to diagrams containing obsolete symbols should be dealt with either:

- By altering the diagram using the former conventions or symbols; or
- By redrawing the diagram in accordance with this module

1.1 General

A complete item of apparatus may be depicted on circuit diagrams by one or more symbols; thus a relay comprises a coil and contact(s). In such cases, the circuit diagram(s) should show the coil and contacts separately, together with the wires connected to each.

The circuit symbols represent all apparatus in general use, but have been designed so that symbols may be combined where a single symbol does not adequately represent the complete device.

Individual equipment (including terminations) should be further identified by means of standard nomenclature (Section 7), and labelled in accordance with [NR/L3/SIG/11303](#) (Appendix IM10).

1.2 Symbols

The standard symbols for use in signalling circuit diagrams are given in Sections 2, 3, and 4.

1.3 Nomenclature For Circuit Diagrams

The standard nomenclature for uniquely identifying equipment locally, name, function and type, comprises a concise two-part code, which is defined in Section 5. Further details are given in [NR/L2/SIG/11201, Module A15](#).

The nomenclature to be used for Electrical Supplies is shown in Section 6.

The nomenclature to identify the colour of an item of equipment, such as individual cores of a multicore cable, should conform to Section 7.

The nomenclature should be used consistently throughout an installation.

1.4 Circuitry Representation

Circuitry and symbols should be depicted in a clear and consistent manner, in accordance with [NR/L2/SIG/11201, Module A15](#).

1.5 Non-Standard symbols

If a symbol required for signalling purposes does not appear in this module, another symbol (preferably from [BS EN 60617](#)) may be used, with a legend where necessary to explain its meaning.

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In certain instances, where neither the symbol nor the nomenclature fully conveys the information required, a sign (e.g. #) may be used to indicate that reference to notes on the diagram is necessary.

Some obsolete symbols, which are not generally appropriate for new drawings, are shown in Section 8 for reference purposes only. Where old symbols are used which are not included in Section 8, a legend should be provide to explain their meaning.

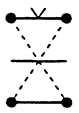
2 SYMBOLS

RELAYS AND RELAY CONTACTS			
Description	Symbol	Description	Symbol
Relay coil, double wound. For a.c. relays: R = control winding Q = local winding		Relay coil, single wound.	
Relay coil, double wound with two windings. Dotted symbol indicates control circuit shown on separate sheet.		Relay coil, slow to release (always shown on the right).	
Relay coil, slow to operate (always shown on the left).		Relay coil, biased to energise only with positive supply applied to the left (in this example).	
Relay coils, latched to remain in either position.		Relay coil, slow acting (both operate and release).	
Generic relay contact on non-polarised relay, front. The dot indicates the arm side of the contact.		Generic relay contact on non-polarised relay, back.	
Relay time controlled contact, front.		Relay time controlled contact, back.	
Relay contact, on two position polarised relay, normal.		Relay contact, on two position polarised relay, reverse.	
Relay contact, on two position polarised relay, biased to normal position (arrow pointing left) by magnetism, gravity or spring. Normal contact.		Relay contact, on two position polarised relay, biased to normal position (arrow pointing left) by magnetism, gravity or spring. Reverse contact.	

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RELAYS AND RELAY CONTACTS (continued)			
Description	Symbol	Description	Symbol
Relay contact, on three position polarised relay. Normal contact.		Relay contact, on three position polarised relay. Reverse contact.	
Relay contact, on three position polarised relay. De-energised contact.		Relay contact, dependent.	
		Bridging contacts on non-polarised armature, both contacts closed during movement of armature.	
Contactor, fitted with magnetic blow out. Positive supply is applied to the arrow.		Contacts on flasher relay.	
Double break contact on non-polarised armature closed when magnet energised.		Double break contact on non-polarised armature closed when magnet de-energised.	
LEVER LOCKS AND CONTACTS			
Description	Symbol	Description	Symbol
Lever lock, lock coil, e.g. lock effective in reverse position of lever.		Lever lock, lock coil with economiser contacts, e.g. lock effective in normal position of lever.	
Lever lock, lock proving contact in.		Circuit controller contact, e.g. made when lever normal. (For other positions see Section 3)	
Latch, trigger or catch handle contact, one way, lever normal latch down contact.		Latch, trigger or catch handle contact, one way, lever reverse latch down contact.	
Latch, trigger or catch handle contact, one way, lever normal lifted contact.		Latch, trigger or catch handle contact, one way, lever reverse lifted contact.	

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MANUALLY OPERATED CONTACTS			
Terminology	Symbol	Terminology	Symbol
Plunger, push to break.		Plunger, push to make.	
Plunger, push to break and to make.		Tapper key, contact.	
Foot plunger.		Console / Panel Switch or Push Button eg: made when switch Normal – for other positions see Appendix C.	
Block Switch contact, circuit broken when signal box open.		Block Switch contact, circuit closed when signal box open. Arrow downwards indicates control.	
Block Switch, 3 position. Dotted position indicates intermediate position.		Manual Time Release, normal contact.	
Manual Time Release, makes after time.		Pole change contacts.	
Pole change contacts with open position.		Tumbler/Toggle switch, one way normally closed.	
Tumbler/Toggle switch, two way, normally closed and normally open.		Switch, make before break contact, normally closed. and normally open.	