

Ref:	NR/L2/SIG/11630
Issue:	13
Date:	03/12/2011
Compliance date:	03/12/2011

Level 2

Pin Code Allocations and Contact Arrangements

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

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User information

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

Red requirements – *No deviations, 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 deviations, approved risk analysis and mitigation*

- **Amber requirements shall** be complied with unless deviation 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.
- Deviations **may** be permitted. Deviations are approved by the Standard Owner or through existing Delegated Authority arrangements.
- Corrective actions shall be enforced if **non-approved** deviations 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.

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Issue record

Issue	Date	Comments
1	December 2000	New Document
2	June 2001	Pin Code 0286 added
3	August 2001	Pin Code 0237 added. Arr. 153 added
4	February 2002	Arr. 69 corrected. Pin Code 1034 added
5	October 2003	Minor amendments
6	December 2003	Arr. 102 corrected
7	August 2004	Pin code 0062 added & Arr 154 added
8	February 2005	Pin codes 0187 & 0195 added
9	April 2005	Style/Spec for Pin code 0062 corrected to F10
10	December 2006	Pin code 0116 & Arr 155 added
11	December 2010	Pin code 0343 & Arr 156 added
12	March 2011	Pin Codes 0570, 0571, 0572 and 0573 added
13	December 2011	Pin Code 1034 corrected

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 03/12/2011.

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.

Reference documentation

[NR/L2/SIG/11201](#) - Signalling Design Handbook

[BR 829](#) - Plugboard for Miniature Relays

[BR 901](#) - Flashing Unit for Level Crossing Road Signals

[BR 930](#) - Miniature Tractive Armature DC Neutral Line Relay (Plug-In Type)

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Document shared from IHS to Network Rail

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1 Purpose

The purpose of this standard is to control the allocation of Pin Codes and Arrangements.

2 Scope

This standard specifies the pin code configurations and contact arrangements for signalling equipment that connect onto a BR829 plug boards.

3 Abbreviations & Definitions

For the purpose of this standard, the following terms and definitions apply.

a.c	Alternating Current
A	Arm
B	Back Contact
C	Coil
c/o	Changeover Contact
d.c	Direct Current
E	Earth
F	Front Contact
Fe	Elkonite Front Contact
HD	Heavy Duty
i/p	Input
MB	Metal to Metal Back Contact
MF	Metal to Metal Front Contact
N	Normal Contact
o/p	output
PU	Pick up Coil
r	Resistor
R	Reverse Contact
REL	Release Coil
+ve	Positive
-ve	Negative

Pin-code	A series of locating pins assembled in a unique pattern such that the item bearing this pattern of pins can only be connected to a corresponding item of equipment containing a matching unique pattern of holes. The pin-code is sometimes referred to as the "registration pin-code".
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4 Allocation of Pin Codes and Arrangements

Pin codes and Arrangements are allocated by the Professional Head [S&T].

NOTE The description of certain relays is historic and reference should be made to PADs certificates, typical circuits and other guidance documents for current applications.

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To prevent safety-related equipment being connected into a plugboard position which is designated for a piece of safety-critical equipment, safety-critical equipment are allocated a five-pin pin-code and safety-related equipment a six-pin pin-code.

4.1 Reed Remote Control Systems

In Reed remote control systems, a complete Reed receiver or transmitter is formed from a filter and an amplifier. Although the lower part (the filter) is fitted with pins, all the plugboard connections are made to the upper part (the amplifier). Over the years, the amplifier has been modified and so the site diagram should be consulted to make certain that the correct version of amplifier is used.

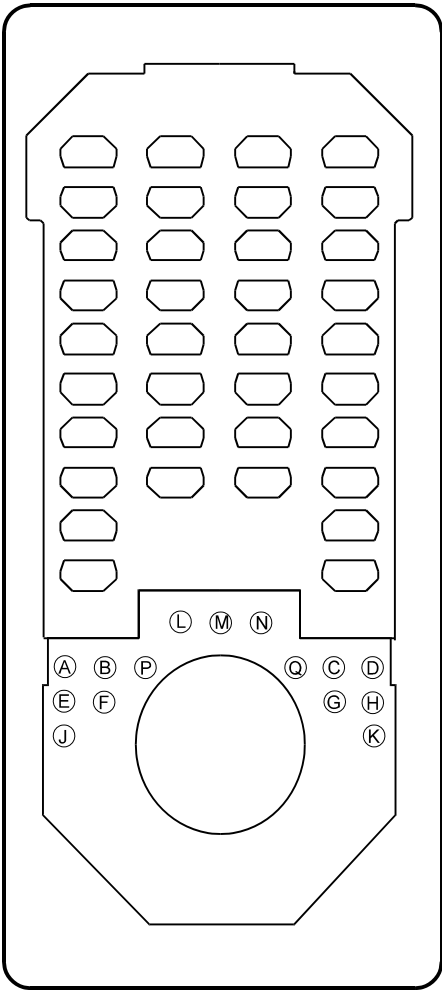
Pin-code 1360 is allocated to the universal spare for vital Reed equipment and has only a two-pin pin-code (locations P & Q).

Pin-code 6370 is allocated to the universal spare for non-vital Reed equipment and has only a three-pin pin-code (locations A, P & Q).

Due to the above:

- a) Only those items of equipment for which the pin-code 1360 is approved as a universal spare, should be allocated a pin-code with a configuration which contains both P & Q (but excludes A).
- b) Only those items of equipment for which the pin-code 6370 is approved as a universal spare, should be allocated a pin-code with a configuration which contains all of A, P & Q.

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Plugboard (Front View)

Any reference to front or rear view contained within this document shall be as illustrated in Figure 1

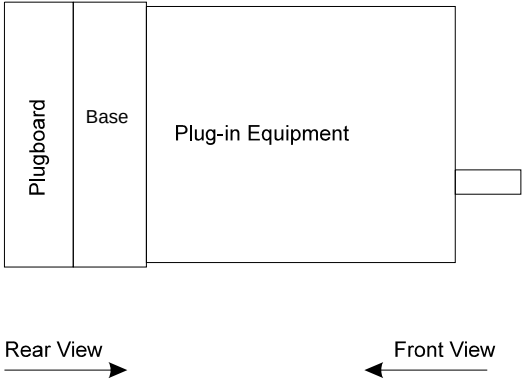


Figure 1

The pin hole positions referred to within this document shall be as illustrated in Figure 2

5 Pin Code and Arrangement Allocation

The following tables contain all allocated Pin Codes and their associated arrangements

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Pin Code	Pin Code Configuration	Arr	Style/ Spec	Rating	Description/Remarks
0001	A B C D E	1	930	24V	DC Neutral Line Relay
		2	930	24V	DC Neutral Line Relay
		3	930	24V	DC Neutral Line Relay
		4	930	24V	DC Neutral Line Relay
0002	A B C D F	5	930	24V	DC Neutral Line Relay
		6	930	24V	DC Neutral Line Relay
		7	930	24V	DC Neutral Line Relay
		8	930	24V	DC Neutral Line Relay
		9	930	24V	DC Neutral Line Relay
		11	930	24V	DC Neutral Line Relay
0003	A B C E F	1	930	50V	DC Neutral Line Relay
		2	930	50V	DC Neutral Line Relay
		3	930	50V	DC Neutral Line Relay
		4	930	50V	DC Neutral Line Relay
		10	–	–	Geographical Shorting Unit
0004	A B D E F	5	930	50V	DC Neutral Line Relay
		6	930	50V	DC Neutral Line Relay
		7	930	50V	DC Neutral Line Relay
		8	930	50V	DC Neutral Line Relay
		9	930	50V	DC Neutral Line Relay
		11	930	50V	DC Neutral Line Relay
		12	–	–	Geographical Shorting Unit
0005	A C D E F	1	–	50V	DC Neutral Line Relay with high drop away voltage
		3	–	50V	DC Neutral Line Relay with high drop away voltage
0006	A B C D G	9	–	50V	DC Neutral Line Relay with high drop away voltage
0007	A B C E G	13	935	24V	DC Magnetically Latched Neutral Line Relay. {A 6F 4B and 4F 4B version may also exist}
0008	A B C F G	13	935	50V	DC Magnetically Latched Neutral Line Relay. {A 6F 4B and 4F 4B version may also exist}
		14	–	–	Geographical Shorting Unit
0009	A B D E G	27	935	24V	DC Magnetically Latched Neutral Line Relay
		28	935	24V	DC Magnetically Latched Neutral Line Relay
		29			
0010	A B D F G	11	935	24V	DC Magnetically Latched Neutral Line Relay
0011	A B E F G	27	935	50V	DC Magnetically Latched Neutral Line Relay
		28	935	50V	
		29			
		10	–	–	Geographical Shorting Unit
0012	A C D E G	30	935	50V	DC Magnetically Latched Neutral Line Relay
0013	A C D F G	15	936	24V	DC Polarised Magnetic Stick Line Relay {12N 4R}
0014	A C E F G	16	936	24V	DC Polarised Magnetic Stick Line Relay {4N 4R}
		17	936	24V	DC Polarised Magnetic Stick Line Relay {8N 8R}

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Pin Code	Pin Code Configuration	Arr	Style/ Spec	Rating	Description/Remarks
0015	A D E F G	15	936	50V	DC Polarised Magnetic Stick Line Relay {12N 4R}
0016	A B C D H	16	936	50V	DC Polarised Magnetic Stick Line Relay {4N 4R}
		17	936	50V	DC Polarised Magnetic Stick Line Relay {8N 8R}
0017	A B C E H	18	961	50V	Twin AC Immune DC Biased Neutral Line Relay
		19	961	50V	Twin AC Immune DC Biased Neutral Line Relay
0018	A B C F H	20	961	50V	Twin AC Immune DC Biased Neutral Line Relay with high drop away
0019	A B C G H	5	–	105mA	Lamp Proving Relay
0020	A B D E H	21	–	14Ω	Rectifier-Resistance Unit
			–	18Ω	Rectifier-Resistance Unit
			–	32Ω	Rectifier-Resistance Unit
			–	51Ω	Rectifier-Resistance Unit
			–	64Ω	Rectifier-Resistance Unit
			–	102Ω	Rectifier-Resistance Unit
			–	260Ω	Rectifier-Resistance Unit
			–	380Ω	Rectifier-Resistance Unit
0021	A B D F H	1	931	24V	AC Immune DC Neutral Line Relay
		3	931	24V	AC Immune DC Neutral Line Relay
0022	A B D G H	5	931	24V	AC Immune DC Neutral Line Relay
		7	931	24V	AC Immune DC Neutral Line Relay
		9	931	24V	AC Immune DC Neutral Line Relay
0023	A B E F H	1	931	50V	AC Immune DC Neutral Line Relay
		3	931	50V	AC Immune DC Neutral Line Relay
0024	A B E G H	5	931	50V	AC Immune DC Neutral Line Relay
		7	931	50V	AC Immune DC Neutral Line Relay
		9	931	50V	AC Immune DC Neutral Line Relay
0025	A B F G H	1	932	24V	AC Immune DC Biased Neutral Line Relay
		3	932	24V	AC Immune DC Biased Neutral Line Relay
0026	A C D E H	5	932	24V	AC Immune DC Biased Neutral Line Relay
		7	932	24V	AC Immune DC Biased Neutral Line Relay
		9	932	24V	AC Immune DC Biased Neutral Line Relay
0027	A C D F H	1	932	50V	AC Immune DC Biased Neutral Line Relay
		3	932	50V	AC Immune DC Biased Neutral Line Relay
0028	A C D G H	5	932	50V	AC Immune DC Biased Neutral Line Relay
		7	932	50V	AC Immune DC Biased Neutral Line Relay
		9	932	50V	AC Immune DC Biased Neutral Line Relay
0029	A C E F H	26	966 F7	110V	AC Neutral Line Relay for use with SSI module
0030	A C E G H	22	966 F8	24V	Twin DC Lamp Proving Relay for flashing road lights at level crossings
0031	A C F G H	–	–	–	Reserved
0032	A D E F H	–	–	–	Reserved
0033	A D E G H	3	–	24V	DC Neutral Line Relay with high drop away voltage
0034	A D F G H	9	–	24V	DC Neutral Line Relay with high drop away voltage

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Pin Code	Pin Code Configuration	Arr	Style/ Spec	Rating	Description/Remarks
0035	A E F G H	23	–	50V	DC Neutral Line & Thermal Relay (5 to 15 seconds delay)
0036	A B C D J	24	–	50V	DC Neutral Line & Thermal Relay (30 to 120 seconds delay)
0037	A B C E J	24	–	50V	DC Neutral Line & Thermal Relay (60 to 180 seconds delay)
0038	A B C F J	25	–	0.43A	DC Lamp Proving Relay for use with Stencil Route Indicators
0039	A B C G J	24	–	50V	DC Neutral Line & Thermal Relay (15 to 30 seconds delay)
0040	A B C H J	1	–	50V	AC Immune DC Biased Line Relay Slow Release
0041	A B D E J	26	933	24V	AC Immune DC Neutral Line Relay Slow Pick Up
0042	A B D F J	42	–	0.2A	DC Lamp Proving Relay
0043	A B D G J	26	933	50V	AC Immune DC Neutral Line Relay Slow Pick Up
0044	A B D H J	5 7 9	– – –	50V 50V 50V	AC Immune DC Neutral Line Relay Slow Acting AC Immune DC Neutral Line Relay Slow Acting
0045	A B E F J	42	–	1.3A	DC Lamp Proving Relay
0046	A B E G J	48	–	0.25A	DC Lamp Proving Relay
0047	A B E H J	3 1	– –	50V 0.18A	AC Immune DC Biased Line Relay DC Lamp Proving for use with SL34 Lamps
0048	A B F G J	5 1	– –	– –	Reed Follower Relay {Matched to Reed System}
0049	A B F H J	20 20	961 961	50V 50V	Twin AC Immune DC Biased Neutral Line Relay Twin AC Immune DC Biased Neutral Line Relay
0050	A B G H J	19	–	24V	Twin DC Neutral Line Relay with high drop away
0051	A C D E J	20	–	24V	Twin DC Neutral Line Relay with high drop away
0052	A C D F J	19	–	50V	Twin DC Neutral Line Relay with high drop away
0053	A C D G J	20	–	50V	Twin DC Neutral Line Relay with high drop away
0054	A C D H J	32 33	960 960	24V 24V	Twin DC Neutral Line Relay Twin DC Neutral Line Relay
0055	A C E F J	34	960	24V	Twin DC Neutral Line Relay
0056	A C E G J	34 35	960 –	50V –	Twin DC Neutral Line Relay Geographical Shorting Unit
0057	A C E H J	18 19	960 960	24V 24V	Twin DC Neutral Line Relay Twin DC Neutral Line Relay
0058	A C F G J	19	–	50V	Twin DC Neutral Line Relay
0059	A C F H J	20	–	50V	Twin DC Neutral Line Relay
0060	A C G H J	32 33 36	960 960 –	50V 50V –	Twin DC Neutral Line Relay Twin DC Neutral Line Relay Geographical Shorting Unit
0061	A D E F J	1	934	24V	AC Immune DC Neutral Line Relay Slow Release
0062	A D E G J	154	966 F10	24V	Twin DC Lamp Proving Relay for LED Road Lights
0063	A D E H J	1 10	934 –	50V –	AC Immune DC Neutral Line Relay Slow Release Geographical Shorting Unit

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Pin Code	Pin Code Configuration	Arr	Style/ Spec	Rating	Description/Remarks
0065	A D F H J	37	–	1.0A	AC Lamp Proving Relay for use with Position Light Junction Indicator
0066	A D G H J	5	–	0.81A	AC Lamp Proving Relay for use with a Theatre Type Indicator
0067	A E F G J	38	–	0.62A	DC Lamp Proving Relay for use with a Junction Indicator
0068	A E F H J	5	–	1.04A	AC Lamp Proving Relay
0069	A E G H J	5	–	1.0A	AC Lamp Proving Relay
0070	A F G H J	38	942	1.4A	AC Lamp Proving Relay
0071	A B C D K	37	941	0.18A	AC Lamp Proving Relay
0072	A B C E K	25	–	0.9A	DC Lamp Proving Relay
0073	A B C F K	26	–	0.23A	DC Lamp Proving Relay for use with MF type Colour Light Signal
0074	A B C G K	24	–	50V	DC Neutral Line & Thermal Relay. (5 to 15 seconds delay)
0075	A B C H K	26	–	Varies	DC Lamp Proving Relay Slow Acting
0076	A B C J K	–	–	110V	Point Control Overload Relay
0077	A B D E K	42	–	0.25A	DC Lamp Proving Relay for use with Stencil & Junction
0078	A B D F K	41	–	6W	Rectifier-Resistance Unit
0079	A B D G K	42	–	0.125A	DC Lamp Proving Relay Slow Release
0080	A B D H K	1 3	–	50V	AC Immune DC Neutral Line Relay Slow Acting
0081	A B D J K	37 42	940 940	2.2A 2.2A	DC Lamp Proving Relay for use with Colour Light Signals DC Lamp Proving Relay for use with Colour Light Signals
0082	A B E F K	42	–	0.105A	DC Lamp Proving Relay Slow Release
0083	A B E G K	5 7 9	– – –	24V 24V	AC Immune DC Neutral Line Relay Slow Acting AC Immune DC Neutral Line Relay Slow Acting
0084	A B E H K	1	–	12V	AC Immune DC Biased Neutral Line Relay
0085	A B E J K	5	–	0.54 & 0.46A	AC Lamp Proving Relay for use with Stencil Indicators & Position Light Signals
0086	A B F G K	42	–	0.125A	DC Lamp Proving Relay for use with Stencil Indicators
0087	A B F H K	42	–	1.1A	DC Lamp Proving Relay Slow Release for use with Colour Light Signals
0088	A B F J K	42	–	0.11A	DC Lamp Proving Relay Slow Release
0089	A B G H K	42	–	0.6A	DC Lamp Proving Relay
0091	A B H J K	37	945	4A	DC Lamp Proving Relay for use with Flashing Signals
0092	A C D E K	20	960	24V	Twin DC Neutral Line Relay
0093	A C D F K	1	–	0.185A	AC Immune DC Lamp Proving Relay Slow Acting
0094	A C D G K	37	–	0.185A	AC Lamp Proving Relay for use with Searchlight Signals
0095	A C D H K	19	–	50V	Twin DC Neutral Line Relay Slow Acting
0096	A C D J K	20	–	50V	Twin DC Neutral Line Relay Slow Acting
0097	A C E F K	18 19	961 961	24V 24V	Twin AC Immune DC Biased Neutral Line Relay Twin AC Immune DC Biased Neutral Line Relay
0098	A C E G K	20	961	24V	Twin AC Immune DC Biased Neutral Line Relay

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Pin Code	Pin Code Configuration	Arr	Style/ Spec	Rating	Description/Remarks
0099	A C E H K	19	–	24V	Twin DC Neutral Line Relay Slow Acting
0100	A C E J K	20	–	24V	Twin DC Neutral Line Relay Slow Acting
0101	A C F G K	43	938	4Ω	DC Neutral Track Relay
0104	A C G H K	43	966 F9	60Ω	AC Immune DC Neutral Track Relay
0105	A C G J K	43	939	20Ω	AC Immune DC Neutral Track Relay
0106	A C H J K	–	–	12/50V	Inverter Unit
0107	A D E F K	–	–	50V	Earth Leakage Detector
0108	A D E G K	–	–	110V	Earth Leakage Detector
0109	A D E H K	43	–	9Ω	DC Neutral Track Relay
0110	A D E J K	43	966	9Ω	AC Immune DC Neutral Track Relay
		–	–	9Ω	AC Immune DC Neutral Track Relay
0111	A D F G K	43	968	250Ω	DC Neutral Track Relay
0112	A D F H K	9	930	12V	DC Neutral Line Relay
0113	A D F J K	43	–	400Ω	DC Neutral Track Relay
0114	A D G H K	43	–	400Ω	AC Immune DC Neutral Track Relay
0115	A D G J K	44	–	10V	DC Neutral Thermal Time Element Relay (30-120 seconds delay)
0116	A D H J K	155	QS2	12V	Low Power DC Neutral Line Relay
0117	A E F G K	–	–	0.285Ω	DC Neutral Line Relay Slow Release
0118	A E F H K	45	–	50V	DC Neutral Line & Thermal Time Element Relay (15-30 seconds delay)
0119	A E F J K	46	–	24V	Twin DC Neutral Line & Single Heater Thermal Time Element Relay (30-90 seconds delay)
		–	–	24V	Twin DC Neutral Line & Single Heater Thermal Time Element Relay (60-120 seconds delay)
0120	A E G H K	46	–	50V	Twin DC Neutral Line & Single Heater Thermal Time Element Relay (30-90 seconds delay)
		–	–	50V	Twin DC Neutral Line & Single Heater Thermal Time Element Relay (60-120 seconds delay)
		–	–	50V	Twin DC Neutral Line & Single Heater Thermal Time Element Relay (30-120 seconds delay)
0121	A E G J H	46	–	50V	Twin DC Neutral Line & Double Heater Thermal Time Element Relay (30-60 seconds delay with both heaters & 60-150 seconds delay with one heater)
0122	A E H J K	46	–	50V	Twin DC Neutral Line & Double Heater Thermal Time Element Relay (30-60 seconds delay with both heaters & 60-150 seconds delay with one heater)
0123	A F G H K	45	937	24V	DC Neutral Thermal Time Element Relay (30-120 seconds delay)
0124	A F G J K	45	937	50V	DC Neutral Thermal Time Element Relay (30-120 seconds delay)
0125	A F H J K	49	937	24V	DC Neutral Thermal Time Element Relay (30-120 seconds delay)
0126	A G H J K	49	937	50V	DC Neutral Thermal Time Element Relay (30-120 seconds delay)
0127	B C D E F	50	962	24V	Twin DC Neutral Line & Thermal Time Element Relay (30-120 seconds delay)
0128	B C D E G	51	962	24V	Twin DC Neutral Line & Thermal Time Element Relay (30-120 seconds delay)

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Pin Code	Pin Code Configuration	Arr	Style/ Spec	Rating	Description/Remarks
0129	B C D F G	50	962	50V	Twin DC Neutral Line & Thermal Time Element Relay (30-120 seconds delay)
0130	B C E F G	51	962	50V	Twin DC Neutral Line & Thermal Time Element Relay (30-120 seconds delay)
0131	B D E F G	52	–	50V	Pulse Generator for use with TOWS
0132	B C D E H	53	–	24V	Track Circuit Transient Suppressor Unit
0133	B C D F H	54	–	8.8V	DC Neutral Reed Follower Relay {32M10 or ZS2411} Note: Pin Codes 0133 & 0134 were both allocated to the same relay.
0134	B C D G H	54	–	8.8V	DC Neutral Reed Follower Relay {32M10 or ZS2411} Note: Pin Codes 0133 & 0134 were both allocated to the same relay.
0135	B C E F H	–	–	–	Track Circuit Transient Suppressor Unit
0136	B C E G H	–	–	50V	Pulse Generator
0137	B C F G H	–	–	50V	Pulse Generator
0138	B D E F H	–	–	50V	Twin Block Bell Delay Unit (6-8 seconds delay)
0139	B D E G H	55	–	50V	DC Impulse Timer Relay {5 Steps}
		55	–	50V	DC Impulse Timer Relay {10 Steps}
		55	–	50V	DC Impulse Timer Relay {15 Steps}
		55	–	50V	DC Impulse Timer Relay {20 Steps}
		55	–	50V	DC Impulse Timer Relay {22 Steps}
		55	–	50V	DC Impulse Timer Relay {25 Steps}
		55	–	50V	DC Impulse Timer Relay {30 Steps}
		56	–	–	Geographical Shorting Unit
0140	B D F G H	57	947	110V	AC Motor Timer Relay (3 to 30 seconds delay)
0141	B E F G H	68	–	50V	Solid State Time Delay Relay (2 to 254 seconds delay)
0142	B C D E J	59	–	15.3Ω	Lamp Proving Feed Unit for use with Junction & Stencil Indicators
		60	–	27.8Ω	Lamp Proving Feed Unit for use with Limit of Shunt Signals
		61	–	36.9Ω	Lamp Proving Feed Unit for use with Position Light Signals
		62	–	50.5Ω	Lamp Proving Feed Unit
		63	–	274Ω	Lamp Proving Feed Unit for use with Colour Light Signals
		64	–	W/OΩ	Lamp Proving Feed Unit for use with Multi-Lamp Route Indicators
0143	B C D F J	65	–	50V	DC Relay Unit containing two PO 3000 type relays
0144	B C D G J	66	–	50V	DC Relay Unit containing four relays
0145	B C D H J	67	–	50V	DC Relay Unit containing four relays
0146	B C E F J	58	–	50V	Solid State Timer
0147	B C E G J	66	–	530Ω	Relay Unit containing four PO type 23/9 relays for CCTV equipment at level crossings
0148	B C E H J	69	–	12/24V	Indication flasher Unit for flashing Level Crossing Indications
0149	B C F G J	–	–	50/12V	Hot Box Detector Reset Unit
0150	B C F H J	70	–	0.35A	Lamp Proving Relay Feed Unit
0151	B C G H J	71	–	50V	Pulse Generator Unit for use in Junction Approach Signal Flashing Circuit (70 pulses per minute)
0152	B D E F J	26	–	0.94A	DC Lamp Proving Relay for use with Searchlight Signals

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0154	B D E H J	72	–	18Ω	Lamp Proving Relay Feed Unit
0155	B D F G J	72	–	10Ω	Lamp Proving Relay Feed Unit
0156	B D F H J	72	–	7.8Ω	Lamp Proving Relay Feed Unit
0157	B D G H J	72	–	6Ω	Lamp Proving Relay Feed Unit
0158	B E F G J	73	–	50V	Hot Box Detector Reset Unit
0159	B E F H J	74	966 F4	24V	AC Immune DC Biased Point Contactor Relay
0160	B E G H J	74	966 F4	50V	AC Immune DC Biased Point Contactor Relay
0161	B F G H J	75	–	24V	AC Immune DC Biased Point Contactor Relay
0162	B C D E K	75	–	24V	DC Biased Point Contactor Relay
0163	B C D F K	75	–	50V	AC Immune DC Biased Point Contactor Relay
0164	B C D G K	75	–	50V	DC Biased Point Contactor Relay with high drop away
0165	B C D H K	75	–	24V	DC Biased Point Contactor Relay with high drop away
0166	B C D J K	76	966 F1	50V	DC Neutral Point Contactor Relay with high drop away
0167	B C E F K	76	966 F1	24V	DC Neutral Point Contactor Relay with high drop away
0168	B C E G K	77	–	24/50V	Capacitor/Resistor Unit
0169	B C E H K	78	–	80V	Point Machine Snubbing Relay
0170	B C E J K	76	943	24V	AC Immune DC Biased Point Contactor Relay
0171	B C F G K	76	943	24V	AC Immune DC Biased Point Contactor Relay
0172	B C F H K	76	943	50V	AC Immune DC Biased Point Contactor Relay
0173	B C F J K	76	–	50V	AC Immune DC Biased Point Contactor Relay
0174	B C G H K	79	–	110V	AC Static Flasher Unit for Panel Indications (1 pulse per second)
0175	B C G J K	80	–	50V	Capacitor/Resistor Unit (2000μF & 330Ω) for use in Westpac MKIV units
0176	B C H J K	80	–	50V	Capacitor/Resistor Unit (1000μF & 330Ω) for use in Westpac MKIV units
0177	B D E F K	80	–	50V	Capacitor/Resistor Unit (470μF & 330Ω) for use in Westpac MKIV units
0178	B D E G K	81	–	50V	Relay Delay Unit
0179	B D E H K	82	–	50V	DC Neutral Line Relay Slow Release
0180	B D E J K	34	–	50V	Twin DC Neutral Line Relay with Silver Palladium Contacts
0181	B D F G K	83	–	12V	Opto Coupled Relay Unit
0182	B D F H K	–	–	24V	ERSE Buffer Output Relay Unit MkII
0183	B D F J K	–	–	24V	ERSE Alarm Relay Unit
0184	B D G H K	–	–	24V	Detector Storage Unit for use with a Flasher to BR 901
0185	B D G J K	–	–	24V	Surge Protector
0186	B D H J K	84	–	24/50V	Inverter
0187	B E F G K	84	–	24/50V	DC Voltage Converter 15W
0188	B E F H K	85	–	0.4A	Lamp Proving Relay for use with Shunt Signal Lamps

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0189	B E F J K	86	947	50/110V	Motor Timer Relay (10-140 seconds delay)
		86	947	50/110V	Motor Timer Relay (30-240 seconds delay)
		87	–	–	Geographical Shorting Unit
		88	–	–	Geographical Shorting Unit
0190	B E G H K	86	947	24/110V	Motor Timer Relay (30-240 seconds delay)
0191	B E G J K	86	947	50/110V	Motor Timer Relay (2-50 seconds delay)
		87	–	–	Geographical Shorting Unit
0192	B E H J K	86	947	24/110V	Motor Timer Relay (2-50 seconds delay)
0193	B F G H K	5	932	50V	AC Immune DC Biased Line Relay
0194	B F G J K	18	961	50V	Twin AC Immune DC Biased Line Relay
0195	B F H J K	84	-	12/50V	DC Voltage Converter 15W
0196	B G H J K	89	–	24V	BERSE Buffer Relay Unit
0197	C D E F G	74	966 F5	24V	DC Neutral Point Contactor Relay for use with AC/DC Converter
0198	C D E F H	74	966 F5	50V	DC Neutral Point Contactor Relay for use with AC/DC Converter
0199	C D E G H	58	947	50V	Solid State Timer (2-254 seconds delay). {The time delay are achieved by different combinations of external strap}
0200	C D F G H	–	–	50V	Solid State Timer (Prototype)
0201	C E F G H	90	–	50V	DC Neutral Relay with special sensitivity
0202	C D E F J	91	–	50V	DC Neutral Relay with special sensitivity
0203	C D E G J	47	–	45V	DC Neutral Relay with special sensitivity for use as an Axle Counter coincidence relay
0204	C D E H J	–	–	40V	DC Neutral Relay with special sensitivity
0205	C D F G J	1	–	24V	AC Immune DC Neutral Line Relay Slow Release with high drop away
0206	C D F H J	1	–	50V	AC Immune DC Neutral Line Relay Slow Release with high drop away
0207	C D G H J	3	–	50V	DC Neutral Relay with high drop away
0208	C E F G J	9	–	50V	DC Neutral Relay with high drop away
0209	C E F H J	20	966 F6	50V	Twin AC Immune DC Neutral Line Relay
0210	C E G H J	18	966 F6	50V	Twin AC Immune DC Neutral Line Relay
		19	966	50V	Twin AC Immune DC Neutral Line Relay
0211	C F G H J	18	960	50V	Twin DC Neutral Line Relay
		19	960	50V	Twin DC Neutral Line Relay
		92	–	–	Geographical Shorting Unit
0212	C D E F K	20	960	50V	Twin DC Neutral Line Relay
		93	–	–	Geographical Shorting Unit
0213	C D E G K	19	963	24V	Twin DC Neutral Line Relay Slow Acting
0214	C D E H K	20	963	24V	Twin DC Neutral Line Relay Slow Acting
0215	C D E J K	19	963	50V	Twin DC Neutral Line Relay Slow Acting
		92			Geographical Shorting Unit
0216	C D F G K	20	963	50V	Twin DC Neutral Line Relay Slow Acting
		93	–	–	Geographical Shorting Unit
0217	C D F H K	19	–	24V	Twin DC Neutral Line Relay with high drop away

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0218	C D F J K	20	–	24V	Twin DC Neutral Line Relay with high drop away
0219	C D G H K	19	-	50V	Twin DC Neutral Line Relay with high drop away
0220	C D G J K	20	–	50V	Twin DC Neutral Line Relay with high drop away
0221	C D H J K	26	–	24V	AC Immune DC Neutral Line Relay Extra Slow Release
0222	C E F G K	26	-	50V	AC Immune DC Neutral Line Relay Extra Slow Release
0223	C E F H K	94	–	24V	Twin Magnetically Latched Timer Relay
0224	C E F J K	94	–	50V	Twin Magnetically Latched Timer Relay
0225	C E G H K	95	–	50/110V	Synchronous Motor Operated Pulse Generator (1 Pulse per second)
0226	C E G J K	95	–	50/110V	Synchronous Motor Operated Pulse Generator (1 Pulse per 2 seconds)
0227	C E H J K	95	–	50/110V	Synchronous Motor Operated Pulse Generator (1 Pulse per 3 seconds)
0228	C F G H K	95	–	50/110V	Synchronous Motor Operated Pulse Generator (1 Pulse per 6 seconds)
0229	C F G J K	96	–	12/50V	DC Voltage Converter (0-50 volt output)
0230	C F H J K	96	–	12/50V	DC Voltage Converter (0-25 volt output)
0231	C G H J K	97	–	0.23A	Lamp Proving Relay Slow Release
0232	D E F G H	98	946	24V	DC Neutral Time Delay Relay (3 seconds delay)
0233	D E F G J	98	946	24V	DC Neutral Time Delay Relay (5 seconds delay)
0234	D E F H J	98	946	24V	DC Neutral Time Delay Relay (6 seconds delay)
0235	D E G H J	98	946	24V	DC Neutral Time Delay Relay (7.5 seconds delay)
0236	D F G H J	98	946	24V	DC Neutral Time Delay Relay (10 seconds delay)
0237	D E F G K	153	946	50V	DC Neutral Time Delay Relay (10 seconds delay)
0238	D E F H K	99	–	110V	Earth Leakage Detector
0239	D E F J K	100	–	12/50/ 130V	Earth Leakage Detector
0240	D E G H K	149	–	50/120V	Earth Leakage Detector
0241	D E G J K	101	–	24V	Bell Pulse Unit for Level Crossing Bells (60-70 pulses per minute)
		–	–	50V	Point Timing Relay
0242	D E H J K	102	–	24/50V	Indication Flasher Unit (60-70 pulses per minute)
		102	–	50V	Flasher Unit
0243	D F G H K	103	–	120V	Low Voltage Alarm Unit for Point Operation
0244	D F G J K	104	–	50V	FDM Transmitter (Style 25). {External strapping is used to select output levels and output frequency}
0245	D F H J K	105	–	50V	FDM Receiver (Style 25). {External strapping is used to select receiver sensitivity and output frequency}
0246	D G H J K	–	–	–	FDM Line Matching Unit (Style 25). {This is a multi-tap transformer unit which can be connected in many different configurations for line matching purposes}
0247	E F G H J	–	–	–	Remote Control Interface Unit
0248	E F G H K	103	–	40-60V	Low Voltage Alarm Unit for 50V Batteries
0249	E F G J K	–	–	50V	Relay. {No further details available}
0250	E F H J K	106	–	12-50V	Static Flasher Unit

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0251	E G H J K	107	–	24V	Thermal Time Unit (30-120 seconds delay)
0252	F G H J K	107	–	50V	Thermal Time Unit (30-120 seconds delay)
0253	A B C D L	–	–	7.2V	DC Lamp Proving Relay
0254	A B C E L	24	–	50V	DC Neutral Line Thermal Relay (30-120 seconds delay)
		–	–	110/50V	Converter Unit
0255	A B C F L	24	–	50V	DC Neutral Line Thermal Relay (60-180 seconds delay)
		15	–	12V	DC Polarised Magnetic Stick Line Relay
0256	A B C G L	–	–	110V	Converter Feed Unit for 24 V relays
		25	–	0.84A	DC Lamp Proving Relay for use with a Junction Indicator
0257	A B C H L	26	–	0.23A	DC Lamp Proving Relay for use with MF type Colour Light Signal
0258	A B C J L	25	–	0.42A	DC Lamp Proving Relay for use with Stencil Route Indicators
		59	–	15.3Ω	Lamp Proving Feed Unit for use with Junction & Stencil Indicators
		60	–	27.8Ω	Lamp Proving Feed Unit for use with Limit of Shunt Signals
		61	–	36.9Ω	Lamp Proving Feed Unit for use with Position Light Signals
		62	–	50.5Ω	Lamp Proving Feed Unit
		63	–	274Ω	Lamp Proving Feed Unit for use with Colour Light Signals
		64	–	W/O Ω	Lamp Proving Feed Unit for use with Multi-Lamp Route Indicators
0259	A B C K L	40	–	110V	Point Control Overload Unit
		24	–	50V	DC Neutral Line & Thermal Relay (5 to 15 seconds delay)
0260	A B D E L	24	–	50V	DC Neutral Line & Thermal Relay (15 to 30 seconds delay)
0261	A B D F L	9	–	110V	DC Neutral Line Relay
		1	934	24V	AC Immune DC Neutral Line Relay Slow Release
		3	934	24V	AC Immune DC Neutral Line Relay Slow Release
0262	A B D G L	5	–	24V	AC Immune DC Neutral Line Relay Slow Acting
		7	–	24V	AC Immune DC Neutral Line Relay Slow Acting
		9	–	24V	AC Immune DC Neutral Line Relay Slow Acting
		–	–	24V	DC Neutral Line & Thermal Relay (30 to 120 seconds delay)
0263	A B D H L	–	–	18.5V	DC Lamp Proving Relay
		1	–	50V	AC Immune DC Neutral Line Relay Slow Acting
		3	–	50V	AC Immune DC Neutral Line Relay Slow Acting
0264	A B D J L	5	–	50V	AC Immune DC Neutral Line Relay Slow Acting
		7	–	50V	AC Immune DC Neutral Line Relay Slow Acting
		9	–	50V	AC Immune DC Neutral Line Relay Slow Acting
		–	–	12V	DC Neutral Line & Thermal Relay (30 to 120 seconds delay)
0265	A B D K L	–	–	110/24V	Converter Unit
0266	A B E F L	–	–	0.2A	DC Lamp Proving Relay for 20 watt Lamps
		5	–	12V	DC Neutral Line Relay
		9	–	12V	DC Neutral Line Relay
0268	A B E H L	1	–	24V	AC Immune DC Neutral Line Relay Slow Release

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0269	A B E J L	26 108	– –	0.84A 12V	DC Lamp Proving Relay for use with Searchlight Signals Shunt Relay for the Post Office Railway
0270	A B E K L	– –	– –	24V 60V	DC Neutral Line Relay DC Neutral Line Relay
0271	A B F G L	5 4	– –	8.8V 24V	Reed Follower Relay DC Neutral Line Relay Slow Release
0274	A B F K L	–	–	24V	DC Neutral Line Relay Slow Release
0275	A B G H L	–	–	24V	DC Neutral Line & Thermal Relay (30-120 seconds delay)
0279	A B H K L	– 1	– –	12V 12V	DC Neutral Line & Thermal Relay (30-120 seconds delay) AC Immune DC Neutral Biased Line Relay
0280	A B J K L	109 –	– –	9 or 2.25Ω 12V	Biased Track Relay. {Two coils in series (9Ω) or in parallel (2.25Ω)} DC Neutral Line Relay
0281	A C D E L	43	–	4Ω	Biased Track Relay
0282	A C D F L	43	–	9Ω	Biased Track Relay
0283	A C D G L	43	–	9Ω	AC Immune Biased Track Relay
0286	ACDKL	37	948	0.20A	AC Lamp Proving Relay for use in connection with TPWS
0287	A C E F L	43	–	9Ω	DC Neutral Track Relay
0288	A C E G L	43	–	9Ω	AC Immune DC Neutral Track Relay
0289	A C E H L	– –	– –	24V 120V	Twin DC Neutral Line Relay with Metal Contacts Earth Leakage Detector
0290	A C E J L	19	–	24V	Twin DC Neutral Line Relay
0291	A C E K L	20	–	24V	Twin DC Neutral Line Relay
0292	A C F G L	19	–	50V	Twin DC Neutral Line Relay
0293	A C F H L	20	–	50V	Twin DC Neutral Line Relay
0294	A C F J L	33	–	24V	Twin DC Neutral Line Relay
0295	A C F K L	34	–	24V	Twin DC Neutral Line Relay
0296	A C G H L	33	960	50V	Twin DC Neutral Line Relay
0297	A C G J L	34	–	50V	Twin DC Neutral Line Relay
0298	A C G K L	19	–	24V	Twin DC Neutral Line Relay Slow Acting
0299	A C H J L	20	–	24V	Twin DC Neutral Line Relay Slow Acting
0300	A C H K L	19	–	50V	Twin DC Neutral Line Relay Slow Acting
0301	A C J K L	20	–	50V	Twin DC Neutral Line Relay Slow Acting
0302	A D E F L	–	–	50V	Flasher Relay
0303	A D E G L	– –	– –	50V 50V	Flasher Relay Impulse Timer Relay (30 Steps)

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0312	A D G J L	55	–	50V	Impulse Timer Relay (5 Steps) Impulse Timer Relay (10 Steps) Impulse Timer Relay (15 Steps) Impulse Timer Relay (20 Steps) Impulse Timer Relay (22 Steps) Impulse Timer Relay (25 Steps) Impulse Timer Relay (30 Steps)
0322	A E G J L	46	–	24V	Twin DC Neutral Line & Double Heater Thermal Time Element Relay (30-60 seconds delay with both heaters & 60-150 seconds delay with one heater)
0323	A E G K L	46	–	50V	Twin DC Neutral Line & Double Heater Thermal Time Element Relay (30-60 seconds delay with both heaters & 60-150 seconds delay with one heater)
0324	A E H J L	46	–	50V	Twin DC Neutral Line & Double Heater Thermal Time Element Relay (30-60 seconds delay with both heaters & 60-150 seconds delay with one heater)
0336	A H J K L	19	–	24V	Twin AC Immune DC Biased Neutral Line Relay
0337	A B C D M	20	–	24V	Twin AC Immune DC Biased Neutral Line Relay
0338	A B C E M	19	–	50V	Twin AC Immune DC Biased Neutral Line Relay
0339	A B C F M	20	–	50V	Twin AC Immune DC Biased Neutral Line Relay
0340	A B C G M	5	–	0.1A	Lamp Proving Relay
0341	A B C H M	26	–	0.15A	DC Lamp Proving Relay Slow Acting
0342	A B C J M	–	–	12V	DC Neutral Line Relay with Metal Contacts
0343	A B C K M	156	991	110V	Flashing Aspect Control Unit
0358	A B F G M	26	–	24V	AC Immune DC Neutral Line Relay Extra Slow Release
0359	A B F H M	26	–	50V	AC Immune DC Neutral Line Relay Extra Slow Release
0360	A B F J M	–	–	12V	AC Immune DC Neutral Line Relay Extra Slow Release
0385	A C E L M	110	–	50V	DC Non Safety Solid State Time Delay Relay (6-9 seconds delay)
0391	A C G H M	111	–	12V 50 Hz	Transmitter Reed Filter (Track Circuit) RT5110
0392	A C G J M	112	–	12V 50 Hz	Receiver Reed Filter (Track Circuit) RT6110
0393	A C G K M	111	–	12V 50 Hz	Transmitter Reed Filter (Track Circuit) RT5120
0394	A C G L M	112	–	12V 50 Hz	Receiver Reed Filter (Track Circuit) RT6120
0395	A C H J M	111	–	12V 50 Hz	Transmitter Reed Filter (Track Circuit) RT5130
0396	A C H K M	112	–	12V 50 Hz	Receiver Reed Filter (Track Circuit) RT6130
0397	A C H L M	111	–	12V 50 Hz	Transmitter Reed Filter (Track Circuit) RT5140

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0398	A C J K M	112	–	12V 50 Hz	Receiver Reed Filter (Track Circuit) RT6140
0399	A C J L M	111	–	12V 50/60Hz	Transmitter Reed Filter (Track Circuit) RT5150
0400	A C K L M	112	–	12V 50/60Hz	Receiver Reed Filter (Track Circuit) RT6150
0401	A D E F M	111	–	12V 50/60Hz	Transmitter Reed Filter (Track Circuit) RT5160
0402	A D E G M	112	–	12V 50/60Hz	Receiver Reed Filter (Track Circuit) RT6160
0403	A D E H M	111	–	12V 50/60Hz	Transmitter Reed Filter (Track Circuit) RT5170
0404	A D E J M	112	–	12V 50/60Hz	Receiver Reed Filter (Track Circuit) RT6170
0405	A D E K M	111	–	12V 50/60Hz	Transmitter Reed Filter (Track Circuit) RT5180
0406	A D E L M	112	–	12V 50/60Hz	Receiver Reed Filter (Track Circuit) RT6180
0407	A D F G M	111	–	12V 50Hz	Transmitter Reed Filter (Track Circuit) RT5190
0408	A D F H M	112	–	12V 50Hz	Receiver Reed Filter (Track Circuit) RT6190
0409	A D F J M	111	–	12V 50Hz	Transmitter Reed Filter (Track Circuit) RT5200
0410	A D F K M	112	–	12V 50Hz	Receiver Reed Filter (Track Circuit) RT6200
0411	A D F L M	111	–	12V 50Hz	Transmitter Reed Filter (Track Circuit) RT5210
0412	A D G H M	112	–	12V 50Hz	Receiver Reed Filter (Track Circuit) RT6210
0414	A D G K M	112	–	12V 50Hz	Receiver Reed Filter (Track Circuit) RT6220 for use with Automatic Train Protection
0421	A D K L M	111	–	12V 50Hz	Transmitter Reed Filter (Track Circuit) RT5260 for use with Train Control Systems
0422	A E F G M	112	–	12V 50Hz	Receiver Reed Filter (Track Circuit) RT6260 for use with Train Control Systems
0425	A E F K M	111	–	12V 60Hz	Transmitter Reed Filter (Track Circuit) RT5280
0426	A E F L M	112	–	12V 60Hz	Receiver Reed Filter (Track Circuit) RT6280