



## AUSTRALIAN RAIL TRACK CORPORATION

### INFRASTRUCTURE, STRATEGY AND PERFORMANCE

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#### **Engineering Standards and Documents**

The following recommendation, together with attached supporting documentation, has been considered and approved by the ARTC Manager Standards on 24<sup>th</sup> September 2007. The component list has been updated 19<sup>th</sup> March 2008.

#### ***Documents:***

Ref No:	<b>08-08-10-079</b> - Systems & Equipment Approval
Subject:	'Union Switch and Signal' Microlok II Interlocking System
Dated:	28 <sup>th</sup> August 2007.

Prepared By: Arthur Haberlin, Signalling Engineer

Endorsed by: Trevor Moore, Signalling Standards Engineer

#### ***Items Considered for Approval:***

Manufacturer:	Union Switch And Signal Inc.
Product:	Microlok II Interlocking System
Item Identification:	See list Ref No: <b>01-0708-059b</b>

The items in the form they were presented at the review date were approved for System & Equipment Approval to be used on all ARTC jurisdictions in accordance with the manufacturers published performance criteria and subject to the following.

#### ***Relevant ARTC Specifications:***

Ref. No.	Title	Status	Date
SPS 02	Environmental Conditions	Issue1 Revision 2	May '05
SPS 05	Electrical & Electronic Components (Ratings & Construction Requirements)	Issue 1 Revision 3	May '05
SCP 17	Computer-Based Interlocking Requirements	Issue1 Revision 2	March '05
SCP 23	Design of Microlok Interlockings	Version 1.3	October '06

***Specific Conditions of Approval:***

- i. For use in accordance with ARTC specifications SCP 23, SDS 25 and standard typical circuits only.
- ii. Only components from list reference **01-0708-059b** may be utilised.
- iii. Only the latest approved version of the executive software, together with the associated development system software, may be used in new works installations.
- iv. All cardfiles at a site (included in the same circuit book) shall use the same version of the executive software.


***Certificate Issued to:***

Union Switch and Signal Pty. Ltd.  
39 Harvey Street North  
Eagle Farm  
Brisbane Qld 4009

A general condition of approval is that the supplier remains accredited to ISO 9001 specifically for these products and ARTC is advised on a 12 monthly basis that accreditation is current. ARTC reserves the right to conduct its own audit of the manufacture and supply of these components to AS 19011:2003.

Any subsequent change to the design, materials or manufacturing process is not covered by this approval.

Approved for use in the ARTC.

  
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John Furness

**APPROVAL No: 08-08-10-079**

Manager Standards

Approval Date: **19<sup>th</sup> March 2008**

This certificate Supersedes, prior approval number 08-08-10-025 which will remain on file for record purposes.



**AUSTRALIAN RAIL TRACK CORPORATION LTD**

**Ref No: 01-0708-059b**

**Date: 19<sup>th</sup> March 2008**

**Systems & Equipment Approval**

**Subject: ‘Union Switch and Signal’ Microlok II System Cards**

The following lists the individual components (by catalogue number) of the Microlok II Interlocking System manufactured by Union Switch and Signal Inc. which are approved for use in signalling installations on ARTC infrastructure under Systems & Equipment Approval Certificate 08-08-10-079 subject only to any conditions shown on that Certificate and the Conditions of Use shown against individual types.

<b>Catalogue No.</b>	<b>Revision</b>	<b>Component</b>	<b>Conditions of Use</b>
Cards and Cardframes			
N16902101	Rev 0	System Cardfile	
#	Rev 3	Central Processing Unit Δ	Base board N17001301 ¶
N17061301	Rev 8		Base board N17003401. Ensure correct executive software version is loaded before installation.
N17061003	Rev 1	16 Vital Input (50V)	
N17061001	Rev 4	16 Vital Input (12V)	♣
N17060501	Rev 4	16 Vital Output (12V)	♣@
N17061601	Rev 5	8 Vital Output, 8 Vital Input (12V)	♣@ May only be used as the sole Vital Input and Output card in a cardfile.
N17060101	Rev 12	Vital Lamp Driver	@ May drive LED signals directly only with CPU running executive 8.00 or later.
N4519100701	Rev 7	Coded Track Circuit PCB	@ May be connected only to rails where no traction current flows.
N17061501	Rev 3	Non-vital Non-isolated Input & Output	♣@
N17062701	Rev 2	Non-vital Isolated Output	@
N17063701	Rev 2	Non-vital Isolated Input	
N17061401	Rev 0	Code System Interface	For use with codeline EPROM: N4518000202 (U.S.& S. Genisys)
N16660301	Rev 4	Power Supply 3A at 5v DC.	@ Input voltage 9.8v to 16.2v DC.
N16661203	Rev 1	Power Supply 5A at 5v DC.	@ Input voltage 9.8v to 32.0v DC. May be used to replace existing N1660301.



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Catalogue No.	Revision	Component	Conditions of Use
Software / Tools			
#	Rev 3.2	Executive	¶
#	Rev 3.4		¶
#	Rev 4.01		¶
N4512321701	Rev 5.10		¶
N8001010830	Rev 8.30		§
#	Rev 3.4	Reverse Compiler	Use when altering executive 3.4 sites.
N4512321776	Rev 4.00		Use when altering executive 4.01 sites.
N4512321773	Rev 4.01	Development System	Use when altering executive 4.01 sites.
N4512321774			Two diskettes & CD-ROM.
N4512321777	Rev 1.0	Application Logic Comparison Tool	Use when altering executive 4.01 sites.
N4513231781	Rev 5.10	Development System. Incorporates Reverse Compiler and Logic Comparison Tool	Use when altering executive 5.10 sites. Supports Microtrax boards.
N8001020830	Rev 8.30		Development Version
N8001030830	Rev 8.30		Maintainer Version
N4512321772	Rev 4.01	Maintenance Tool (Monitor)	
SM-6800A, SM-6800B, SM-6800C, SM-6800D	Rev 2.5 or later	System Documentation	
SM-8584			Addendum to SM-6800C
ML2-RS-006		Platform Safety Application Guideline	
Ancillary Hardware			
N4518350101	Rev 11	Coded Track Interface Panel	For use with Microtrax equipment.
N322500701	Rev 35	Vital Relay, PN-150B	For use as VCOR Relay approval also covered in Microlok I & Microtrax approvals.
N4513760302	n/a	PN-150B Base	
M4511422702	n/a	PN-150B Contact Springs	
N17001102	Rev 3	Isolation Module (50v)	Requires minimum 15v power supply to ensure adequate output voltage.

- # - Number no longer in catalogue; U.S.& S. will advise correct ordering information if required for maintenance replacements.
- ¶ - Approved for existing installations only.
- ♣ - All input/output circuits must run entirely within a single location.
- @ - All output circuits shall be wired through a suitable disconnect terminal.
- Δ - One unused serial interface to be made available on suitable terminals or connector.
- § - Catalogue No. N8001010001 refers to the latest production executive software release, which may not be ARTC approved.