



AUSTRALIAN RAIL TRACK CORPORATION LTD

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Discipline
Engineering Standard - NSW

Category
Signalling

Title
Power Supply Units for Signalling Equipment - DC (Filtered) Units

Reference Number
SPS 28 - (RIC Standard: SC 09 10 05 00 SP)

Document Control

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About This Standard

This Specification describes the specific requirements for (Filtered) Power Supply Units for Signalling Equipment to be manufactured and supplied to Australian Rail Track Corporation and contractors to Australian Rail Track Corporation.

Document History

Primary Source – RIC Standard SC 09 10 05 00 SP Version 3.0

List of Amendments –

ISSUE	DATE	CLAUSE	DESCRIPTION
1.1	01/09/2004		Reformatting to ARTC Standard
1.2	14/03/2005	Disclaimer	Minor editorial change
1.3	06/05/2005	All	Document reformatted

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1. Introduction

This Specification describes the specific requirements for (Filtered) Power Supply Units for Signalling Equipment to be manufactured and supplied to Australian Rail Track Corporation and contractors to Australian Rail Track Corporation.

The provisions of Specification SPS 22 shall form part of this specification.

2. Applicable Documents

2.1. ARTC Specifications

This Specification refers to the following ARTC Specifications:

Specification SPS 05	Electronic Components - Ratings and construction
Specification SPS 22	Power Supply Units for Signalling Equipment - General Requirements

2.2. International Standards

BRB 929:	110/24V Transformer rectifier units with smoothed output for track circuit equipment
IEC 384-4:	Fixed capacitors for use in electronic sectional specification : Aluminium capacitors with solid and non-solid electrolyte.

3. Types of Units

Types of Power supply units covered by this specification shall be as per the table below:

ARTC IDENTITY	ITEM DESCRIPTION	OLD(SRA) ID	SPECIFICATION
DC501	Power Supply Unit-DC Filtered 24V DC,4.4A (unregulated) (AF Track Circuit Power Supply)		SPS 28
DC502	Power Supply Unit-DC Filtered 50V, 7A DC (No-break supply)	(Store 92)	SPS 28
DC503	Power Supply Unit-DC filtered 50V 2A (No-break supply)		SPS 28
DC504	Power Supply Unit-DC filtered 50V 20A (No-break supply)	(Store 95)	SPS 28

4. Electrical Requirements

Components shall conform to the requirements of Spec. SPS 05.

4.1. General

The Filtered Power Supply Units (except for 24V/4.4ADC unit) shall be fabricated in accordance with drawing M08-436.

Each unit shall consist of transformer, bridge rectifier, filter, indicator, indicating relay

and blocking diode of appropriate rating.

The capacitor input filter provided in each channel shall suppress the output ripple to 5% of the no load output voltage at full load. The capacitance value shall be such that the output voltage is maintained at minimum level of 85% of the nominal output voltage for a period of 100 milliseconds after the interruption of the input supply with full load applied.

Input voltage shall be as per Specification SPS 22.

Power supply unit 24V/4.4A DC shall be fabricated in accordance with Specification BRB 929 and drawing M08-845. Sections 4.5 is not applicable to these units.

4.2. Transformer

The transformer shall comply with AS 2374.

The secondary winding shall be provided with a tapping such that the output voltage of the unit can be increased by 10% above the rated value at full load.

4.3. Rectifier

The rectifier shall be able to supply the surge current of the capacitor used in the filter circuit without sustaining damage.

The rectifier shall have a minimum Peak Inverse Voltage of 1KV.

4.4. Capacitor

The electrolytic capacitor used in the filter circuit shall be rated for working voltage of 100V D.C.

The capacitor shall be a long-life type, complying to IEC 384-4. The capacitor shall have screw terminal connections.

The capacitor shall be mounted in a ventilated location remote from heat source.

4.5. Termination

Terminals shall be stud or clamp type with the input sections separated.

Terminals shall be suitable for terminating 2 x7/0.85mm conductor for 7A, 10A and 20A Rectifiers and 2 x7/1.7mm for 30A Rectifiers.

Each termination shall be capable of terminating 2 wires.

5. Mechanical Requirements

Refer Section-6 of specification SPS 22.

All equipment shall be totally enclosed in sheet metal case. A removable cover shall be provided to allow ready access to the components.

No-break supply units shall be suitable for wall mounting. Two 30mm bushed holes shall be provided in the base for cable entry.

Power supply units for AF track circuit equipment shall be suitable for rack mounting. Terminations shall be screw type and suitable for terminating forked blue

crimp lugs. The dimensions of these units shall be 142 x 134 x 210mm(depth).

6. Labelling

Refer to Specification SPS 22

On Item DC501 labels 0-2A, 2-4.4A, COM are to be provided as shown in drawing M08 845.

Drawings Attached

M08-436: General circuit diagram – Power Supply Unit, 50VDC no-break supply

M08-845: Power Supply Unit, DC filtered 24V 4.4A (for AF track circuit equipment)

