Discipline
Engineering Standard – NSW

Category
Signalling

Title
Lightning/Surge Protection Inductor/Diverter Panel

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Document Control

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		Refer to Reference Number	H Olsen	M Owens	Refer to minutes of meeting 12/08/04

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About This Standard

This Specification describes the general requirements for Inductor/Diverter Panels to be manufactured and supplied to Australian Rail Track Corporation or contractors to Australian Rail Track Corporation.

Document History

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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	05/06/2005	All	Document reformatted

Contents

1. Introduction

This Specification describes the general requirements for Inductor/Diverter Panels to be manufactured and supplied to Australian Rail Track Corporation or contractors to Australian Rail Track Corporation.

2. Applicable Documents

2.1 Australian Standards

AS3000/1991 : Electrical Installations-Building, Structures and Premises.

2.2 ARTC Specifications

This Specification refers to the following Specifications:

Specification SPS 37: Lightning/Surge Protection - Power Inductor.

Specification SCP 04: Lightning/Surge Protection Requirements.

3. General

Inductor/Diverter Panel shall be required to provide lightning/surge suppression on AC and DC power supply mains.

The panel shall be referred to as IDP-50 or IDP-100 as appropriate. The current ratings shall be 50A and 100A AC or DC for IDP-50 and IDP-100 respectively.

4. Operation Conditions

The equipment shall be capable of operating satisfactorily under the following conditions:

- Ambient temperature range -10 to 70 C.
- Relative humidity 0 to 95%.

5. Design Requirements

5.1 Construction

Construction shall be in accordance with the SRA drawing No D9924. Critical values are the overall size, mounting centres, and the relative position of the input, output and earth terminations.

All components shall be securely mounted on a 10 millimetre panel. The panel shall be made of either paper-based Phenolic or ABS.

All components shall be readily and individually replaceable in case of failure. All material fittings, bolts, nuts, etc shall be Nickel-plated Brass.

5.2 Components

The Inductors shall be as specified in Specification 868 for IDP-50 and IDP-100. The Diverters shall be "Bowthorpe" MA2F2.

5.3 Wiring

All conductors shall be multi-stranded, with sizes and current ratings in accordance with AS3000-1991

Minimum insulation shall be 0.6KV, V75 grade PVC.

All conductors shall be as short and as direct as possible with smooth curves of maximum practical radius.

All conductors shall be terminated with suitable crimp lugs either pre-insulated double-grip type for smaller conductors, or in the case of larger conductors, non-insulated lugs with a heatshrink sleeve applied after crimping. The heat shrink sleeve shall cover the body of the crimp lug and extend at least 15mm over the conductor insulation.

5.4 Terminals

The Earth Terminal shall be M6 and 40 millimetre long Nickel plated Brass studs provided with 3 washers, two nuts and one lock nut for each stud.

5.5 Labelling

All labelling shall be permanently affixed, clearly legible, and of a material which will not fade due to weathering over time or repeated handling.

Input and Output terminals shall be labelled "Line 1", "Line 2", "Equipment 1" and "Equipment 2" respectively. The Earth terminal shall be labelled "Signalling Earth".

In addition the unit must be fitted with a readily visible label stating "IDP-50" or "IDP-100" as appropriate, the manufacturer's identification and date of manufacture.