



AUSTRALIAN RAIL TRACK CORPORATION LTD

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Discipline
Engineering Standard - NSW

Category
Signalling

Title
Lightning/Surge Protection - Varistor Panel

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Document Control

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About This Standard

This Specification describes the general requirements for Varistor Panels 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 15 03 00 SP Version 2.0

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 general requirements for Varistor Panels to be manufactured and supplied to Australian Rail Track Corporation and contractors to Australian Rail Track Corporation.

2. Applicable Documents

2.1 ARTC Specifications

This Specification refers to:

Specification SCP 04 - Surge Protection requirements.

2.2 Australian Standards

AS 3000/1991 - Electrical Installations-Building, Structures & Premises.

3. General

Varistor Panel shall be required to provide lightning/surge suppression on AC and DC power supply mains. The panel shall be referred to as VP-20KA or VP-60KA as appropriate.

4. Operation Conditions

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

- a) ambient temperature range -10 C to 70 C
- b) relative humidity 0 to 95%

5. Design Requirements

5.1 Construction

- a) Construction shall be in accordance with SRA, Signals Standards drawing M08-400 for VP-20KA and VP-60KA. Critical values are the overall size, mounting centres, and the relative position of the input, output and earth terminations.
- b) All components shall be securely mounted on a 6mm panel. The panel shall be made of either paper-based Phenolic or ABS.
- c) All components shall be readily and individually replaceable in case of a failure.
- d) All material fittings, bolts, nuts, etc shall be Nickel plated Brass.

5.2 Components

The Varistors to be used in VP-20KA and VP-60KA shall be "Siemens" type SIOVB32K150 and "Siemens" type SIOVB60K150 respectively or an approved type equivalent in voltage and power ratings.

5.3 Wiring

- a) All conductors shall be multi-stranded, with sizes and current ratings in accordance with AS3000-1991.
- b) Minimum insulation shall be 0.6KV, V75 grade PVC.
- c) All conductors shall be as short and as straight as practicable with smooth curves of maximum radius.
- d) 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 heat-shrink 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 mm long Nickel plated Brass stud provided with 3 washers, 2 nuts and one lock nut. The other terminals shall be as shown in drawing M08-400.

5.5 Labelling

- a) All labelling shall be permanently affixed, clearly legible, and of a material which will not deteriorate on ageing.
- b) The terminals shall be labelled "E1 ", "E2", "L1" and "L2", and the Earth terminal shall be labelled "Signalling Earth" as shown in the drawing.
- c) In addition the unit must be fitted with a readily visible label stating "VP-20KA or "VP-60KA" as appropriate, the manufacturer's identification and date of manufacture.