

Australian Standard®

**ELECTRICAL EQUIPMENT FOR
COAL AND SHALE MINES—
ELECTRICAL PROTECTION
DEVICES**

**Part 3—EARTH-LEAKAGE
PROTECTION DEVICES
FOR USE ON SYSTEMS
INCORPORATING
EARTH-FAULT CURRENT
LIMITERS**

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The following interests are represented on Committee EL/23:

Australian Coal Association
Australian Electrical and Electronic Manufacturers Association
Confederation of Australian Industry
Department of Industrial Relations and Employment, N.S.W.
Department of Mines, Qld.
Joint Coal Board
Institution of Mining Electrical and Mining Mechanical Engineers
Regulatory Authorities (Electrical)

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PREFACE

This Standard was prepared by the Association's Committee on Electrical Equipment in Coal Mines. It is one of a series of five Standards which collectively supersede AS 2081—1977, *Earth fault protection, monitoring and current limitation equipment for use in coal and shale mines*.

This series of Standards is as follows:

AS

- 2081 *Electrical equipment for coal and shale mines—Electrical protection devices*
 Part 1: *General requirements* (AS 2081.1)
 Part 2: *Earth-continuity monitoring devices* (AS 2081.2)
 Part 3: *Earth-leakage protection devices for use on systems incorporating earth-fault current limiters* (AS 2081.3)
 Part 4: *Lockout earth fault protection devices* (AS 2081.4)
 Part 5: *Earth fault current limiters* (AS 2081.5)

The following are the major changes in this edition:

- (a) Former definitions have been amended and new definitions added.
- (b) Former requirements for relays have been amended to require a minimum degree of protection of IP53.
- (c) Reference to AS 1829 has been replaced by reference to AS 2380.7.
- (d) Where appropriate, the provisions of AS 3108.1 and AS 3126 have been called up.
- (e) Requirements for protection against false operation of earth-continuity monitoring devices and earth-leakage protection devices have been included.
- (f) The operating value test has been amended.

 CONTENTS

	<i>Page</i>
SECTION 1. SCOPE AND GENERAL	
1.1 SCOPE	3
1.2 REFERENCED DOCUMENTS	3
1.3 DEFINITIONS	3
SECTION 2. DESIGN AND CONSTRUCTION	
2.1 GENERAL	4
2.2 OPERATING VALUE	4
2.3 OPERATING TIME	4
2.4 PROTECTION AGAINST FAULTS	4
2.5 TEST FACILITY	5
2.6 TRIP FACILITY	5
2.7 INDICATION	5
2.8 TRANSFORMERS	5
2.9 MARKING	5
SECTION 3. TESTS	
3.1 CATEGORIES OF TESTS	6
3.2 ROUTINE TESTS	6
3.3 TYPE TESTS	6

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

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ELECTRICAL PROTECTION DEVICES****PART 3: EARTH-LEAKAGE PROTECTION DEVICES FOR USE ON SYSTEMS
INCORPORATING EARTH-FAULT CURRENT LIMITERS**

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard specifies requirements for protection devices used to provide earth-leakage protection on a.c. power supply systems incorporating earth-fault current limitation. The Standard generally recognizes that the protection device will be used in conjunction with an external circuit interrupting device and also that, in practice, protection devices are categorized as follows:

- (a) Protection devices which are intended to provide the protection for the final subcircuit. Normally such devices are set for instantaneous operation.
- (b) Back-up protection devices which are provided as a supplement to the main protection device. Normally these devices are set for time delay operation to provide for discrimination within the protection system.

This Standard does not include requirements for—

- (i) circuit interrupting devices;
- (ii) earth-leakage protection devices falling within the scope of AS 3190; or
- (iii) earth-fault protection devices for use on unrestricted earth-fault systems.

1.2 REFERENCED DOCUMENTS. The documents below are referred to in this Standard.

AS 1675	Current transformers—Measurement and protection
2081	Electrical equipment for coal and shale mines—Electrical protection devices Part 1: General requirements (AS 2081.1)
3108	Approval and Test Specification—Isolating transformers and safety isolating transformers Part 1: General requirements (AS 3108.1)
3126	Approval and Test Specification for extra-low voltage transformers
3190	Approval and Test Specification for current-operated (core balance) earth-leakage devices

1.3 DEFINITIONS. For the purpose of this Standard, the definitions given in AS 2081.1 and those below apply.

1.3.1 Dynamic range—linear portion of the output range of a current transformer when it is connected to the protection device for which it is used.

1.3.2 Sensitive earth-leakage protection—earth-leakage protection which operates at or below 30 mA.