Saudi Electricity Company	الشركة السعودية للكهرباء

SEC DISTRIBUTION MATERIALS SPECIFICATION	38-SDMS-01
	DATE: 19 September 2007G

38-SDMS-01

SPECIFICATIONS

FOR

FAULT INDICATORS

FOR

UNDERGROUND DISTRIBUTION NETWORKS

CONTENTS

Clause		Page
1.0	SCOPE	3
2.0	CROSS REFERENCES	3
3.0	APPLICABLE CODES AND STANDARDS	3
4.0	DESIGN AND CONSTRUCTION REQUIREMENTS	3
5.0	TESTS	5
6.0	PACKING AND SHIPPING	6
7.0	GUARANTEE	7
8.0	SUBMITTALS	7
9.0	TECHNICAL DATA SCHEDULE	8

1.0 SCOPE

This SEC Distribution Materials Specification specifies the minimum technical requirement for design, engineering, manufacturing, inspection, testing and performance of Fault Indicators (FI) used in conjunction with MV underground network system of Saudi Electricity Company (SEC), Saudi Arabia.

2.0 CROSS REFERENCES

This Specification shall always be read in conjunction with SEC General Specification No. 01-SDMS-01 latest revision titled "General Requirements for all Equipment/ Materials", which shall be considered as an integral part of this SDMS.

This SDMS shall also be read in conjunction with SEC Purchase Order or Contract Schedules and the Scope of Work and Technical Specifications for project, as applicable.

3.0 APPLICABLE CODES AND STANDARDS

The latest revision of the following Codes and Standards shall be applicable for the equipment/material covered in this SDMS. In case of conflict, the vendor/manufacturer may propose equipment/material conforming to one group of Codes and Standards quoted hereunder without jeopardizing the requirements of this SDMS.

3.1	IEC 61000-4	Electromagnetic compatibility Measurements and Testing
3.2	IEC 60502-1	Cables for Rated Voltages of 1 kV
3.3	IEC 60044-1	Instruments Transformer
3.4	IEC 60529	Degrees of protection provided by enclosures (IP Code)
3.5	P495	IEEE Guide For Testing Faulted Circuit Indicators

4.0 DESIGN AND CONSTRUCTION REQUIREMENTS

4.1 General

4.1.1 The Fault Indicators (FI) shall meet or exceed the requirements of this Specification in all respects.

4.1.2 Manufacturer's drawings, as required by 01-SDMS-01, shall show the outline of the Fault Indicators (FI), together with all pertinent dimensions. Any variations in these dimensions due to manufacturing tolerances shall be indicated.

4.2 Design Criteria

4.2.1 Unless otherwise specified, the Fault Indicators (FI) shall be manufactured and tested in accordance with the relevant international standards.

4.2.2 The Fault Indicators (FI) shall be designed to meet the operating conditions specified in 01-SDMS-01 and shall be capable to withstand temperature from -10°C up to 70°C.

4.2.3 The Fault Indicators housing shall be made of robust, non metallic, UV stabilized material to withstand any external vandalism, the dimensions shall be not more than 120x160x60mm and suitable for flush mounting.

4.2.4 The Fault Indicator shall be weather proof, UV resistant suitable of outdoor installation with a degree of protection IP65.

4.2.5 The indicating mechanism shall be flag type not less than 13x13mm or 13mm diameter painted with a red light reflecting paint for fault indication and black for normal operation. Flag in conjunction with high intensity LED may also be acceptable. The indication shall be clearly visible from a distance up to 20 meters away.

4.2.6 The Fault Indicator shall be automatically resetable with voltage only within the range of 10 to 30 seconds of restoration of supply.

4.2.7 The Fault Indicator shall be supplied complete with one split type core balance current transformer with a minimum diameter of 120mm.

4.2.8 The Fault Indicator shall be supplied with a flexible insulated cable to connect the CT to the indication unit not less than 15 meters length.

4.2.9 The Fault Indicator shall be powered by 110-240 volts AC, 60 Hz and shall not require any additional source of supply. Backup battery for driving the LED shall have minimum 15 years operating life, and suitable for blinking the LED for minimum 10 hours continuously.

4.2.10 The trip current shall be 25/50 amps selectable and response time shall be less than 100 milliseconds with an accuracy of ±10%, and shall be capable to restrict the indication for In Rush Currents for minimum 300 milliseconds.

4.2.11 The Terminal Block of the Fault Indicator shall have the provision of contacts for CT, power source, external indication and auxiliary contact such as SCADA etc.

4.2.12 The Fault Indicator shall have the provision of manual resetting and testing button.

4.3 Marking

Each Fault Indicator shall have a clear name plate engraved or printed with indelible
Ink/paint with the following information:

- SEC item number
- Rated tripping current
- Rated voltage
- Rated frequency
- Manufacturer name and reference number
- Serial number
- Year of manufacture
- Country of origin
- SEC purchase order number
- Vendor name
- Reference to SEC specification
- SEC Monogram

5.0 TESTS

5.1 General

5.1.1 All Fault Indicators shall be tested in accordance with the latest standards and as specified herein. Supplier shall provide all test results for review and acceptance by SEC.

5.1.2 The full range of Routine, Special and Type tests specified in relevant specifications shall be carried out as applicable.

5.1.3 Routine and/or special tests shall be carried out in the supplier's factory. Type test report/certificate from an independent testing agency shall be submitted to SEC.

5.2 Routine Tests

Following routine tests shall be carried out by the manufacturer on every Fault Indicator:

5.2.1 Trip Current Test
5.2.2 Reset Test

5.3 Type Tests

5.3.1 Temperature Cycling Test.
5.3.2 Water Submersion Test
5.3.3 Out door Weathering of Plastic Test
5.3.4 Salt Spray Test
5.3.5 Immersion Corrosion Test
5.3.6 Electric Cord Pull out Test
5.3.7 Impact Resistance Test
5.3.8 Short Time Current Test
5.3.8 Trip Current Test

6.0 PACKING AND SHIPPING

In addition to the applicable items per 01-SDMS-01, packing and shipping of the Fault Indicators shall conform to the following:

6.1 All the equipment shall be delivered for sea-worthy transport and storage indoor under service conditions.

6.2 The units shall be packed in strong box in completely assembled condition. Each box shall contain a Fault Indicator, the current transformer, operating manuals.

6.3 The box cover shall carry the following information:

- Purchase Order number
- Manufacturer Name
- Gross weight
- Content description
- Position of slinging points and other relevant handling instructions.

6.4 Packing notes in Arabic and English shall be included in each case giving a description of the goods packed.

7.0 GUARANTEE

The supplier shall guarantee the Fault indicators against all defects arising out of faulty design or workmanship, or of defective material for a period of two years from date of delivery.

8.0 SUBMITTALS

8.1 Submittals Required with Tender

8.1.1 The supplier shall complete and return one copy of the attached Data Schedule for the Fault indicators offered.

8.1.2 Guaranteed Ex-works delivery date.

8.1.3 Type Test Certificates.

8.1.4 Dimensional drawings of the Fault Indicators along with Technical Data and Catalogues shall be submitted by the supplier to facilitate evaluation of the offer.

8.1.5 Clause by clause compliance list of this specification.

8.2 Submittals Required Following Award of Contract

8.2.1 Factory Test Reports.

9.0 TECHNICAL DATA SCHEDULE

FAULT INDICATORS
(Sheet 1 of 2)

SEC Inquiry No. _____ Item No._____

REF. SEC.	DESCRIPTION	SEC SPECIFIED VALUES	VENDOR PROPOSED VALUES**
4.0	**DESIGN AND CONSTRUCTION REQUIREMENTS**		
	1. Reference Manufacturing Standard	Required	
	2. Temperature operating range	-10 to 70 ^{o} C	
	3. Maximum housing dimensions	120x160x60mm	
	4. Degree of protection	IP65	
	5. Indicating mechanism	Flag/LED+Flag	
	Minimum flag dimension	13x13or13Ømm	
	Indication visibility distance	Up to 20m	
	6. Automatic and manual voltage resetting	required	
	Reset time	10 to 30 seconds	
	7. Type of CT	Split core	
	Minimum CT diameter	120mm	
	8. Minimum CT cable length	15m	
	9. Rated Operating Voltage	110-240V AC	
	Back up Battery Life	15 years min	
	Battery continuous operating life	10 hours min	
	10. Tripping Current 25/50 Amps	Selectable	
	Response Time	100 ms	
	Inrush current restraint time	300 ms min	
	11. Number of output contacts	2	
	12. Reset/test button	required	
	13. Submittals as per this spec. enclosed	required	

9.0 TECHNICAL DATA SCHEDULE

FAULT INDICATORS
(Sheet 2 of 2)

SEC Inquiry No. _____ Item No._____

A. ADDITIONAL TECHNICAL INFORMATION OR FEATURES SPECIFIED BY SEC:

B. ADDITIONAL SUPPLEMENTARY DATA OR FEATURES PROPOSED BY BIDDER/VENDOR/ SUPPLIER:

C. OTHER PARTICULARS TO BE FILLED UP BY BIDDER/VENDOR/ SUPPLIER:

D. LIST OF DEVIATIONS & CLAUSES TO WHICH EXCEPTION IS TAKEN BY THE BIDDER/VENDOR/SUPPLIER: (USE SEPARATE SHEET IF NECESSARY):

	MANUFACTURER OF MATERIALS/EQUIPMENT	VENDOR / SUPPLIER
Name of Company		
Location and Office Address		
Name and Signature of Authorized Representative and Date		
Official Seal / Stamp		