

SEC-03-01 REV.0

(12-11-2018)

# SPECIFICATION FOR SINGLE-PIECE METALLIC HIGH-SECURITY CABLE SEALS

*Saudi Electricity Company*

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## 1. SCOPE

This specification defines the minimum technical requirements of single-piece metallic high-security cable seals intended to delay intrusion and/or prevent or detect unauthorized access and tampering of the meterboxes and its associated components or devices installed in the distribution system of Saudi Electricity Company (SEC).

## 2. CROSS REFERENCES TO OTHER SEC STANDARDS

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 specification. It shall also be read in conjunction with SEC purchase order and/or contract schedules, and scope of work/technical specifications for projects, as applicable.

The latest revisions of the following specifications shall be applicable with reference to meterboxes and components or devices installed thereto.

**Table 1: List of reference SEC standards**

Standard #	Title
42-SDMS-01	Specification for Fiberglass Reinforced Polyester Meterboxes
37-SDMS-01	Specification for Low-Voltage Molded Case Circuit Breakers (MCCB) for Service Connections
50-SDMS-01	Specification for Current Transformers Rated up to 36kV
40-SDMS-02A	Specification for Electronic Revenue CT and CT-VT Meter
40-SDMS-02B	Specification for Electronic Revenue Whole-Current Meter

## 3. APPLICABLE CODES AND STANDARDS

The latest revision of the following codes and standards shall be applicable for the equipment/materials covered in this specification. In case of any deviation, the vendor/manufacturer may propose equipment/materials conforming to alternate codes or standards. However, the provisions of SEC standards shall supersede the provisions of these alternate standards in case of any difference.

Table 2: List of applicable standards

Standard #	Title
ISO 17712	Freight Containers – Mechanical Seals
ISO/IEC 15417	Information Technology – Automatic Identification and Data Capture Techniques – Code 128 Bar Code Symbology Specification
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration Laboratories
ISO 18185-3	Freight Containers – Electronic Seals – Part 3: Environmental Characteristics

## 4. MATERIAL, DESIGN AND CONSTRUCTION REQUIREMENTS

### 4.1. GENERAL

- 4.1.1 The seal shall be a single-piece metallic high-security cable seal designed for outdoor-use and able to withstand the environmental conditions specified in the latest revision of SEC specification 01-SDMS-01. It shall and able to withstand the effects of direct solar radiation where the temperature of surfaces exposed to direct solar radiation shall be regarded as 75°C.
- 4.1.2 The dimensions and other physical attributes of the seal shall be as shown in Figure 1.
- 4.1.3 The seals shall be easy to fit on the stainless steel sealing/padlocking provision of the meterboxes, and on the sealing provisions of the components or devices installed thereto, i.e. MCCB, CTs, Revenue Meters, etc.
- 4.1.4 The seals shall be sufficiently durable, strong and reliable so as to prevent accidental breakage and early deterioration (due to weather conditions, chemical reaction, vibration, shock, etc.) in normal use.

### 4.2. MARKING

Each seal shall be permanently identified by unique optical machine-readable bar codes, and numbers that are readily legible. Bar codes shall comply with ISO/IEC 15417.

SEC logo and wording in both English and Arabic languages (SEC PROPERTY – DO NOT TAMPER/ يمنع العبث – ممتلكات الشركة السعودية للكهرباء) shall also be marked on each seal. Any modification of markings shall require obvious irreversible physical, chemical, heat or other damage to or destruction of the seal.

The markings are either laser-etched or better that guarantees to remain legible for not less than 15 years on a desert environmental condition specified in 01-SDMS-01.

#### 4.3. EVIDENCE OF TAMPERING

The seals specified herewith shall be designed and constructed so that tamper attempts create and leave evidence of that tampering.

### 5. TESTING AND INSPECTION

The single-piece metallic high-security cable seals shall be tested in full conformance with the latest edition of ISO/IEC 17712 and shall be performed at an independent test laboratory accredited according to ISO/IEC 17025 with an explicit scope that includes ISO/IEC 17712.

Unless otherwise specified, samples from each batch/lot shall be tested before any delivery.

SEC reserves the right to witness the test.

### 6. SUBMITTALS

#### 6.1. SUBMITTALS REQUIRED WITH TENDER/INQUIRY

- 6.1.1 Clause-by-clause compliance with the latest revision of SEC specification SEC-03-01.
- 6.1.2 Manufacturer's Catalogue / Brochures / Detailed Specification of the offered product
- 6.1.3 Latest certificate of conformance showing that the single-piece metallic high-security cable seals were tested and inspected in accordance with relevant standard specification.
- 6.1.4 Full Test Reports in conformance to ISO/IEC 17712.
- 6.1.5 Certificate of Accreditation of the Test Laboratory to where the seals are tested and certified.

- 6.1.6 Filled-up technical data schedule of the item offered
- 6.1.7 USB Flash Drive containing e-copy of all the documents mentioned above

## 6.2. SUBMITTALS REQUIRED FOLLOWING AWARD OF CONTRACT

- 6.2.1 Samples
- 6.2.2 Quality assurance tests
- 6.2.3 Manufacturing and routine test schedules

## 7. TECHNICAL DATA SCHEDULE

**Table 3: Technical Data Schedule**

SEC Inquiry No:

Item No:

No	Description	SEC Specified Values (*)	Vendor Proposed Values (**)
<b>1</b>	<b>General</b>		
1.1	Reference Manufacturing Standard	ISO/IEC 17712	
1.2	Seal Classification	High-Security	
1.3	Material and Type	Metallic / Cable Seal	
1.4	Color	*	
1.5	Dimensions of Locking Body, (L x W x D)	*	
1.6	Cable Length, mm	200	
1.7	Cable Diameter, mm	4.0 or 1.6	
1.8	Markings	*	
1.9	Bar Code Compliance	ISO/IEC 154717	
<b>2</b>	<b>Other</b>		
2.1	Manufacturer	**	
2.2	Manufacturer Catalogue Number (Model/Type)	**	
2.3	Country of Origin	**	
2.4	Submittals Required with Tender/Inquiry Included or Not?	**	

Single-Piece Metallic High-Security Cable Seal

SEC Inquiry No:

Item No:

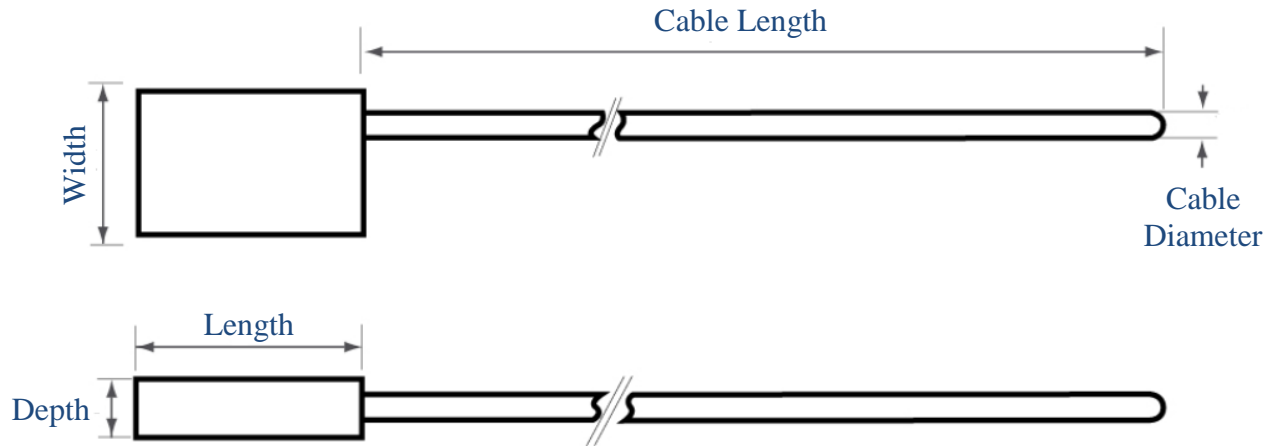
- Additional Technical Information or Features Specified by SEC
- Additional Supplementary Data or Features Proposed by Bidder/Vendor/Supplier.
- Other Particulars to be filled-up by the Bidder/Vendor/Supplier.
- List of Deviations and Clauses to which exception is taken by the Bidder/Vendor/Supplier. (Use separate sheet, if necessary).

Description	Manufacturer of Material/Equipment	Vendor/Supplier
Name of Company		
Location and Office Address		
Name and Signature of Authorized Representative with Date		
Official Seal / Stamp		



## 8. DRAWING

Figure 1: Dimensions and other physical attributes of the single-piece metallic high-security cable seals.



Seal Application	Color	Locking Body (Max.)			Cable Length, (mm)	Cable Diameter, (mm)
		Length, (mm)	Width, (mm)	Depth, (mm)		
Meterbox	Red	30.0	20.0	10.0	200.0	4.0
MCCB	Green	30.0	20.0	10.0	200.0	1.6
CT	Orange	30.0	20.0	10.0	200.0	1.6
Revenue Meters	Yellow	30.0	20.0	10.0	200.0	1.6