

Saudi Electricity Company

Distribution Services Sector



الشركة السعودية للكهرباء
Saudi Electricity Company
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SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS

Issue Date: 05/2025

Page: 1 of 11

SEC-03-01 Rev. 1.0

SEC-03-01 Rev. 1.0

SPECIFICATION FOR SINGLE-PIECE PLASTIC /METALLIC HIGH-SECURITY CABLE SEALS

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**SPECIFICATION FOR SINGLE-PIECE PLASTIC
/ METALLIC HIGH-SECURITY CABLE SEALS**

Issue Date: 05/2025

Page: 2 of 11

SEC-03-01 Rev. 1.0

CONTENTS

1.	SCOPE.....	4
2.	CROSS REFERENCES TO OTHER SEC STANDARDS	4
3.	APPLICABLE CODES AND STANDARDS	4
4.	SERVICE CONDITIONS	5
5.	MATERIAL, DESIGN AND CONSTRUCTION REQUIREMENTS	5
6.	TESTING AND INSPECTION	7
7.	SUBMITTALS	7
8.	TECHNICAL DATA SCHEDULE	9
9.	DRAWINGS	10

Saudi Electricity Company

Distribution Services Sector



SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS

Issue Date: 05/2025

Page: 3 of 11

SEC-03-01 Rev. 1.0

REVISION HISTORY

#	Date	Revision No.	Major Revision Description
1	13-05-2025	Rev.1.0	Revenue Meter Seal modifications <ul style="list-style-type: none">• Size and dimensions• Seal material: High Grade Plastic

Saudi Electricity Company

Distribution Services Sector

**SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS**

Issue Date: 05/2025

Page: 4 of 11

SEC-03-01 Rev. 1.0

1. SCOPE

This specification defines the minimum technical requirements of single-piece high- security cable seals intended to delay intrusion and/or prevent or detect unauthorized access and tampering of the meter boxes 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 meter boxes and components or devices installed thereto.

Standard #	Title
42-SDMS-01	Specification for Fiberglass Reinforced Polyester Meter boxes
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
42-SDMS-01A	Meterbox with Steel Enclosures
SEC-01-01	Monogram

Table No.1

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.

Saudi Electricity Company

Distribution Services Sector

**SPECIFICATION FOR SINGLE-PIECE PLASTIC
/ METALLIC HIGH-SECURITY CABLE SEALS**

Issue Date: 05/2025

Page: 5 of 11

SEC-03-01 Rev. 1.0

Standard	Title
ISO 17712	Freight Containers – Mechanical Seals
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration Laboratories
ISO 18185-3	Freight Containers – Electronic Seals – Part 3: Environmental Characteristics

Table No.2

4. SERVICE CONDITIONS

Description	Values
Limit range for storage and transportation	-10°C to 85°C
Limit range for operation	-10°C to 75°C
Maximum relative humidity	95%(condensed)
Maximum altitude (meters)	3,000

Table No.3

5. MATERIAL, DESIGN AND CONSTRUCTION REQUIREMENTS

5.1 GENERAL

- 5.1.1. The Seal shall be a single-piece 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.
- 5.1.2. 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.

Saudi Electricity Company

Distribution Services Sector

**SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS**

Issue Date: 05/2025

Page: 6 of 11

SEC-03-01 Rev. 1.0

5.1.3. Revenue Meters

- 5.1.3.1. The dimensions and other physical attributes of the seal shall be as shown in Figure 1.
- 5.1.3.2. The seal wire shall consist of stainless-steel wire strands with antirust /anti oxidize coating
- 5.1.3.3. The plastic seal (round) shall be attached permanently with one side of the stainless-steel wire/strands and plastic seal inner circular core shall be pressed/lock only after insertion of the other side of the stainless-steel wire.
- 5.1.3.4. Once the plastic seal inner circular core is pressed/locked it shall not retain other position by any means.

5.1.4. Meterbox, MCCB/ECB, CTs

- 5.1.4.1. The seal shall be a single-piece metallic high-security cable seal.
- 5.1.4.2. The dimensions and other physical attributes of the seal shall be as shown in Figure 3.
- 5.1.4.3. The seals shall be easy to fit on the stainless-steel sealing/padlocking provision of the meter boxes, and on the sealing provisions of the components or devices installed thereto, i.e. MCCB, CTs, etc.

5.2. MARKING**Revenue Meters:**

SEC logo and SEC Item Code shall also be laser printed on each seal as shown in Figure 2. Any modification of markings shall require obvious irreversible physical, chemical, heat or other damage to or destruction of the seal. The SEC seal logo shall be according to SEC-01-01.

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

Saudi Electricity Company

Distribution Services Sector



SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS

Issue Date: 05/2025

Page: 7 of 11

SEC-03-01 Rev. 1.0

specified in 01-SDMS-01 for all. (Revenue Meters, Meterbox /MCCB/ECB/CT)

Meterbox, MCCB/ECB, CT:

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/IEC15417.

SEC logo and wording in both English and Arabic languages (SEC PROPERTY –DO NOT TAMPER

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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.

5.3. EVIDENCE OF TAMPERING

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

6. TESTING AND INSPECTION

The single-piece 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.

7. SUBMITTALS

7.1. SUBMITTALS REQUIRED WITH TENDER/INQUIRY

Saudi Electricity Company

Distribution Services Sector



SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS

Issue Date: 05/2025

Page: 8 of 11

SEC-03-01 Rev. 1.0

- 7.1.1. Clause-by-clause compliance with the latest revision of SEC specification SEC-03-01.
- 7.1.2. Manufacturer's Catalogue / Brochures / Detailed Specification of the offered product
- 7.1.3. Latest certificate of conformance showing that the single-piece high-security cable seals were tested and inspected in accordance with relevant standard specification.
- 7.1.4. Certificate of Accreditation of the Test Laboratory to where the seals are tested and certified.
- 7.1.5. Filled-up technical data schedule of the item offered
- 7.1.6. USB Flash Drive containing e-copy of all the documents mentioned above

7.2. SUBMITTALS REQUIRED FOLLOWING AWARD OF CONTRACT

- 7.2.1. Samples
- 7.2.2. Quality assurance tests
- 7.2.3. Manufacturing and routine test schedule

Saudi Electricity Company

Distribution Services Sector

SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS

Issue Date: 05/2025

Page: 9 of 11

SEC-03-01 Rev. 1.0

8. TECHNICAL DATA SCHEDULE**SINGLE-PIECE PLASTIC/ METALLIC HIGH- SECURITY CABLE SEALS**

SEC Inquiry No. _____ Item No. _____

No	Description	SEC Specified Values (*)	Vendor Proposed Values (**)
1	General		
1.1	Reference Manufacturing Standard	ISO/IEC 17712	
1.2	Seal Classification	High-Security	
1.3	Material and Type for Revenue Meters	High-Grade Plastic/cable seal	
	Material and Type for Meterbox, MCCB/ECB,CT	Metallic / Cable Seal	
1.4	Sealing Wire	Stainless-steel wire strands.	
1.5	Color	*	
1.6	Dimensions of Locking Body, (L x W x D)	*	
1.7	Cable Length, mm	Table no. 4 & 5	
1.8	Cable Diameter	Table no. 4 & 5	
1.9	Markings	*	
2	Other		
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?	**	



**SPECIFICATION FOR SINGLE-PIECE PLASTIC
/ METALLIC HIGH-SECURITY CABLE SEALS**

Issue Date: 05/2025

Page: 10 of 11

SEC-03-01 Rev. 1.0

9. DRAWINGS

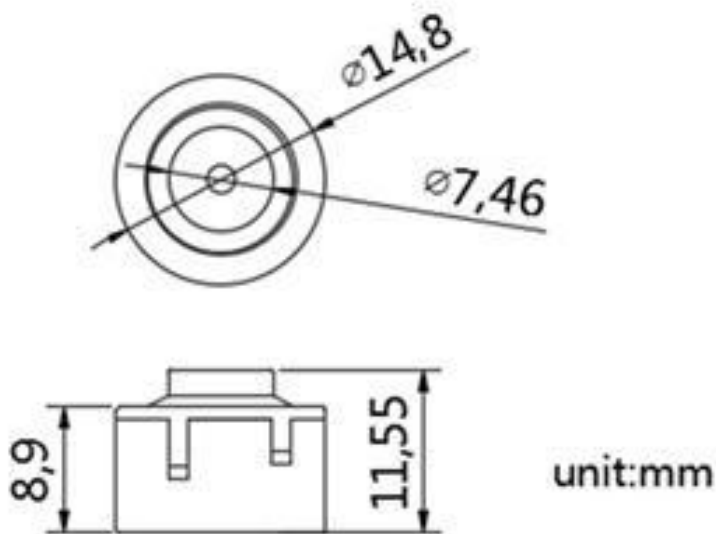


Figure No. 1

Seal Application	Locking Body (Max.)			Cable	
	Color	Head Dia, (mm)	Depth, (mm)	Length, (mm)	Diameter, (mm)
Revenue Meters	Yellow	14.8	8.9	110	0.6

Table No.4



Figure No. 2

Saudi Electricity Company

Distribution Services Sector



SPECIFICATION FOR SINGLE-PIECE PLASTIC / METALLIC HIGH-SECURITY CABLE SEALS

Issue Date: 05/2025

Page: 11 of 11

SEC-03-01 Rev. 1.0

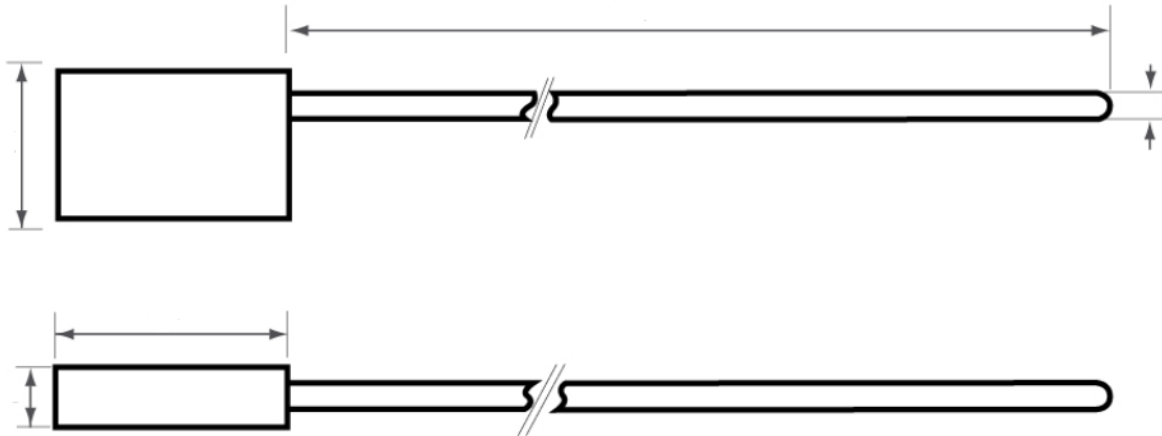


Figure No. 3

Seal Application	Locking Body (Max.)			Cable		
	Color	Length (mm)	Width (mm)	Depth (mm)	Length, (mm)	Diameter, (mm)
Meterbox	Red	30.0	20.0	10.0	200	4.0
MCCB/ECB	Green	30.0	20.0	10.0	200	1.6
CT	Orange	30.0	20.0	10.0	200	1.6

Table No.5