

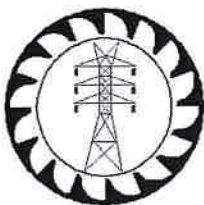
065: 2018

CEB  
SPECIFICATION

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**OPERATING RODS WITH  
ATTACHABLE DEVICES FOR  
MEDIUM VOLTAGE LINES**



**CEYLON ELECTRICITY BOARD  
SRI LANKA**



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## SPECIFICATION FOR OPERATING RODS WITH ATTACHABLE DEVICES FOR MEDIUM VOLTAGE LINES

### 1.0 SCOPE

This specification covers the general requirements of design, manufacture and testing of under mentioned overhead tools with Operating Rods (Insulating Sticks) suitable for:

- Operating medium voltage expulsion fuse cutouts
- Checking whether the overhead lines are live
- Tree pruning
- Live line inspection

in 11kV and 33kV medium voltage distribution system of the CEB.

1. Telescopic type operating rods
2. Detachable type operating rods
3. Hook to operate MV DDLO
4. Medium voltage detector
5. Tree Pruning Tool
6. Live Line Inspection Mirror



The required items shall be as specified in the price schedule.

### 2.0 SYSTEM PARAMETERS

(a)	Nominal voltage (U)	11 kV	33 kV
(b)	System highest voltage ( $U_m$ )	12 kV	36 kV
(c)	System frequency	50 Hz	50 Hz
(d)	Method of earthing	Effectively earthed	Effectively earthed
(e)	System fault level	12.5 kA	23.4 kA
(f)	Fault duration	1s	1s

### 3.0 SERVICE CONDITIONS

(a)	Annual average ambient temperature	30 °C
(b)	Maximum ambient temperature	40 °C
(c)	Maximum relative humidity	90%
(d)	Environmental conditions	Humid tropical climate with heavily polluted atmosphere
(e)	Operational altitude	From M.S.L. to 1900 m above M.S.L.
(f)	Isokeraunic (Thunder days) level	100 days

### 4.0 APPLICABLE STANDARDS

The equipment and components supplied shall be in accordance with the latest editions of the standards specified below and amendments thereof.

(a)	IEC 61235 : 1993	Live working insulating hollow tubes for electrical purposes
(b)	IEC 60832-1:2010	Live working - Insulating sticks and attachable devices

		- Part 1: Insulating sticks
(c)	IEC 60832-2 :2010	Live working - Insulating sticks and attachable devices - - Part 2: Attachable devices
(d)	IEC 61243-1:2009	Live working - Voltage detectors - Part 1: Capacitive type to be used for voltages exceeding 1 kV a.c.
(e)	IEC 60529: 1989	Degrees of protection provided by enclosures (IP Code)

However in the event of discrepancy, details given in this CEB specification supersede above standards.

## 5.0 BASIC FEATURES

### 5.1 Telescopic Type Operating Rods

The operating rods shall conform to IEC 61235 and shall be of extendable type, made of light-weight insulating material, which shall facilitate:

- Operating medium voltage expulsion fuse cutouts
- Checking whether the overhead lines are live
- Tree pruning
- Live line inspection

along with respective tools and equipment.

The insulating hollow tube used in the manufacture of operating rod shall be made of fiberglass reinforced epoxy resin conforming to IEC 61235. The schematic drawing of the general construction of the operating rod is indicated in Annex B1 (DS&S/2018/065A).

The operating rod shall have mechanical characteristics to enable it to be easily used by one person for the said operations at heights up to 8m from ground level and shall be strong enough to lift and operate at least 1.5kg weight.

The overall length of the operating rod shall not be less than 7m and the external diameter of the bottom piece of operating rod shall be less than 55 mm. The operating rod shall have 5 to 7 sections including top and bottom sections.

The operating rod shall be incorporated with a suitable locking arrangement. All sections shall be manufactured to the tolerances given in Table 1 of IEC 61235.

Upper side of intermediate and bottom sections of an operating rod shall be provided with interlocking device made of rust free light metal. Lower side of top and intermediate sections shall be provided with slots to lock with the interlocking device.

Top section of the operating rod shall have a metal cap to prevent ingress of water or other contaminant in to the fitting. It shall accommodate a universal fitting that shall be provided with the offer to fix;

- Operating tool for medium voltage expulsion fuse cutouts.
- Medium Voltage Detector
- Tree pruning tool
- Live line inspection mirror

Suitable weather proof rubber/PVC rain-shield shall be provided in the bottom section so



that no rain water will drip along the rod while in operation.

The insulation characteristics shall be such as to enable the rod to be used safely under damp, tropical climatic conditions.

- Mechanical Category - Fiberglass reinforced epoxy resin tube
- Color - The operating rod shall be preferably Yellow or in any other luminous color.
- Finish - Slightly ribbed or smooth surface.
- Weight - The total weight shall not exceed 5kg.
- Insulating Tube dielectric strength, mechanical strength and mechanical fatigue characteristic shall conform to the requirements of the clauses 9, 10 and 11 of IEC 61235.

## 5.2 Detachable type operating rods

The operating rods shall conform to IEC 61235 and shall be of extensible type, made of light-weight insulating material which shall facilitate:

- Operating medium voltage expulsion fuse cutouts
- Checking whether the overhead lines are live
- Tree pruning
- Live line inspection

along with respective tools and equipment

The insulating hollow tube used in the manufacture of operating rod shall be made of fiberglass reinforced epoxy resin conforming to IEC 61235. The schematic drawing of the general construction of the operating rod is indicated in Annex B2 (DS&S/2018/065B).

The operating rod shall have mechanical characteristics to enable it to be easily used by one person for the said operations at heights up to 8m from ground level and shall be strong enough to lift and operate at least 1.5 kg weight.

The length of the operating rod shall not be less than 7m and the external diameter of the operating rod shall not be more than 50 mm. The operating rod shall have 5 or 6 detachable sections including top and bottom sections.

The operating rod shall be easily assembled by interlocking clips made of Copper alloy / stainless steel. All sections shall be of approximately equal length and shall be fully interchangeable.

Top section of the operating rod shall have a metal cap with universal joint permanently fixed to rod in such a way to prevent ingress of water or other contaminant in to the fitting. It shall accommodate a universal fitting that should be provided with the offer to fix;

- Operating tool for medium voltage expulsion fuse cutouts.
- Medium Voltage Detector
- Tree pruning tool



- Live line inspection mirror

Suitable weather proof rubber/PVC rain-shield shall be provided in the bottom section so that no rain water will drip along the rod while in operation.

The insulation characteristics shall be such as to enable the rod to be used safely under damp, tropical climatic conditions.

- Mechanical Category - Fiberglass reinforced epoxy resin tube
- Color - The operating rod shall be preferably Yellow or in any other luminous color.
- Finish - Slightly ribbed or smooth surface.
- Weight - The total weight shall not exceed 7kg.
- Insulating Tube dielectric strength, mechanical strength and mechanical fatigue characteristic shall conform to the requirements of the clauses 9, 10 and 11 of IEC 61235.

### 5.3 Adapter to operate MV DDLO

The hook with universal head made of aluminum alloy or any other suitable rust free light metal as per IEC 60832-2, shall be designed as shown in the drawing nos. DS&S/2018/065A and DS&S/2018/065B. This should be able to hold the fuse carrier (33kV and 11kV) without any risk of falling when lifting and transferring it to MV fuse cutout for closing operation. Also the fuse carrier shall be easily transferable into the operating rod head from the fuse switch for lowering the carrier.

### 5.4 Tree Pruning Tool

Tree pruning tool with universal head to prune small branches touching live wires shall be provided.

### 5.5 Live Line Inspection Mirror

Live line inspection mirror with universal head to inspect pin and post insulators of live MV lines shall be provided.

### 5.6 Medium Voltage Detector

#### 5.6.1 Operation

Voltage Detectors shall be capacitive type and shall be capable of detecting the presence of nominal line voltages of 11kV and 33kV on contact electrodes.

#### 5.6.2 Self-Test

Upon power-up or pressing TEST button shall verify the entire circuitry of the equipment including functions of the LEDs, alarm, batteries, and internal circuitry.

#### 5.6.3 Alarms & Indications

Voltage presence at the contact point shall be indicated by means of both

- Bright red flashing LED with clear perceptibility as per the IEC 61243-1 standard





- Powerful audible signal with clear perceptibility as per the IEC 61243-1 standard  
Absence of voltage shall be visible with a green LED.

#### 5.6.4 Casing

Equipment shall be accompanied with a metallic or plastic housing robust enough for adverse outdoor usage conditions like impacts, vibrations, moisture. And also Equipment's outer parts shall be capable of withstanding direct sunrays with ultraviolet radiation without aging for prolonged life of more than 5 years.

The casing shall be rated so that no flashover or breakdown occurs in use.

#### 5.6.5 Mechanical requirements

Following requirements shall be applied as per IEC 61243-1 Standard.

- Vibration Resistance
- Drop Resistance
- Shock Resistance



#### 5.6.6 Ingress Protection

Preference is given for models having Ingress Protection class of IP 54 or higher as per IEC 60529.

#### 5.6.7 Battery

Equipment shall be powered with one or a set of field replaceable standard alkaline batteries or rechargeable batteries.

#### 5.6.8 Turning Off

Equipment shall be turned off by pressing the POWER button. Additionally, the unit shall automatically power itself down (auto-off) after preset time of inactivity.

#### 5.6.9 Mounting

This equipment shall be able to fix to a universal adapter of an operating pole (rod) which is specified above.

### 6.0 REQUIREMENTS FOR SELECTION

#### 6.1 Quality Assurance

The manufacturer shall possess ISO 9001:2008 or latest Quality Assurance Certification valid throughout the delivery period of this bid, for the manufacture of similar equipment for the plant where manufacturing is being done. The Bidder shall furnish a copy of the ISO certificate certified as true copy of the original by the manufacturer, along with the offer.

#### 6.2 Manufacturing Experience

Manufacturer shall have sound expertise on manufacturing equipment with similar technology and their products shall have been successfully used in tropical countries with rated power distribution voltages of 11kV and 33kV for more than ten (10) years. The make and the model offered shall have satisfactory sales records in the international market for more than five (5) years.

Makes with proven after sales service; excellence track records and well known in Sri Lanka will be exempted from above requirements.

### 6.3 Type Tests

Test certificates referred to shall be from an **accredited independent testing laboratory acceptable to the purchaser**. Proof of accreditation by a national/ international authority shall be forwarded with the offer. Test reports shall be complete including all the pages as issued by the testing authority. Parts of test reports shall not be acceptable.

However if the same model has been tested and supplied under CEB supervision and that has been satisfactorily operated in the past five (5) years, the need of type tests being from an accredited independent test laboratory will be exempted.

#### 6.3.1 Type Tests for Operating Rods (As per IEC 61235)

- (a) Visual inspection and dimensional check
- (b) Dielectric tests
  - I. Dielectric test before and after exposure to humidity
  - II. Dielectric wet test
- (c) Mechanical tests
  - I. Bending test
  - II. Torsion test
  - III. Crushing test
- (d) Mechanical fatigue tests
  - I. Bending test
  - II. Dielectric test

#### 6.3.2 Type Tests for Medium Voltage Detector (As per IEC 61243-1)

##### Function tests

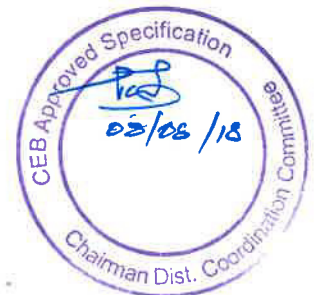
- (a) Measurement of threshold voltage
- (b) Influence of in-phase interference field
- (c) Influence of phase opposition interference field
- (d) Influence of interference voltage
- (e) Clear perceptibility of visual indication
- (f) Clear perceptibility of audible indication
- (g) Frequency dependence
- (h) Response time
- (i) Power source dependability
- (j) Check of testing element
- (k) Non-response to d.c. voltage
- (l) Time rating

##### Dielectric tests

- (a) Protection against bridging for indoor/outdoor type voltage detector
- (b) Protection against bridging for outdoor type voltage detector
- (c) Spark resistance

##### Mechanical tests

- (a) Visual and dimensional inspection
- (b) Vibration resistance
- (c) Drop resistance





- (d) Shock resistance
- (e) Climatic dependence
- (f) Durability of markings

## 7.0 INFORMATION TO BE FURNISHED WITH THE OFFER

The following shall be furnished with the offer.

- (a) Construction features and relevant technical literature (materials used for components, mechanical strength, weight, electrical characteristics etc.)
- (b) Complete Dimensional Drawings
- (c) Type Test Certificates in accordance with the clause 6.3.
- (d) Duly filled and signed 'Schedule of Technical Requirements and Guaranteed Technical Particulars'.
- (e) Documents to prove manufacturer's experience in accordance with Clause 6.2.
- (f) ISO 9001:2008 or latest Quality Assurance Certificate in accordance with clause 6.1.

## 8.0 PACKING AND LABELING

### 8.1 Packing

Each unit of operating rods comprising of all the components shall be supplied in a weather resistance bag suitable for rough use, of length not less than 1.75m.

Other equipment stipulated in this specification shall be packaged in individual carton to protect against damage during transport. The containers used for transport should be weatherproof and shall have a packing list and in addition, shall be marked with the following information.

- Descriptive name
- Quantity packed in container
- Contract and lot number
- Gross weight
- Volume of container
- Applicable standard



### 8.2 Marking

- Each insulating tube of operating rod shall be clearly marked in a durable manner with the following particulars conforming to IEC 61235.
  - (a) Manufacturer's name or Trade mark, Year of Manufacture and warranty period
  - (b) Model number / Identification number
  - (c) Applicable Standard & Number
  - (d) Applicable voltage and number of sections
  - (e) The letters "CEB"

The marking shall not affect the performance of the tube; if a removable label is used the performance shall not be affected by its removal.

- Hook with universal joint shall be clearly marked in a durable manner with the following particulars conforming to IEC 60832
  - (a) Manufacturer's name or Trade mark, Year of Manufacture and warranty period
  - (b) Model number / Identification number
- The medium voltage detector shall be clearly marked in a durable manner with the following.
  - (a) Manufacturer's name or Trade mark, Year of Manufacture and warranty period
  - (b) Model number / Identification number
  - (c) Range of nominal voltage
  - (d) Special marking for low interference voltage, if relevant
  - (e) Nominal frequency or nominal frequencies

## 9.0 INSPECTION AND TESTING

### 9.1 Routine Tests

Routine Tests shall be carried out on all units and test report shall be furnished for the observation of the inspector appointed by the purchaser at the time of inspection.

#### 9.1.1 Routine Tests for Operating Rods (As per IEC 61235)

- (a) External visual inspection
- (b) Dielectric Test

#### 9.1.2 Routine Tests for Medium Voltage Detectors (As per IEC 61243-1)

- (a) Measurement of threshold voltage
- (b) Clear perceptibility of visual indication
- (c) Clear perceptibility of audible indication
- (d) Frequency dependence
- (e) Response time
- (f) Non-response to dc voltage
- (g) Time rating

### 9.2 Inspection

The Successful bidder shall make necessary arrangements for inspection by an Engineer appointed by the CEB and also to carry out in his presence necessary Acceptance tests on equipment and material. CEB may waive off the inspection with the condition of witnessing the acceptance tests by an independent testing authority acceptable to CEB. In such a situation a notice of waive off will be issued in advance to the supplier.

### 9.3 Acceptance Tests

The following Acceptance Test shall be witnessed by the Engineer appointed by CEB.

#### 9.3.1 Acceptance Tests for Operating Rods (As per IEC 61235)

- (a) External visual inspection
- (b) Dielectric test
- (c) Dimensional check
- (d) Mechanical test (Bending test)
- (e) Hand operation of the equipment



### 9.3.2 Acceptance Tests for Medium Voltage Detectors (As per IEC 61243-1)

- (a) Measurement of threshold voltage
- (b) Influence of in-phase interference field
- (c) Influence of phase opposition interference field
- (d) Influence of interference voltage
- (e) Clear perceptibility of visual indication
- (f) Clear perceptibility of audible indication
- (g) Frequency dependence
- (h) Response time
- (i) Power source dependability
- (j) Check of testing element
- (k) Non-response to d.c. voltage
- (l) Time rating

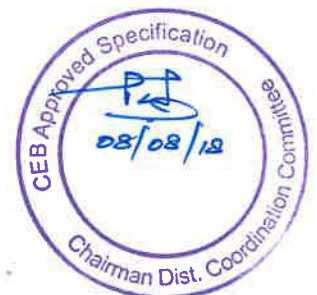
## 10.0 POST DELIVERY REQUIREMENTS

### 10.1 Maintenance & Repair after Delivery

- 10.1.1 Supplier shall carry out necessary maintenance or repairs of the equipment as prescribed by the manufacturer within the warranty period. CEB will transport the equipment for such maintenance to a place specified by the supplier and transport cost will be borne by CEB. Any other costs associated with these maintenance or repairs including cost of labor shall be borne by the supplier.
- 10.1.2 The bidder shall furnish an undertaking to the effect that it will take responsibility of after-sales service of the equipment and to provide spare parts for up-keeping the equipment for a minimum period of 6 years from the date of delivery.

### 10.2 Warranty

- 10.2.1 The supplier warrants that all the equipment are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials.
- 10.2.2 The supplier further warrants that the equipment shall be free from defects arising from any act or omission of the supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the area of final destination.
- 10.2.3 The warranty shall remain valid for one (01) year after the equipment have been delivered to and accepted at the final destination indicated in the Bid Data Sheet.
- 10.2.4 CEB shall give notice to the supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. CEB shall afford all reasonable opportunity for the supplier to inspect such defects.
- 10.2.5 Upon receipt of such notice, the supplier shall, within 42 days or within the period specified in the Contract Agreement, expeditiously repair or replace the defective equipment or parts thereof, at no cost to the CEB.
- 10.2.6 If having been notified, the supplier fails to remedy the defect within the period specified, CEB may proceed to take within a reasonable period such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the CEB may have against the supplier under the contract.



## 11.0 ANNEXES

- Annex – A1 : Schedule of Technical Requirements and Guaranteed Technical Particulars (For Operating Rods – Telescopic Type)
- Annex – A2 : Schedule of Technical Requirements and Guaranteed Technical Particulars (For Operating Rods – Detachable Type)
- Annex – A3 : Schedule of Technical Requirements and Guaranteed Technical Particulars (For Adapter for operating MV DDLO)
- Annex – A4 : Schedule of Technical Requirements and Guaranteed Technical Particulars (For Medium Voltage Detector)
- Annex – B1 : Drawing No DS&S/2018/065A Operating Rods (Telescopic type)
- Annex – B2 : Drawing No DS&S/2018/065B Operating Rods (Detachable type)
- Annex – C : Non-Compliance Schedule



## Annex - A1

**SCHEDULE OF TECHNICAL REQUIREMENTS AND GURANTEED TECHNICAL PARTICULARS  
(For Operating Rods – Telescopic Type)**

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer)

		CEB Requirement	Offered
1.	Name of the Manufacturer		
2.	Country of Origin		
3.	Model No.		
4.	Applicable Standard	IEC 61235	
5.	Design Operating Voltage	33kV / 11 kV	
6.	Number of Sections	nos 5 to 7	
7.	Length of each Section	mm	
8.	Length of complete operating rod (min.)	m 7	
9.	Insulating tube		
	(i) External Diameter		
	(a) Of the bottom section (max.)	mm 55	
	(b) Of the top section	mm	
	(ii) Thickness	mm	
	(iii) Code of mechanical category	Reinforced	
	(iv) Colour	Yellow or other luminous colour	
10.	Material used in the manufacture of		
	(i) Hollow Insulating tubes	Fiberglass reinforced epoxy resin	
	(ii) Universal fitting		
	(iii) Locking device		
	(iv) Rain shield	Weather proof rubber/PVC	
11.	Whether operating rods are supplied in weather resistance bags suitable for rough use?	Yes/No Yes	
12.	Length of weather resistance bags	mm	
13.	Weight of the complete operating rod (max.)	kg 5	
14.	Whether dielectric strength conform to the standard	Yes/No Yes	
15.	Whether mechanical strength conform to the standard	Yes/No Yes	
16.	Whether a certified copy of ISO 9001:2008 or latest furnished with the offer?	As per clause 6.1	
17.	Whether the entire Type Test Certificates in accordance with clause 6.3 furnished with the offer?	As per clause 6.3	
18.	Whether information provided with the offer as per clause 7.0	Yes/No Yes	

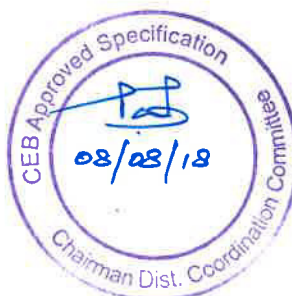
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Signature of the Manufacturer and seal

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Date

I/We certify that the above data are true and correct

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Signature of the Bidder and seal

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Date



## Annex – A2

**SCHEDULE OF TECHNICAL REQUIREMENTS AND GURANTEED TECHNICAL PARTICULARS  
(For Operating Rods – Detachable Type)**

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer)

		CEB Requirement	Offered
1.	Name of the Manufacturer		
2.	Country of Origin		
3.	Model No.		
4.	Applicable Standard	IEC 61235	
5.	Design Operating Voltage	33kV / 11 kV	
6.	Number of Sections	nos 5 or 6	
7.	Length of each Section	mm	
8.	Length of complete operating rod (min)	m 7	
9.	Insulating tube		
	(i) External Diameter (max)	mm 50	
	(ii) Thickness	mm	
	(iii) Code of mechanical category	Reinforced	
	(iv) Colour	Yellow or other luminous colour	
10.	Material used in the manufacture of		
	(v) Hollow Insulating tubes	Fiberglass reinforced epoxy resin	
	(vi) Universal fitting		
	(vii) Locking device		
	(viii) Rain shield	Weather proof rubber/PVC	
11.	Whether operating rods are supplied in weather resistance bags suitable for rough use?	Yes/No Yes	
12.	Length of weather resistance bags	mm	
13.	Weight of the complete operating rod (max.)	kg 7	
14.	Whether dielectric strength conform to the standard	Yes/No Yes	
15.	Whether mechanical strength conform to the standard	Yes/No Yes	
16.	Whether a certified copy of ISO 9001:2008 or latest furnished with the offer?	As per clause 6.1	
17.	Whether the entire Type Test Certificates in accordance with clause 6.3 furnished with the offer?	As per clause 6.3	
18.	Whether information provided with the offer as per clause 7.0	Yes/No Yes	

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Signature of the Manufacturer and seal

.....  
Date

I/We certify that the above data are true and correct

.....  
Signature of the Bidder and seal

.....  
Date





## Annex – A3

**SCHEDULE OF TECHNICAL REQUIREMENTS AND GURANTEED TECHNICAL PARTICULARS  
(For Adapter to Operate MV DDLO)**

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer)

		<b>CEB Requirement</b>	<b>Offered</b>
1.	Name of the Manufacturer		
2.	Country of Origin		
3.	Model No.		
4.	Applicable Standards	IEC 60832-2	
5.	Design Operating Voltage	kV	11kV / 33kV
6.	Material used in the manufacture		
7.	Whether the design conforms to drawing no DS&S/2015/065A and DS&S/2015/065B	Yes/No	
8.	Whether a certified copy of ISO 9001:2008 or latest furnished with the offer?		As per clause 6.1
9.	Whether the entire Type Test Certificates in accordance with clause 6.3 furnished with the offer?		As per clause 6.3
10.	Whether information provided with the offer as per clause 7.0	Yes/No	Yes

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Signature of the Manufacturer and seal

.....  
Date

I/We certify that the above data are true and correct

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Signature of the Bidder and seal

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Date

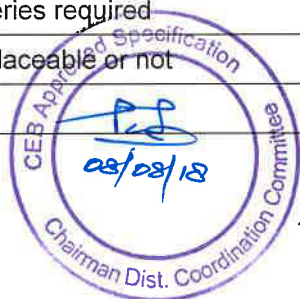


## Annex – A4

### SCHEDULE OF TECHNICAL REQUIREMENTS AND GUARANTEED TECHNICAL PARTICULARS (For Medium Voltage Detector)

(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer)

			CEB Requirement	Offered
1.	Name of the Manufacturer			
2.	Country of Origin			
3.	Model No.			
4.	Applicable Standards		IEC 61243-1	
5.	Minimum Voltage Level for detection (voltages between phase conductors)	kV		
6.	Maximum Voltage Level for detection (voltages between phase conductors)	kV		
7.	Power frequency	Hz	50	
8.	Detection	Capacitive / Resistive	Capacitive	
9.	Usage	Indoor/ Outdoor	Outdoor	
10.	Type of Electrodes	Contact / Non-contact	Contact	
11.	Climatic category			
12.	Basic Features Provided			
	(i) Self-test at Start-up	Yes/No	Yes	
	(ii) Self-test by pressing TEST button	Yes/No	Yes	
	(iii) Red LED for presence of voltage	Yes/No	Yes	
	(iv) Whether alarm audible at 8m distance	Yes/No	Yes	
	(v) Green LED for absence of voltage	Yes/No	Yes	
	(vi) Housing material			
	(vii) Capability for withstanding UV radiation			
	(viii) Vibration Resistance as per IEC 61243-1	Complied/ Not Complied	Complied	
	(ix) Drop Resistance as per IEC 61243-1	Complied/ Not Complied	Complied	
	(x) Shock Resistance as per IEC 61243-1	Complied/ Not Complied	Complied	
	(xi) IP (Ingress Protection) Code		IP 54 or higher	
	(xii) Battery type (Recharge ability) / standard size			
	(xiii) Battery capacity (mAh)/ voltage (V)			
	(xiv) Number of Batteries required			
	(xv) Batteries are replaceable or not		Replaceable	
	(xvi) Power button	Provided/ Not	Provided	



		provided		
	(xvii) Auto Shut off facility	Provided/ Not provided	Provided	
	(xviii) Contact electrode			
	(xix) Universal spline on end for connection to standard Hot stick	Provided/ Not provided	Provided	
13.	Whether markings provided as per clause 8.2	Yes/No	Yes	
14.	Whether a certified copy of ISO 9001:2008 or latest furnished with the offer?		As per clause 6.1	
15.	Whether the entire Type Test Certificates in accordance with clause 6.3 furnished with the offer?		As per clause 6.3	
16.	Whether information provided with the offer as per clause 7.0?	Yes/No	Yes	

.....  
Signature of the Manufacturer and seal

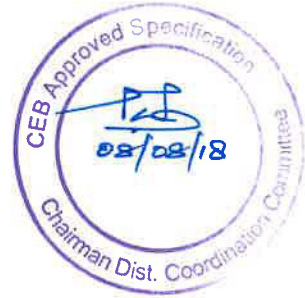
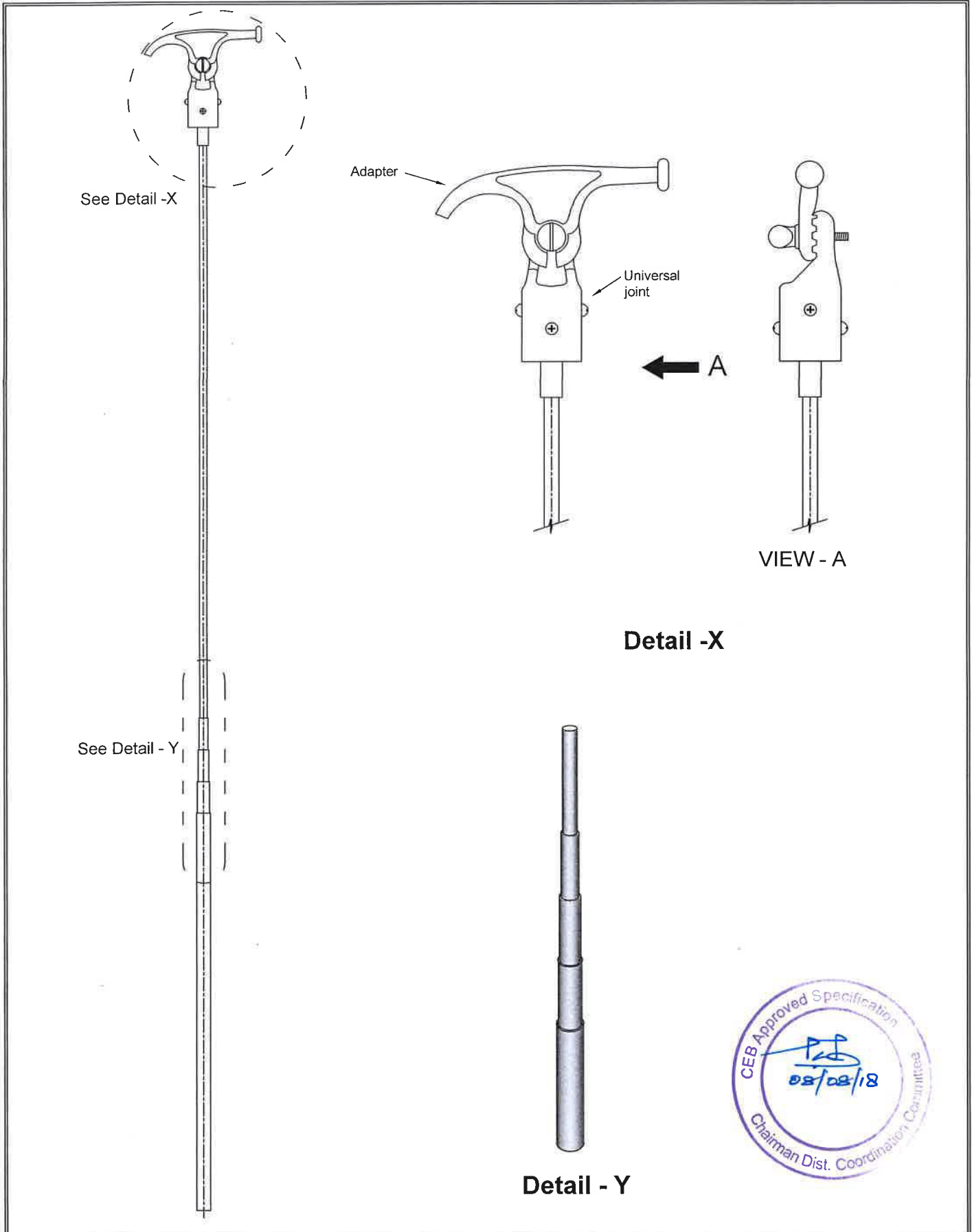
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Date


I/We certify that the above data are true and correct

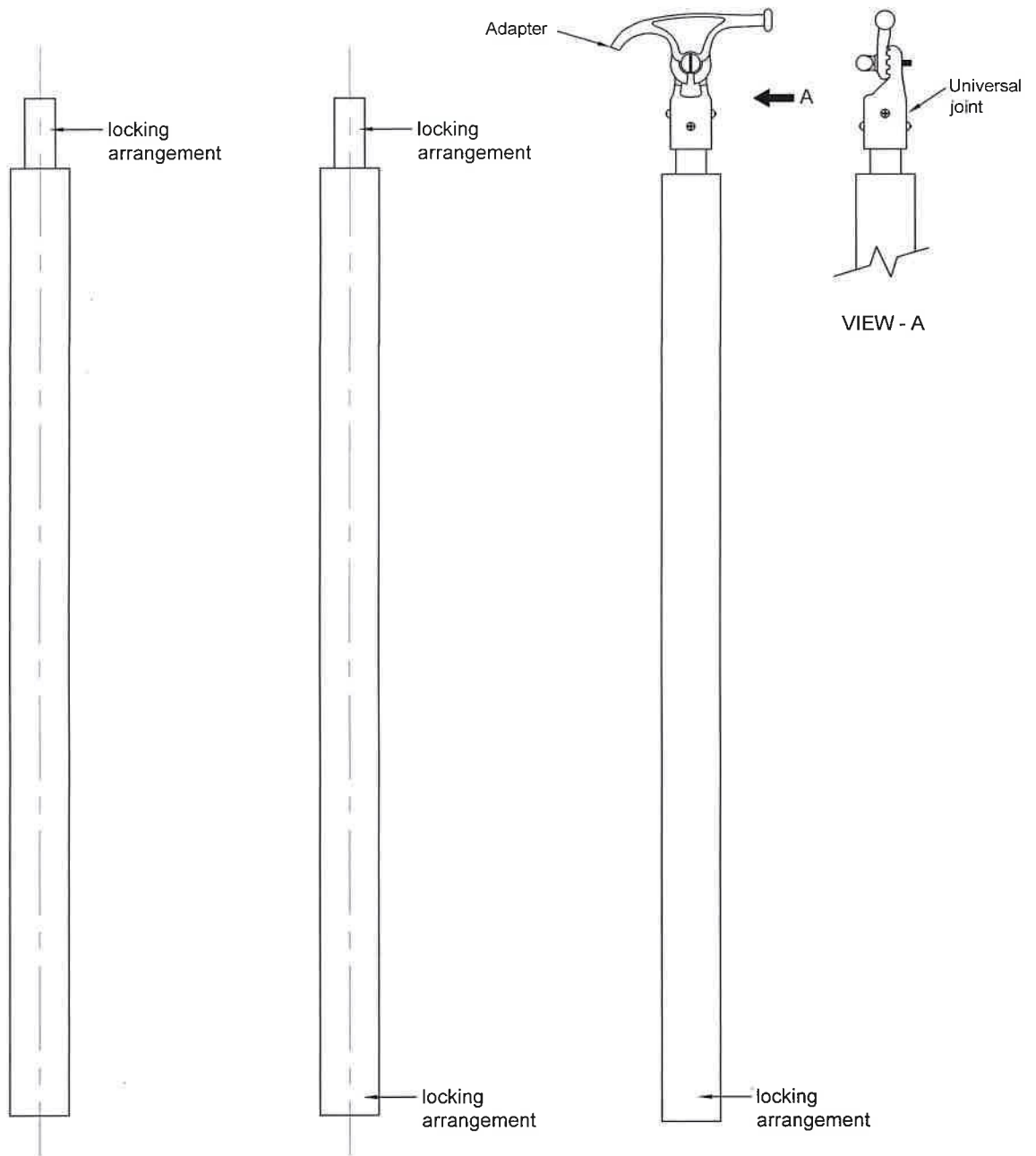
.....  
Signature of the Bidder and seal

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Date





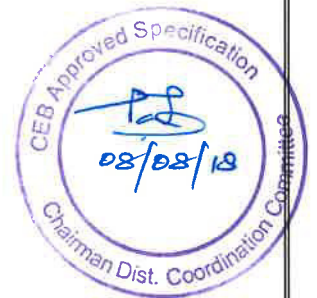
 <b>CEYLON ELECTRICITY BOARD</b>	<b>DISTRIBUTION STANDARDS &amp; SPECIFICATION</b>		SCALE : NOT TO SCALE
	<b>OPERATING RODS ( TELESCOPIC TYPE )</b>		DRAWN : HARSHA
	DESIGNED BY	APPROVED BY	DATE : July, 2018
			DRG. NO : DS&S/2018/65A
DISTRIBUTION COORDINATION BRANCH	EE (DC-1)	CHAIRMAN, SPECIFICATION COMMITTEE	CAD NO :




BOTTOM SECTION

INTER MEDIATE SECTION

TOP SECTION



 <p>CEYLON ELECTRICITY BOARD</p>	DISTRIBUTION STANDARDS & SPECIFICATION		SCALE : NOT TO SCALE
	OPERATING RODS ( DETACHABLE TYPE )		DRAWN : HARSHA
DISTRIBUTION COORDINATION BRANCH	DESIGNED BY	APPROVED BY	DATE : July, 2018
			DRG. NO : DS&S/2018/65B
	EE ( DC-1 )	CHAIRMAN, SPECIFICATION COMMITTEE	CAD NO :

**Annex – C**

**Non-Compliance Schedule**

On this schedule the bidder shall provide a list of non-compliances with this specification, documenting the effects that such non-compliance is likely to have on the equipment life and operating characteristics. Each non-compliance shall be referred to the relevant specification clause.

Clause No.	Non-Compliance

.....  
**Signature of the Manufacturer and seal**

.....  
**Date**

**I/We certify that the above data are true and correct**

.....  
**Signature of the Bidder and seal**

.....  
**Date**

