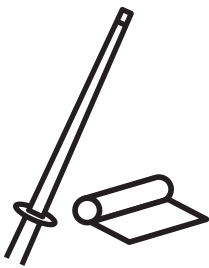




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# MV SUBSTATION EQUIPMENT

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## SAFETY EQUIPMENT

### KEEP YOUR SUBSTATIONS IN COMPLIANCE

#### SPECIAL REGULATORY SIGNALING

The standard recommends the following signaling in substations :

- A substation poster,
- Two posters about what to do in the event of an indoor or outdoor electrical emergency,
- A poster displays the service rules.

The posters are designed and supplied by CATU in kits enabling you to safely work according to the standard in your substation.



#### SAFETY EQUIPMENT

The standard recommends the following equipments:

- An insulating platform or an insulated mat,
- A rescue stick,
- A pair of insulating gloves adjusted to the substation's rated voltage,
- A voltage detector (see below for information)
- A grounding and short circuit device (see below for information)
- A glove box,
- A fuse holder.

CATU has assembled all of the service equipment into kits to simplify your selection and to bring your facilities into compliance right away. This equipment must include a suitable voltage detector.



## INTERVENTION KITS

Reference	Characteristics
KIT-01	Intervention kit with insulating platform 24 kV
KIT-02	Intervention kit with insulating platform 36 kV
KIT-10	Intervention kit with insulating mat delivered with a protective P.V.C. container

**THE KITS ARE COMPLEMENTED  
BY AN APPROPRIATE DETECTOR:  
SEE PAGE 164 TO 166.**

KIT-01	KIT-02	KIT-10	Composition	Characteristics		(mm)
						Dim.
•	—	•	CG-3-10-NR	Insulating rubber gloves Class 3	26 500 V AC max	Size (10)
—	•	—	CG-4-10-NR	Insulating rubber gloves Class 4	36 000 V AC max	Size (10)
•	•	•	CG-35/2 *	Rubber gloves box	—	101 x 224 x 476
•	•	•	CI-23 *	Fuse holder	Ø max 85 mm	90 x 240 x 260
•	•	•	CS-45 **	Rescue stick	45 000 V max	Length 1.65 m
•	•	•	CI-06-D	Wall mounted supports	Delivered with CS-45	—
•	—	—	CT-7-25/1	Insulating platform	24 000 V max	500 x 500 x 220
—	•	—	CT-7-40/1	Insulating platform	40 000 V max	500 x 500 x 220
—	—	•	MP-42/16	1 insulating MAT IEC-61111 Thickness 3 mm	Class 3 - 26.5 kV	0.6 x 1 m
—	—	•	MP-20	Mat storage box	—	Ø 100 x 700 mm

\* Delivered with fixations. \*\*Delivered with wall mounted supports CI-06-D.



CG-35/2



CG-3-10-NR  
CG-4-10-NR



CI-23



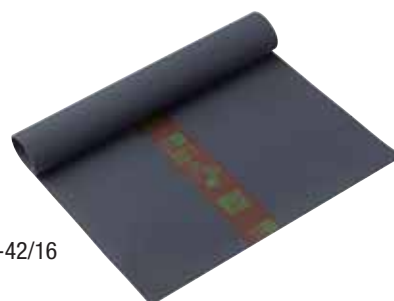
CI-06-D



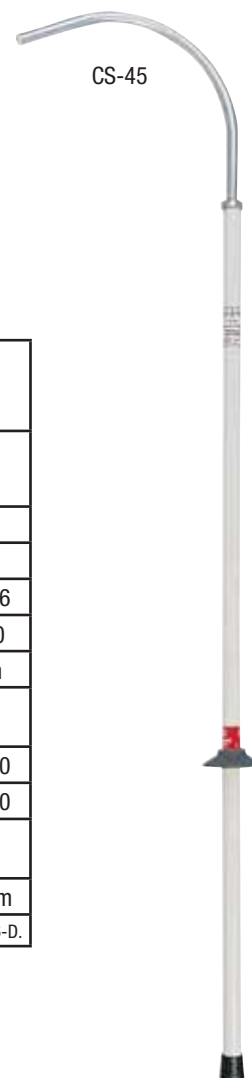
MP-20



CT-7-25/1  
CT-7-40/1



MP-42/16



CS-45





## VOLTAGE DETECTORS

### VOLTAGE DETECTOR FOR M.V. SUBSTATION (INDOOR USE)





Built-in device for the checking operation. The indication "voltage presence" is visualized on 360° by a high brightness red LED.

High environmental resistance:

Shocks, drop, vibration. Rugged molded thermoplastic housing.

External Ø 58.5 mm length (detector equipped with its insulating pole): 1.25 m.

Telescopic stick version for reduced space requirement.

Reference				
	Frequency	Folded up (m)	(m)	Weight
<b>CL-465-10/30-M *</b>	10 - 30 kV	-	1.35	1
<b>CL-465-10/30-2 **</b>	10 - 30 kV	0.75	1.18	0.9

\* Delivered in vinyl sheath with wall mounting brackets CI-06-D.  
\*\* Delivered in canvas bag, waterproofed with ramp.



### BENEFITS

- Battery lifetime : above 8 years.
- The indication "voltage presence" is visualized on 360°.

### VOLTAGE DETECTOR FOR CAPACITIVE TERMINALS OF ELBOW MV CONNECTOR

In compliance with the standard SPS EDF N° 42. Maximum operating network voltages: 30 kV . Rated voltage max. : 36 kV.

Note: This detector is directly positionned on networks but behind a capacitive divider. Recommended insulating stick : CC-45-K (length: 1,25 m).

Reference	Characteristics	 (mm) with case	
		Dimensions	Weight
<b>CC-161-K*</b>	Voltage detector for test points of the separable connectors networks from 10 to 30 kV	130 x 180 x 40	0.82
<b>CC-162-K*</b>	Voltage detector for test points of the separable connectors networks from 3 to 36 kV.		
<b>CC-45-K</b>	Insulating stick 45 kV.	1.25 m	0.6

\* Device delivered in hard shell case.



IEC 61243-1   
CE



CL-465-10/30-M

CL-465-10/30-2



EDF SPS 42  
CE



CC-45-K  
(recommended stick)

## IEC ELECTRONIC VOLTAGE DETECTORS (MV), “COMPACT SERIE” FOR INDOOR AND OUTDOOR USE

### Ultimate technology of voltage detector “Head Capacitive Technology»

Compact and light, it offers a wide band (10/36 kV).

#### Operating check

By pressing the TEST button:

- A RED LED flashes on.
- Powerful rated audible signal > 67 dB(A)/2 m.
- When loosening the button, the timed GREEN LED lights up. While remaining on, it indicates the good working order of the detector.

#### Characteristics




- Precise and stable operating threshold.
- High environmental resistance (impacts, vibrations, moisture).
- Temperature conditions: class N (IEC 61243-1 standard).
- Use from 50 to 60 Hz.

#### Composition

- Robust housing.
- Weight: 350 g.
- Dimensions: Ø 59 x 270 mm.

## BENEFITS

- Results visible over 360° with a powerful light. Voltage range pre-selected to your application.

Reference		Operating voltage		
	Frequency		Type 6 LR-61	
CC-765-2/72-(*)	50/60 Hz	2 - 72 kV	9 V	0.35
CC-765-3/10-(*)	50/60 Hz	3 - 10 kV	9 V	0.35
CC-765-5/18-(*)	50/60 Hz	5 - 18 kV	9 V	0.35
CC-765-5,5/20-(*)	50/60 Hz	5.5 - 20 kV	9 V	0.35
CC-765-10/30-(*)	50/60 Hz	10-30 kV	9 V	0.35
CC-765-10/36-(*)	50/60 Hz	10 - 36 kV	9 V	0.35
CC-765-11/33-(*)	50/60 Hz	11 - 33 kV	9 V	0.35
CC-765-15/45-(*)	50/60 Hz	15-45 kV	9 V	0.35
CC-765-20/66-(*)	50/60 Hz	20 - 66 kV	9 V	0.35
CC-765-30/66-(*)	50/60 Hz	30 - 66 kV	9 V	0.35
CC-765-44/132-(*) <sup>(1)</sup>	50/60 Hz	44 - 132 kV	9 V	0.35
CC-765-63/90-(*) <sup>(1)</sup>	50/60 Hz	63 - 90 kV	9 V	0.35

(\*) Specify type of mounting when ordering: C or K.

(1) supplied with 1 hook-shaped contact electrode CC-ANT 120 (Ø120 mm).

Packaging: unit supplied complete in a case with batteries and contact electrodes (straight and V-shaped).

For other voltages, please consult us.

IEC 61243-1 :2003+ AC1: 2005 +A1: 2009



CC-765...C

End fitting C

CC-765...K

End fitting K

CC-775 : 2 voltage ranges detector, in compliance with IEC 61343-1

Reference	1st voltage range		2nd voltage range	
	Un min (uu)	Un Max (vv)	Un min (xx)	Un Max (yy)
CC-775-2/7-12/25-(*)	2 kV	7 kV	12 kV	25 kV
CC-775-2/72-12/36-(*)	2 kV	7.2kV	12 kV	36 kV
CC-775-2/72-34/115-(*)	2 kV	7.2 kV	34 kV	115 kV
CC-775-33/11-22/66-K	3.3 kV	11 kV	22 kV	66 kV
CC-775-4/14-24/69-K	4 kV	14 kV	24 kV	69 kV
CC-775-4/144-25/69-K	4 kV	14.4 kV	25 kV	69 kV
CC-775-47/15-25/69-K	4.7 kV	15 kV	25 kV	69 kV
CC-775-6/12-22/66-C	6 kV	12 kV	22 kV	66 kV
CC-775-11/22-33/66-K	11 kV	22 kV	33 kV	66 kV
CC-775-12/24-52/132-(*)	12 kV	24 kV	52 kV	132 kV

(\*) End fitting : C or K



C

K

#### End fittings:

C: hexagonal 12 mm, for hexagonal end-fitting sticks,  
K: universal, for universal end-fitting sticks.

Recommended stick:  
CE-4-21, CE-75, CE-9.







## VOLTAGE DETECTORS

### IEC ELECTRONIC VOLTAGE DETECTOR WITH PROBE, FOR INDOOR AND OUTDOOR USES

IEC 61243-1 :2003+ AC1: 2005 +A1: 2009



**Ultimate “head capacitive technology” of voltage detector.**

- Universal application 50 / 60 Hz and wide band of voltage from 5 to 30 kV.
  - Type S (Substation) with electrode extension.
- The electrode extension is designed to ensure no inside failure.
- Equipped with its insulating stick : Assembly by screwing.

**Voltage presence is indicated by:**

RED flashing LED (very bright, visible at more than 20 m in direct lighting).

Powerful rated audible signal > 67 dB (A) / 1.5 m.

**Characteristics:**

- Temperature conditions: class N (-25 to 55°C).
- Type S (with electrode extension).
- Electrode extension diameter : 14 mm.
- Power supply: 1 standard 9 V battery 6LR61.
- Network frequencies : 50 and 60 Hz.
- Contact electrodes fitted by screwing and easily interchangeable.
- Packaging: supplied in a carrying bag with zip (930 mm x 200 mm) and transparent side pocket (CM-1-10).
- CE marking complies with EMC immunity regulations.

Reference	Characteristics			
		Frequency	(m)	Weight
CC-965-10/30	With stick and probe	10 - 30 kV	Length: 1.55 m Diameter: 59 mm	850
CC-965-5/15	With stick and probe	5 - 15 kV	Length: 1.45 m Diameter: 59 mm	820
CC-965-5/15-C	With probe	5 - 15 kV	Probe length: 590 mm	530
CC-965-10/30-C	With probe	10 - 30 kV	Probe length: 690 mm	530
CC-965-10/30-K	With probe	10 - 30 kV	Probe length: 690 mm	530

#### Accessories

Reference	Characteristics
M-78723	Plastic carrying case
CM-1-10	Canvas bag



**NEW**



### BENEFITS

- 360 ° light indication.
- Delivered in a waterproof canvas bag.
- With insulating stick.

## TWO-POLE PHASE COMPARATORS FOR INDOOR USE

The DETEX CL-8-36 detects differences in voltage between any two points of an installation indicated by LED's. It also enables assessment of the order of magnitude of the residual voltage induced by nearby live lines or circuits, and thus differentiates it from the one provided directly from a high voltage source.

Two 1.25 m elements with removable probes, connected via a high-insulation lead.

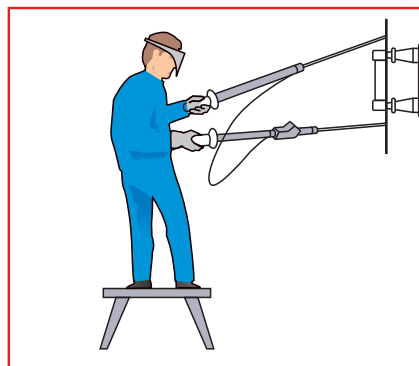
High dielectric quality insulating material.

Reference	Voltage (AC)	dimension		kg
		assembled	dismantled	
CL-8-36	2 to 36 kV	1.25 m	0.62 m	1.1
CL-8-36/1 *	2 to 36 kV	1.25 m	0.62 m	1.3

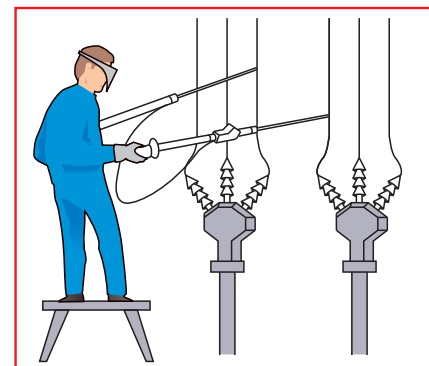
\* As CL-8-36 tester with 2 probes extenders 0.55 m.  
Cable 1.5 m for CL-8-36 and 3 m for CL-8-36/1. Delivered in plastic case.

### Accessories

Reference	Characteristics
C-92-20	Spare probe 0.550 m
CL-8-05	Probe extenders 0.550 m



Checking a H.V. fuse.



Checking for phase matching. CT-7-40/1

## OPERATING TESTERS

To perform mandatory testing on the controllers before and after each use.

Reference	Characteristics	Voltage	mm	kg
			Dim.	
CL-1-06	Delivered in case with lead	Adjustable 10, 20, 30 kV	190 x 32 x 65	0.32



Unlike single-core voltage testers, dual core testers can recognize potential differences between any two points in an MV installation. Primarily reserved for conductors of the same phase (matching), they can also be used for dual core detection and for testing MV fuses.

CE





# PERMANENT INDICATOR

## PERMANENT LUMINOUS INDICATOR FOR INDOOR USE

Single-pole 5 to 75 kV indicator. On bus bars. Rings with Ø 5 to 20 mm and planes 1 to 20 mm. Fixing on conductors. Signaling the presence of voltage by 7 electroluminescent diodes.

Reference	Characteristics
CL-40010	Sold in box of 3 units

### BENEFITS

- Flexible stem for adjusting the orientation of the LEDs.



## BIPOLAR VOLTAGE DETECTOR FOR DIRECT VOLTAGE

### Application :

- Bipolar DC voltage detector: 100 V to 30 kV DC.
- The low threshold set to 100 V makes it possible to detect any voltage exceeding the limits of the low voltage DC.
- Indoor use (Use only on laboratory and workshop type installations).

### Characteristics :




- Voltage presence indicated by:
- Lighting of 6 red diodes.
- Acoustic signal (60 dB (A) / 2 m).
- 380 mm contact electrode.
- Overall length of the detector: 840 mm.
- Indication group: III.

### Composition:

- 2 elements with removable probes, connected by a cable.
- 1 transport case.

Mechanical and dielectric tests  
Compliant with NF EN 61243-2



Reference		Contact elec-trode		
	DC Voltage		Length (cm)	Weight
CL 6-120-5000 *	120-5 000 V	ANTP	910	1.5
CL 6-100-30000**	100-30 000 V	ANTP	910	1.5

\*Delivered in a heavy duty plastic case.  
\*\* Delivered in a heavy duty plastic case with 2 types of electrodes (tulip and tapered).

- Total length: 1.075 m.
- Probe length: 350 mm.
- Cable length: 1.9 m.
- Weight complete device: 2 kg.





In some cases, our equipment must be adapted according to customers specifications to fit to fit specific applications, and installation or structure types.

CATU has developed a «Flexible Workshop» on its production site dedicated to manufacture customized solutions answering your needs. Our experts carry out a pre-production feasibility study and send you a quote quickly.

Our «Flexible Workshop» Team can quickly provide support on:

### SPECIFIC MANUFACTURING

- Earthing and short-circuiting;
- Adaptation of medium and high voltage detectors.

### TROUBLESHOOTING

- According to product specificity and quotation;
- With guaranteed speed.



To contact our experts:

**Charles Saulnier**

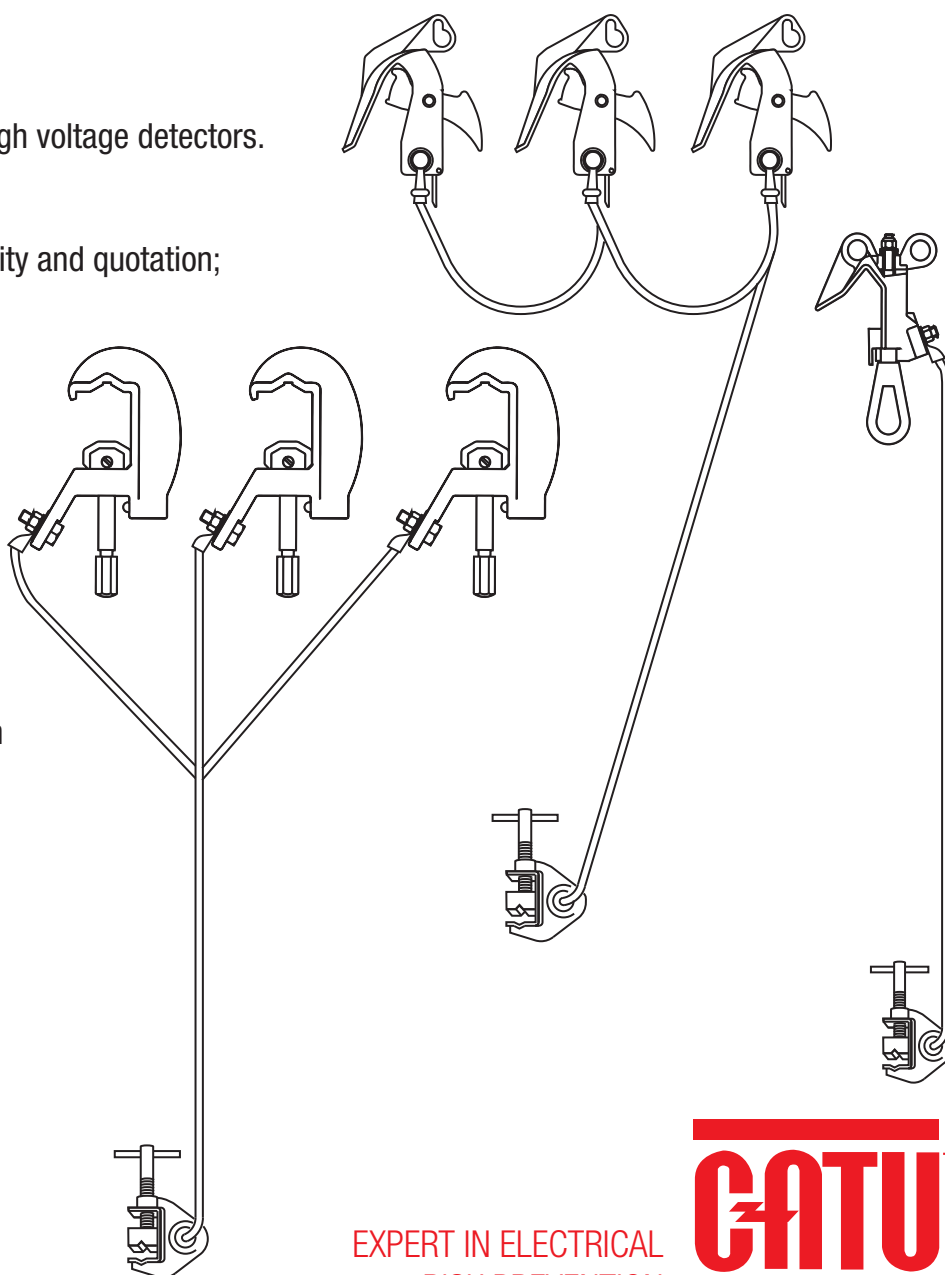
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EXPERT IN ELECTRICAL  
RISK PREVENTION

**CATU**<sup>TM</sup>

SICAME GROUP

**CATU**<sup>TM</sup>



# IEC SHORT-CIRCUITING AND EARTHING SYSTEMS FOR MV SUBSTATIONS

## EARTHING AND SHORT-CIRCUITING DEVICE FOR FIXED POINTS

Composition:

- 3 x mini clamps
- 3 x Extra-flexible copper cables with PVC insulation
- 1 x Trifurcation connector
- 1 x Earth Cable in extra flexible copper cable with PVC insulation
- 1 x Earth clamp
- Case
- User guide

Reference	Rating (kA/1 s)	Installation on fixed points (mm)	Composition	Connection set
MT-1910-EP	20	Ø 20 MT-2951 range	3 clamps MT-1911-E 1 MT-1911	3 cables 95 mm <sup>2</sup> 1 earth cable 35 mm <sup>2</sup>
MT-1920-EP	30	Ø 25 MT-3951 range	3 clamps MT-1921-E 1 MT-1921	3 cables 150 mm <sup>2</sup> 1 earth cable 50 mm <sup>2</sup>
MT-1920/1EP	40	Ø 25/30	3 clamps MT-1921-E1 1 MT-1921/1	3 cables 150 mm <sup>2</sup> 1 earth cable 50 mm <sup>2</sup>

Fixed points  
(characteristic page 174.)



Ø 20 mm



Ø 25 mm



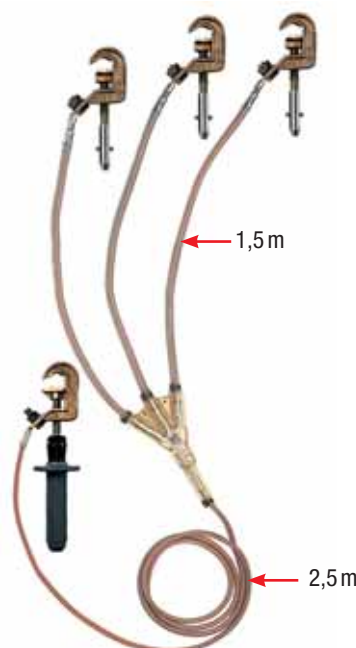
Plastic case M-78665

**PRO**



3 fixed points.

IEC 61230 :2008



MT-1910-EP  
MT-1920-EP



CF-5-40-E  
Insulating stick to be  
ordered separately.

## EARTH CLAMPS

Clamps for "T" or spherical fixed points.

Reference	Characteristic	Rating (kA/1 s)	
			Weight
MT-1911-E	Claw for "T" fixed points Ø 20 mm round conductors Ø 8 to 18 mm	20	580
MT-1921-E	Claw for "T" fixed points Ø 25 mm round conductors Ø 10 to 25 mm	40	690
MT-1911	Same characteristics with handle MT-1911-E	20	-
MT-1921	Same characteristics with handle MT-1921-E	40	-
M-9573	Handle alone C end fitting	-	-

IEC 61230 :2008



MT-1911-E  
MT-1921-E



MT-1911  
MT-1921



## INSTALLATION ON BARE CONDUCTORS

3 clamps. 3 copper extra flexible cables with silicone sheath.  
L = 1.5 m. 1 trifurcation connector earthed by an extra-flexible copper  
cable with silicone sheath, L = 2.5 m. Earth clamp.

**PRO**

IEC 61230 :2008

Reference	Rating (kA/1 s)	Stick	Composition	Connection set	Installation on fixed points	
						Weight
<b>MT-5805</b>	20	MT-830-P	3xMT-815-C 1xMT-840/1	3 cables 95 mm <sup>2</sup> 1 earth cable 35 mm <sup>2</sup>	• Ø 5-35 — 16-40   5-40	8
<b>MT-8408</b>	12.5	MT-830-P	3 x MT-814/3 1 x MT-840/1	3 cables 70 mm <sup>2</sup> 1 earth cable 35 mm <sup>2</sup>	• Ø 18-33 — 	10
<b>MT-9801</b>	10	MT-830-P	3 x MT-817-C 3 x MT-814/2 1 x MT-840/1	3 cables 50 mm <sup>2</sup> 1 earth cable 25 mm <sup>2</sup>	• Ø 5-16 — 0-16 • Ø 5-28	11

Delivered in case. Clamp characteristics : see page 173.

## Installation on permanent fixed points:

Reference	Characteristics
<b>MT-890</b>	Clamps 3 claws
<b>MT-891</b>	Earth clamp fixation
<b>MT-893</b>	Cable tensioner
<b>MT-895</b>	Cable kit support
<b>CI-06-D</b>	Wall mounted support



Bare conductors.



Plastic case included.  
M-78665



Plastique case  
included M-78691.

MT-4804-P



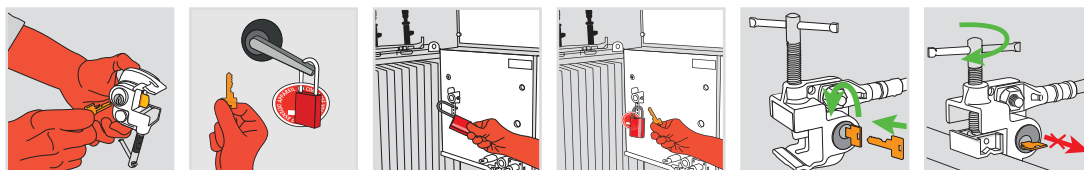
CE-4-21-C  
Insulating stick to be ordered  
separately.



# IEC SHORT-CIRCUITING AND EARTHING SYSTEMS FOR MV SUBSTATIONS

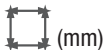
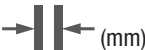


## EARTH CLAMP WITH SECURITY PADLOCK

Increase Safety with an Exclusive CATU Solution to avoid forgetting the earthing equipment in place before switching on the voltage again. The earth clamp and the padlock use the same unique key. When the earth clamp is in place, the key can't be removed from the clamp. Switch off the electric generator and lock the installation using the locking padlock. The key, coming from the padlock, is then used to lock out the earth clamp which can then be fixed to the earth connection point. The key is then trapped on the earth clamp. The electric generator can't be switched on with the earth clamp in place. When the earthing and short-circuiting operation is over, the first step to take off the equipment is to unscrew the earth clamp in order to free the key. Finally, the key is used to unlock the padlock and switch on the electric generator again.



IEC 61230 :2008

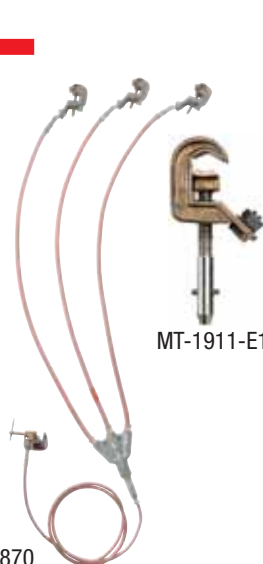


Reference	Rating (kA/1 s)	 (mm)	 (mm)		 kg
		Dimensions	Clamping capacity		Weight
MT-870	20	70 x 90 x 50	Ø 6-26 mm flat 0-30 mm	Aluminium, 6,5 mm shackle, unique key	1

## EARTHING AND SHORT-CIRCUITING DEVICE FOR BARE CONDUCTORS WITH SECURITY PADLOCK

Composition:

- 3 X conductor clamps
- 3 X Extra-flexible copper cables with PVC insulation
- 1 X Trifurcation connector
- 1 X Earth extra-flexible copper cable with PVC insulation
- 1 X Lockable earth clamp with security padlock
- 1 X Unique key
- Carrying case
- User guide



MT-5805/870

MT-1911-E1



Bare conductors.

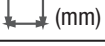



Plastic case included.

IEC 61230 :2008



CE-4-21-C  
Insulating stick to be  
ordered separately.

Reference	Rating (kA/1 s)	Fixed points	Capacity (mm)	Clamps and earthing clamp composition	Connexion cables	 (mm)	 kg
						Dim. case	Weight
MT-5805/870	20	MT-830-P	• Ø 5-35 — 16-40 ■ 5-40	3 high capacity clamps MT-815-C 1 paired clamp/padlock MT-870	3 x 70 mm <sup>2</sup> 1 x 35 mm <sup>2</sup>	650 x 480 x 210	8
MT-1910/870	20	Ø 20 and 25	• 5 à 20 — 20	3 fixed-point clamps 1911-E1 1 paired clamp/padlock MT-870	3 x 70 mm <sup>2</sup> 1 x 35 mm <sup>2</sup>	650 x 480 x 210	8

For any customized solution,  
please contact our Flexible  
Workshop Team:  
Phone : +33(0)1 42 31 63 10  
+33(0)1 42 31 46 24



## CLAMPS FOR INSTALLATION ON BARE CONDUCTORS




IEC 61230 :2008

### Attachment (C-Type)

Hexagonal end-fitting. The clamp from turning under the weight of the cable. Separate by simple pulling. Earth cable connection. With a crimped lug (12 mm Ø hole).

### Material

Aluminium alloy except **MT-814/2** and **MT-814/3**:  
copper-aluminium bronze.

Reference	Rating (kA/1 s)	 (mm)	 (mm)	
		Dimensions		
<b>MT-814/2</b>	14.5	85 x 56 x 192	• Ø 5/328	660
<b>MT-814/3</b>	14.5	85 x 56 x 195	• Ø 18-33	620
<b>ZEMCC-2851-H</b>	14.5	56 x 85 x 192	• Ø 5-34	660
<b>MT-812-C</b>	21	35 x 79 x 143	• Ø 5-16 — 0-16	320
<b>MT-815-C</b>	30	44 x 100 x 180	• Ø 5-35 — 16-40 — 5-40	600
<b>MT-815-S</b>				
<b>MT-815-1/C</b>				
<b>MT-815-E</b>				

Recommended stick:  
CE-4-21-C / CF-3-72 ou E



Attachment C:  
6-point female attachment with  
safety ball. Prohibits the clamp  
from turning on the pole.



Bayonet  
end-fitting.



MT-812-C



MT-814/2  
MT-814/3  
ZEMCC-2851-H



MT-815-C






MT-815-1/C



## EARTH CLAMPS

Copper aluminium bronze earth clamps.  
Earth cable connection by connector, lug, TO- system...

Reference	Rating (kA/1 s)	 (mm)	Connection	 (mm)	
		Dimensions			
<b>MT-840/1</b>	20	40 x 73 x 135	Thread: Ø 12.5 mm	• Ø 6-25 — 0-25	380
<b>MT-841</b>	30	40 x 73 x 135	Connect. Fontenay ≤ 50 mm <sup>2</sup>	• Ø 6-25 — 0-30	380



MT-840/1



MT-841






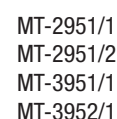
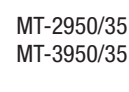
# SHORT-CIRCUITING AND EARTHING SYSTEMS (INSTALLATIONS)

## FIXED POINTS FOR PERMANENT PLACEMENT

The advantages of grounding and short circuiting using permanently installed fixed points on existing conductors include:


- Using the same grounding and short circuiting equipment regardless of the conductor shape, section, or configuration.
- Accessibility from variable angles.
- Eliminating the risk of errors because grounding locations appear at first glance.

Reference	Rating (kA/1 s)	Sphere dimension Ø	Fixing	Fixing	 Weight
MT-951/1	10	18 mm	Bolt: M 10 - L = 25 mm	Flat conductors	90
MT-951/2			Bolt: M 10 - L = 35 mm		100
MT-951/3			Bolt: M 10 - L = 45 mm		100
MT-952/1			Bolt: M 10 - L = 25 mm		110
MT-952/2			Bolt: M 10 - L = 35 mm		120
MT-952/3			Bolt: M 10 - L = 45 mm		130
MT-953/08			Ø 6-8	Round conductors	130
MT-953/12			Ø 10-12		180
MT-955/08			Ø 6-8		150
MT-955/12			Ø 10-12		200
MT-956	20	20 mm	12.5 mm drilling	Terminal fitting	750
MT-2951			M12 thread	-	130
MT-2951/1			Bolt: M 12 - L = 35 mm		180
MT-2951/2			Bolt: M 12 - L = 45 mm		200
MT-2950/35			Bolt: M 12 - L = 45 mm		240
MT-3951	30	25 mm	M12 thread	-	240
MT-3952			M16 thread		240
MT-3951/1			Bolt: M 12 - L = 45 mm		300
MT-3952/1			Bolt: M 16 - L = 45 mm		350
MT-3950/35			Bolt: M 12 - L = 35 mm		300




## ACCESS POINTS

To be used with clamps type MT-1911, MT-1921.

Reference	Rating (kA/1 s)	Fixing	 Weight
MT-1951/10	20	Bolt: M 10 - L = 35 mm	0.12
MT-1951/12	20	Bolt: M 12 - L = 35 mm	0.12





### Clamps

Reference	Rating (kA/1 s)	Fixing	 Weight
MT-920-E	20	For fixed points Ø 20 mm	0.35
MT-925-E	20	For fixed points Ø 25 mm	0.40







## INSULATING STICKS FOR SUBSTATION

Telescopic sticks for voltage detectors and earthing systems for use in dry and wet conditions.

Reference		$\varnothing$ (mm)			
	Operating voltage (kV)		Folded (m)	Unfolded (m)	
CE-75-(**)	75	41/32	1.15	2	1.3
CE-4-21-(*)	90	41/32	1.15	2	1.5
CE-4-30-(*)	150	41/32	1.75	3	2
CM-7-10-A	Extension	36	—	1	1

(\*) Specify type of mounting when ordering : C, K or E.  
(\*\*) Specify type of mounting when ordering : C or K.

Reference		$\varnothing$ (mm)			
	Operating voltage (kV)		Folded (m)	Unfolded (m)	
CE-5-105-X	220	63.5/27.5	1.66 m	10.75 m	5.4
CE-5-90-X	220	57.5/27.5	1.61 m	9.25 m	4.2
CE-5-70-X	220	52.5/27.5	1.56 m	7.8 m	3.3
CE-5-60-X	220	47.5/27.5	1.51 m	6.4 m	2.5
CE-5-50-X	220	42.5/27.5	1.46 m	5 m	1.9




X : Specify type of mounting when ordering.  
(K : universal ; C: hexagonal, 12 mm across the flats).

## BENEFITS

- CE-4-21-(\*) and CE-4-30-C : Certified telescopic rod IEC 62193 (2003) and IEC 61235. Hand guard. CE-75-(\*) : Certified telescopic rod IEC 62193 (2003) and tube IEC 60855-1. CE-75-C : Enedis authorisation: 18-130 B.
- CE-5-(\*\*) : Certified telescopic rod IEC 61235.

## STANDARD STICKS




For short circuiting and earthing system. For use in dry conditions.

Reference		$\varnothing$ (mm)		
	Operating voltage (kV)		Length (m)	
CF-3-72...-(*)	72.5	41/32	1.50	0.88

(\*) Specify type of mounting when ordering : C, K or E. Delivered with wall mounting CI-10-D

## STICK WITH SKIRT

For short circuiting and earthing system. Epoxy resin / fiberglass composite tubes, foam-filled with polyurethane. With polycarbonate insulating skirt  $\varnothing$  100 mm, height 90mm, impact resistant. Use in dry and wet conditions.

Reference		$\varnothing$ (mm)		
	Operating voltage (kV)		Length (m)	
CF-5-90-(*)	90	36	2	1.55

(\*) Specify type of mounting when ordering : C, K or E.

PRO

Upper foam-filled element made of glass fiber / epoxy resin, diameter 32 mm



CM-7-10-A  
Shock resistant terminal insulating element, made of foam-filled glass fiber and polyester resin.

Stick bags see page 176








# INSULATING STICKS

## FIX STICKS

For substation earthing and short-circuit equipment. For indoor use only.




Reference		$\varnothing$ (mm)	 (m)	 Weight
	Operating voltage (kV)			
CF-3-72...-(* )	72.5	36	1.50	0.88

(\* ) At the order, mention the type of end fitting : C, K or E.

## STATIC DISCHARGE STICK

### CM-50 STANDARD MODEL

For use on medium voltage lines up to : 33 kV. Insulating orange tube  $\varnothing$  39 mm made of epoxy fiberglass and in accordance with IEC 60855 standard. Fitted with 6 m copper cable, cross-section 6 mm<sup>2</sup>, PVC insulated. Hand guard at length 0.65 m. Copper alloy contact probe, length: 80 mm.

Reference		 (m)	 Weight
	Operating voltage (kV)		
CM-50	33	1.6	2.3

CI-15-D	Wall mounted support, see page 180.
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### CUSTOMIZABLE MODELS

On request, it is possible to design a set which will fit your existing sticks.

Hook type	CM-05-K	CM-03-K + adaptator CI-4-K
Stick	Fix or telescopic End fitting K                      End fitting C	
Cable	Cross-section and length to be defined according to your need.	
Earth clamp	MT-840/1	

For any request, please contact our technical department


## INSULATING STICK COVERS

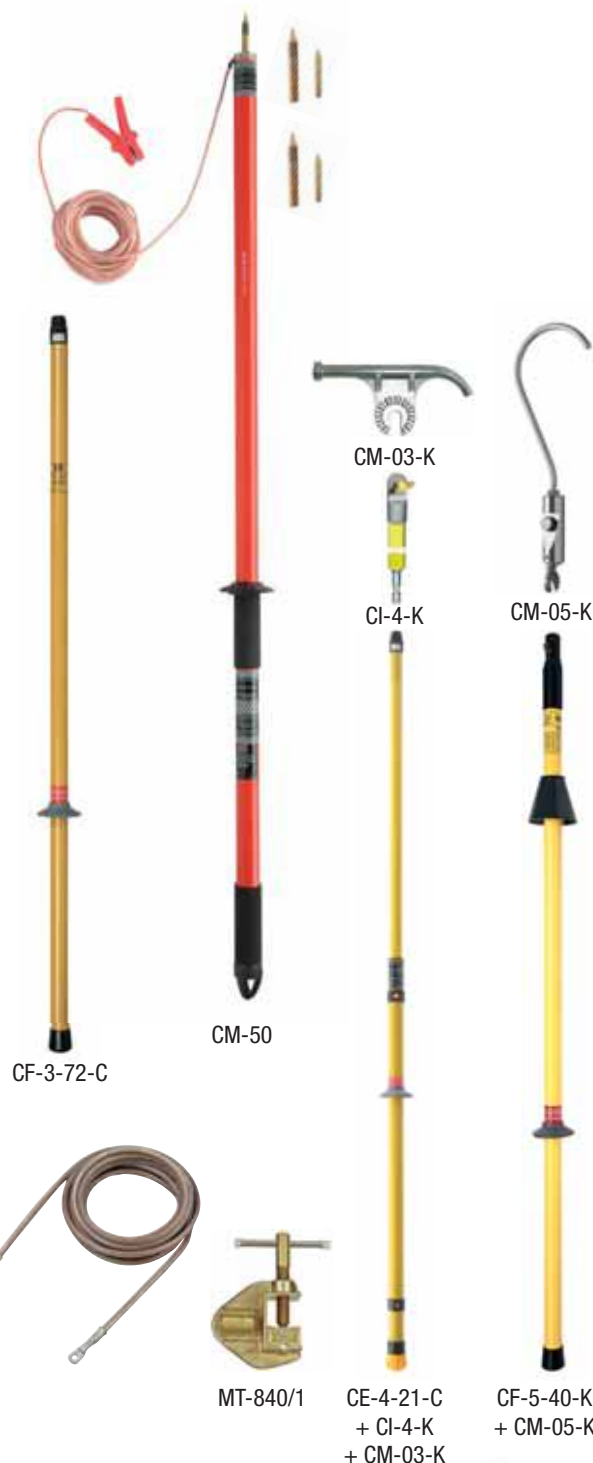
For storage and transport. Waterproof canvas and zipper closure.

Adjustable straps. Transparent pocket for identification.

CM-1-...: for 1 to 3 poles.

CM-3-...: for CM-6 series or 5 simple elements or 4 double elements.

Reference	 (mm)
	Dimensions
CM-1-10	1.30 m Length
CM-1-15	1.80 m Length
CM-1-20	2.40 m Length
CM-3-03	0.575 x 1.950 m (elmt 1.75 m length)
CM-3-04	0.575 x 2.450 m (elmt 2 m length)
CM-3-05	0.575 x 2.850 m (elmt 2.50 m length)
CM-3-06	0.575 x 3.400 m (elmt 3 m length)



CF-3-72-C

CM-50

CM-03-K

CI-4-K

CM-05-K

MT-840/1

CE-4-21-C  
+ CI-4-K  
+ CM-03-K

CF-5-40-K  
+ CM-05-K



CM-1-20



CM-3-03

We can deliver complete set with foot capacitance, head capacitance and wirings to your own specifications. Please consult us.



## INTEGRATED VOLTAGE PRESENCE INDICATING SYSTEM (V.P.I.S)

Indicates the voltage presence on M.V. cubicles by being installed on the capacitive dividers. Voltage of use behind capacitive dividers: 1 000 V (between phase and neutral). Light threshold: 90 V. Signaling: 3 neons. Attachment: male/female plugs. Sound phase comparator. **MX-404**.

Reference	Characteristics	 (mm)	 kg
		Dimensions	Weight
<b>CL-495-3</b>	Delivered complete with connector assembly	130 x 30	0.85



ALL ORDERS MUST BE VALIDATED BY CATU.

IEC 62271-206



## INTEGRATED VOLTAGE DETECTING SYSTEM (V.D.S)

Indicates the voltage presence on M.V. cubicles by being installed on the capacitive dividers. Voltage of use behind capacitive dividers: 1 000 V (between phase and earth). Light threshold: 70/90 V. Input impedance: 36 MΩ. Signalling by 3 red diodes. Sound phase comparator.

Reference	Characteristics	 (mm)	 kg
		Dimensions	Weight
<b>CL-497-00</b>	Delivered complete with connector assembly	146 x 30	0.90



ALL ORDERS MUST BE VALIDATED BY CATU.

IEC 61958 



## SOUND PHASE COMPARATOR\*\*\*

The MX-404 sound phase comparator checks the concordance between 2 phases. The comparator's operation is indicated by: Emission of an audible signal when there is discrepancy between the two phases. Absence of an audible signal when there is no discrepancy between the two phases. Power supply: 9 V type 6LR battery.

Reference	Characteristics	 (mm)	 kg
		Dimensions	Weight
<b>MX-404 ***</b>	Delivered with case	145 x 80	0.90


\*\*\* This comparator does not work on Schneider electric cells V2 type.

ALL ORDERS MUST BE VALIDATED BY CATU.







## INTERFACE FOR INTEGRATED VOLTAGE DETECTING SYSTEM (V.D.S)

\*IEC 61243-5 

Indicates the voltage presence on M.V cubicles by being installed on the capacitive dividers. For High impedance detecting systems Input impedance: 36/43 MV. Voltage indication by 4 mm standard sockets on the front of the indicator. Voltage indicator by 4 mm standard socket at first glance.


Reference	Characteristics	 (mm)	
		Dimensions	Weight
CL-498-00*	Delivered with connection set	145 x 30	0.90

ALL ORDERS MUST BE VALIDATED BY CATU.



## SEPARABLE VOLTAGE DETECTING SYSTEM (V.D.S)

This device enables to check the absence or presence of voltage on three phases (L1, L2, L3). HR high impedance. Voltage max: 1 080 V rms. 50/60 Hz. Voltage presence: RED flashing LED > 1 Hz. Fits in CL-498 devices.


Reference	Characteristics	 (mm)
		Dimensions
CL-499/101	Delivered in plastic bag	145 x 30

ALL ORDERS MUST BE VALIDATED BY CATU.



## VOLTAGE TESTER FOR M.V. SEPARABLE CONNECTORS 10-36 KV

Checks the absence of voltage on the capacitive terminals of plug-in M.V. bushings. Sensor in the form of a bent finger enabling removal and reinstallation of the terminal insulating cover. For a nominal voltage from 10 to 30 kV or from 3 to 36 kV (depends on model). Signal via beeping and bright red flashing of electro-luminescent diodes. Built-in function test via the «TEST» button which covers the entire device. Permanent stand-by state. Power supply: four 1.5 V, R-6 batteries. Recommended insulating stick : CC-45-K.

Reference	Characteristics	
		Weight
CC-161-K	For 10 to 30 kV networks	0.82
CC-162-K	For 3 to 36 kV networks	0.82
CC-45-K	Insulating stick 45 kV with universal end. Length 1.25 m	0.6

SPS EDF n° 42



EMC Directive n°2014/30/UE





## SAFETY LAMPS

Compatible with NF C 13-100.

Reference	Characteristics	 (mm)	
		Dimension	Weight
<b>CD-128</b>	2 operating modes: BAPI (factory setting) or BAES (automatic mode is triggered during power cut) 1 LED 1W white Autonomy 1 H to 3 H depending on the position of the switch 45 lm / 3 H: 1st support / 100 lm / 1 H: 2nd support In compliance with the standard BAPI NFC 71810 Battery Ni Cd 1 battery 2.4V 1.5Ah - Power supply 230V - 50 / 60HZ Operating Temperature 0 °C to + 40 °C Protection indices IP42 and IK10 I - Class II	240 x 138 x 60	0.68
<b>CD-124</b>	Delivered with a wall mounted support. Operates: 1 hour (12 W), 2 hours (6 W) Rechargeable on 230 V 50/60 Hz	100 x 190 x 220	1.9



CD-128





CD-124

## BENEFITS

- 100% LED
- up to 3 hours of battery life
- Small and very light
- Adjustable handle.

## MANŒUVERING AND RESCUE STICKS

White resin polyester/glass fiber foam filled tube.

Reference	Icc (kV)		
		(m)	Weight
<b>CM-45</b>	45	1.50	0.75
<b>CS-45*</b>	45	1.70	1.00
<b>CS-45/2**</b>	45	1.70	1.00
<b>CS-90*</b>	90	2.05	1.10
<b>CS-225*</b>	225	2.45	1.35

\* Delivered complete with non-removable hook and wall supports.  
\*\* Delivered with a non removable insulated hook.  
Cannot be used in rain.

PRO

NEW

NEW

CM-45

CS-45

CS-45/2






## ADDITIONAL SAFETY EQUIPMENT

### APERTURE HOUSING

Compatible with NF C 13-100. Moulded plastic. Installed outside by tightening three screws on a steel clamp.

Reference	Passage	
		Weight
CI-70	60 mm	140



### WALL MOUNTED SUPPORTS



For sticks and voltage detectors. Plastic.

Reference	Recommended sticks	Ø (mm)	Ø (mm)
		Top	Bottom
CI-08	CE-2	16-20	36 max
CI-06-D	CS-45, CS-90, CS-225	28-30	36 max
CI-12-D	MT-830P	28-30	58 max
CI-10-D	CE-421, CE-430, CF-372, ZPLET	32-36	58 max
CI-15-D	CM 4600 serie	39	58 max
CI-18-D	CM-6, CE-5	42-48	58 max



### RESCUE HOOK

On stick equipped with a «C» end-fitting. Delivered with wall mounted supports.

Reference	Characteristics	 (mm)	
		Dimension	Weight
CS-01-C	Adaptor C	345 x 335	350



## LIFE SAVING KITS FOR M.V. SUBSTATIONS

Complete equipment allowing intervention on victims in case of an electrical hazard. Delivered in a plastic box with transparent cover for immediate visualization of contents and wall mounting kit.

### Composition :

- Insulated cable cutter. Forged steel blades. Maximum opening 30 mm. (CZ-60)
- Insulating platform 24 or 36 kV. (CT-7-25/1)
- Rescue telescopic stick. (M952160)
- Voltage detector with flexible antenna contact (with autotest). (M952170)
- Safety instructions on the plastic board. (CG-3-10-NR/CZ-54)
- High voltage insulating gloves, talcum powder can. (CG-4-10-NR/CZ-55) - (CG-3-10-NR/CZ-54)
- Insulating boots. (MV-137-45)
- Wall mounted cabinet.

Reference	Characteristics	Icc (kV)	(mm)	kg
			Dimension	
<b>CZ-54</b>	English instructions	24	840 x 754 x 270	21
<b>CZ-54-FM</b>	English/Arabic instructions	24	840 x 754 x 270	21
<b>CZ-55</b>	English instructions	36	840 x 754 x 270	21
<b>CZ-55-FM</b>	English/Arabic instructions	36	840 x 754 x 270	21
Pour versions avec affiches dans d'autres langues, nous consulter.				

## BENEFITS

- Emergency supplies at your fingertips.
- Protection against dust and shock.

## INSULATED CABLE CUTTER

Insulated handles 25 kV. Maxi cable : 30 mm. Section  $\approx 150 \text{ mm}^2$ . Maximum opening: 30 mm.

Reference		kg
	(m)	
<b>CZ-60</b>	0.63	2.2



### INFO

In case of an electrical accident, quick action is essential: by saving seconds, you get more chance to save life. Our life saving equipment is designed to make all necessary equipment immediately available to rescue people.







COMPACT CARRYING KIT

This compact kit is designed especially to be carried in a vehicle for safety electrical intervention. Made of two parts of moulded material (PEHD), the red case cover is also an insulating platform.

Composition :

- Insulated cutter cable.
- Adhesive tape (black and yellow). L = 100 m.
- Telescopic insulating stick. L = 1.5 m.
- Talcum powder can.
- Pair of insulating boots.
- Voltage detector with autotest. Rescue hook. (127 V - 90 kV alternatif)
- Pair of insulating gloves with reinforced carrying bag.
- Safety instructions and safety first aid posters.
- Insulating platform.

Reference	Characteristics	Icc (kV)	 (mm)	
			Dimension	Weight
CZ-53-R	With instructions in English	25 kV	710 x 570 x 240	21
CZ-53-MR	With instructions in English/Arabic	25 kV	710 x 570 x 240	21
CZ-53-R/2	With instructions in English	36 kV		
CZ-53-MR/2	With instructions in English/Arabic	36 kV		



BENEFITS

- Stability of the suitcase when stored vertically or horizontally.



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