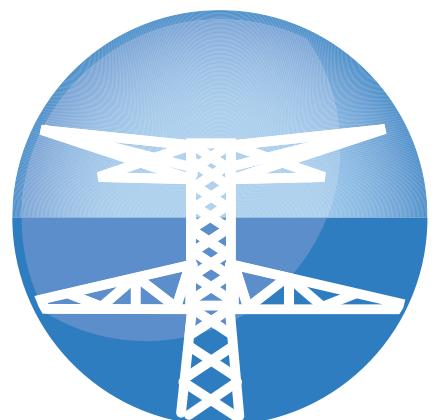


HV lines and switchgear equipment

Voltage detectors	134
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Earthing system "APE"	137
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Copper and aluminium cables	139
Accessories	140



Ac voltage detector for outdoor/indoor use

Precise and stable operating threshold. Insensitivity to induced voltages by limiting the operating voltage range. Remarkably resistant to impacts, vibrations, extreme temperatures, humidity. Double signaling.

Voltage presence indicated at the same time by:

- 4 bright red flashing electro-luminescent diodes (visible at more than 50 meters even in direct lighting),
- a powerful rated acoustic signal (60 dB/2 m).

The CC-245 detectors are available according to the models with end fittings:

W: Hexagonal 20 mm,

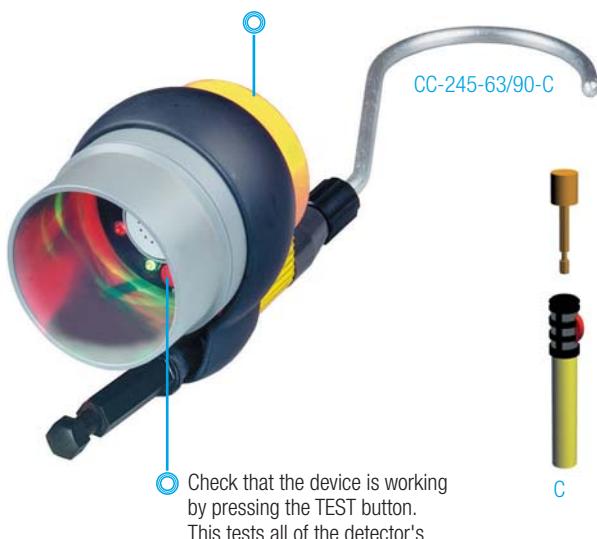
C: Hexagonal 12 mm,

K: Universal.

Put on "silent block".

Robust housing made from polycarbonate with high mechanical properties and dielectric strength.

IEC 61243-1 edition 2



Surrounded by a rubber impact-resistant padding.

Two GREEN illuminated lights, indicating that the device is on. These lights turn off, and four RED lights illuminate when a voltage is detected.



CC-245-150/420-K



Reference	IEC 61243-1 edition 2	Operating voltage	Contact electrode	Body colour	type 6 LR 61	Temperature	Weight
CC-245-63/90-(*)	•	63 - 90 kV	Ø 120 mm	Yellow	9 V	-25/+55 °C	650
CC-245-150-(*)	•	150 kV	Ø 120 mm	Red	9 V	-25/+55 °C	650
CC-245-225/420-(*)	•	225 - 420 kV	Ø 200 mm	Red	9 V	-25/+55 °C	650
CC-245-60/150-(*)	•	60 - 150 kV	Ø 120 mm	Red	9 V	-25/+55 °C	650
CC-245-63/150-(*)	•	63 - 150 kV	Ø 120 mm	Red	9 V	-25/+55 °C	650
CC-245-90/225-(*)	•	90 - 225 kV	Ø 120 mm	Red	9 V	-25/+55 °C	650
CC-245-150/420-(*)	•	150 - 420 kV	Ø 120 mm	Red	9 V	-25/+55 °C	650
CC-245-225/550-(*)	-	225 - 550 kV	Ø 200 mm	Red	9 V	-25/+55 °C	650
CC-245-315/765-1-(*)	-	315 - 765 kV	Ø 200 mm	Red	9 V	-25/+55 °C	650

Delivered in synthetic case with handle, battery and electrodes 370 x 165 x 145 mm.

(*) Please specify type of mounting when ordering: C or K.

Weight

CATUTM



Insulating sticks for manoeuvring detectors & short-circuiting and earthing systems

This range thus allows a stick-length limitation in case of space requirements and carrying capabilities.

For common applications a serie of complete sets including 2 or 3 elements are made to give simple solutions for working distance from 2 to 6 meters.

	Reference	smallest end fitting	biggest end fitting	Insulating	g
Basic	CM-4610	1.13	–	0.08	1 350
	CM-4615	1.63	–	0.33	1 800
	CM-4620	2.13	–	0.33	2 800
	CM-4625	2.63	–	0.83	3 300
Intermediate	CM-4610-I	1.165	–	0.8	1 300
	CM-4615-I	1.665	–	1.3	1 700
	CM-4620-I	2.165	–	1.8	2 600
	CM-4625-I	2.665	–	2.3	3 100
Terminal	CM-4610-(*)	1.115	1.21	0.78	1 000
	CM-4615-(*)	1.615	1.71	1.28	1 400
	CM-4620-(*)	2.115	2.21	1.78	2 200
	CM-4625-(*)	2.615	2.71	2.28	2 700
Fixed sticks	CM-4115-(*)	1.575	1.675	0.82	1 350
	CM-4120-(*)	2.075	2.175	1.07	1 800
	CM-4125-(*)	2.575	2.675	1.32	2 800
	CM-4130-(*)	3.075	3.175	1.82	3 300

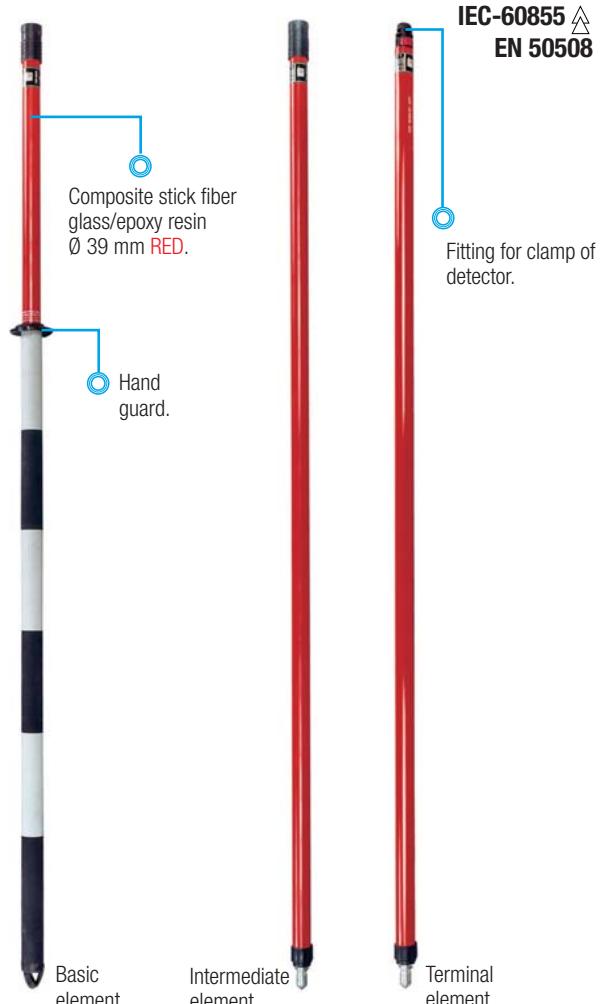
(*) Reference to be completed by fitting: C-E-H-K-T-D.

Reference	smallest end fitting	g
CM-3900-J	0.36	950



CM-3900-J

Intermediate element with rain skirts.



Set of sticks

Complete sets of sticks for common applications.

Reference	Composition	mm
CM-4220-(*)	2 elements: CM-4610+CM-4610-(*)	2
CM-4230-(*)	2 elements: CM-4615+CM-4615-(*)	3
CM-4240-(*)	2 elements: CM-4620+CM-4620-(*)	4
CM-4345-(*)	3 elements: CM-4615+CM-4615-I+CM-4615-(*)	4.5
CM-4360-(*)	3 elements: CM-4620+CM-4620-I+CM-4620-(*)	6

(*) Reference to be completed by fitting: C-E-H-K-T-D.

mm Total length

g Weight

HV and EHV clamps manoeuvrable by insulating stick

* IEC 61230

Body in aluminium alloy with trapezoidal threaded screw. Interposed elastic washers in the clamping system improve efficiency and ensure a higher withstand in case of electrodynamic shock. Manoeuvring by CM-6 insulated stick of appropriate length and characteristics.



Manoeuvrable clamps	MT-732-A MT-731-A	MT-732-B MT-731-B	MT-732-E MT-731-E	MT-732-H MT-731-H	MT-734 MT-735	MT-734-A MT-735-A	MT-734-B MT-735-B	MT-734-E MT-735-E	MT-734-H MT-735-H
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Reference	Rating (kA/1 s)	mm	Copper connection			mm	g
			Copper cables **	Contact range width	Stud		
MT-731-(*)	40	200 x 200 x 50	150 mm ² max.	45 mm	M 12	Ø 5-60	1450
MT-732-(*)	40	200 x 200 x 50	150 mm ² max.	45 mm	M 12	Ø 40-120	1450
MT-734-(**)	40	145 x 125 x 52	150 mm ² max.	40 mm	M 12	Ø 5-40	800
MT-735-(*)	40	178 x 175 x 60	150 mm ² max.	40 mm	M 12	Ø 15-60	1450
MT-737-H	40	340 x 200 x 55	150 mm ² max.	40 mm	M 12	Ø 20-120	1350

(*) Add type of connection A - B - E - H.

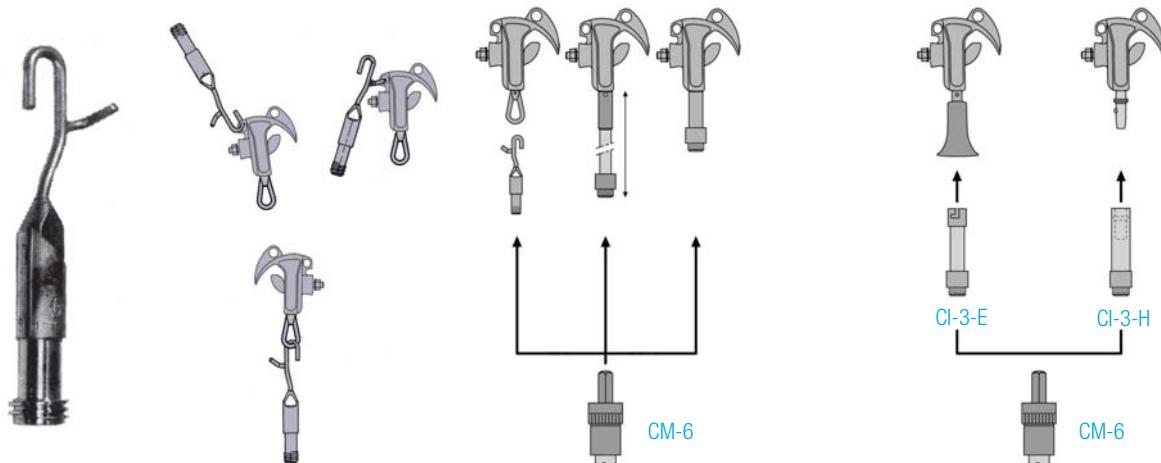
(**) Add type of connection B - E - H.

** Other cable sections: see page 139 or 140.

Attachment of MT-735 or MT-734 clamps with MT-717-3-B hook.

Direct connection.

Connection adaptor.



Dimensions

Clamp capacity

Weight

CATU™



Earthing system with clamp interlocking

The APE is a grounding system with an interlocking system between earthing clamp and line clamps. It is used for safe and accurate installation (earthing clamp and then line clamp) and removal (line clamp and then earthing clamp).



SPECIAL FEATURES

- Locking system using a patented system with more than 30,000 possible combinations.
- Easy installation and removal without additional accessories.
- Automatic trip at the recommended torque on support withstand the short circuit current.
- System security (unable to be unlocked without the associated clamp).



Reference	Rating	Use	Fitting	Connection		Dimensions	Clamp capacity	Weight
				Range	Stud			
MT-834-H*	31.5 kA/1 s	Substation	H hexagonal	width 38 mm	M 12	360 x 200 x 85	5 - 40	9 600
MT-834-E*	31.5 kA/1 s	Substation	E bayonet	width 38 mm	M 12	360 x 200 x 85	5 - 40	9 600
MT-834-T*	31.5 kA/1 s	Substation	T bayonet	width 38 mm	M 12	360 x 200 x 85	5 - 40	9 600
MT-835-H*	31.5 kA/1 s	Substation	H hexagonal	width 38 mm	M 12	390 x 200 x 85	15 - 60	10 440
MT-835-E*	31.5 kA/1 s	Substation	E bayonet	width 38 mm	M 12	390 x 200 x 85	15 - 60	10 440
MT-835-T*	31.5 kA/1 s	Substation	T bayonet	width 38 mm	M 12	390 x 200 x 85	15 - 60	10 440
MT-837-H*	31.5 kA/1 s	Substation	H hexagonal	width 38 mm	M 12	470 x 220 x 85	20 - 120	11 640
MT-837-E*	31.5 kA/1 s	Substation	E hexagonal	width 38 mm	M 12	470 x 220 x 85	20 - 120	11 640
MT-837-T*	31.5 kA/1 s	Substation	T hexagonal	width 38 mm	M 12	470 x 220 x 85	20 - 120	11 640
MT-934*	31.5 kA/1 s	Line	ring	width 38 mm	M 12	360 x 200 x 85	5 - 40	9 600
MT-935*	31.5 kA/1 s	Line	ring	width 38 mm	M 12	390 x 200 x 85	15 - 60	10 440

*One reference including 3 phases, so 3 clamps equipped.

Dimensions

Clamp capacity

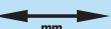
Weight

CATUTM

Insulating sticks for short circuiting and earthing systems

IEC-61235

For cables $\geq 95 \text{ mm}^2$ CM-6 series is recommended. Yellow colour elements, with superior characteristics, they are connected between them without any prior order of assembly. These elements allow "long length" assemblies which can support short-circuit systems with large cross-section cables. Shockproof guard and pole end cap.

Reference	 mm	 mm	 g
CM-6-15	1.5	47	2 400
CM-6-20	2.0	47	3 200
CM-6-25	2.5	47	4 000
CM-6-30	3.0	47	4 800



Earth clamps

Copper aluminium bronze earth clamps.

Reference	Rating	Use	Connection Ø (mm)	 mm	 mm	 g
MT-843	40 kA/1 s	Substation/ Overhead line	Hole: Ø 12.5	45 x 106 x 165	● Ø 6 -25 — 0 - 35	950
MT-843-P	40 kA/1 s	Substation	3 Holes: Ø 12.5	45 x 106 x 165	● Ø 6 -35 — 0 - 35	950
MT-847	30 kA/0.5 s	Overhead line	Hole: Ø 13	45 x 106 x 170	— 0 - 30	1000
MT-852	63 kA/0.5 s	Substation	Hole: Ø 13	70 x 125 x 155	Fixed points	1400
MT-853	40 kA/0.5 s	Substation	Hole: Ø 13	65 x 130 x 135	Fixed points	1000



MT-843

MT-843-P

MT-847

MT-852

MT-853

 Total length

 Diameter

 Weight

 Dimensions

 Clamp capacity



Equipotential Lines

IEC-61230

USE

Conductive line connecting two pieces of metallic pieces in order to give them the same potential.

Cable composition and features:

35 mm² copper cable insulated in a green silicone sheathing.
Double crimped lugs at the cable ends.

Reference	Characteristics
ZCESSV3502C1240	Cable 35 mm ² L = 2m crimped lug Ø 12
ZCESSV3503C1240	Cable 35 mm ² L = 3 m crimped lug Ø 12
ZCESSV3504C1240	Cable 35 mm ² L = 4 m crimped lug Ø 12
ZCESSV3505C1240	Cable 35 mm ² L = 5 m crimped lug Ø 12
ZCESSV3506C1240	Cable 35 mm ² L = 6 m crimped lug Ø 12
ZCESSV3507C1240	Cable 35 mm ² L = 7 m crimped lug Ø 12
ZCESSV3510C1240	Cable 35 mm ² L = 10 m crimped lug Ø 12
ZCESSV3512C1240	Cable 35 mm ² L = 12 m crimped lug Ø 12
ZCESSV3515C1240	Cable 35 mm ² L = 15 m crimped lug Ø 12
ZCESSV3550C1240	Cable 35 mm ² L = 50 m crimped lug Ø 12



Equipotential line composition and characteristics:

400 mm insulating stick.

Light alloy **EMCC-3735** clamp attached to the stick with a tightening capacity of Ø 15 to 60 mm. Copper cable see above. Earthing clamp **MT-847** made from copper and aluminum.



Reference	Characteristics
ZLEQ3735L04	Clamp MT735 short stick + Cable GREEN 35 mm ² L = 4 m crimped lug Ø 12
ZLEQ3735L06	Clamp MT735 short stick + Cable GREEN 35 mm ² L = 6 m crimped lug Ø 12
ZLEQ3735L010	Clamp MT735 short stick + Cable GREEN 35 mm ² L = 10 m crimped lug Ø 12
ZLEQ3735L15	Clamp MT735 short stick + Cable GREEN 35 mm ² L = 15 m crimped lug Ø 12

Copper cables

*** IEC-61230

Extra flexible braided multi-strand cables. Available on transparent PVC sheath **A** or transparent silicone sheath **B*****.

Reference		Rating (kA/1 s)	Cable		Section (mm ²)
A*	B**		Weight (kg/m)	Ø (mm)	
M-24-70	M-24-70-S	16	0.768	12	70
M-24-75	–	20	0.800	12	75
M-24-95	M-24-95-S	20	1.000	14	95
M-24-120	M-24-120-S	30	1.280	17	120
M-24-150	M-24-150-S	40	1.630	19	150



* Transparent PVC sheath, with cable section identification.
** Transparent silicone sheath according to IEC-61230. Resistant to temperature variations (-40 °C to +70 °C) with double IEC triangle marked on cable section.

Aluminium cables

Extra flexible braided multi-strand cables.
Transparent PVC sheath, with cable section identification.

Reference	Rating (kA/1 s)	Cable		Section (mm ²)
		Weight (kg/m)	Ø (mm)	
M-28-70	10.0	0.240	13.4	70
M-28-120	17.5	0.430	19.00	120
M-28-150	20.0	0.510	21.00	150



Adjustable access points

For large vertical or oblique heavy duty conductors.

Reference	Characteristics	Rating (kA/1 s)	Dimensions mm	Conductor		Weight g
				Type	Diameter mm	
MT-790	Copper/Alu alloy Ø 18 mm	30	255 x 105 x 50	Copper	Ø 12 - 60	1 400
MT-792	Light alloy Ø 20 mm	30	270 x 105 x 60	Aluminium	Ø 12 - 60	855
MT-797	Light alloy Ø 20 mm	30	240 x 170 x 60	Aluminium	Ø 60 - 120	1 200



Earthing kit support

Welded steel assembly with galvanization surface treatment.
Writing zone available.

Reference	Dimensions mm	Weight g
MT-895	230 x 230 x 150	900





Rope operated clamp

Attachment and removal is carried out from the ground or from the cross-arm, using a rope passed previously over the conductor to be earthed. Up to 10 m: by using **MT-709-B** reel launcher placed on a **CM-6 SERIE Stick** (see page 94) that passes the rope over the conductor; - up to 20 m: by using a **MF-60** wire projector. This projector fires an arrow carrying a braided nylon wire which sets the rope. The clamp is then fixed to the rope and attached onto the conductor.

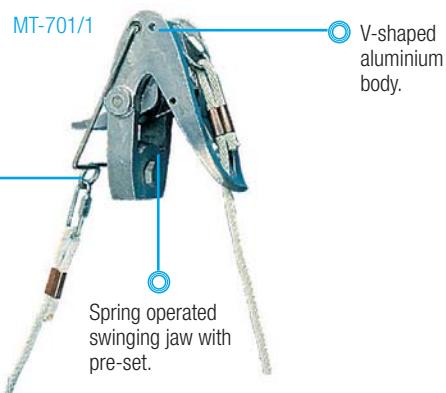
Reference	Clamp capacity mm	Icc (kA/1 s)	I assym. (A)	Dimensions mm	Weight g
MT-701/1	Ø 12 - 48	30	72	195 x 120 x 175	2000

Earthing cable:
cable 120 mm² with crimped lugs on M12 screw (x3)



Attachment: the clamp is pulled up by the rope. Pulling on the rope triggers the spring and closes the jaw

Removal: pulling on the rope attached to the hinged saddles causes the clamp to pivot and free the jaw.



Wire Gun Tester

An extremely simple way to test the voltage in an overhead line without leaving the ground. Just shoot a weighted arrow over the line - up to 18 m high - forming contact between the conductors through a very lightweight braided steel cable.

If they are both live, this produces a sparkover and alerts the user.

The **MF-60** gun can also be used to shoot an insulating cord for handling **MT-701** contact clamps.

Reference	Characteristics
MF-60	Complete cable-launcher projector delivered in a waterproof bag with 2 spare arrow and 2 spool of 30 m fuse wire. 3.500 kg.
MF-61	Spare arrow.
MF-62	Spool of 30 m of fuse wire.
MF-63	Spool of 100 m of fuse wire.
MF-66	Spool of 30 m of nylon lead isolated hoisting cord.



Short-circuiting and earthing
system carrying bags

Can receive earthing system equipment (clamps
and cables).

Reference	mm	g
M-87-53	380 x 250 x 400	2 000
M-87-153	380 x 250 x 600	2 500
M-87-295	550 x 300 x 300	1 500

