

The essential

Lightning conductors and fixings

Conductors and fixings

Earthing

Surge protective devices

The Global Approach to Lightning

FRANKLIN
FRANCE

Lightning conductors and fixings

• Simple rods

"Franklin" rods - Stainless steel

AFA 1001 PF	2.40 m
AFA 1002 PF	4.15 m
AFA 1003 PF	5.90 m
AFA 1004 PF	7.65 m

• ESE lightning conductors

Active1D® - Stainless steel

AFB 10121D	Active1D 12 µs
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Active2D® - Stainless steel

AFB 1030 2D	Active2D 30 solar
AFB 1032 2D	Active2D 30 wind + solar
AFB 1060 2D	Active2D 60 solar
AFB 1062 2D	Active2D 60 wind + solar

Saint Elme® - Stainless steel

AFB 1006 SE	SE 6 - 2 m
AFB 1009 SE	SE 9 - 2 m
AFB 1012 SE	SE 12 - 2 m
AFB 1015 SE	SE 15 - 2 m

Saint Elme lightning conductors for historical monuments : contact us.

• Meshed cages

Strike points

AFE 1050 PC	0.5 m - stainless steel
AFE 1100 PC	1 m - stainless steel

Fixing brackets - Tin plated copper

AFF 0501 PC	For flat tape
AFF 0502 PC	For round conductor

Support accessories

AFF 0503 PC	Strike point support base - Tin plated copper alloy
AFF 0835 PC	65x65 mm plate - Zinc plated steel
AFF 0836 PC	Support angle - Tin plated brass

• Remote control tester for ActiveD® lightning conductor



Reference	Designation	Grams :	Size (cm) :
AFV0100TT	Remote control tester for 1 lightning conductor	180g	65x130x25
AFV1000TT	Activ'Test® remote control tester tests until 25 lightning conductors	290g	70x135x25
AFV0005TT	5 units recharging for Activ'Test®	-	-

• Elevation rods

Galvanized steel

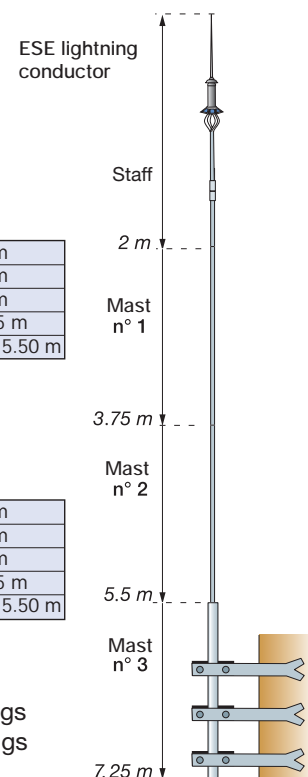
AFC 2001 MR	Mast N° 1 - 2 m - Ø ext 33 mm
AFC 2021 MR	Mast N° 2 - 2 m - Ø ext 36 mm
AFC 2031 MR	Mast N° 3 - 2 m - Ø ext 49 mm
AFC 2002 MR	Set of 2 masts (n°1+n°2) - 3.75 m
AFC 2003 MR	Set of 3 masts (n°1+n°2+n°3) - 5.50 m

Stainless steel

AFC 1001 MR	Mast N° 1 - 2 m - Ø ext 34 mm
AFC 1022 MR	Mast N° 2 - 2 m - Ø ext 42 mm
AFC 1023 MR	Mast N° 3 - 2 m - Ø ext 48 mm
AFC 1002 MR	Set of 2 masts (n°1+n°2) - 3.75 m
AFC 1003 MR	Set of 3 masts (n°1+n°2+n°3) - 5.50 m

Lateral fixings :

Total height ≤ 4.15 m : 2 fixings
Total height > 4.15 m : 3 fixings



• Antenna surge arrester

AFY 7600 EA	Surge arrester + fixings
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Conductors and fixings

● Fixings

Fixings - Galvanized steel

AFD 3200 FS	Three-feet saddle for lightning cond.
AFZ 0414 PD	Offset bracket - 220 mm
AFZ 0417 FC	Cross fixing
AFZ 2008 PS	Lateral fixing bracket - 400 mm
AFZ 2802 FU	Multi-purpose bracket



Carriage bolts Chromium plated steel

AFD 2005 TC	0.2 m
AFD 2006 TL	1 m



Strip coils and tapings

AFD 2010 PS	Strip coil - 40 mm (25 m) - Galvanized steel
AFZ 2012 PS	Taping bracket - Zinc-chromium plated steel



Water deflecting cones

AFD 5001 CE	Ø 6 to 60 mm
AFD 5002 CE	Ø 6 to 127 mm



● Conductors

Flat conductors

AFG 0302 CP	Type 30x2 mm - 50 mm ² - Tin plated copper (50 m or 80 m)*
AFG 2333 CP	33.5x3 mm - 100 mm ² - Galvanized steel (50 m)

Also available in stainless steel and aluminium.
* Possibility to cut to a chosen length.



Round conductors

AFG 0008 CR	Ø 8 mm - Tin plated copper (50 m)
AFG 0018 CR	Ø 8 mm - Bare copper (25 m)

Also available in stainless steel and aluminium.



Copper bars

AFG 0008 BC	Ø 8 mm - 3 m
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Shunts - Tin plated copper

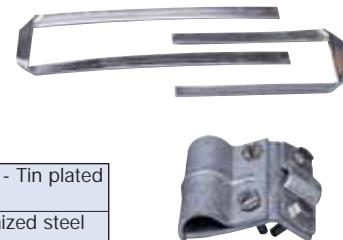
AFG 0130 ST	50 mm ² - 250 mm
AFG 0230 ST	50 mm ² - 500 mm
AFG 0330 ST	50 mm ² - 750 mm
AFG 0430 ST	50 mm ² - 1000 mm



● Fixings

Over roof with tiles or slates

AFH 0030 AM	Flat clip on tile - 200 mm - Tin plated copper
AFH 2002 PG	Gutter passages - Galvanized steel



Over waterproof roof

AFH 6032 BM	"Mamouth" bracket - 200x40 mm
AFH 8039 PC	Cement conductor support stud - PVC + cement
AFH 8040 PC	Stand off conductor support - PVC + cement



Over masonries

AFH 2030 CM	Masonry driving in hook for 30mm tape - Zamack
AFH 8030 CC	Plastic plug 30 mm



On metallic structures

AFH 0075 RN	Vulca waterproof washer - alu. Ø 10x4.8 mm (x100)
AFH 0075 RP	Waterproof pop rivet - alu. Ø 4x12.5 mm (x100)
AFH 6500 CL	Clips for 30x2 tape - stainless steel
AFH 8050 CE	Waterproof plug + M4 screw



Over diverse supports for 30 mm flat conductors

AFH 6414 AC	"Pad" clip - height 14 mm - PVC
AFH 6415 AC	"Plug" clip - height 14 mm - PVC
AFH 6416 AC	"Support" clip - height 24 mm - PVC
AFH 7000 AC	Fixing clamp - brass



Over towers, masts or metallic structures

AFH 1057 CS	Clamping collar - Ø 8 to 100 mm - st. steel (x50)
AFH 2001 AC	Frames clip for 30 x 2 galvanized steel flat conductor



Earthing system

Lightning counters

AFV 0907 CF	Counter + 2 flat round couplings
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Control junctions

AFK 0080 BC	Control junction - tin plated copper alloy
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Markers

AFH 8000 PS	Lightning conductor earth marker - alu
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Flat conductor protective tubes

AFK 4200 FP	2 m galva. steel protective tube + fixings
AFK 4204 FP	2 m st. steel protective tube + fixings



Inspection pits

AFK 8001 RV	Ø 230 mm - cast iron
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Earth equipotentiality

AFH 8101 CE	Clips - Ø 32 to 50 mm - stainless steel
AFH 8102 CE	Clips - Ø 50 to 75 mm - stainless steel
AFK 0112 BE	Surge divester - 100KA



Earth conductor couplings

AFK 0004 RM	"Crow's foot" earthing connection-cast copper alloy
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Clamps

AFK 0020 RP	For flat conductor on cast copper alloy earth rods
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Copper steel earth rods

AFK 0316 PT	Ø 16 mm - length 1.5 m
AFK 0319 PT	Ø 19 mm - length 1.5 m
AFK 0416 PT	Ø 16 mm - length 2 m
AFK 0419 PT	Ø 19 mm - length 2 m

Rod connecting clamp-brass

AFK 0016 MA	Ø 16 mm - For earth rods
AFK 0019 MA	Ø 19 mm - For earth rods



Clamping and driving accessories Treated steel

AFK 2019 PE	Spike for Ø 19 mm earth rods
AFK 2070 BE	Driving head for Ø 19 mm earth rods



Earthing grids - Copper

AFK 0900 GT	0.92x0.66 m
AFK 0901 GT	2x1 m*

* Without adhesive band.



• Ground Improving Material

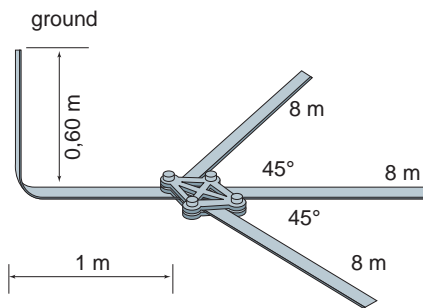
Reference	Designation	Weight (Kg) :	Size (cm) :
AFK0030AT	Ground Improving Material GIM	15	60X40X20

Used for following type of soils:
 Rocky ground- Stony soil – Mountain tops- Moist
 Sandy soil – Moist gravel – Dry gravel.

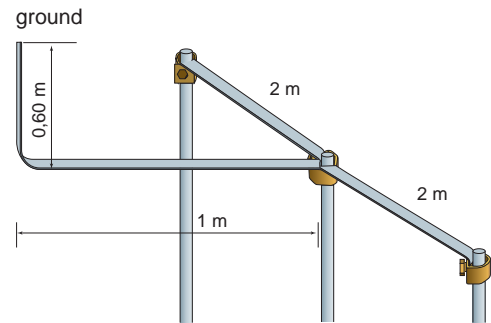


• Principle of installation

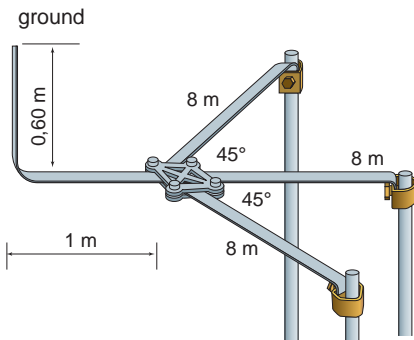
Lightning conductor earthing system
Crow's- foot earthing system



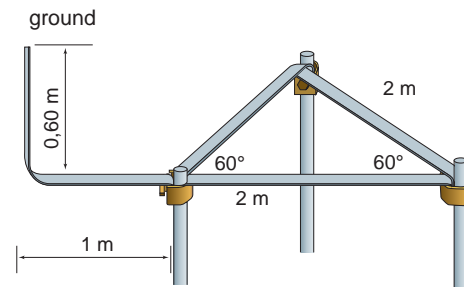
Lightning conductor earthing system
In-line earthing system



Lightning conductor earthing system
Improved crow's - foot earthing system



Lightning conductor earthing system
Triangulated rods earthing system



• Interconnections

Couplings

AFJ 0817 RT	Round-round T coupling 8 to 10 mm - zinc	Cross
AFJ 0818 RL	Round-round Ø 8 to 10 mm - zinc	Line
AFJ 0819 RL	Flat-round Ø 8 to 10 mm - st. steel	Cross or Line
AFJ 0005 RC	Flat-flat tin plated copper alloy	Cross



Cable clips and sockets - Copper

AFH 1050 SC	Cable clip - 10 to 50 mm²
AFH 2650 CC	Socket - 6 to 50 mm²



• Ground tester with accessories

AFM 2407 TL	Resistance and resistivity tester Weight : 2Kg Size : 221x189x99 (mm)
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Delivered with earthing rods, hammer, cables and bag.



• Other products

Aluminothermic welding kits
Self-supporting towers and guyed towers
Reclaiming of radioactive lightning conductor (French Safety Authority (ASN) authorisation).



Surge protective devices

• Energy networks

Class I surge protective devices

230/400 V networks

ASS 1106 C1	12.5kA class I 2 poles 400V
ASS 1106 L1	12.5kA class I 1 pole 400V L3
ASS 1112 C1	12.5kA class I 2 poles 230V +RM
ASS 1112 L1	12.5kA class I 1 pole 230V L3 +RM
ASS 1114 D1	12.5/50kA class I 4 poles 230V +RM
ASS 1118 A1	12.5kA class I 4 poles 400V +RM
ASS 3114 A1	25kA class I 4 poles 230V +RM
ASS 3312 T1	25kA class I 1 pole 230V +RM
ASS 9302 N1	100kA class I spark gap N-PE



120/208 V networks

ASS 1111 C1	12.5kA class I 2 poles 120V +RM
ASS 1111 L1	12.5kA class I 1 pole 120V L3
ASS 1113 D1	12.5/50kA class I 4 poles 120V +RM
ASS 3311 T1	25kA class I 1 pole 120V +RM
ASS 9302 N1	100kA class I spark gap N-PE



Class II and class III surge protective devices

230/400 V networks

ASS 1102 E2	10/40kA class II 2 poles 230V
ASS 1104 D2	10/40kA class II 4 poles 230V
ASS 1108 A2	10kA class II 4 poles 400V
ASS 4102 C2	40kA class II 2 poles 230V



120/208 V networks

ASS 1101 E2	10/40kA class II 2 poles 120V
ASS 1103 D2	10/40kA class II 4 poles 120V
ASS 4101 C2	40kA class II 2 poles 120V



Class II plug-in surge protective devices Connexions type "C1"

230/400 V networks

ASS 4202 T2	40kA class II 1 pole 230V plug-in
ASS 4204 T2	40kA class II 1 pole 400V plug-in
ASS 4212 A2	40kA class II 4 poles 230V plug-in +RM
ASS 4212 B2	40kA class II 3 poles 230V plug-in +RM
ASS 4212 C2	40kA class II 2 poles 230V plug-in +RM
ASS 4214 A2	40kA class II 4 poles 400V plug-in +RM
ASS 4214 B2	40kA class II 3 poles 400V plug-in +RM
ASS 8202 T2	60kA class II 1 pole 230V plug-in
ASS 8204 T2	60kA class II 1 pole 400V plug-in
ASS 8212 A2	60kA class II 4 poles 230V plug-in +RM
ASS 8212 B2	60kA class II 3 poles 230V plug-in +RM
ASS 8212 C2	60kA class II 2 poles 230V plug-in +RM
ASS 8214 A2	60kA class II 4 poles 400V plug-in +RM
ASS 8214 B2	60kA class II 3 poles 400V plug-in +RM



120/208 V networks

ASS 4201 T2	40kA class II 1 pole 120V plug-in
ASS 4211 A2	40kA class II 4 poles 120V plug-in +RM
ASS 4211 B2	40kA class II 3 poles 120V plug-in +RM
ASS 4211 C2	40kA class II 2 poles 120V plug-in +RM
ASS 8201 T2	60kA class II 1 pole 120V plug-in
ASS 8211 A2	60kA class II 4 poles 120V plug-in +RM
ASS 8211 B2	60kA class II 3 poles 120V plug-in +RM
ASS 8211 C2	60kA class II 2 poles 120V plug-in +RM



Connexions type "C2"

Recommended for TT earthing systems.

230/400 V networks

ASS 4202 E2	40/40kA class II 2 poles 230V plug-in
ASS 4212 D2	40/40kA class II 4 poles 230V plug-in + RM
ASS 4212 G2	20/40kA/II 2 poles 230V plug-in + RM 17mm

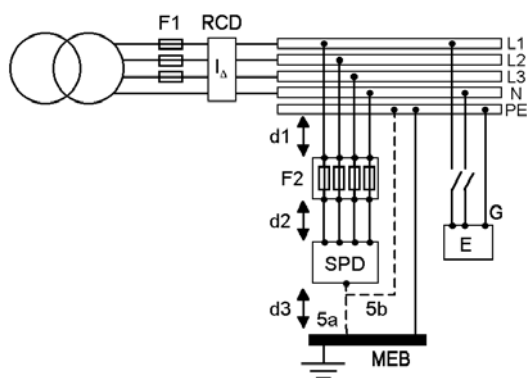


120/208 V networks

ASS 4201 E2	40/40kA class II 2 poles 120V plug-in
ASS 4211 D2	40/40kA class II 4 poles 120V plug-in + RM
ASS 4211 G2	20/40kA/II 2 poles 120V plug-in + RM 17mm



General installation principle



F2 compulsory if F1 > maximum calibre specified for the SPD.

Protection of neutral compulsory.

TT systems : RCD compulsory upstream "C1" type SPDs.

Earth : 5a or 5b link. Min. section : 10 mm² min. with direct lightning protection system (IEC 60364 : 16 mm² min.), 4 mm² without.

Total length d1+d2+d3 as short as possible (< 50 cm recommended).

L : phase. N : neutral. PE : earth.

F1, F2 : overcurrent protection (circuit breaker or fuse).

RCD : residual current device.

SPD : surge protective device.

MEB : main earth bar.

E : protected equipment.

G : grounding of protected equipment.

Please refer to technical data sheets and installation instructions for more information.

Connexion of type 1 ("C1" type) : common mode, protection of L-PE and N-PE (modes 2+0, 3+0 or 4+0).

Connexion of type 2 ("C2" type) : common and differential modes, protection of L-N and N-PE (modes 3+1 or 1+1).

Surge protective devices / Other products

• Photovoltaic surge protective devices

12.5 KA modular protections (10/350) in class I and plug-in 40 KA (8/20) in class II
 Maximum permanent operating voltage :
 100, 550 and 1000 VDC
 In compliance with IEC 61643-1 standard

ASO 0101 T1	12,5 KA/T1 SOL 2P 100 V +RM
ASO 0551 T1	12,5 KA/T1 SOL 2P 550 V +RM
ASO 1001 T1	12,5 KA/T1 SOL 2P 1000 V +RM
ASO 0101 T2	40 KA/T2 SOL 100 V+RM plug-in
ASO 0551 T2	40 KA/T2 SOL 550 V+RM plug-in
ASO 1001 T2	40 KA/T2 SOL 1000 V+RM plug-in

Choice of a measure of protection

Characteristic of the installation	KI < 25	KI > 25
	DC side	DC side
Building or structure equipped with a lightning conductor	Compulsory type 2	Compulsory type 2
Low voltage supply with a line fully or partially aerial	no used type 2	type 2 recommended
Low voltage supply with a line fully buried	not very useful type 2	type 2 recommended

• PVC cabinets

Pre-assembled cabinets upon request with fuses or overcurrent protection devices

ASN 9100 VE	Surge arresters only
ASN 9200 VE	Surge arresters + short circuit breakers
ASN 9300 VE	Surge arresters + fuses - 3 poles
ASN 9400 VE	Surge arresters + fuses - 4 poles

Metal cabinets also available.

• Accessories

Coordination coils, circuit- breakers, fuses, pre- cabled kits for remote monitoring of surge protective devices and overcurrent protections, earth or phase wiring bridges, etc....



Overvoltage counters

AFV 0908CS	Overvoltage counters
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• Communication and data transmission networks

Cabinets and Modules

AST 4702 CC	64 pairs
AST 4704 CC	16 pairs
AST 7405 CC	32 pairs
PLUG-IN MODULES	2 PAIRS - 10kA
AST 7407 CC	170 V - RTC
AST 7409 CC	24 V - specialized lines
AST 7410 CC	6 V - MIC
AST 7451 CC	12 V - RS 232
AST 7400 TM	Plug-in module controller
Protections	1 PAIR- Rail DIN - 10 kA
AST 4001 CC	170 V - RTC
AST 4004 CC	24 V - specialized lines
AST 4005 CC	12 V - RS 232
AST 4006 CC	6 V - MIC
AST 4007 CC	ISDN



Also available for direct wall mounting in 1 to 4 pairs.

• Coaxial networks

Coaxstops® 50 Ω

ASX 5001 CO	90 V - BNC - M/F
ASX 5004 CO	1000 V - BNC - M/F
ASX 5008 CO	1000 V - N type - M/F
ASX 5009 CO	90 V - DIN 7/16 - M/F
ASX 5010 CO	1000 V - DIN 7/16 - M/F
ASX 5015 CO	90 V - N type - M/F - IEMN
ASX 5081 CO	90 V - TNC - M/F
ASX 5084 CO	1000 V - TNC - M/F

Coaxstops® 75 Ω

ASX 7480 TV	90 V - TV - M/F
ASX 7574 CO	90 V - F type - F/F
ASX 7591 CO	90 V - BNC - F/F
ASX 7605 CO	90 V - N type - F/F



Quarter wave Coaxstops®

ASX 5053 QO	900 MHz - DIN 7/16 - M/F
ASX 5055 QO	1800 MHz - DIN 7/16 - M/F
ASX 5061 QO	90 MHz - N type - F/F
ASX 5063 QO	900 MHz - N type - M/F
ASX 5065 QO	1800 MHz - N type - M/F

• Other products

Protections for strategic networks (surge suppressors, protection of radiocommunications base stations, etc...)

Lightning risks prevention systems (storm warning systems, self-handling systems with reclosers, beacons, etc...)



Funded in 1980, Franklin France has build its reputation on a global approach of the lightning phenomenon. Since then, the company has acquired the image of a specialist in the lightning protection fields and rapidly is recognized as a leader on its market.

The company Franklin France offers a complete range of products and numerous associated services :

- Lightning conductors
- Meshed cages
- Earthing materials
- Surge protective devices
- Towers
- Obstacle beaconing, etc...
- Lightning risk assessment
- Technical studies and facilities audits
- Installations, maintenance
- Removal of radioactive lightning conductors and measures of radioactive contamination
- Training, etc...

* with its certified training centre



All our documentation can be downloaded on our website : www.franklin-france.com / document to download.

