The essential



Lightning conductors and fixings

Conductors and fixings

Earthing

Surge protective devices

Lightning

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

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

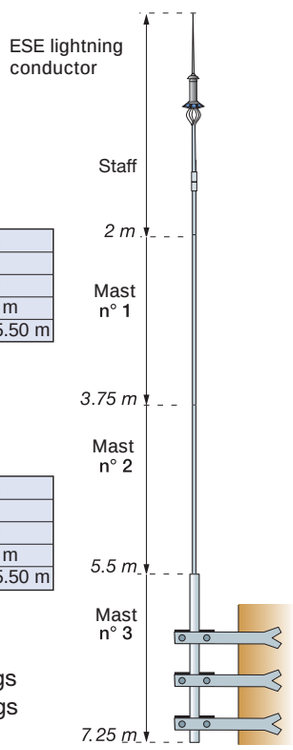
Galvanized steel

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



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



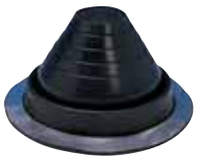
AFD 2005 TC	0.2 m
AFD 2006 TL	1 m

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 mm² - Tin plated copper (50 m or 80 m)*
AFG 2333 CP	33.5x3 mm - 100 mm² - 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

Shunts - Tin plated copper



AFG 0130 ST	50 mm² - 250 mm
AFG 0230 ST	50 mm² - 500 mm
AFG 0330 ST	50 mm² - 750 mm
AFG 0430 ST	50 mm² - 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



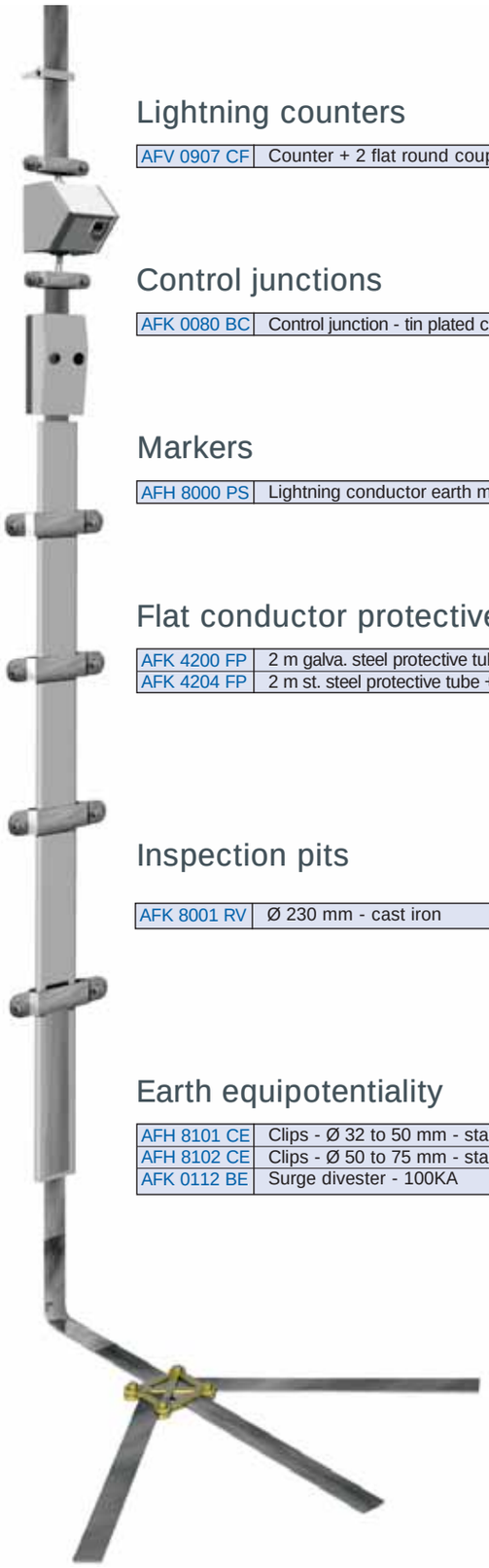
AFH 6414 AC	“Pad" clip - height 14 mm - PVC
AFH 6415 AC	"Plug" clip - height 14 mm - PVC
AFH 6416 AC	"Support" clip - height 24 mm - PVC
AFH 7000 AC	Fixing clamp - brass

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



Control junctions

AFK 0080 BC	Control junction - tin plated copper alloy



Markers

AFH 8000 PS	Lightning conductor earth marker - alu



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



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



Clamps

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



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

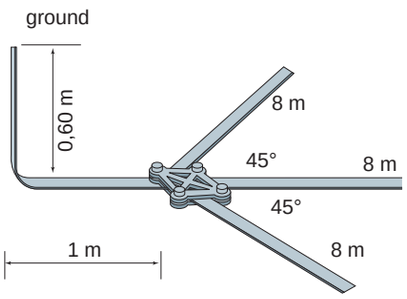
Reference	Designation	Weight (Kg) :	Size (cm) :
AFK0030AT	Ground Improving Material GIM	15	60X40X20

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

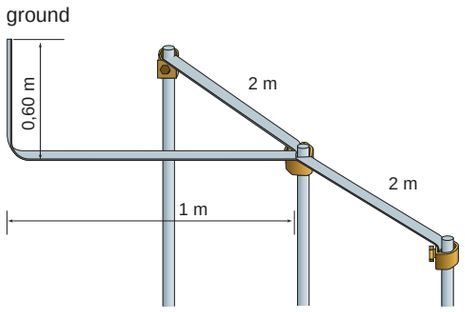


Principle of installation

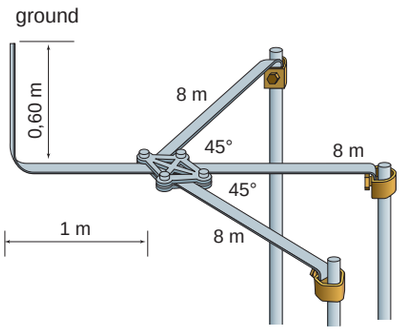
Lightning conductor earthing system
Crow's- foot earthing system



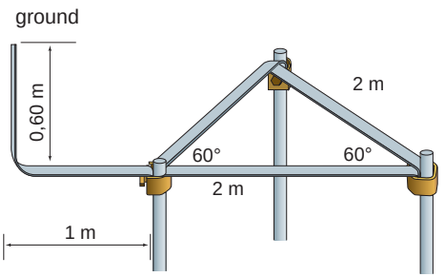
Lightning conductor earthing system
In-line earthing system



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)

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).

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 +RM
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

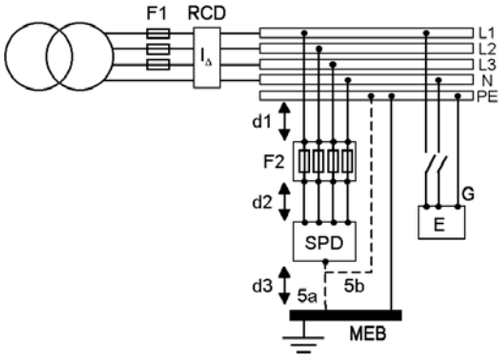


120/208 V networks

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 DC side	KI > 25 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

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 supressers, protection of radiocommunications base stations,etc…)
Lightning risks prevention systems (storm warning systems, self-handling systems with reclosers, beaconing, etc…)



www.franklin-france.com

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* C3F









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