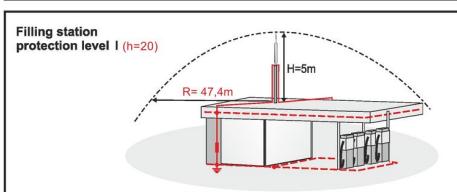
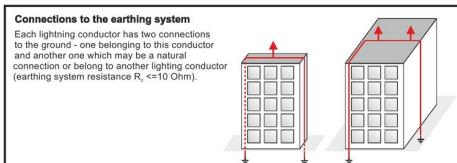
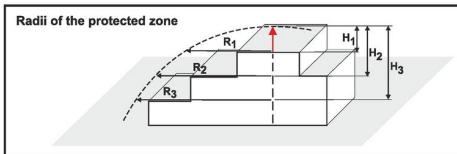


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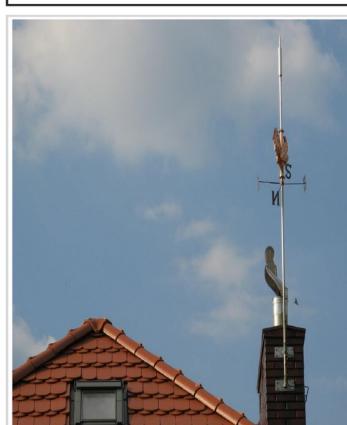
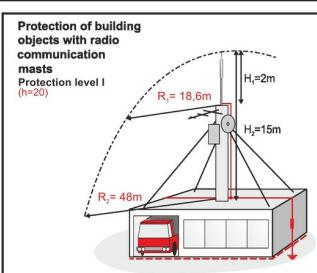
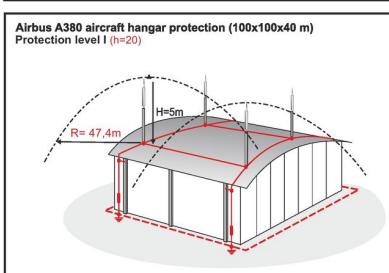
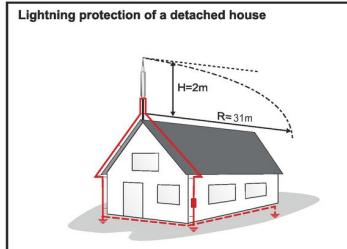
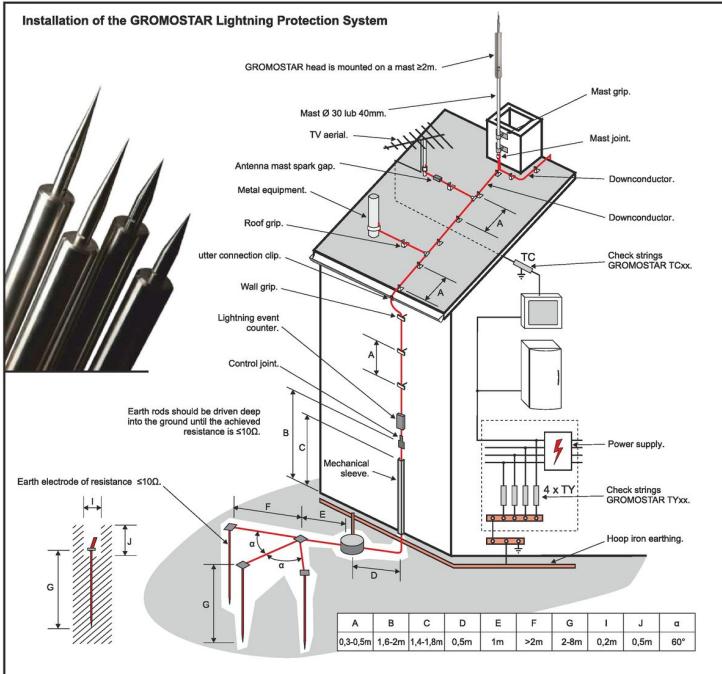
Principles of installation of lightning conductors GROMOSTAR
in accordance with the standards EN 62-305 and NFC 17-102 (09/2011).

SELECTED REFERENCES



Radii of the protection zone (in accordance with NFC 17-102)

ΔT	Protection level (efficiency)	Protection radius R[m] for H=						
		2m	3m	4m	5m	7m	10m	20m
60	I (98%)	31 ^{(18,8)*}	47	63	79 ^{(17,4)*}	79	79	80
45		26	39	51	63	64	65	
35		23	30	36	49	50	51	52
25		17	25	34	42	43	44	45
60	II (95%)	35	53	70	88	88	88	90
45		30	44	58	72	72	73	75
35		25	35	44	57	58	58	62
25		20	29	40	50	50	52	55
60	III (90%)	39	58	78	97	98	99	102
45		33	49	65	80	81	83	86
35		27	40	52	65	67	68	73
25		23	34	46	57	58	63	65
60	IV (80%)	43	64	85	107	108	109	113
45		36	46	71	89	90	92	97
35		30	47	64	73	75	77	82
25		26	39	52	65	66	69	75



Lightning protection



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OMEGA-X, Ω-X

Principles of installation of lightning conductors OMEGA, Ω-x in accordance with the standards EN 62-305 and NFC 17-102 (09/2011).

Radii of the protected zone

Connections to the earthing system

Each lightning conductor has two connections to the ground - one belonging to this conductor and another one which may be a natural connection or belong to another lightning conductor (earthing system resistance $R_e \leq 10 \Omega$).

Filling station protection level I ($h=20$)

Concerns facilities that require protection at the 1++ level (99.9%), and facilities that are hazardous to the environment (danger coefficient $h=20$, EN 62305-2) or ones that may cause environmental contamination (danger coefficient $h=50$, EN 62305-2) protection radii must be reduced by 40%.

ΔT - time advance
The value of the H height is equal to the difference in height between the blade of the head and the highest point of the protected facility, minimum 2m.

Radii of the protection zone (in accordance with NFC 17-102)

ΔT	Protection level (efficiency)	Protection radius $R[m]$ for $H=$							
		2m	3m	4m	5m	7m	10m	20m	
60	I (98%)	31 (18.0)*	47	63	79 (17.4)*	79	79	80	
		26	39	51	63	63	64	65	
		35	23	30	36	49	50	51	52
		25	17	25	34	42	43	44	45
45	II (95%)	35	53	70	88	88	88	90	
		30	44	58	72	72	73	75	
		35	25	35	44	57	58	58	62
		25	20	29	40	50	50	52	55
35	III (90%)	39	58	78	97	98	99	102	
		33	49	65	80	81	83	86	
		27	40	52	65	67	68	73	
		25	23	34	46	57	58	63	65
25	IV (80%)	43	64	85	107	108	109	113	
		36	64	71	89	90	92	97	
		30	47	64	73	75	77	82	
		26	26	39	52	65	66	69	75

Installation of the OMEGA X, Ω-x Lightning Protection System

Earth rods should be driven deep into the ground until the achieved resistance is $\leq 10\Omega$.

Earth electrode of resistance $\leq 10\Omega$.

Dimensions: A=0,3-0,5m, B=1,6-2m, C=1,4-1,8m, D=0,5m, E=1m, F=>2m, G=2-8m, I=0,2m, J=0,5m, a=60°, I=1, J=0,5m, G=2-8m.

Lightning protection of a detached house

Lightning protection of a church

Airbus A380 aircraft hangar protection (100x100x40 m)

Protection level I ($h=20$)

Protection of building objects with radio communication masts

Protection level I ($h=20$)

Lightning protection

SELECTED REFERENCES

Aircraft hangars Air France
- Paris-Orly Airport, France

The Millau Viaduct, France

Aircraft hangars Air France
Industries - Airport Roissy Charles de Gaulle, Paris, France

Pantheon Paris, France

Speedway Stadium in Toruń, Poland

Sport and Recreation Centre - Aquapark, Wielka Nieszawka, Poland

Total petrol station, France

Airbus A380 aircraft hangars, France

Les Invalides in Paris, France

House of Nicolaus Copernicus
in Toruń, Poland