



HIGH VOLTAGE SURGE ARRESTER TYPE PROXAR-IIN AC IN SILICONE HOUSING

CATALOGUE CARD

APPLICATION

Surge arresters type **PROXAR-IIN AC** in silicone housing are intended for protection AC power engineering networks against multiple lightning and switching overvoltages in HV substations, cables and transformers. This surge arrester is destined to all special technical requirements as well.

OPERATING CONDITIONS

Surge arresters adapted for outdoor and indoor installation and temperate and tropical climate up to 1000 m over the sea level. The possibility for install in any working positions.

ADVANTAGES

- Low residual voltage
- High energy input capacity
- Stable U-I characteristics even after multiple strokes
- Housing resistant to rough handling
- Explosion and shatter – resistant design
- Pollution resistant and UV
- Ability to install in any position (vertically or horizontally)
- Maintenance free
- Low weight, easy transportation and storage
- Ability to work in horizontal position

ADDITIONAL EQUIPMENT

Surge counter type ProCounter and insulating base. Support bases allow for install surge arrester type **PROXAR-IIN AC** at places of retrofit or service installation.

The special support bases with various dimensions of holes position can be delivered on request.

*) INFORMATION ABOUT THE SURGE COUNTER TYPE ProCounter ARE INCLUDED IN ANOTHER CATALOG CARD

ELECTRICAL DATA

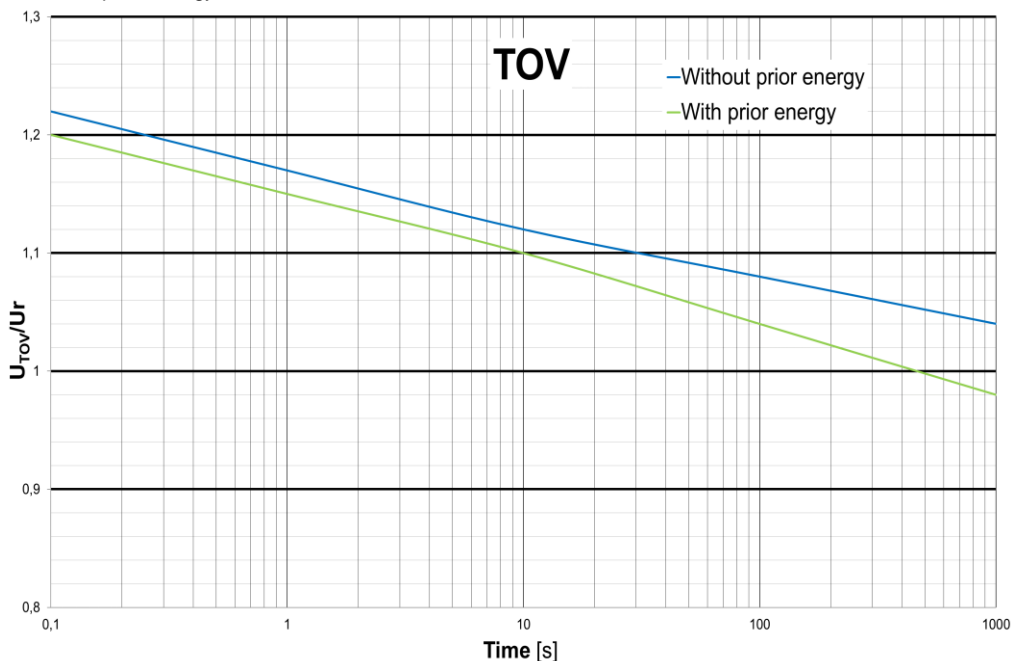
Arrester classification according to EN 60099-4: 2014	SL(Station Low)
Line discharge class according to IEC 60099-4: 2009	2
System voltage (Us)	7.2 – 145 kV
Rated voltage (Ur)	6.0 – 144 kV
Nominal discharge current In 8/20 μs	10 kA
High current impulse Ihc 4/10 μs	100 kA
Rated repetitive charge transfer rating Qrs	1.6 C
Rated thermal Energy Wth	7.0 kJ/kV Ur
Single impulse energy capability (impulse duration 2 ms – 4 ms)	3,5 kJ/kV Ur
Long duration current impulse, 2000 μs	600 A
Short circuit rating	50 kA/0.2s
Service conditions:	
- ambient temperature	-40 °C do +60 °C*
- altitude up to	1000 m*
- frequency	48 – 62 Hz
Mechanical data:	
- specified long-term load (SLL)	1000 Nm
- specified short-term load (SSL)	1600 Nm
- torsional strength	300 Nm

**) for higher parameters please contact with manufacturer

Rated voltage Ur	Maximum operating voltage Uc	TOV ¹⁾		Residual voltage in [kV] pk at a specified impulse current																					
		rms		Wave 1/... μs	Wave 8/20 μs					Wave 30/60 μs															
		1 s	10 s		10kA	2.5kA	5kA	10kA	20kA	40kA	125 A	250 A	500 A	1000 A	2000 A										
kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV	kV
6.0	4.8	6.9	6.6	17.7	13.6	14.1	15.4	17.1	19.3	11.4	11.7	12.0	12.6	13.2											
7.0	5.6	8.1	7.7	19.8	15.1	15.7	17.2	19.1	21.5	12.7	13.1	13.4	14.1	14.8											
8.0	6.4	9.2	8.8	22.6	17.3	18.0	19.6	21.8	24.6	14.5	14.9	15.3	16.1	16.9											
9.0	7.2	10.4	9.9	25.4	19.4	20.2	22.1	24.5	27.6	16.4	16.8	17.2	18.1	19.0											
10.0	8.0	11.5	11.0	28.2	21.6	22.5	24.6	27.3	30.7	18.2	18.7	19.2	20.1	21.1											
11.0	8.8	12.7	12.1	31.1	23.8	24.7	27.0	30.0	33.8	20.0	20.5	21.1	22.1	23.2											
12.0	9.6	13.8	13.2	33.9	25.9	27.0	29.5	32.7	36.8	21.8	22.4	23.0	24.2	25.3											
13.0	10.4	15.0	14.3	36.7	28.1	29.2	31.9	35.4	39.9	23.6	24.3	24.9	26.2	27.5											
14.0	11.2	16.1	15.4	39.5	30.2	31.5	34.4	38.2	43.0	25.4	26.1	26.8	28.2	29.6											
15.0	12.0	17.3	16.5	42.4	32.4	33.7	36.8	40.9	46.0	27.3	28.0	28.7	30.2	31.7											
16.0	12.8	18.4	17.6	45.2	34.6	35.9	39.3	43.6	49.1	29.1	29.9	30.6	32.2	33.8											
17.0	13.6	19.6	18.7	48.0	36.7	38.2	41.7	46.3	52.2	30.9	31.7	32.6	34.2	35.9											
18.0	14.4	20.7	19.8	50.8	38.9	40.4	44.2	49.1	55.2	32.7	33.6	34.5	36.2	38.0											
19.0	15.2	21.9	20.9	53.6	41.1	42.7	46.7	51.8	58.3	34.5	35.5	36.4	38.3	40.1											
20.0	16.0	23.0	22.0	56.5	43.2	44.9	49.1	54.5	61.4	36.3	37.3	38.3	40.3	42.2											
21.0	16.8	24.2	23.1	59.3	45.4	47.2	51.6	57.2	64.5	38.2	39.2	40.2	42.3	44.3											
22.0	17.6	25.3	24.2	62.1	47.5	49.4	54.0	60.0	67.5	40.0	41.1	42.1	44.3	46.5											
23.0	18.4	26.5	25.3	64.9	49.7	51.7	56.5	62.7	70.6	41.8	42.9	44.0	46.3	48.6											
24.0	19.2	27.6	26.4	67.8	51.9	53.9	58.9	65.4	73.7	43.6	44.8	46.0	48.3	50.7											
25.0	20.0	28.8	27.5	70.6	54.0	56.2	61.4	68.1	76.7	45.4	46.7	47.9	50.3	52.8											
26.0	20.8	29.9	28.6	73.4	56.2	58.4	63.8	70.9	79.8	47.2	48.5	49.8	52.3	54.9											
27.0	21.6	31.1	29.7	76.2	58.3	60.7	66.3	73.6	82.9	49.1	50.4	51.7	54.4	57.0											
28.0	22.4	32.2	30.8	79.1	60.5	62.9	68.7	76.3	85.9	50.9	52.2	53.6	56.4	59.1											
29.0	23.2	33.4	31.9	81.9	62.7	65.2	71.2	79.0	89.0	52.7	54.1	55.5	58.4	61.2											
30.0	24.0	34.5	33.0	84.7	64.8	67.4	73.7	81.8	92.1	54.5	56.0	57.5	60.4	63.3											
33.0	26.4	38.0	36.3	93.2	71.3	74.1	81.0	89.9	101.3	60.0	61.6	63.2	66.4	69.7											
36.0	28.8	41.4	39.6	101.6	77.8	80.9	88.4	98.1	110.5	65.4	67.2	68.9	72.5	76.0											
39.0	31.2	44.9	42.9	110.1	84.3	87.6	95.8	106.3	119.7	70.9	72.8	74.7	78.5	82.4											
42.0	33.6	48.3	46.2	118.6	90.7	94.4	103.1	114.5	128.9	76.3	78.4	80.4	84.6	88.7											
45.0	36.0	51.8	49.5	127.1	97.2	101.1	110.5	122.6	138.1	81.8	84.0	86.2	90.6	95.0											
48.0	38.4	55.2	52.8	135.5	103.7	107.8	117.9	130.8	147.3	87.2	89.6	91.9	96.6	101.4											
51.0	41.0	58.7	56.1	144.0	110.2	114.6	125.2	139.0	156.5	92.7	95.2	97.7	102.7	107.7											
54.0	43.0	62.1	59.4	161.0	123.2	128.1	140.0	155.4	175.0	103.6	106.4	109.2	114.8	120.4											
60.0	48.0	69.0	66.0	179.4	137.3	142.7	156.0	173.2	195.0	115.4	118.6	121.7	127.9	134.2											
66.0	53.0	75.9	72.6	196.7	150.5	156.5	171.0	189.8	213.8	126.5	130.0	133.4	140.2	147.1											
72.0	58.0	82.8	79.2	215.1	164.6	171.1	187.0	207.6	233.8	138.4	142.1	145.9	153.3	160.8											
84.0	67.0	96.6	92.4	250.7	191.8	199.5	218.0	242.0	272.5	161.3	165.7	170.0	178.8	187.5											
90.0	72.0	103.5	99.0	269.1	205.9	214.1	234.0	259.7	292.5	173.2	177.8	182.5	191.9	201.2											
93.0	74.5	107.0	102.3	277.7	212.5	221.0	241.5	268.1	301.9	178.7	183.5	188.4	198.0	207.7											
96.0	77.0	110.4	105.6	286.4	219.1	227.8	249.0	276.4	311.3	184.3	189.2	194.2	204.2	214.1											
102.0	82.0	117.3	112.2	304.8	233.2	242.5	265.0	294.2	331.3	196.1	201.4	206.7	217.3	227.9											
108.0	86.0	124.2	118.8	322.0	246.4	256.2	280.0	310.8	350.0	207.2	212.8	218.4	229.6	240.8											
120.0	96.0	138.0	132.0	357.7	273.7	284.6	311.0	345.2	388.8	230.1	236.4	242.6	255.0	267.5											
132.0	106.0	151.8	145.2	393.3	301.0	312.9	342.0	379.6	427.5	253.1	259.9	266.8	280.4	294.1											
138.0	111.0	158.7	151.8	411.7	315.0	327.6	358.0	397.4	447.5	264.9	272.1	279.2	293.6	307.9											
144.0	115.0	165.6	158.4	429.0	328.2	341.3	373.0	414.0	466.3	276.0	283.5	290.9	305.9	320.8											

There is a possibility of manufacturing surge arresters for different voltages that are not listed in the table.

¹⁾With prior energy 6.7 kJ/kV Ur



TOV CHARACTERISTIC

Power frequency voltage versus time characteristic TOV without prior energy

U_{TOV} dla t=1 s 1.170 Ur = 1.463 Uc
 U_{TOV} dla t=3 s 1.150 Ur = 1.438 Uc
 U_{TOV} dla t=10 s 1.120 Ur = 1.400 Uc

Power frequency voltage versus time characteristic TOV with prior energy.

U_{TOV} dla t=1 s 1.150 Ur = 1.438 Uc
 U_{TOV} dla t=3 s 1.130 Ur = 1.413 Uc
 U_{TOV} dla t=10 s 1.100 Ur = 1.375 Uc

TOV characteristic for PROXAR-IIN AC

TECHNICAL DATA FOR HOUSING

Type PROXAR-IIN AC	Insulation withstand voltage of housing		Height H mm	Creepage distance L mm	Flash-over distance mm	Variant of drawing Fig.	Operating position Fig.	Housing number No	Weight kg
	50 Hz wet (60s) kV rms	1.2/50µs dry kV							
6.0	49	102	183	325	193	1	1, 2, 3, 4	01	1.92
7.0									1.97
8.0									2.02
9.0									2.07
10.0									2.12
11.0	64	132	239	544	249	1	1, 2, 3, 4	02	2.37
12.0									2.62
13.0									2.87
14.0									3.12
15.0									3.37
16.0	78	162	295	763	305	1	1, 2, 3, 4	03	3.48
17.0									3.59
18.0									3.7
19.0									3.73
20.0									3.76
21.0	93	191	351	981	361	1	1, 2, 3, 4	04	3.79
22.0									3.82
23.0									3.86
24.0									3.95
25.0									4.08
26.0	107	221	407	1200	417	1	1, 2, 3, 4	05	4.21
27.0									4.34
28.0									4.47
29.0									4.6
30.0									4.73
33.0	121	251	463	1418	473	1	1, 2, 3, 4	06	5.61
36.0									6.48
39.0									6.89
42.0									7.25
45.0									7.61
48.0	136	280	519	1637	529	1	1, 2, 3, 4	07	7.97
51.0									8.93
54.0									9.89
60.0									10.85
66.0									180
72.0	12.52								
84.0	13.38								
90.0	14.24								
93.0	15.1								
96.0	300	620	1150	3712	1161	1, 2, 3, 4	1, 2, 3, 4,	10	15.94
102.0									17.4
108.0									18.86
120.0									19.72
96.0									330
102.0	22.1								
108.0	23.3								
120.0	24.5								
132.0	25.7								
120.0	360	740	1374	4584	1385	1, 2, 3, 4	1, 2, 3, 4,	12	26.9
132.0									28.1
138.0									29.3
144.0									30.0

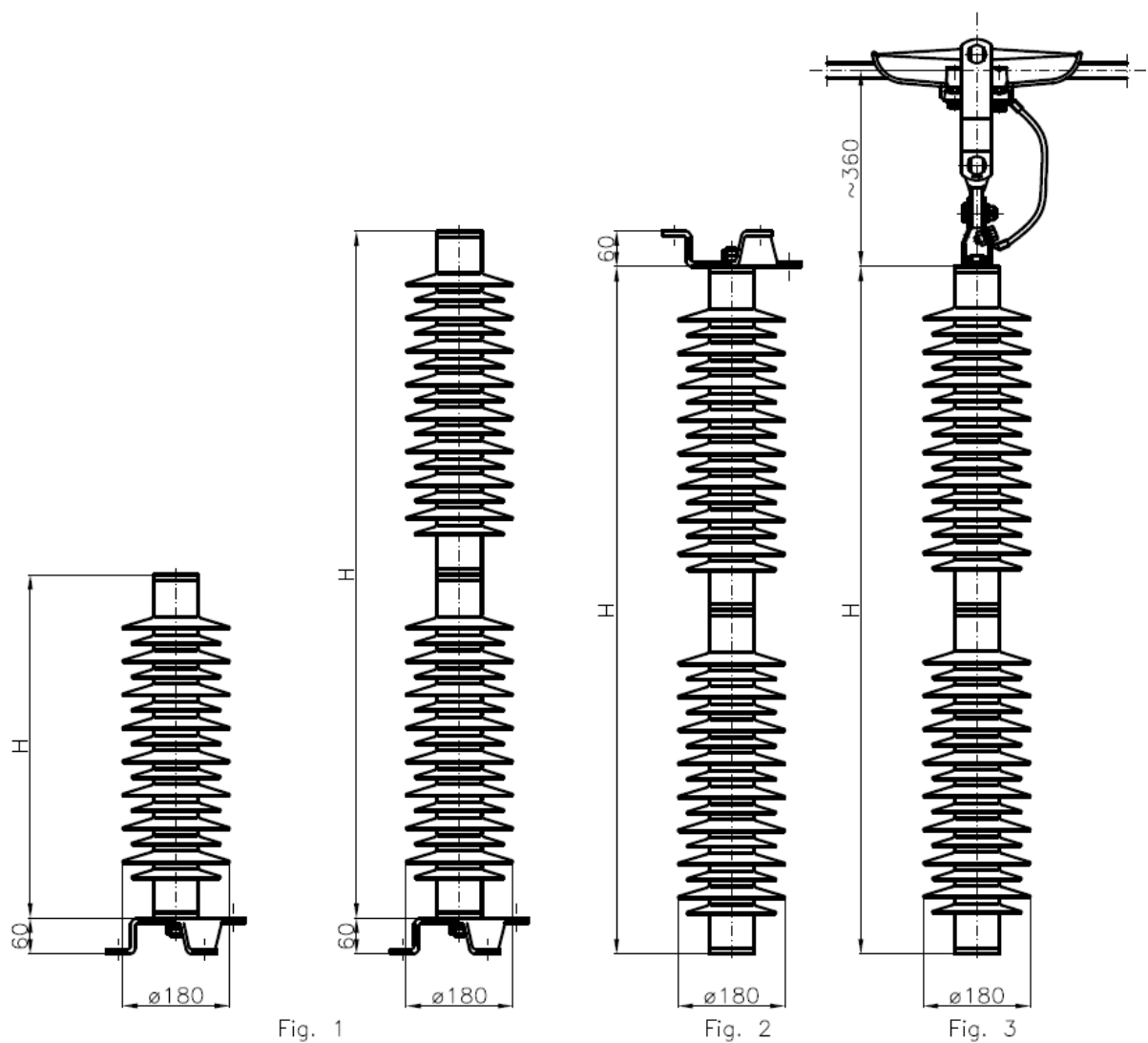


Fig. 1

Fig. 2

Fig. 3

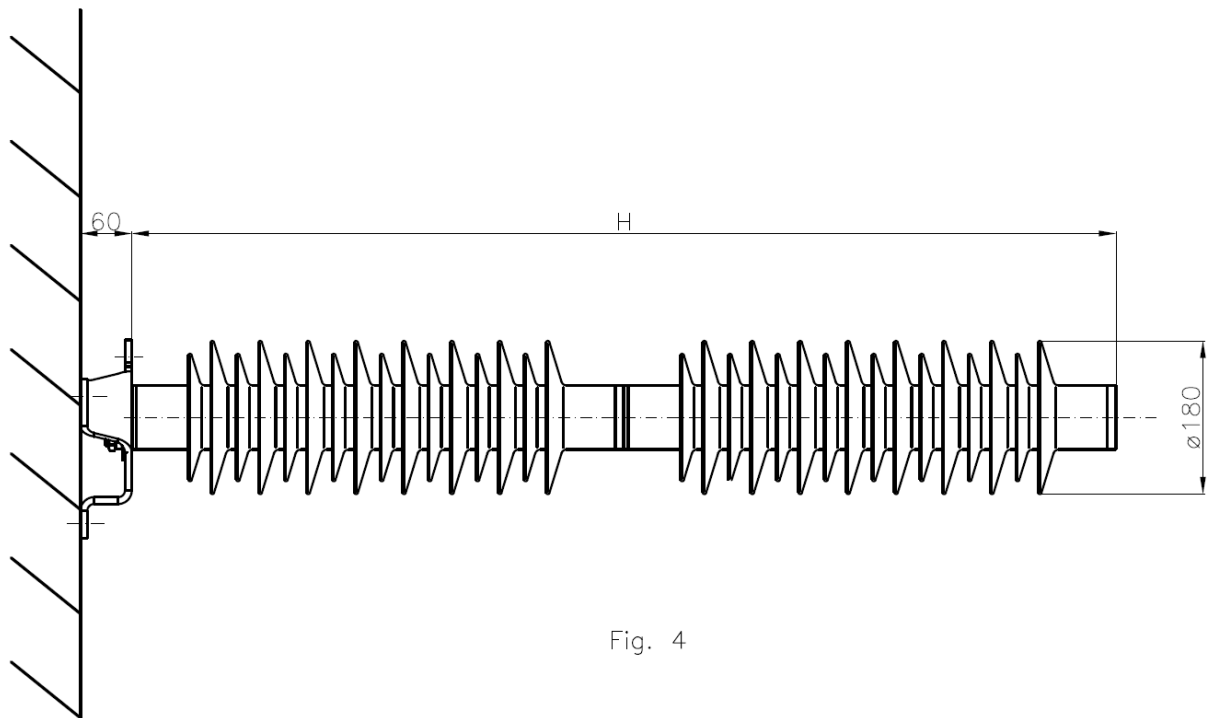


Fig. 4

The drawings No 1 – 4 presents different system of assembling surge arresters. Drawing No 1 present classical system of assembling. Drawings No 2 presents reverse system of assembling surge arrester. Drawing No 3 presents suspension system of assembly line surge arrester. Drawings No 4 presents horizontal system of assembling surge arrester. For other ways of assembling surge arresters please contact with the manufacturer. Below the figures are presenting different options line and earth accessories available for use in surge arresters type PROXAR-IIN AC

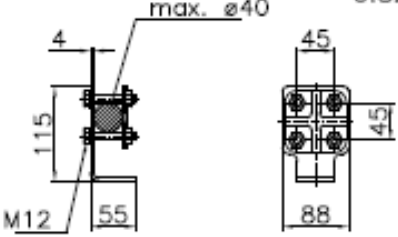
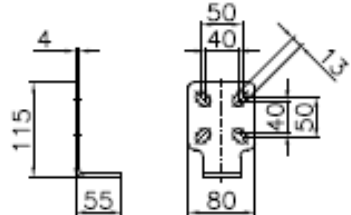
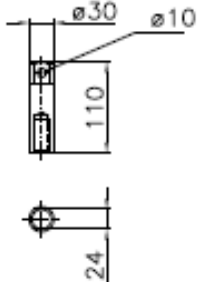
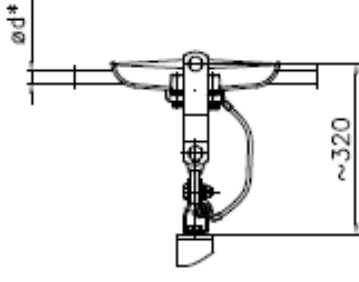
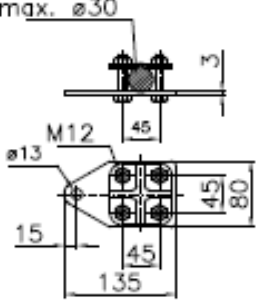
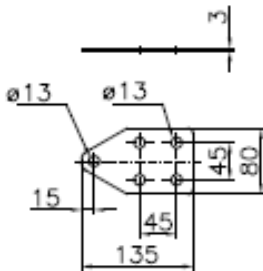
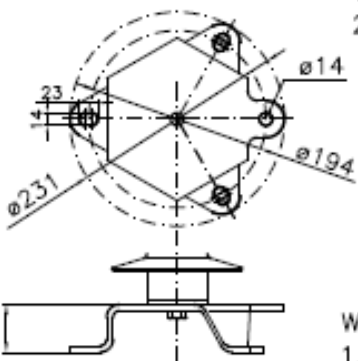
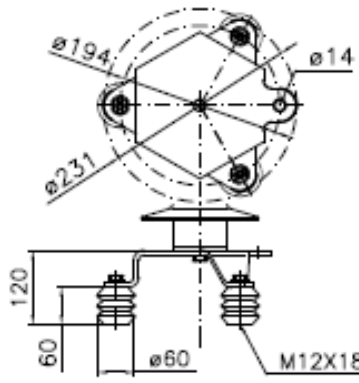
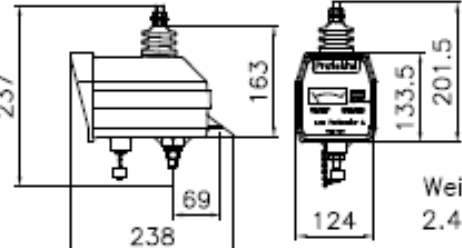
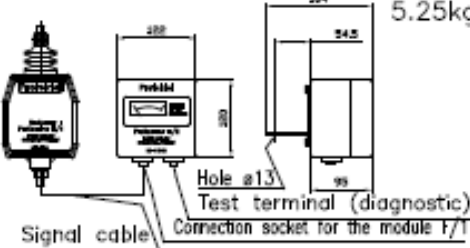
<p style="text-align: center;">LINE TERMINAL 1</p> <p>LINE ACCESSORIES</p>  <p style="text-align: right;">Weight: 0.82kg</p> <p style="text-align: center;">Stainless steel</p>	<p style="text-align: center;">LINE TERMINAL 2</p> <p>LINE ACCESSORIES</p>  <p style="text-align: right;">Weight: 0.39kg</p> <p style="text-align: center;">Stainless steel</p>
<p style="text-align: center;">LINE TERMINAL 3 – Stainless steel</p> <p>LINE ACCESSORIES</p>  <p style="text-align: right;">Weight: 0.59kg</p> <p style="text-align: center;">LINE TERMINAL 4 – Aluminium</p> <p style="text-align: right;">Weight: 0.27kg</p>	<p style="text-align: center;">LINE TERMINAL 5</p> <p>LINE ACCESSORIES</p>  <p style="text-align: right;">Weight: 2.60kg</p> <p style="text-align: center;">Hot-dip galvanized</p>
<p style="text-align: center;">EARTH TERMINAL 1</p> <p>EARTH ACCESSORIES</p>  <p style="text-align: right;">Weight: 0.68kg</p> <p style="text-align: center;">Stainless steel</p>	<p style="text-align: center;">EARTH TERMINAL 2</p> <p>EARTH ACCESSORIES</p>  <p style="text-align: right;">Weight: 0.19kg</p> <p style="text-align: center;">Stainless steel</p>
<p style="text-align: center;">MOUNTING BASE 1 – Hot-dip galvanized</p> <p>Weight: 2.16kg</p>  <p style="text-align: right;">Weight: 1.57kg</p> <p style="text-align: center;">MOUNTING BASE 3 – Stainless steel</p>	<p style="text-align: center;">INSULATING BASE 2 – Hot-dip galvanized</p> <p>Weight: 3.08kg</p>  <p style="text-align: right;">Weight: 2.49kg</p> <p style="text-align: center;">INSULATING BASE 4 – Stainless steel</p>
<p style="text-align: center;">Surge counter – ProCounter(A; B; C; D; E)</p>  <p style="text-align: right;">Weight: 2.45kg</p>	<p style="text-align: center;">Surge counter – ProCounter F</p> <p>Weight: 5.25kg</p> 

Fig.5. Equipment for surge arrester type PROXAR-IIN AC

Order configurator***:

I	II	III	IV	V	VI	VII	VIII	IX
PROXAR-IIN		AC						

***) Empty fields to fill.

I. Type of product

PROXAR-IIN

II. Rated voltage Ur

See table – TECHNICAL DATA

Ur

III. Voltage type

Alternating voltage (48 – 62 Hz)

AC

IV. Assembly (according fig. on page 4)

- Vertical 1
- Reversed 2
- Suspension 3
- Horizontal 4

1
2
3
4

V. Base (according fig. on page 5)

- Without base
- Mounting base 1 (Hot-dip galvanized)
- Insulating base 2 (Hot-dip galvanized)
- Mounting base 3 (Stainless steel)
- Insulating base 4 (Stainless steel)

0
1
2
3
4

VI. Line terminal (according fig. on page 5)

- without line terminal
- line terminal 1
- line terminal 2
- line terminal 3
- line terminal 4
- line terminal 5

0
1
2
3
4
5

VII. Earth terminal (according fig. on page 5)

- without earth terminal
- earth terminal 1
- earth terminal 2

0
1
2

VIII. Housing number

See table – TECHNICAL DATA FOR HOUSING

Housing number

IX. Surge counter (please see catalog of surge counter type ProCounter)

- without surge counter
- surge counter with electromagnetic counter, indicator of the leakage current and with the measuring socket
- surge counter with electromagnetic counter and with the measuring socket
- surge counter with electromagnetic counter
- surge counter with electromagnetic counter, indicator of the leakage current
- surge counter with electromagnetic counter, indicator of the leakage current, socket for transmission via signal line amounts of surges
- surge counter with two modules F/1 and F/2 connected to each shielded cable to signal transmission for distance 30 m., by hermetic sockets/plugs (IP67). F/1 – transmitter module, F/2 – receiver module with electromagnetic counter, indicator of the leakage current and with the measuring socket, relay output

0
A
B
C
D
E
F

Order example:

I	II	III	IV	V	VI	VII	VIII	IX	
PROXAR-IIN	96	AC	1	2	3	1	1	0	A

PROXAR-IIN 96 AC 123110A – 3 pcs.

Description: Surge arrester type **PROXAR-IIN** of rated voltage $U_r=96kV$ for **AC** system in vertical mounting version -1 with insulating base 2 (hot-dip galvanized) - **2**, line terminal - **3**, earth terminal - **1**, housing number – **10**, surge counter type ProCounter **A**.

PROTEKTEL Sp. z o.o.

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Poland

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ATTENTION

The manufacturer reserves the right to change technical data or designee without prior notice.

PROXAR® is a registered trademark newest family of surge arresters produced by Protektel

PROXAR-IIN AC/KK/06/EN edition 02.2020