



Lightning current and surge arrester for use as a cable adapter for coaxial systems such as CCTV, cell sites and antenna systems.

DEHNgate is a family of lightning current and surge arresters with cable adapter design for coaxial systems such as cell sites and antenna systems.

- Application-specific SPD designs
- SPD for use in satellite and cable TV systems with measuring output
- Combined lightning current and surge arrester for high discharge capacity and low protection level
- Contact materials with extremely high endurance

According to application, different mechanical and electrical types are available.



DGA arrester family

The coaxial DGA arrester family provides different types for different applications. Different types of plugs and arrester technologies allow for optimised solutions. Further types available on request.



Delivery of DGA FF TV

DGA FF TV can be mounted on DIN rails in a space-saving way for protecting satellite systems with several outputs. For single applications such as cable TV, the wall-mounting adapter, which the device can be clicked into, is helpful. 2 F cable connectors are also included.



Principle of Lambda/4

The Lambda/4 surge arresters type DGA L4 provide an internal coaxial connection of the inner conductor as a bandpass. Only frequencies within this band are transmitted. For low-frequency impulses, such as lightning currents, they form a short circuit. This makes them mechanically very robust and maintenance-free. Due to their low protection levels and high discharge capacity, they can be used as combined lightning current and surge arresters.

If high partial lightning currents can couple into antenna lines or if very high transmission performances are required, Lambda/4 surge arresters provide the best protection. If additional remote supply is needed for the antenna, a combination of a gas discharge tube and Lambda/4 technology (DGA LG) should be used. The surge arresters are made of top-quality material and provide excellent endurance.

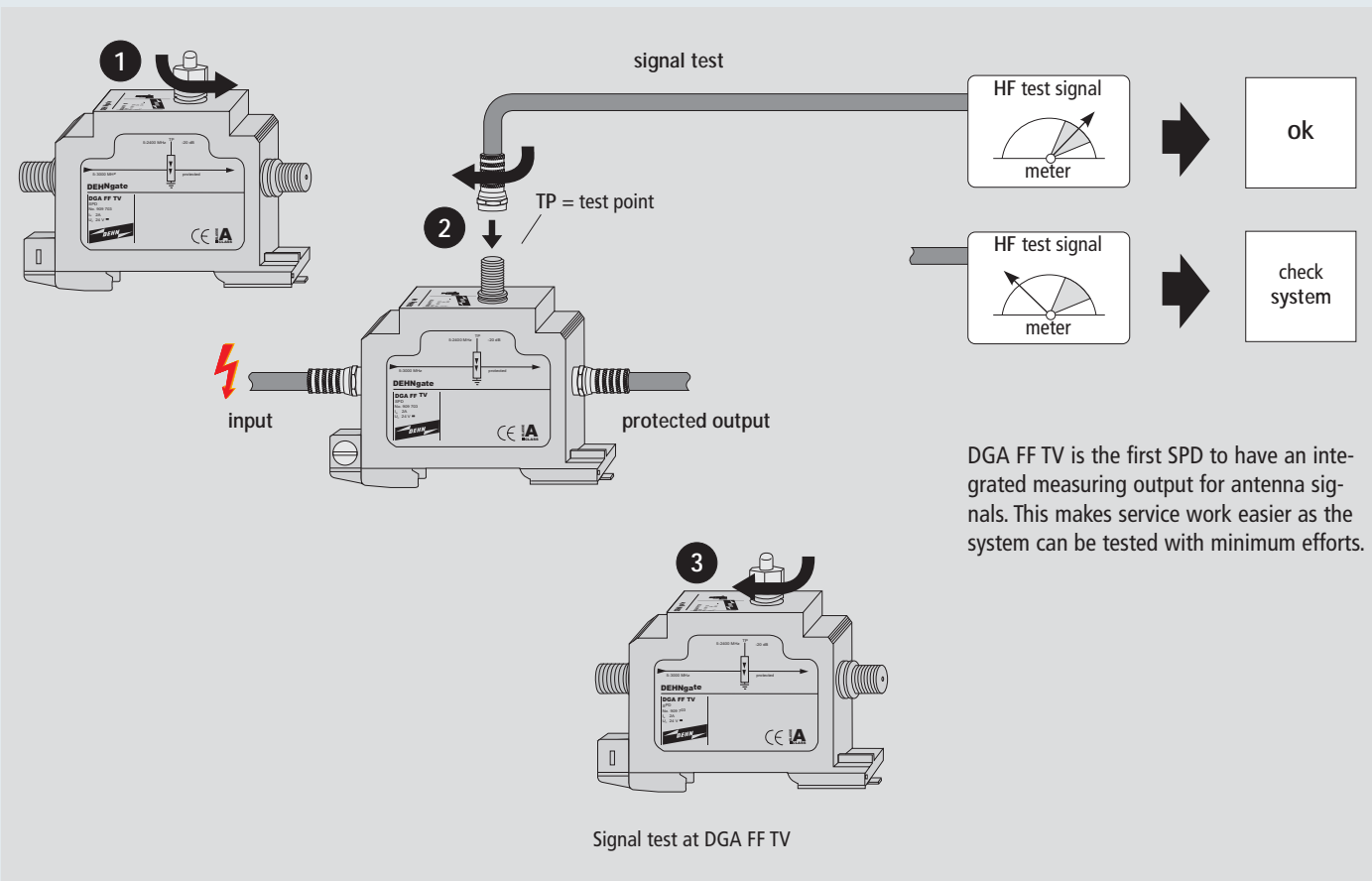


Principle of a spark-gap-based SPD

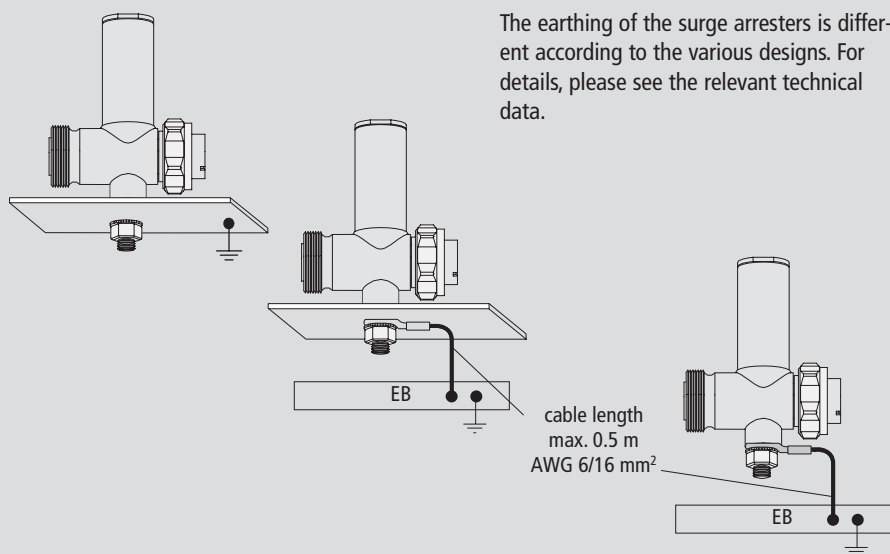
Spark-gap-based surge arresters have an internal gas-filled surge arrester and can be defined as a low pass. This also allows for d.c. transmission (antenna supply). Peak voltages exceeding the threshold value of the gas discharge tube are discharged. These surge arresters provide extensive contact surfaces from the inner conductor to the gas discharge tube. This minimises the burn-off of the material during the discharge and ensures a constant transmission performance.

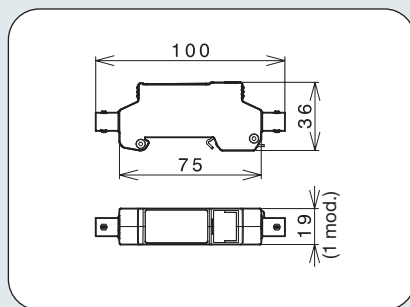


Application of Lambda/4 arresters

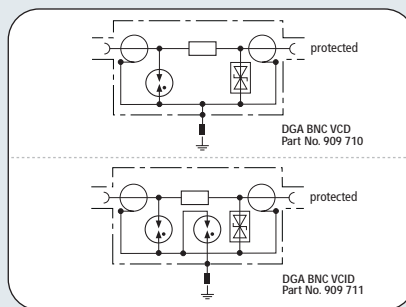


The earthing of the surge arresters is different according to the various designs. For details, please see the relevant technical data.





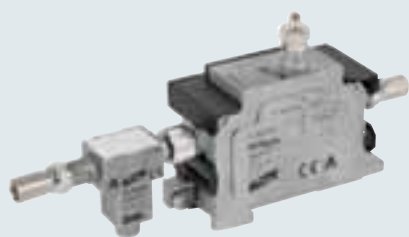
Dimension drawing DGA BNC VC ...


2-stage protective circuit with low capacitance.  
DGA BNC VCD with direct shield earthing and  
DGA BNC VCID with indirect shield earthing.

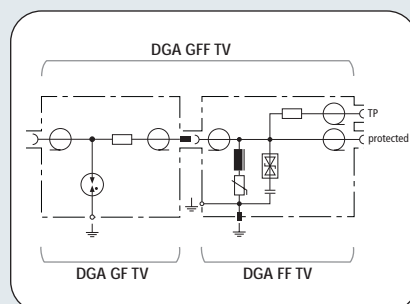

- Easily adaptable due to BNC socket connectors
- Available with direct or indirect shield earthing, according to type
- For use according to the lightning protection zones concept at boundaries  $O_B - 2$  and higher

Space-saving surge arrester with BNC socket connector for mounting on supporting rails for protecting video and camera systems. Available with direct (VCD) or indirect shield connection (VCID), according to type, to avoid ground loops.

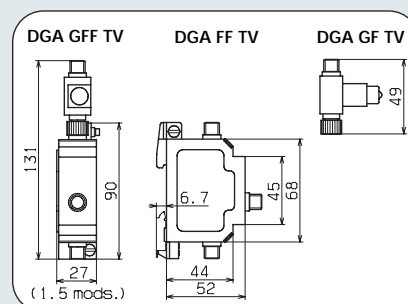
	DGA BNC VCD	DGA BNC VCID
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage $U_N$	5	5
Max. continuous operating d.c. voltage $U_C$	6.4	6.4
Nominal current $I_L$	0.1	0.1
C2 Nominal discharge current (8/20 $\mu$ s) shield-PG $I_n$	10 kA	10 kA
C2 Nominal discharge current (8/20 $\mu$ s) line-shield $I_n$	5 kA	5 kA
Voltage protection level line-shield for $I_n$ C2 $U_p$	$\leq 35$ V	$\leq 35$ V
Voltage protection level shield-PG for $I_n$ C2 $U_p$	—	$\leq 650$ V
Voltage protection level line-shield for 1 kV/ $\mu$ s C3 $U_p$	$\leq 13$ V	$\leq 13$ V
Voltage protection level shield-PG for 1 kV/ $\mu$ s C3 $U_p$	—	$\leq 600$ V
Frequency range	0 - 300 MHz	0 - 300 MHz
Insertion loss	for 160 MHz $\leq 0.4$ dB	for 160 MHz $\leq 0.4$ dB
Return loss	for 130 MHz $\geq 20$ dB	for 130 MHz $\geq 20$ dB
Capacitance line-shield C	$\leq 25$ pF	$\leq 25$ pF
Operating temperature range	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 10	IP 10
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Connection input/output	BNC socket / BNC socket	BNC socket / BNC socket
Earthing by	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	zinc die casting	zinc die casting
Colour	bare	bare
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DGA BNC VCD	DGA BNC VCID
Part No.	909 710	909 711
Packing unit	1 pc(s).	1 pc(s).



- Frequency range for analogue and digital TV, can also be used with reverse LAN channels
- Integrated measuring output in SPDs type FF and GFF
- 3 types for adapted use according to the lightning protection zones concept at boundaries
  - $O_A - 2$  (combined lightning current and surge arresters type GFF),
  - $O_A - 1$  (lightning current arresters type GF)
  - $1 - 2$  (surge arresters type FF)



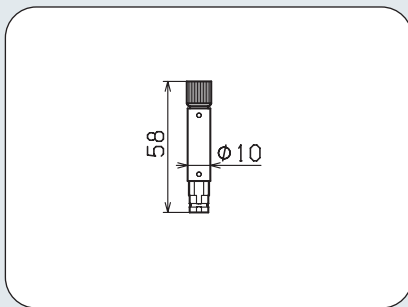
Schematic diagram of the protective circuit of DGA GFF TV consisting of lightning current arrester type DGA GF TV and terminal equipment protection DGA FF TV.



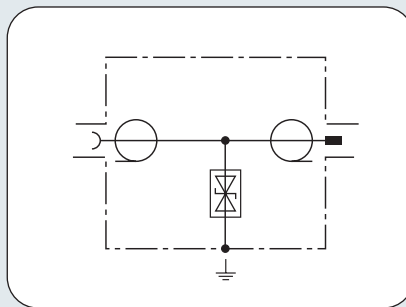
Dimension drawing DGA GFF TV – Combination of DGA GF TV and DGA FF TV

DGA ... TV are SPDs for remote supply for 75-ohm satellite and cable TV systems. The SPDs fulfil the high shielding requirements of class A according to EN 50083-2. They allow for space-saving installation into all common TV and satellite applications and are available as lightning current arresters, surge arresters as well as combined lightning current and surge arresters with integrated measuring output for testing installations.

	DGA FF TV	DGA GF TV	DGA GFF TV
SPD class	TYPE 3 P1	TYPE 1+	TYPE 1+ TYPE 3 P1
Max. continuous operating d.c. voltage $U_c$	24 V	60 V	24 V
Nominal current $I_L$	2 A	2 A	2 A
D1 Lightning impulse current (10/350 $\mu$ s) $I_{imp}$	0.2 kA	2.5 kA	2.5 kA
C2 Nominal discharge current (8/20 $\mu$ s) $I_n$	1.5 kA	10 kA	10 kA
Voltage protection level for $I_{imp}$ D1 $U_p$	$\leq 230$ V	$\leq 700$ V	$\leq 230$ V
Voltage protection level for $I_n$ C2 $U_p$	$\leq 300$ V	$\leq 700$ V	$\leq 300$ V
Voltage protection level for 1 kV/ $\mu$ s C3 $U_p$	$\leq 60$ V	$\leq 600$ V	$\leq 60$ V
Frequency range	d.c., 5-3000 MHz	d.c. - 2400 MHz	d-c., 5-2400 MHz
Insertion loss	—	0.5 dB	—
Insertion loss 5 - 862 MHz	1.2 dB	—	1.7 dB
Insertion loss 862 - 2400 MHz	1.4 dB	—	1.9 dB
Insertion loss 2400 - 3000 MHz	2 dB	—	—
Return loss	$\geq 14$ dB	$\geq 18$ dB (-1.5 dB/octave) dB	—
Return loss (5 - 8 MHz)	—	—	$\geq 10$ dB
Return loss (8 - 47 MHz)	—	—	$\geq 14$ dB
Return loss (47 - 2400 MHz)	$\geq 18$ dB (-1.5 dB/octave)	—	$\geq 18$ dB (-1.5 dB/octave)
Return loss test socket (5 - 47 MHz)	$\geq 18$ dB	—	$\geq 18$ dB
Test socket connection loss	20 dB	—	20 dB
Shield attenuation 5 - 300 MHz	$\geq 85$ dB	$\geq 85$ dB	$\geq 85$ dB
Shield attenuation 300 - 470 MHz	$\geq 80$ dB	$\geq 80$ dB	$\geq 80$ dB
Shield attenuation 470 - 1000 MHz	$\geq 75$ dB	$\geq 75$ dB	$\geq 75$ dB
Shield attenuation 1000 - 2400 MHz	$\geq 55$ dB	$\geq 55$ dB	$\geq 55$ dB
Impedance $Z$	75 ohms	75 ohms	75 ohms
Operating temperature range	-40°C...+80°C	-20°C...+55°C	-20°C...+55°C
Degree of protection	IP 30	IP 30	IP 30
For mounting on	35 mm DIN rail acc. to EN 60715 or wall mounting	earthing bracket	35 mm DIN rail acc. to EN 60715 or wall mounting
Connection input/output	F socket / F socket	F socket / F plug	F socket / F socket
Earthing by	DIN rail or screw connection	earthing bracket with screw connection	DIN rail or screw connection
Enclosure material	metal	metal	metal
Colour	bare	bare	bare
Test standards	IEC 61643-21	IEC 61643-21	IEC 61643-21
Accessories	2 x F plug	earthing bracket and 2 x F plug	2 x F plug
Ordering information			
Type	DGA FF TV	DGA GF TV	DGA GFF TV
Part No.	909 703	909 704	909 705
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).



Dimension drawing DGA F



Low-capacitance diode matrix for optimised transmission performance.



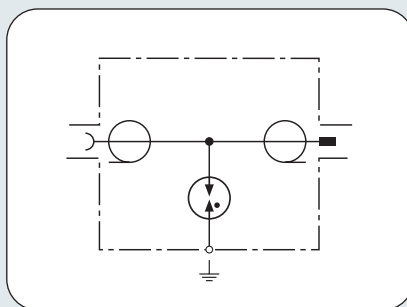
- For easy retrofitting
- For high transmission rates
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Surge arrester with quick response for G.703 interfaces. Earthing by enclosure. 1.6/5.6 connection.

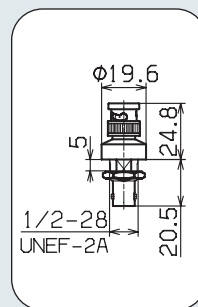
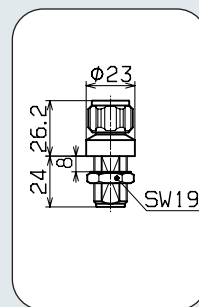
DGA F 1.6 5.6	
SPD class	TYPE 3 P1
Nominal voltage $U_N$	5 V
Max. continuous operating d.c. voltage $U_c$	6
Nominal current $I_L$	0.25
C2 Nominal discharge current (8/20 $\mu$ s) $I_n$	0.3 kA
Voltage protection level for $I_n$ C2 $U_p$	$\leq 30$ V
Voltage protection level for 1 kV/ $\mu$ s C3 $U_p$	$\leq 12$ V
Frequency range	d.c. -80 MHz
Insertion loss	$\leq 0.2$ dB
Impedance $Z$	75 ohms
Capacitance line-shield C	50 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	1.6/5.6 plug / 1.6/5.6 socket
Earthing by	externally by shield earthing
Enclosure material	metal
Colour	bare
Test standards	IEC 61643-21
Ordering information	
Type	DGA F 1.6 5.6
Part No.	929 040
Packing unit	1 pc(s).



- Minimal dimension
- Extremely wide transmission range
- For use according to the lightning protection zones concept at boundaries  $O_B - 1$  and higher

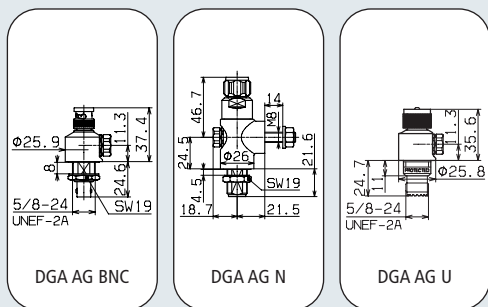


Fixed coaxial gas discharge tube.

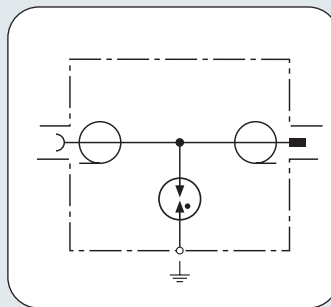

Dimension drawings  
DGA G BNC

Dimension drawings  
DGA G N

Surge arrester for remote power supply with integrated gas discharge tube. Especially adapted to Wireless LAN and Wireless Local Loop applications in BNC, N or 1.6/5.6 connections for bushing installation.

	DGA G BNC	DGA G N
SPD class	TYPE 2	TYPE 2
Max. continuous operating d.c. voltage $U_c$	135 V	135 V
Nominal current $I_L$	3.5 A	6 A
Max. transmission capacity	25 W	25 W
D1 Lightning impulse current (10/350 $\mu$ s) $I_{imp}$	1 kA	1 kA
C2 Nominal discharge current (8/20 $\mu$ s) $I_n$	5 kA	5 kA
Voltage protection level for $I_n$ C2 $U_p$	$\leq 500$ V	$\leq 500$ V
Frequency range	d.c. - 4 GHz	d.c. - 5.8 GHz
Insertion loss	$< 0.2$ dB	$< 0.2$ dB
Return loss	$\geq 20$ dB	$\geq 20$ dB
Impedance Z	50 ohms	50 ohms
Operating temperature range	-40°C...+85°C	-40°C...+85°C
Degree of protection	IP 20	IP 65
Connection input/output	BNC socket / BNC plug	N socket / N plug
Earthing by	bushing Ø12.9 mm	bushing Ø16.2 mm
Enclosure material	brass, refined surface with trimetal plating	brass, refined surface with trimetal plating
Colour	gold	gold
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DGA G BNC	DGA G N
Part No.	929 042	929 044
Packing unit	1 pc(s).	1 pc(s).



Dimension drawings DGA AG



Exchangeable gas discharge tube



Surge arrester suitable for remote supply with exchangeable gas discharge tube. Excellent RF endurance performance due to minimum contact burn-off and great contact surface of the gas discharge tube in a special cage.

- Support with large surface for connecting gas discharge tubes
- Long service life due to minimum contact burn-off at the inner conductor
- For use according to the lightning protection zones concept at boundaries  $0_A - 1$  and higher

	DGA AG BNC	DGA AG N	DGA AG U
SPD class	TYPE 1	TYPE 1	TYPE 1
Max. continuous operating d.c. voltage U <sub>C</sub>	180 V	180 V	180 V
Nominal current I <sub>L</sub>	3.5 A	6 A	10 A
Max. transmission capacity	150 W	150 W	150 W
D1 Lightning impulse current (10/350 µs) I <sub>imp</sub>	5 kA	5 kA	5 kA
C2 Nominal discharge current (8/20 µs) I <sub>n</sub>	20 kA	20 kA	20 kA
Voltage protection level for I <sub>n</sub> C2 U <sub>p</sub>	≤ 750 V	≤ 750 V	≤ 750 V
Frequency range	d.c. - 1 GHz	d.c. - 2.5 GHz	dc - 300 MHz
Insertion loss	< 0.1 dB	< 0.2 dB	< 0.1 dB
Return loss	≥ 20 dB	≥ 20 dB	≥ 20.8 dB
Impedance Z	50 ohms	50 ohms	50 ohms
Operating temperature range	-40°C...+85°C	-40°C...+85°C	-40°C...+85°C
Degree of protection	IP 20	IP 65	IP 20
Connection input/output	BNC socket / BNC plug	N socket / N plug	UHF socket / UHF plug
Earthing by	bushing Ø16.1 mm	bushing Ø16.1 mm or earthing screw	bushing Ø19.3 mm
Enclosure material	brass, refined surface with trimetal plating		
Colour	bare	bare	bare
Replaceable gas discharge tube	yes	yes	yes
Test standards	IEC 61643-21	IEC 61643-21	IEC 61643-21
Ordering information			
Type	DGA AG BNC	DGA AG N	DGA AG U
Part No.	929 043	929 045	929 057
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).

### Accessory Part for DEHNgate

Gas discharge tube

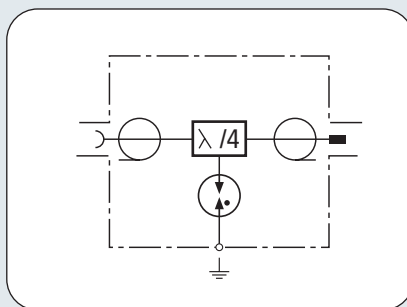
Spare gas discharge tubes for DEHNgate, with lightning current carrying capability. Selected quality with especially low capacitance.

Type	GDT DGA 230		
Lightning impulse current carrying capability (10/350 µs)	5 kA		
Design	H 8 x 6 mm		
<b>Type</b>	<b>PU</b>	<b>pc(s)</b>	<b>Part No.</b>
GDT DGA 230	1		929 498

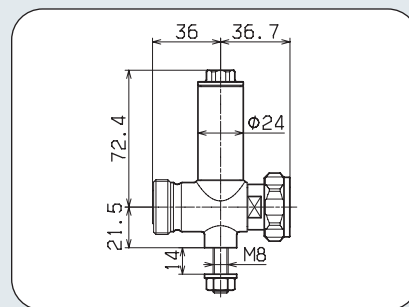




- For multi-frequency applications with d.c. power supply
- Best transmission and PIM performance
- For use according to the lightning protection zones concept at boundaries  $O_A - 1$  and higher



Quarterwave arrester combined with gas discharge tube



Dimension drawing DGA LG

Surge arrester suitable for remote supply with combined spark-gap-based quarterwave technology for multi-frequency applications (multi-carrier systems) due to minimum passive intermodulation. Broad-band device especially for all 4+3G services.

### DGA LG 7 16

SPD class	TYPE 1
Max. continuous operating d.c. voltage $U_c$	65 V
Nominal current $I_n$	13 A
Max. transmission capacity	500 W
D1 Lightning impulse current (10/350 $\mu$ s) $I_{imp}$	5 kA
C2 Nominal discharge current (8/20 $\mu$ s) $I_n$	20 kA
Voltage protection level for $I_n$ C2 $U_p$	$\leq 600$ V
Frequency range	d.c., 806 MHz - 2.2 GHz
Insertion loss	$< 0.15$ dB
Insertion loss 2176 MHz	0.1 dB
Return loss	$\geq 20$ dB
Return loss 2176 MHz	20.0 dB
Impedance Z	50 ohms
Intermodulation	typically -150 dB @ 2*43 dBm
Degree of protection	IP 65
Connection input/output	7/16 socket / 7/16 plug
Earthing by	earthing screw
Enclosure material	brass, refined surface with trimetal plating
Colour	bare
Replaceable gas discharge tube	yes
Test standards	IEC 61643-21

Ordering information	
Type	DGA LG 7 16
Part No.	929 046
Packing unit	1 pc(s).

### Accessory Part for DEHNgate

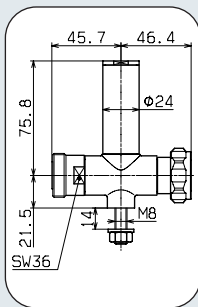
#### Gas discharge tube

Spare gas discharge tubes for DEHNgate, with lightning current carrying capability. Selected quality with especially low capacitance.

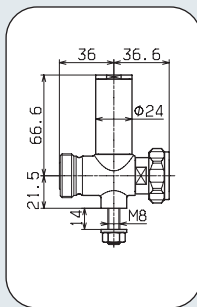
Type	GDT DGA 90		
Lightning impulse current carrying capability (10/350 $\mu$ s)	5 kA		
Design	H 8 x 6 mm		
Type	PU pc(s)	Part No.	
GDT DGA 90	1	929 497	



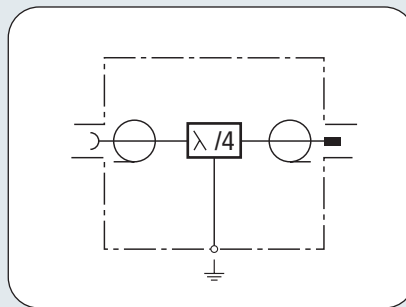




Dimension drawing  
DGA L4 7 16 S



Dimension drawing  
DGA L4 7 16 B



Maintenance-free quarterwave SPD without  
discrete components.



- Maintenance-free combined lightning current and surge arrester (high discharge capacity and low voltage protection level)
- Best transmission and PIM performance
- For use according to the lightning protection zones concept at boundaries  $O_A - 2$  and higher

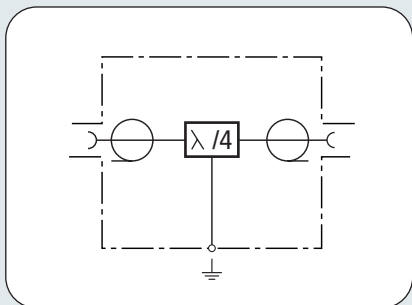
Combined lightning current and surge arrester with maintenance-free quarterwave technology with coordinated frequency band. The SPDs can also discharge high partial lightning currents. No remote supply possible as the SPD represents as an electrical short circuit for low-frequency signals.

	DGA L4 7 16 S	DGA L4 7 16 B
SPD class	TYPE 1 P1	TYPE 1 P1
Max. continuous operating d.c. voltage $U_c$	0 V	0 V
Nominal current $I_n$	0 A	0 A
Max. transmission capacity	3000 W	1700 W
D1 Lightning impulse current (10/350 $\mu$ s) $I_{imp}$	25 kA	40 kA
C2 Nominal discharge current (8/20 $\mu$ s) $I_n$	50 kA	80 kA
Voltage protection level for $I_n$ C2 $U_p$	$\leq 130$ V	$\leq 180$ V
Frequency range	380 MHz - 512 MHz	880 MHz - 2.2 GHz
Insertion loss	$< 0.1$ dB	$< 0.15$ dB
Return loss	$\geq 20$ dB	$\geq 20$ dB
Impedance Z	50 ohms	50 ohms
Intermodulation	—	typically -150 dBc @ 2*43 dBm
Operating temperature range	-40°C...+85°C	-40°C...+85°C
Degree of protection	IP 65	IP 65
Connection input/output	7/16 socket / 7/16 plug	7/16 socket / 7/16 plug
Earthing by	earthing screw	earthing screw
Enclosure material	brass, refined surface with trimetal plating	brass, refined surface with trimetal plating
Colour	bare	bare
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DGA L4 7 16 S	DGA L4 7 16 B
Part No.	929 047	929 048
Packing unit	1 pc(s).	1 pc(s).

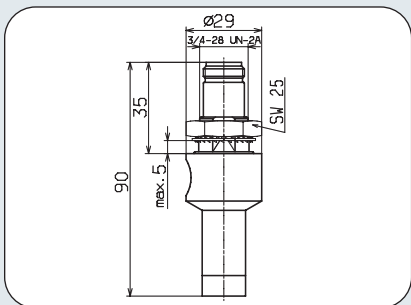
NEW



- Maintenance-free combined lightning current and surge arrester, optimised in bandwidth and dimension
- Best transmission performance for WiMax and Wi-Fi applications
- For use according to the lightning protection zones concept at boundaries  $O_A - 2$  and higher



Maintenance-free SPD with quarterwave technology without discrete components.



Dimension drawing DGA L4 N EB

Especially wide-banded combined lightning current and surge arrester with maintenance-free quarterwave technology with adapted frequency band for Broadband Wireless Access applications and small dimension of the enclosure. No remote supply possible as the SPD represents an electrical short circuit for low-frequency signals.

DGA L4 N EB

SPD class	TYPE 1 P1
Nominal voltage $U_N$	0 V
Max. continuous operating d.c. voltage $U_C$	0 V
Nominal current $I_L$	0 A
Max. transmission capacity	300 W
D1 Lightning impulse current (10/350 $\mu$ s) $I_{imp}$	25 kA
C2 Nominal discharge current (8/20 $\mu$ s) $I_n$	50 kA
Voltage protection level for $I_{imp}$ D1 $U_p$	$\leq 18$ V
Voltage protection level for $I_n$ C2 $U_p$	$\leq 30$ V
Frequency range	2.0 GHz - 6.0 GHz
Insertion loss	$\leq 0.2$ dB
Return loss	$\geq 20$ dB
Impedance Z	50 ohms
Operating temperature range	-40°C...+85°C
Degree of protection	IP 65
Connection input/output	N socket / N plug
Earthing by	bushing $\varnothing 19.3$ mm
Enclosure material	aluminium
Colour	bare
Test standards	IEC 61643-21

Ordering information	
Type	DGA L4 N EB
Part No.	929 059
Packing unit	1 pc(s).

### Accessory Part for DEHNgate

#### Gas discharge tube

Spare gas discharge tubes for DEHNgate, with lightning current carrying capability. Selected quality with especially low capacitance.

Type	GDT DGA 90	GDT DGA 230	GDT DGA 470
Lightning impulse current carrying capability (10/350 µs)	5 kA	5 kA	5 kA
Design	H 8 x 6 mm	H 8 x 6 mm	H 8 x 6 mm
Integrated into (Part No.)	929 046	929 043, 929 045	—

Type	PU pc(s)	Part No.
GDT DGA 90	1	929 497
GDT DGA 230	1	929 498
GDT DGA 470	1	929 499



### Accessory Part for DEHNgate

#### Cable lug with earth conductor

Cable lug with black highly flexible copper earth conductor for earthing DEHNgate, Part No. 929 043, 929 044 or 929 045.

Type	PU pc(s)	Part No.
EL 16 B17	1	929 096



### Accessory Part for DEHNgate

#### Earthing block 4xF

Earthing block, 4-pole, with F sockets, for equipotential bonding of satellite cable shields or DGA GF TV lightning current arresters.

Type	EB 4 F
Max. continuous operating d.c. voltage	65 V
D1 Lightning impulse current (10/350 µs)	10 kA
Frequency range	d.c. - 2400 MHz

Type	PU pc(s)	Part No.
EB 4 F	1	929 095



### Accessory Part for DEHNgate

#### Angled fixing plate

Made of stainless steel, suitable for installation of DEHNgate, Part No. 929 045 – 929 049.

Type	PU pc(s)	Part No.
	20	106 310



### Accessory Part for DEHNgate

#### Angled fixing plate

Made of stainless steel, with 3 mounting holes for 3 different sizes of DEHNgate, e. g. 1x 929 042 + 1x 929 057 + 1x (929 043, 929 044 or 929 045).

Type	PU pc(s)	Part No.
	1	106 329



### Accessory Part for DEHNgate

#### Equipotential bonding bars for industrial installations

Made of stainless steel, suitable for direct screwing of 3x DEHNgate, Part No. 929 045 – 929 049.

Type	PU pc(s)	Part No.
PAS I 6AP M10 V2A	1	472 209



### Accessory Part for DEHNgate

#### Earth conductor, open / closed cable lugs

Cable lug, 1x open M8/M10 and 1x closed M8, suitable for combination with Part No. 106 310, 106 329 and 472 209.

Type	PU pc(s)	Part No.
	1	416 411

