Gas discharge tube and selection of GDT

HUBER+SUHNER gas discharge tube protectors are normally delivered without gas tube some times called gas capsule. This allows the customer to select the appropriate GDT according to his application conditions, especially the maximum operation signal voltage amplitude.

Protectors with replaceable gas discharge tube
- Series 3401 – GDT technology up to 1 GHz
- Series 3402 – GDT technology up to 2.5/3.0 GHz
- Series 3403 – fine protectors (for cube design types)
- Series 3408 – GDT technology with integrated high-pass filter
- Series 3409 – high-power/low-IM protectors
- Series 3410 – high-power/low-IM protectors with integrated high-pass filter and DC injection

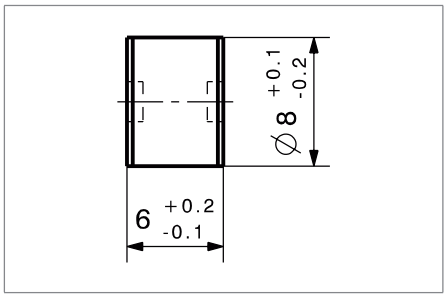
Specification		Requirements	Limits
Insulation resistance		100 V (50 V for 9071.99.0X48)	10^{10} Ω
Glow voltage	V_B	10 mA	~70 V
Arc voltage	V_{ARC}	>1 A	~10 – 15 V
Glow-arc transition current			< 0.5 A
Capacitance		1 MHz	<1 pF typ.
Impulse discharge current	I_{SG} I_S	30 kA, 8/20 µs 20 kA, 8/20 µs 8 kA, 10/350 µs 500 A, 10/1000 µs 100 A, 10/1000 or 10/700 µs	1 operation minimum >10 operations 1 operation minimum >400 operations >1000 operations
Alternating discharge current		65 A_{rms}, 11 cycles 10 A_{rms}, 1 s	1 operation minimum > 10 operations
Operating temperature			–40 to +85 °C –55 to +125 °C GDT only

Notes:
- Designed for operations exceeding 25 years
- GDT specification acc. international standard ITU-T K.12

Gas discharge tubes without replacement holder

HUBER+SUHNER type	U_{Zstat}	U_{Zdyn} max.	I_S 8/20 µs	I_{SG} 8/20 µs	RF power max. (single carrier) at VSWR 1.22:1 with 1.5 securtiy margin
	V	V	kA	kA	W
9071.99.0547	230 ±15 %	675	20	30	140
9071.99.0548	90 ±20 %	500			20
9071.99.0549	350 ±15 %	875			325
9071.99.0550	470 ±15 %	1000			590
9071.99.0551	600 ±15 %	1100			960

All dimensions in mm



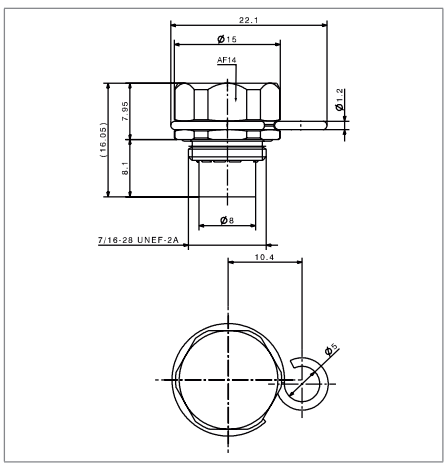
Suitable for the following installed GDT holders:

Gas discharge tubes with holder (not suitable for 3000 series protectors)

HUBER+SUHNER type	U_{Zstat}	U_{Zdyn} max.	I_S 8/20 µs	I_{SG} 8/20 µs	RF power max. (single carrier) at VSWR 1.22:1 with 1.5 securtiy margin
	V	V	kA	kA	W
9071.99.0447	230 ± 15 %	675	20	30	140
9071.99.0448	90 ± 20 %	500			20
9071.99.0449	350 ± 15 %	875			325
9071.99.0450	470 ± 15 %	1000			590
9071.99.0451	600 ± 15 %	1100			960

* 6 × 8 mm gas discharge tube same as of the tabel above together with holder with groove

All dimensions in mm



Suitable for the following installed GDT holders:

Gas discharge tube and selection of GDT

Semper GDT units for retrofit and replacement for series 3401 and 3402

HUBER+SUHNER type	U_{Zstat}	U_{Zdyn} max.	I_S 8/20 µs	I_{SG} 8/20 µs	RF power max. (single carrier) at VSWR 1.22:1 with 1.5 securtiy margin	Fig.
	V	V	kA	kA	W	
9071.99.0647 *	230 ± 15 %	675	20	30	140	1
9071.99.0648	90 ± 20 %	500			20	1
9071.99.0649	350 ± 15 %	875			325	1
9071.99.0650	470 ± 15 %	1000			590	1
9071.99.0651	600 ± 15 %	1100			960	1

* Nato stock number 5920-66-156-1512

Semper GDT units for retrofit and replacement for series 3402 platform 3000 [1)]

HUBER+SUHNER type	U_{Zstat}	U_{Zdyn} max.	I_S 8/20 µs	I_{SG} 8/20 µs	RF power max. (single carrier) at VSWR 1.22:1 with 1.5 securtiy margin	Fig.
	V	V	kA	kA	W	
9071.99.0947	230 ± 15 %	675	20	30	140	2
9071.99.0948	90 ± 20 %	500			20	2
9071.99.0949	350 ± 15 %	875			325	2
9071.99.0950	470 ± 15 %	1000			590	2
9071.99.0951	600 ± 15 %	1100			960	2

All dimensions in mm

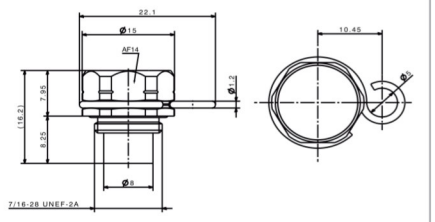


Fig. 1

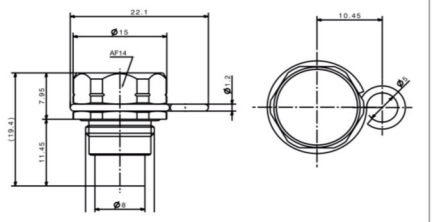


Fig. 2

Semper GDT units for retrofit and replacement for series 3409

HUBER+SUHNER type	U_{Zstat}	U_{Zdyn} max.	I_S 8/20 µs	I_{SG} 8/20 µs	RF power max. (single carrier) at VSWR 1.22:1 with 1.5 securtiy margin	Fig.
	V	V	kA	kA	W	
9071.99.0747	230 ± 15 %	675	20	30	140	3
9071.99.0748	90 ± 20 %	500			20	3

All dimensions in mm

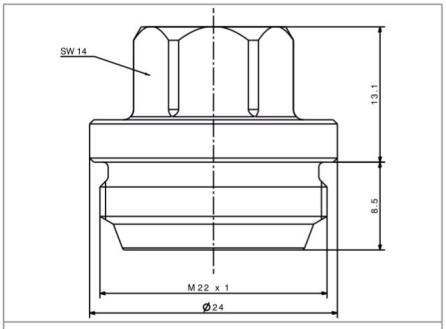


Fig. 3

[1)] Platform 3000 is a term for series 3402 protectors with a specified bandwidth of DC – 3000 MHz
Examples: 3402.17.3001, 3402.17.3002, 3402.26.3001

Definitions

U_{Zstat}

Static spark-over voltage – voltage which ignites the GDT in the case of a voltage rise of less than 100 V/ms. (acc. ITU-T K.12)

U_{Zdyn}

Dynamic spark-over voltage – max. voltage which ignites the GDT in the case of a voltage rise of 1 kV/µs. (acc. ITU-T K.12)

I_S

Impulse discharge current – peak value of a defined current pulse which is allowed to be applied at least ten times at intervals of 30 seconds without causing any significant changes of the spark-over voltage specification. Values are given for current pulse shape definitions of 8/20 µs
T_1, front time/T_2, time to half value

I_{SG}

Maximum pulse current – peak value of a defined single current pulse which can be conducted to ground once. For pulse shape refer to I_S.

U_B

Glow discharge voltage – residual voltage across the GDT capsule when the discharge current operates the GDT in the glow state,
typically at 10 mA.

U_{ARC}

Arc voltage – increasing current drives the GDT capsule into the arc state. The resulting voltage across the GDT is the arc voltage.

Peak RF voltage

Single frequency RF power into 50/75 Ω at VSWR 1.0:1