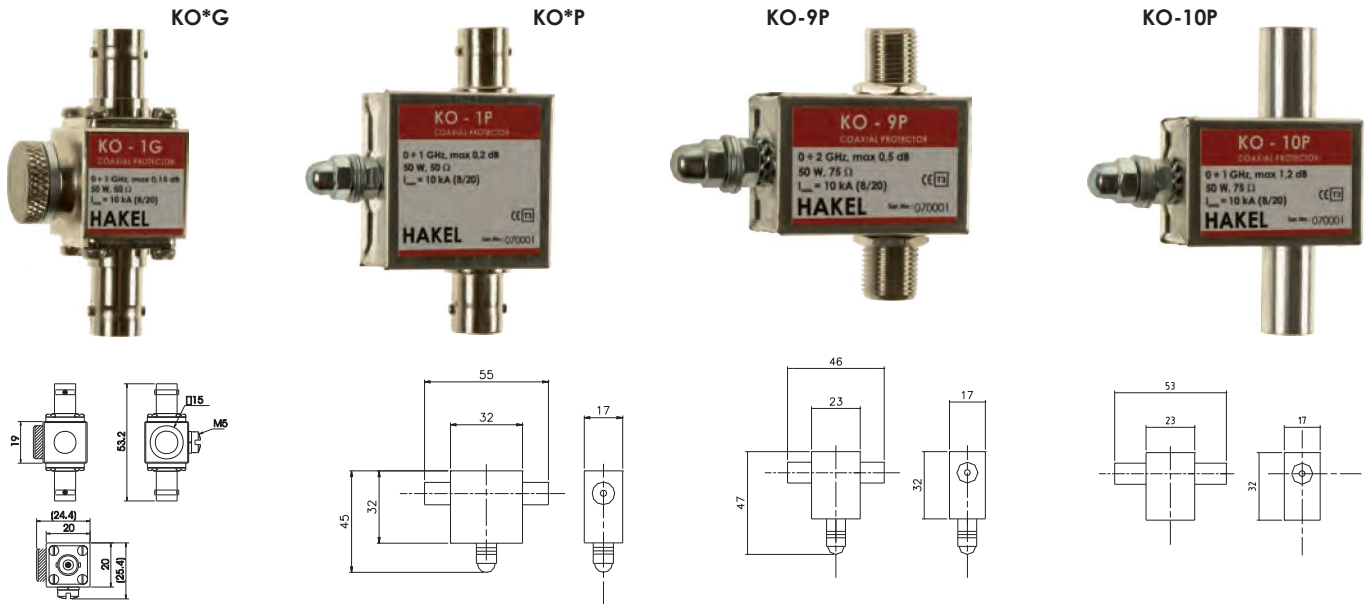


# Coaxial high-frequency protection

LPZ 0<sub>B</sub>-1 / IP20 / CE



KO\* is an innovated coaxial high-frequency protection range designed for protection of equipment connected to an aerial system by means of coaxial cables. Special gas discharge tubes with maximum discharge current  $I_{max}(8/20) = 10 \text{ kA}$  (or 20 kA in case of KO-5GN) ensure a reliable protection of the receiving and transmitting systems even against a lightning stroke nearby. Hakel company offers a wide range of coaxial protectors for various connector types and transmission power grades enabling usage in many applications. These coaxial protectors are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0<sub>A(B)</sub>-1 and higher according to EN 62305.

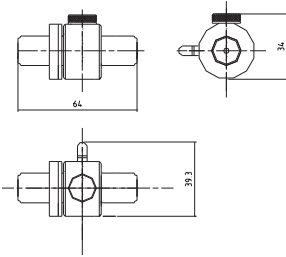
Type		KO-1G	KO-2G	KO-1P	KO-2P	KO-9P	KO-10P
Connector type				BNC		F	TV
Max. continuous operating voltage	$U_c$	90 V DC	200 V DC	90 V DC	200 V DC	90 V DC	90 V DC
Rated load current	$I_L$			2,5 A			0,5 A
D1 Max. lightning impulse current (10/350)	$I_{imp}$					2 kA	
C2 Max. discharge current (8/20)	$I_{max}$					10 kA	
C2 Nominal discharge current $I_n$ (8/20)	$I_n$					5 kA	
C3 Voltage protection level at 1kV/ $\mu$ s	$U_p$					600 V	
Frequency range				0-1 GHz		0-2,15 GHz	0-1 GHz
Max. transmission power capacity		50 W	400 W	50 W	400 W	50 W	50 W
Insertion loss				< 0,2 dB		< 0,5 dB	< 1,2 dB
Return loss				> 20 dB			
Characteristic impedance				50 $\Omega$			75 $\Omega$
Category tested acc. to IEC 61643:21-2000				C1, C2, C3, D1			
Article number		55 001	55 002	55 007	55 015	55 016	55 017

Note: can be produced in different  $U_c$  voltages

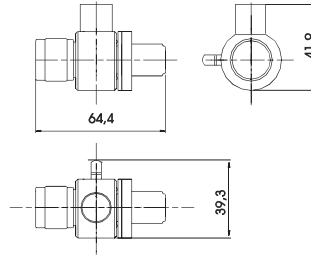
# Coaxial high-frequency protection

LPZ 0<sub>s</sub>-1 / IP65 / IP20 / IP65 / CE

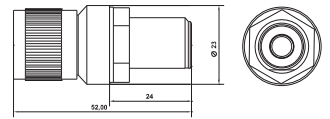
KO\*GN



KO-5GN



KO-6GN



KO\* is an innovated coaxial high-frequency protection range designed for protection of equipment connected to an aerial system by means of coaxial cables. Special gas discharge tubes with maximum discharge current  $I_{max}(8/20) = 10$  kA (or 20 kA in case of KO-5GN) ensure a reliable protection of the receiving and transmitting systems even against a lightning stroke nearby. Hake company offers a wide range of coaxial protectors for various connector types and transmission power grades enabling usage in many applications. These coaxial protectors are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0<sub>A(B)</sub>-1 and higher according to EN 62305.

Type		KO-3GN (F/F)	KO-3GN (F/M)	KO-4GN (F/F)	KO-4GN (F/M)	KO-5GN (F/F)	KO-5GN (F/M)	KO-6GN (F/M)
Connector type		N						
Max. continuous operating voltage	$U_c$	90 V DC		350 V DC		-	-	135 V DC
Rated load current	$I_l$	5 A		-		-	-	5 A
D1 Max. lightning impulse current (10/350)	$I_{imp}$	2 kA		-		5 kA		1 kA
C2 Max. discharge current (8/20)	$I_{max}$	10 kA		-		20 kA		10 kA
C2 Nominal discharge current $I_n$ (8/20)	$I_n$	5 kA		-		10 kA		5 kA
C3 Voltage protection level at 1kV/ $\mu$ s	$U_p$	200 V		850 V		< 2 V		< 500 V
Frequency range		0-3 GHz		-		5-5,4 GHz		0-5,8 GHz
Max. transmission power capacity		50 W		400 W		200 W		50 W
Insertion loss		< 0,65 dB		-		< 0,2 dB		-
Return loss		-		> 20 dB		-		-
Characteristic impedance		50 $\Omega$						
Category tested acc. to IEC 61643:21-2000		C1, C2, C3, D1						
Article number		55 018	55 019	55 020	55 021	55 024	55 025	55 026

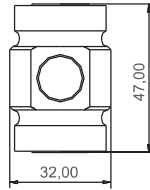
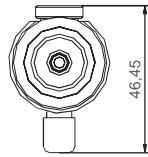
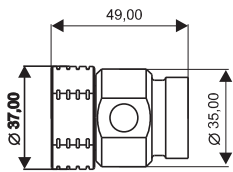
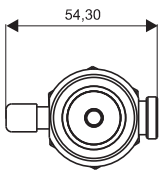
Note: can be produced in different  $U_c$  voltages

# Coaxial high-frequency protection

LPZ 0<sub>s</sub>-1 / IP62 / CE

KO-7/16 FM

KO-7/16 FF



KO-7/16 is an innovated coaxial high-frequency protection range designed for protection of equipment connected to an aerial system by means of coaxial cables. Special gas discharge tubes with maximum discharge current  $I_{max}(8/20) = 10 \text{ kA}$  (or 20 kA in case of KO-7/16-R) ensure a reliable protection of the receiving and transmitting systems even against a lightning stroke nearby. This range is produced with 7/16" connector type for various transmission power grades enabling usage in many applications. They are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0<sub>A(B)</sub>-1 and higher according to EN 62305.

Type		KO-7/16 (F/M)	KO-7/16 (F/F)
Connector type			
Max. continuous operating voltage	$U_c$	350 V DC	350 V DC
Rated load current	$I_L$		5 A
D1 Max. lightning impulse current (10/350)	$I_{imp}$		2 kA
C2 Max. discharge current (8/20)	$I_{max}$		10 kA
C2 Nominal discharge current $I_n$ (8/20)	$I_n$		5 kA
C3 Voltage protection level at $1 \text{ kV}/\mu\text{s}$	$U_p$		850 V
Frequency range			0-2,6 GHz
Max. transmission power capacity			400 W
Insertion loss			< 0,5 dB
Return loss			> 15 dB
Characteristic impedance			50 $\Omega$
Category tested acc. to IEC 61643:21-2000			C1, C2, C3, D1
Weight		175 g	165 g
Article number		55 033	55 032

Note: can be produced in different  $U_c$  voltages