

High-frequency In-vacuum Cables

- to 40GHz

For high-frequency signal generation and detection in-vacuum (HV/UHV), Allectra has developed two feedthroughs, the 242-SMAD27G and the 242-SMAD40G which allow up to 27 and 40 GHz frequencies respectively. To complement these we are introducing new K-type SMA cables for in-vacuum use, the 380-SMAK series.

Specifications

Cable type	Semi-rigid
Connector specification	SMA(K) – 2.92
Cable diameter	2.10mm
Cable material	CuSn, Tin-soaked braid
Inner conductor	Silver/copper-plated steel, 0.53mm
Dielectric	PTFE
Impedance	50Ohm
Capacitance	95pF/m
Test voltage (cable)	3kV
Max. frequency	40GHz
Attenuation: @ 5GHz @ 20GHz	1.6db/m 3.61 db/m
Max. temperature - operating: bakeout:	165°C 200°C

Order code	Details
380-SMAK-MM-300	300mm length SMA cable, with SMA K-type connectors on both ends
380-SMAK-MM-500	500mm length SMA cable, with SMA K-type connectors on both ends
380-SMAK-MX-1000	1000mm length SMA cable, with SMA K-type connectors on one end, other end open
	Other lengths with 2 connectors, or 1 connector and the other end open-ended are available on request

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All data given in this sheet are carefully checked but subject to change at any time.



Fig. 1: SMA K-type connector, detail



Fig. 2: 380-SMAK-MM-500

Technical background:

SMA – Sub-miniature version A connectors were designed for radio-frequency signals typically to 18 GHz with 50 Ohm impedance. To access higher frequencies (46GHz) the precision 2.92 mm, or K-type was developed. The thread remains the same, with higher precision around the inner conductor.

For lower frequencies, standard SMA or BNC connectors and cables can be used, e.g. 380-SMA-MM-500.