

## TECHNICAL DATA SHEET VHS-K10 VERY HIGH SPEED DATA LINE PROTECTOR

Very High Speed Data line protection for 10 pair Krone LSA-Plus

High Bandwidth – 12 MHz (-0.3dB, 120Ω)

Effective clamping with lower let-through voltage

High reliability surface mount technology

### Product Description

The VHS-K10 is a multistage protection module designed for the protection of digital telephone and data circuits against transient over-voltages caused by lightning, induced impulses and other voltage surges. Traditional shunt-connected gas filled arresters by themselves can no longer provide adequate or required protection for sensitive line cards or newer generation digital switching systems.

The VHS-K10 contains ten line protection circuits on a single PCB. Each circuit consists of a primary three terminal gas filled arrester followed by a secondary transient clamping circuit.

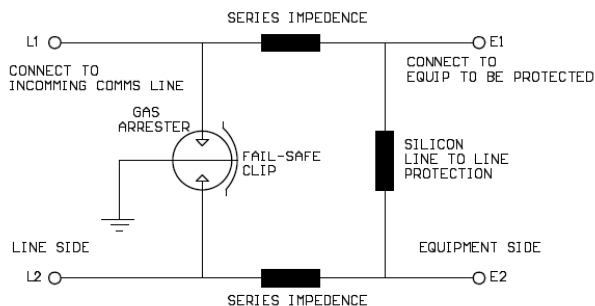
The gas arrester provides common mode protection by bypassing transient currents to ground. The arrester chosen has a fast impulse response compatible with the requirements of advanced high-speed data networks.

The secondary transient clamping circuit comprises a series resistor in each leg plus shunt connected silicon transient protection devices.

The effect of this series impedance is to provide decoupling between the primary and secondary protection elements during fast rise time impulses associated with lightning type transient events. The effect is that fast rise time events, with high  $dV/dt$ , are diverted to the primary gas filled arrester rather than passed through to the equipment.

Following the series impedance, silicon transient protection devices provide transverse mode fine protection.

The VHS-K10 is earthed through two spring clips which connect to the KRONE LSA\* frame. These robust tabs provide excellent electrical contact with the frame.



### Application

The VHS-K10 is designed for installation into the Krone LSA-Plus Series 2\* termination system. The VHS-K10 must be installed into disconnect blocks to allow the series impedance elements to be inserted in circuit.

Applications include the protection of telephone, data networks used for process control and automation. The VHS-K10 can be used to protect at the MDF, Public Exchange (PSTN), PBX, Key Telephone Systems (KTS), Pay phone, as well as data distribution systems, remote instrumentation, radio transmitters etc. Suitable for primary and basic rate ISDN, Broad band ADSL, E1/T1 and PCM applications.

### Installation

Plug the VHS-K10 into the Krone LSA\* disconnect block. □  
Make sure the VHS-K10-230 is inserted fully into the □  
block. The edge of the plastic cover should be level with □  
the front of the block. □

The earth connection occurs when the spring clip on □  
each end of the VHS engages the Krone\* frame upon □  
insertion. □

If the Krone Profil\* block is being used, insert the spring □  
clip onto each end of the Krone\* Block to allow earth □  
connection to occur. □

The frame must be properly bonded to the main □  
electrical earth. □



Ordering Code	VHS-K10-72	VHS-K10-230
Configuration:	10 pair plug in module	
Protection Stages:	Gas arrester / series impedance / Silicon Protection	
Max. bit rate & Bandwidth:	8 Mbits/s (12 MHz)	
DC Breakdown:	65 - 88V line to earth 65 - 88V line to line	190 - 276V line to earth 190 - 262V line to line
Max working voltage:	65V line to earth 65V line to line	190V line to earth 190V line to line
Surge rating:	a+b-e 20kA (8/20µs) a-b or a-e 10kA (8/20µs)	
Typical Let-through Voltage:	100V@5kV (10/700µs)	240V@5kV (10/700µs)
Max Line Current:	150mA @ 25°	
AC discharge current:	a+b-e 10A @ 50Hz for 1second	
Return loss:	>44dB @ 3.4kHz 600Ω >32dB @ 1MHz 120Ω >32dB @ 3MHz 120Ω >25dB @ 12MHz 120Ω	
Capacitance	a-e, b-e < 5pF a-b < 30pF	
Loop resistance:	6.6 Ω nominal	
Insertion loss:	<0.05dB @ 600Ω, 3.4kHz <0.25dB @ 120Ω, 1MHz <0.26dB @ 120Ω, 3Mz <0.3dB @ 120Ω, 12MHz	
Insulation Resistance:	> 5MΩ @ 65 Vdc	> 5MΩ @ 190 Vdc
Dimensions	119mm long x 20mm high 45mm from front of KRONE* Series 2 block when plugged in	
Weight	80 g	
Connection:	PCB plug in, to Krone LSA* disconnect block	
Earthing:	Via spring clips to KRONE* frame	
Temperature range	0 - 45°C, 10 – 90% RH	
Location	BD, CD or MDF in Krone LSA* disconnect block	

Note: Specifications are subject to change without notice.

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• **Warranty**

This product is guaranteed to be free from materials and workmanship defects for a period of 5 years from the date of shipment from the manufacturer. This warranty does not offer any cover for consequential damage, loss of operation or loss of profit.