TOPxV-y

TOPxV-y (**T**elecommunication **O**vervoltage **P**rotection) are improved protection devices (**x** - number of protected lines, **y** - disconnection module type), compared to the basic overvoltage protection with Gas Discharge Tubes (GDT). **TOPxV-y** have two-stage overvoltage protection: coarse with three-pole GDT (with fail-safe clip) and fine with Metal-Oxide Varistors (MOV). Main characteristics are:

1. Response time about 20 times faster than the basic protection (25 ns compared to 500 ns).
2. Maximum impulse spark-over voltage 2 times lower than for the basic protection (300 - 350V compared to 450-700 V).
3. Compact module, with two-stage overvoltage protection mounted in the same place as basic protection.

TOPxV-y are inserted at disconnection modules of Reichle - De Massari and Krone distribution frames. At Reichle - De Massari types (VS83 Modular, VS92 Standard and VS Compact) protection is inserted at the rear side of the module. At Krone types (LSA Plus and LSA Profile) protection is inserted at the front side of the module.

Types of **TOPxV-y** protection devices for Reichle - De Massari modules:

- VS83 Modular 10x2 **TOP10V-VS83**
- VS83 Modular 12x2 **TOP12V-VS83**
- VS92 Standard 10x2 **TOP10V-VS92**
- VS Compact 10x2 **TOP10V-VSC**
- VS Compact 16x2 **TOP16V-VSC**
- VS Compact 20x2 **TOP20V-VSC**

Types of **TOPxV-y** protection devices for Krone modules:

- LSA Plus and LSA Profile **TOP10V-KLP**

This configuration is designed for protection of sophisticated telecommunication equipment in standard and SMD technology. Therefore **TOPxV-y** protection modules are recommended for complete overvoltage protection of sensitive telecommunication equipment such as digital telephone exchanges (with line cards using SLIC), equipment for xDSL communication etc. They are mostly used for underground cable networks.

This protection configuration complies with ITU-T K.20 and K.21. Recommendations.

TOPxV-y TECHNICAL SPECIFICATIONS

Protection type		Group overvoltage
DC spark-over voltage		230 V
Impulse discharge current (8/20 μs)	Nominal	10 kA
	Maximal	20 kA
Surge response voltage (10/700 μs, Up=4 kV)		300÷350 V peak
Insulation resistance		$> 10^{10}$ Ω
Contact resistance		< 15 mΩ
Response time		< 25 ns
Signal attenuation in speech frequency range (0,3-3,4 kHz)		< 0,01 dB
Number of protected lines		10, 12, 16, 20
International recommendations		ITU-T (Vol. IX K.20 K.21)
ZJPTT Certificate No. 021-1414/03 and RATEL Certificate No. 1-06-3454-43/06		

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PASSER D.O.O. Prvomajska 77, 11080 Zemun - Belgrade, SERBIA, Tel:+38111/316-0712, 3076-549
www.passer.co.rs **E-mail: passer@eunet.yu**