

TPM1-2x/DTR

TPM1-2x/DTR (Telecommunication Protection Module) is a 5-pole module for serial connection on telecommunication lines (e.g. telephone pairs). It is mounted on disconnection modules of different Main Distribution Frames (MDF) and types (**x** - means e.g. **RM3** for Reichle-De Massari model VS83 or **KLP** for Krone model LSA Plus or Profile).

Two poles are connected on network (cable) side, the other two on equipment (jumper) side and the fifth pole is grounded by galvanised earthing rail mounted on disconnection module, providing contact with the frame. These protection modules are used to protect sensitive telecommunication equipment against overvoltage and overcurrent, generated by atmospheric discharges, electromagnetic induction of nearby power installation and cross-contact between telecommunication and power cable. This module provides two-stage overvoltage protection (coarse protection using three-pole **Gas Discharge Tubes (GDT)** with fail-safe clip, and hyper-fine protection with thyristor diodes). Overcurrent protection is realised by **Positive Temperature Coefficient (PTC)** thermistor. Following the appearance of surge hyper-fine overvoltage protection reacts first, (response time less than 1 ns) limiting overvoltage. After a few miliseconds PTC starts limiting overcurrent, especially in case of cross-contact between telecommunication and power distribution cable, operating as a resettable fuse. Resetability can be provided after more than 24 hours of cross connection with $I=23$ A, if necessary. That means **TPM1-2x/DTR** is completely self-maintaining protection according to required tests in ITU-T K.20 and K.21 Recommendations.

This configuration is recommended for protection of new generation equipment (such as digital telephone exchanges, high-speed data transfer lines etc.), especially at the remote sites without the staff.

TPM1-2x/DTR TECHNICAL SPECIFICATIONS

Protection type		Overvoltage and overcurrent	
DC spark-over voltage		230 V	
Impulse discharge current (8/20 μ s)	nominal	5 kA	
	maximal	10 kA	
Surge response voltage (10/700 μ s, $U_p=4$ kV)		200÷240 V peak	
Hold-on current		145 mA	
Line resistance		3÷6 Ω	
Typical trip time ($U_{ac}=230$ V, 50 Hz, $T=900$ s)	$R_f=600$ Ω	$I_f=0,383$ A	30÷50 s
	$R_s=200$ Ω	$I_s=1,15$ A	2÷3 s
	$R_n=10$ Ω	$I_n=23$ A	6÷14 ms
Insulation resistance		$> 10^{10}$ Ω	
Contact resistance (with module)		< 15 m Ω	
Response time		< 1 ns	
Signal attenuation		$< 0,5$ dB	
Number of protected telecommunication lines		1	
Housing		polycarbonate reinforced black UL94 -V0	
Recommendations		ITU-T K.20, K.21, K.30	
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