

Hybrid X_p Series

HYBRID PROTECTION

HYBRID OVER CURRENT PROTECTING DEVICE



X_p product line-up belongs to the new hybrid DC Over-Current Protection (O.C.P.) range developed by MERSEN.

It provides maximum flexibility in equipment design and ultimate protection. They have been engineered to provide protection for DC applications: Battery Energy Storage, EV/HEV, Smart-grid, PV installations, etc ...

The X_p system is composed by fast acting pyro element, controlled by a gate current, plus a parallel clearing element.

This protection meets custom requirements of very fast operating time and very high overload current.

TECHNICAL DATA OVERVIEW

Voltage	Up to 1.000VDC
Ampere Range (A)	0 ... 800 A
Switchability	Max. 12kA - 1.000VDC with L/R=5ms
Temperature range	-40 ... 90 ° C
Gate control current	2A - 10A (2ms)
Gate control resistance	2.2Ω
L/R max.	5ms
Max switching current / Max inrush current	400A / 400A - 10 sec.
Power dissipation	20W @ 25°C

FEATURES & BENEFITS

- DC application focused design
- Extremely low watt losses (~20W / 400A)
- Excellent cycling performance
- Ultra-fast acting (300 μs)
- Small footprint
- Large inrush current 15IN for 100ms
- Tunable Time-Current curve

APPLICATIONS

- 100V to 1,000VDC
- Battery Energy Storage, 100 - 1,000 VDC
- Electric Vehicle, Hybrid Electric Vehicle
- PV installations (1,500VDC in dev.)
- Supercapacitors
- DC General Purposes
- Remote Power Switch Contactor

STANDARDS

- IATF - ISO/TS 16949 Quality management undergoing certification

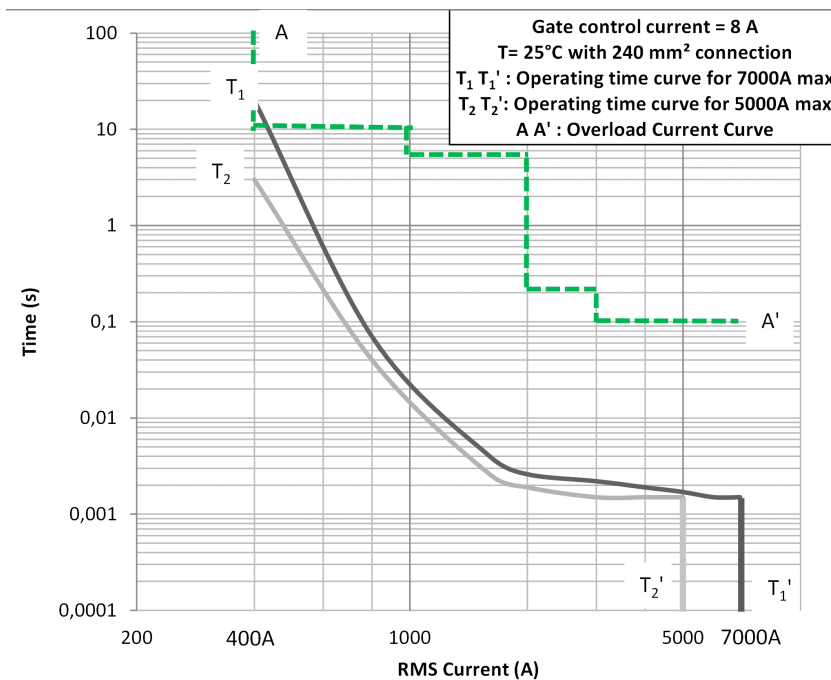
TECHNICAL DATA

Xp series DC fuse

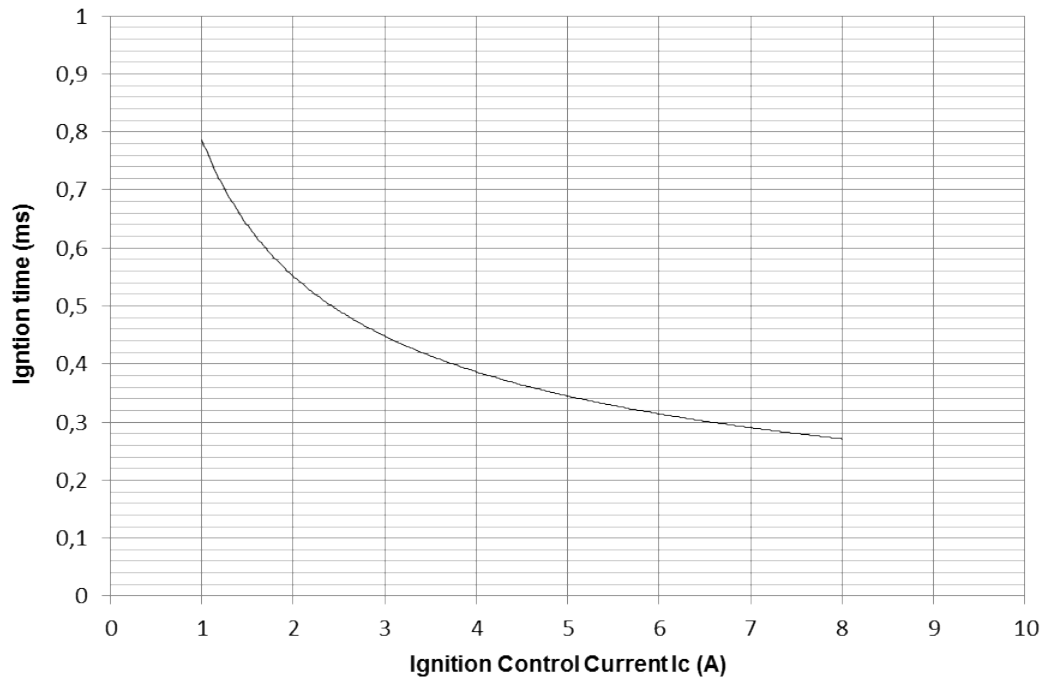
Gate control characteristics	
Triggering time	See figure "Triggering Time"
No Fire Gate Control Current IG	< 0.8A
Dielectric test after triggering	750VDC
Fire Gate Control Current IG	1A - 10A
Gate control resistance	2.2 Ω
Gate Control resistance after triggering	>100 Ω
Output characteristics	
Load voltage	Up to 1000VDC
Operating range	100 - 1000VDC
Current	Up to 800A @ I _n
Overload current T=25°C / 240 mm ² connection	600A / 2 mn 1,000A / 10s 2,000A / 5s 7,000A / 100 ms
On state resistance	200 μΩ
Off state resistance	> 5 MΩ
Power dissipation	20 W @ 25°C
Switchability	12kA – 1,000 VDC with L/R = 5ms
System characteristics (can be tailored for you)	
Vibration resistance	ISO 16 750-3 (under qualification)
Mech. shock resistance	ISO 16 750-3 (under qualification)
Temperature cycle resistance	ISO 16 750-4 (under qualification)
Chemical loads resistance	ISO 16 750-5 (under qualification)

TRIPPING TIME CURVE

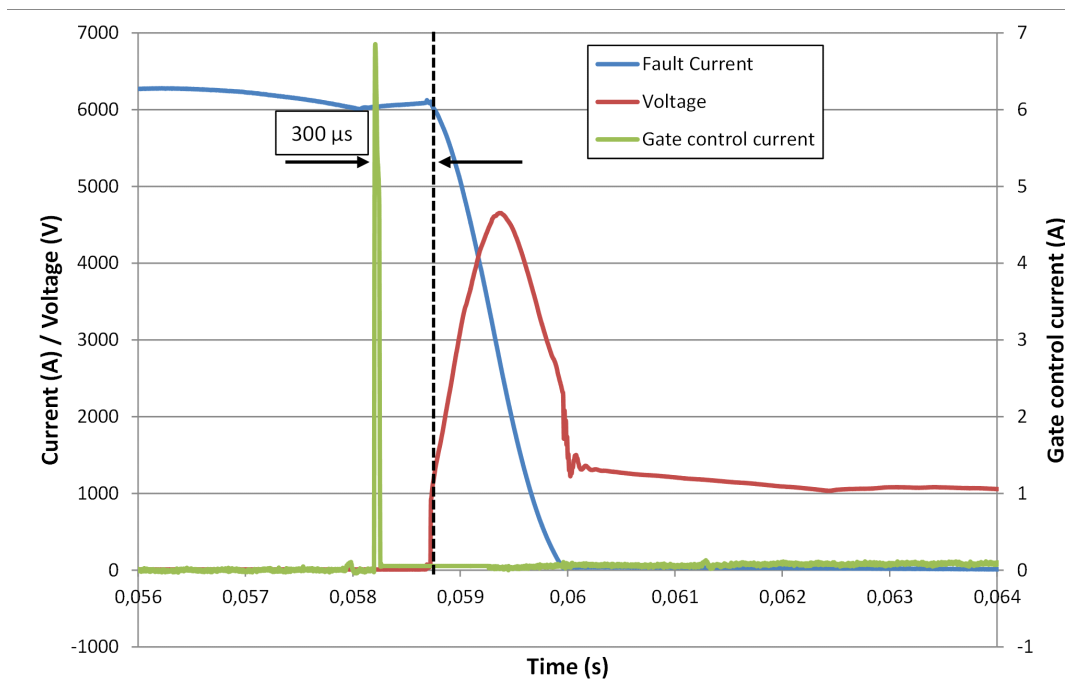
Hybrid Xp series 400Amp



TRIGGERING TIME VERSUS I_G



SHORT CIRCUIT EXAMPLE



SCHEMATICS AND OPERATION

