Exposed RS-485
IEC 61000-4-5 Level 4 and 120 Vrms Power Fault Protection

Bourns® PortNote® solutions provide protection recommendations for typical port threats.

Objective
RS-485 is a balanced data transmission scheme utilizing voltage levels from -7 V to +12 V (max.) at data rates up to 10 Mbps. This solution provides Level 4 and power fault protection in a compact PCB area.

Solution
1 TBU® High-Speed Protector (HSP) Device: TBU-RS085-300-WH
2 TISP® Thyristor Surge Protectors: TISP4350J3BJR-S

Benefit
This solution utilizes the compact TBU-RS series which integrates a 7/12 V TVS diode array, and protects against 120 Vrms power fault conditions.

Compliance*
IEC 61000-4-5 Level 4
120 Vrms power fault protection

Alternate Recommendations
RS-485 - Serial Port - ESD / EFT / Surge protection PortNote® solution
RS-485 Port Protection Evaluation Board 4
Design Note
TISP4500H3BJR-S for 230 Vrms power fault protection

*The Bourns® Model TBU-RS085-300-WH and TISP4350J3BJR-S have been tested to a 4 kV with 1.2/50 μs combination wave generator which is compliant with IEC 61000-4-5 Level 4 specifications. The combination also survives with 120 Vrms power fault. Customers should verify actual device performance in their specific applications.

The schematic above illustrates the application protection and does not constitute the complete circuit design.

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