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DAS Protection Features

Overview

All DTS systems include comprehensive protection against numerous risks frequently encountered in dynamic test environments such as sled tests or full-scale crash tests. These risks can reduce data quality, cause data loss, or permanently damage electronics.

Power Inputs

	Risk	DTS Performance
1	User may accidentally connect power backward	No damage will occur
2	User may connect too much voltage.	TDB – fully protected to over 70-volts DAS - up to 16-volts, no problem Above 18-volts, suppression device may short, thus protecting the system.
3	Air bags can generate damaging ESD (Electro-Static Discharge)	Inputs will withstand 8,000-volts ESD (air discharge) with no damage
4	Power source may short-out or otherwise fail during a dynamic test	Internal backup power systems keep system working normally

Power Outputs

	Risk	DTS Performance
1	Power cables may short together or to ground during dynamic test	All outputs are short-circuit safe. No damage will occur.
2	Outputs may be overloaded	Outputs have automatic overload detection and shutdown

Event Inputs

	Risk	DTS Performance
1	Event wiring may touch various voltages by accident during a dynamic test	Inputs tolerate 26-volts to ground
2	ESD (Electro-Static Discharge) can cause damage	Inputs will withstand 8,000-volts ESD (air discharge) with no damage.

Sensor Inputs

	Risk	DTS Performance
1	Any or all wires in a sensor cable may short together or to ground during dynamic test	No damage will occur to sensor circuits and there will be no significant effect on any other channel
2	Excitation output may short continuously	No damage will occur to excitation circuits and there will be no significant effect on any other channel
3	Air bags can generate damaging ESD (Electro-Static Discharge)	Inputs will withstand 8,000-volts ESD (air discharge) with no damage
4	Use of radio transmitters, including mobile phones may disrupt data.	Complete protection against Radio Frequency Interference
5	Transducer resonance or Electro-Magnetic Interference (EMI) may subject inputs to high-frequency overload.	Inputs have bandwidth limiting that keeps data from being distorted
6	Continuously applied voltage above rated input range with high current potential can damage DAS & Docking Stations	Solution: Use approved range expansion attenuators for measuring high current signals above 5-volts (up to 800-volts)

Digital Inputs

	Risk	DTS Performance
1	Any or all wires in a cable may short together or to ground during a dynamic test	No damage will occur to input circuits and there will be no significant effect on any other channel
2	Over-voltage may accidentally be applied	Inputs tolerate 26-volts to ground.
3	Air bags can generate damaging ESD (Electro-Static Discharge)	Inputs will withstand 8,000-volts ESD (air discharge) with no damage
4	Use of radio transmitters, including mobile phones may disrupt data.	Complete protection against Radio Frequency Interference

TOM Outputs

	Risk	DTS Performance
1	Air bag or pretensioner wiring may short to ground during a dynamic test	No damage will occur to output drive circuits and there will be no significant effect on any other channel
2	Air bag or pretensioner connections could be faulty	TOM continuously monitors connected resistance and warns user
3	Digital Outputs may become shorted	No damage will occur to output drive circuits and there will be no effect on any other channel
4	User may connect digital outputs to devices with large difference in ground	Outputs tolerate 26-volts to ground.
5	ESD (Electro-Static Discharge)	Inputs will withstand 8,000-volts ESD (air discharge) with no damage

Communication Connections

	Risk	DTS Performance
1	P.C. may be at different voltage potential compared with test fixture or vehicle	Standard twisted-pair Ethernet is well protected and designed to handle this situation
2	Different DAS units may be at different electrical potential	Control inputs and Event circuits are optically isolated
3	ESD (Electro-Static Discharge)	Inputs will withstand 8,000-volts ESD (air discharge) with no damage
4	Use of radio transmitters, including mobile phones may cause false trigger events.	Complete protection against Radio Frequency Interference