



Compatibility of disparate Data Acquisition Systems

Presented by:
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About DTS, Inc.

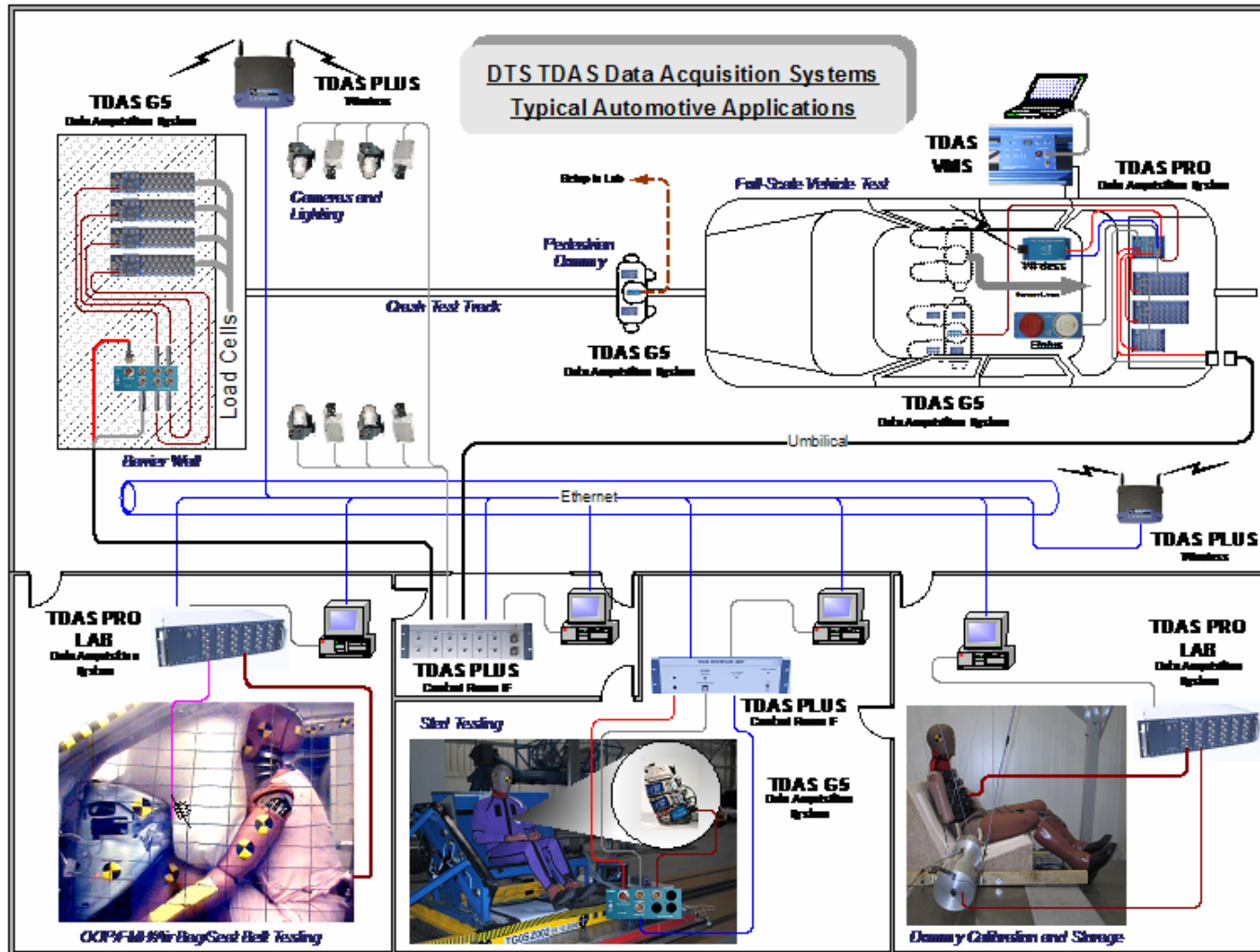
- DTS designs and manufactures rugged data acquisition systems and accessories for occupant safety testing
- DTS delivers complete solutions to OEMs, suppliers, and independent crash test facilities worldwide since 1990.
- All products are designed and supported by experienced crash test engineers
- For further details and references see us at

Booth 5110

DTS Products

- DTS Products include:
 - **TDAS PRO**: modular DAS for rugged and stationary applications
 - **TDAS G5**: rugged miniaturized DAS for integrated applications
 - **TDAS PLUS**: accessories for integration of TDAS data acquisition products into facility-wide system solutions
 - **TDAS CONTROL**: software products to control TDAS systems, and integration with customer specific data and hardware environments
- See us at **Booth 5110** for product demonstrations

Today's Complex Crash Facilities



Market Demand - Compatibility

- Users want:
 - Software integration for centralized test requests, administration of equipment & instrumentation, and post-processing
 - Hardware integration of various subsystems: barrier DAS, vehicle DAS, and in-dummy DAS; cameras, lighting/flash, etc.
 - Exchange of testing equipment between labs: Specialty dummies, DAS for occasional high channel counts, calibration
 - Flexibility to upgrade to state-of-the-art technology from various vendors
 - Freedom to chose most suitable system for task

Hardware Compatibility Challenges

- Power bus
 - Different DAS systems operate with 12 V, 15V, or 24V DC supply voltages
 - On-board cameras typically operate with 28 VDC supply voltage
- Common Trigger/T0 signals
 - Start record (Trigger 1) – Recorder Mode
 - Time Zero (Trigger 2) – Circular Buffer/Transient Mode
- Status line
 - Ready, armed, triggered, busy, and fault signals

Hardware Compatibility Requirements

- Power Bus
 - Power conversion and conditioning
 - Short circuit protection
 - Overload protection
 - Backup power
- Status line
 - Bi-directional isolation
 - Signal level conversion
- Common Trigger signals
 - Distribution to multiple systems
 - Signal timing synchronization
 - Contacts closure vs. TTL level trigger
 - Bi-directional isolation
 - No false triggers

Software Compatibility Challenges

- Various data communication protocols
- Multiple hardware definition formats
- Multiple test data formats for post processing
- Various hardware command structures
- Single user interface for test hardware setup and arming

Software Compatibility Requirements

- Multiple Data Formats
 - Read Sensor information in various formats
 - Export test data in multiple formats
- Data Communication
 - 10/100BaseT Ethernet
 - 10Base2 Ethernet
 - RS232/485
- Support or provide Hardware Specific APIs
 - Setup of data acquisition channels
 - Definition of test parameters
 - Checking and arming the systems
 - Retrieve test data

Compatibility Solutions

- ASAM GDI
 - Industry wide, vendor independent multi-level compatibility standard
 - Very complex and expensive to implement
 - Not fully implemented in Crash Test field
- Available Vendor Specific Solutions
 - Messring
 - Custom interface hardware and Crashsoft3[®] integration software supporting DAS hardware from multiple vendors including DTS
 - Micro-Sys
 - Custom interface hardware and SureFire[®] integration software supporting DAS hardware from multiple vendors including DTS
 - DTS
 - TDAS PLUS interface hardware and open API support for DTS TDAS data acquisition systems, implemented to date by FTSS, Messring, and Microsys.

DTS Hardware Compatibility

- TDAS PLUS Distributor/Mini Distributor
 - Crash-hardened interface hardware for on-board integration of DAS and cameras
 - Models available with DC/DC converters for input voltages from 12 to 60 VDC, 15 VDC output for DTS DAS and optional 28 VDC output for on-board cameras
 - Built-in 10/100BaseT Ethernet hub with optional 10Base2 media converter.
 - Bi-directional, opto-isolated isolated trigger bus supporting contact-closure or TTL level for start record and T=0 signals
 - Compatible with Crashlink® Bus, with built-in bus termination
 - Optional CAN bus status loop with 0 Ohm termination
- TDAS G5 DAS Module compatible with KT WinCarat®
- See us at **Booth 5110** to talk to us about your specific custom interface requirements



DTS Software Compatibility

- DTS offers API information for our TDAS data acquisition systems to customers and other DAS manufacturers allowing DTS hardware integration in various control software applications.
- DTS TDAS Data Acquisition Systems, stand-alone or in mixed operation with DAS from KT and/or Messring, are currently supported and working in software solutions from:
 - FTSS – Dummy calibration software
 - Messring – Crashsoft3
 - Micro-Sys – SureFire
- DTS TDAS CONTROL Software supports the following data output formats:
 - ISO 13499 and ISO MME
 - Diadem
 - NHTSA
 - ASCII
 - Excel
 - Many customer specific formats

Summary

- Compatibility of DAS from various vendors is a customer need worldwide
- DTS can offer solutions for your specific needs
- Come see us at **Booth 5110**

THANK YOU for your attention!



Questions?

See us at

Booth 5110

or write to:

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