21st Transducer Workshop
Sponsored by
Vehicular Instrumentation / Transducer Committee of the
Range Commanders Council
Lexington Park, Maryland
June 22-23, 2004

Presentation
DTS G5 Miniature Data Acquisition System

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Agenda

Mechanical Specifications
Electronic Specifications
Software Overview
Applications
Interposer Interfacing
TDAS G5 Docking Station

DTS G5 Miniature Data Acquisition System

Mechanical Specifications

25 x 54 x 85 mm

Factory Tested to 500+ G's

In-Dummy Mountable

On-Vehicle Mountable

Lightweight – 200 Grams

0-70 ° C Temp Range

DTS G5 Miniature Data Acquisition System

Electronic Specifications

32 Differential Inputs

0.1 to 4.8 V Input Range
(Centered @ 2.5 V)

DC – 4Khz Bandwidth

EMI, RFI, ESD Protected

Gain: 1-4000

100% Auto Offset

DTS G5 Miniature Data Acquisition System

Electronic Specifications

Voltage Insertion Calibration
16-bit DAC
0.1%, 100ppm/°C
Software Compensated

16-Bit Shunt Emulation
0.1%, 100ppm/°C
Software Compensated

DTS G5 Miniature Data Acquisition System

Electronic Specifications

Channel Independent, Current Limited Excitations

5.0 Volts Excitation
(2.0 Also Available W / Docking Station)

Excitation Voltage Monitored and Software Compensated

20ma Per Channel

<1 msec Short Circuit Recovery

DTS G5 Miniature Data Acquisition System

Electronic Specifications

Fixed Low Pass Anti-Alias Filter
4 Pole Butterworth
-3db @ 4.0 Khz

Adjustable Low Pass Filter
5 Pole Butterworth
50-5,000 Hz
Programmable

Both Filters Can Be Combined for an
8 Pole Effective Response

DTS G5 Miniature Data Acquisition System

Electronic Specifications

32 Digital Inputs with Internal
Pull-Up Resistors

Digital Inputs are EMI, RFI,
and ESD Protected

Dallas 1-Wire® Sensor ID

DTS G5 Miniature Data Acquisition System

Electronic Specifications

One SAR ADC per Channel

16 Bit Resolution

100K Samples / Sec / Channel

Relative Accuracy +/- 4 LSB

50 Meg Memory – Main
5 Meg NVRAM

128 Meg SD Flash Optional

DTS G5 Miniature Data Acquisition System

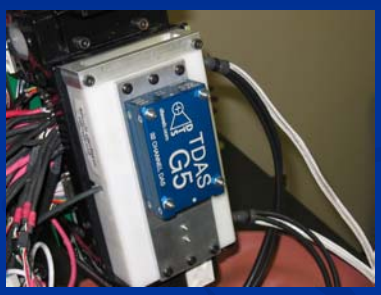
Electronic Specifications

Optically Isolated Trigger Input

Engineering Unit Level Triggering
Available on any Channel

Multiple Module Trigger
Synchronization

Armed and Recording Logic Signals
Accessible



DTS G5 Miniature Data Acquisition System

Electronic Specifications

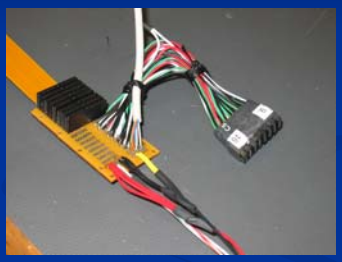
Ethernet 100BaseTX

RS232 For Diagnostic Mode

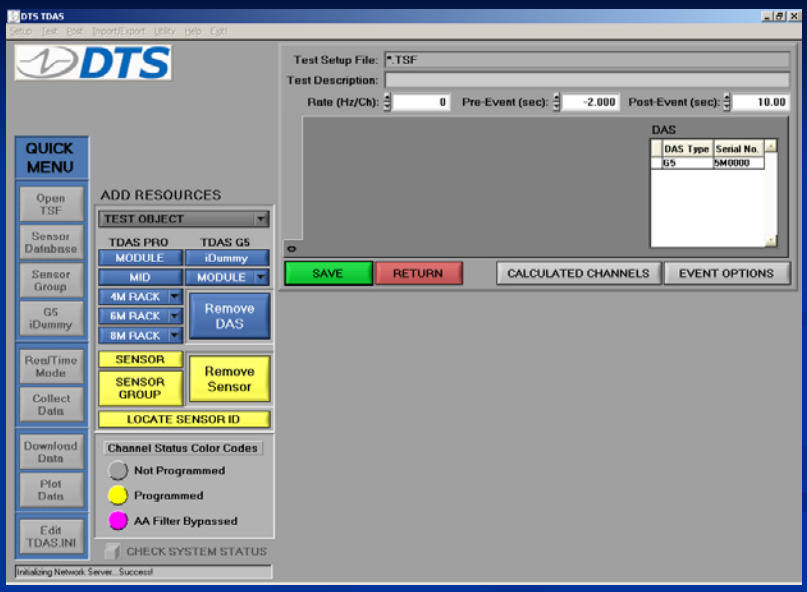
11-15 VDC Supply Voltage
(Nominal 13.8 VDC)

Remote Power Control Line

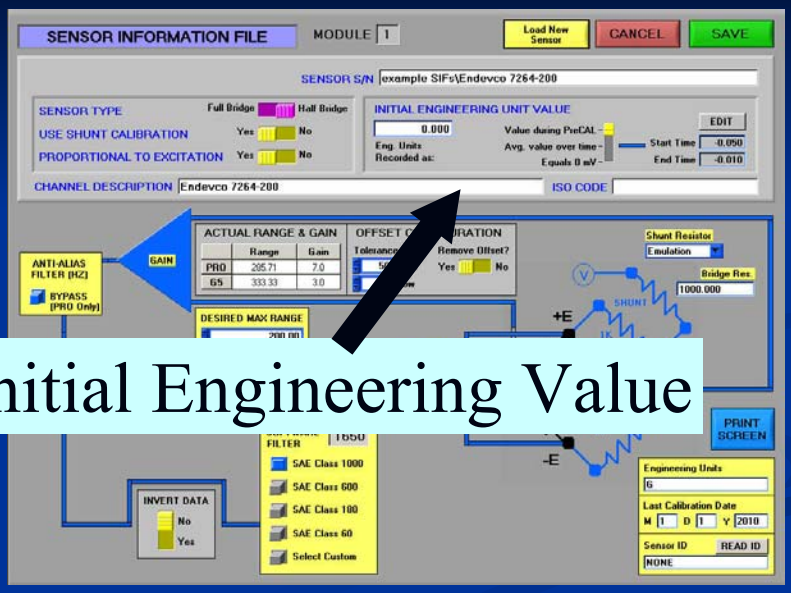
Reverse Current Protection



DTS G5 Miniature Data Acquisition System

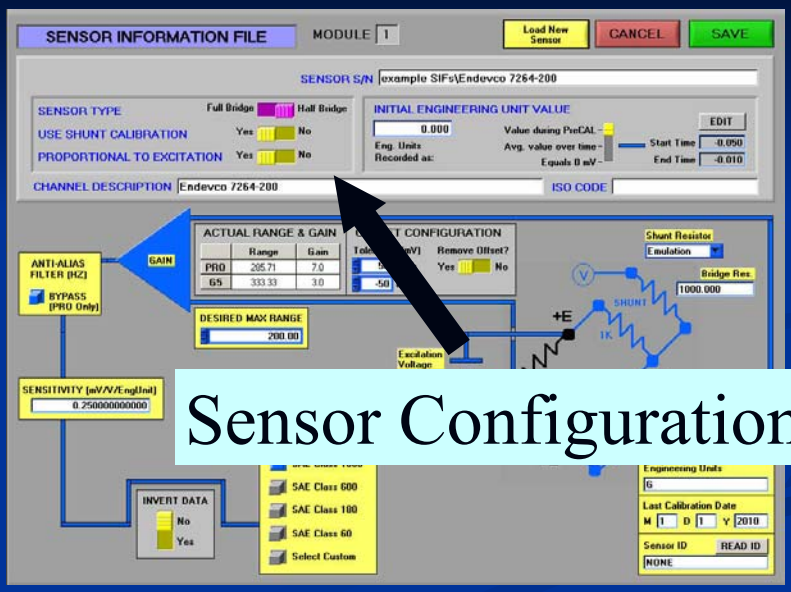


DTS G5 Miniature Data Acquisition System



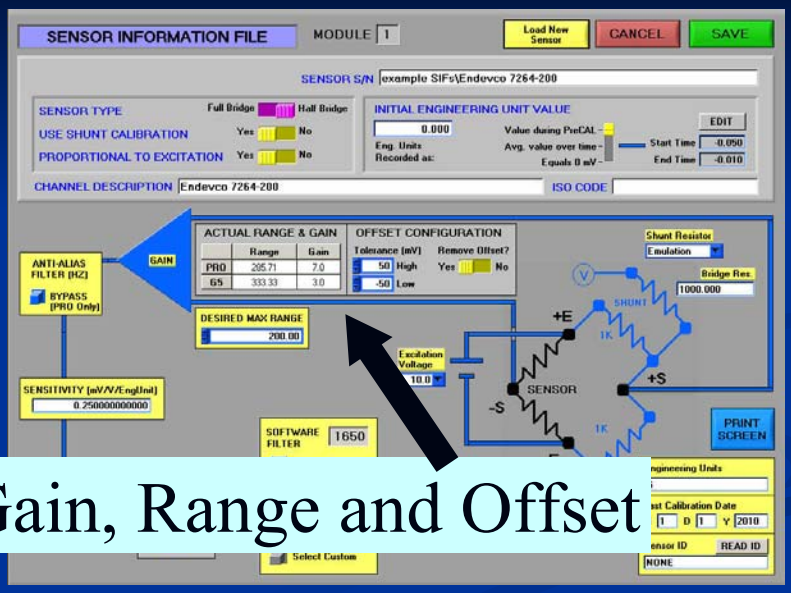
Initial Engineering Value

DTS G5 Miniature Data Acquisition System



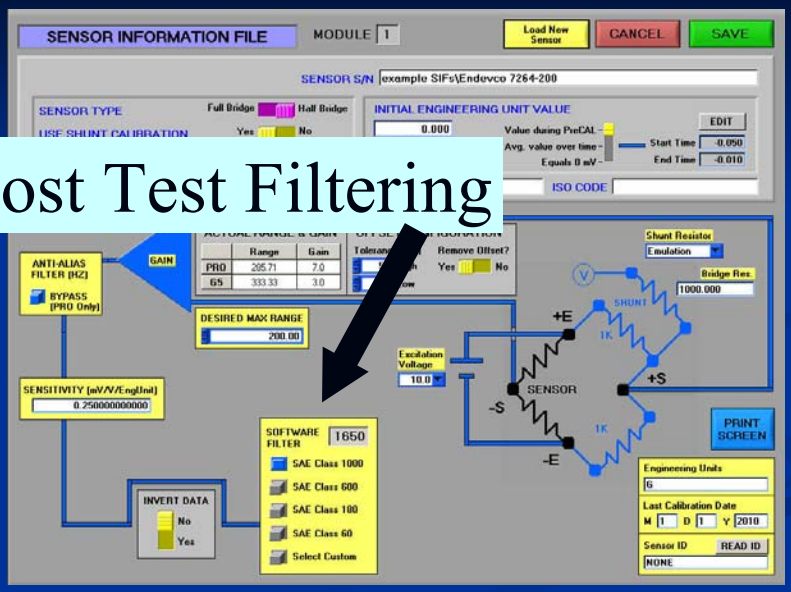
Sensor Configuration

DTS G5 Miniature Data Acquisition System



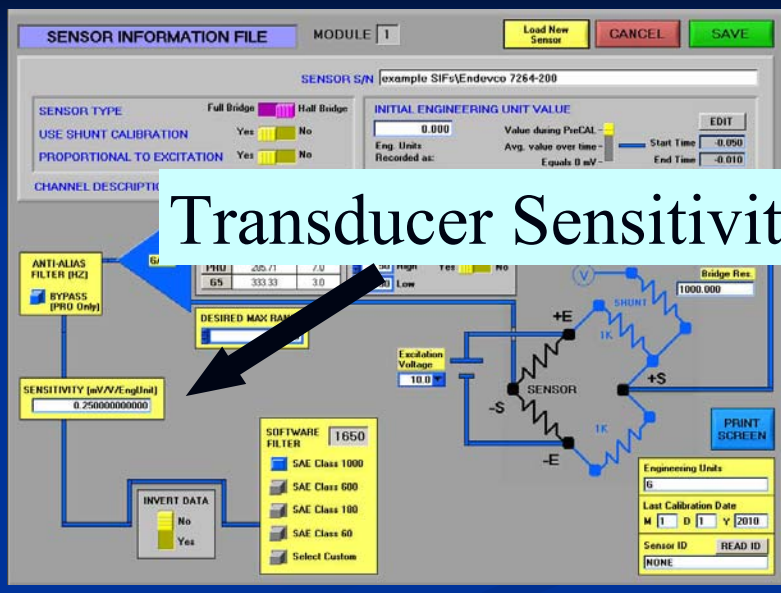
Gain, Range and Offset

DTS G5 Miniature Data Acquisition System



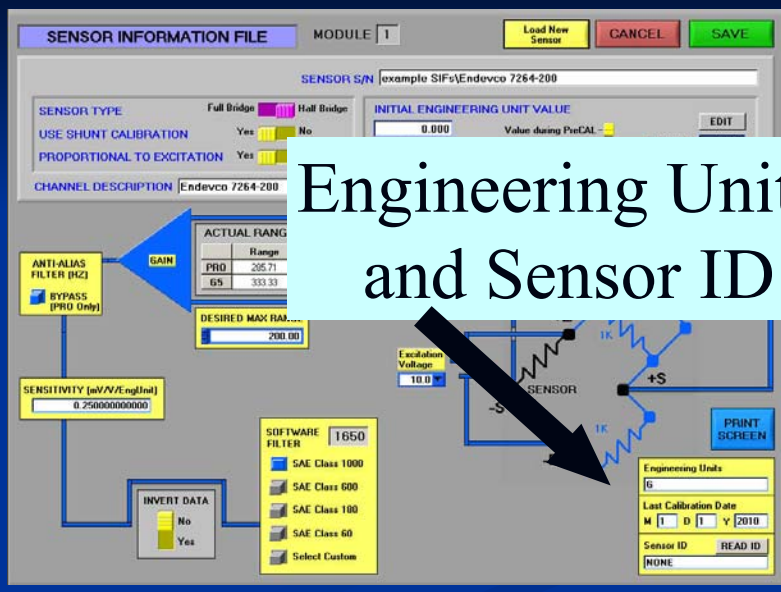
Post Test Filtering

DTS G5 Miniature Data Acquisition System



Transducer Sensitivity

DTS G5 Miniature Data Acquisition System

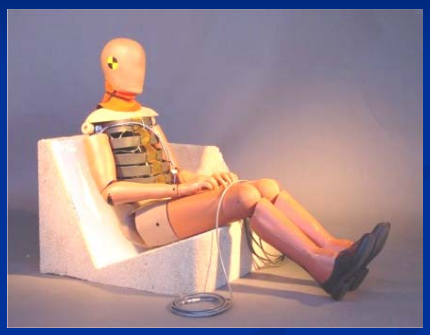


Engineering Units and Sensor ID

DTS G5 Miniature Data Acquisition System

Applications

WorldSID Dummy



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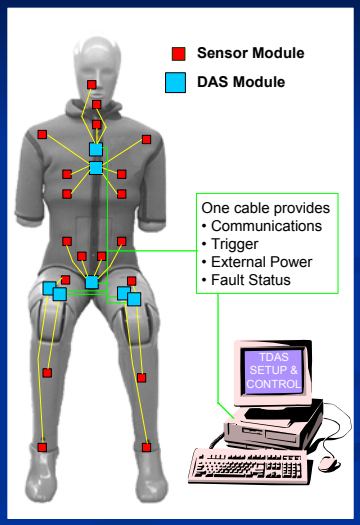
Applications

WorldSID Dummy



DTS G5 Miniature Data Acquisition System

Applications

WorldSID Dummy

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Applications

Race Car Testing

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Race Car Testing

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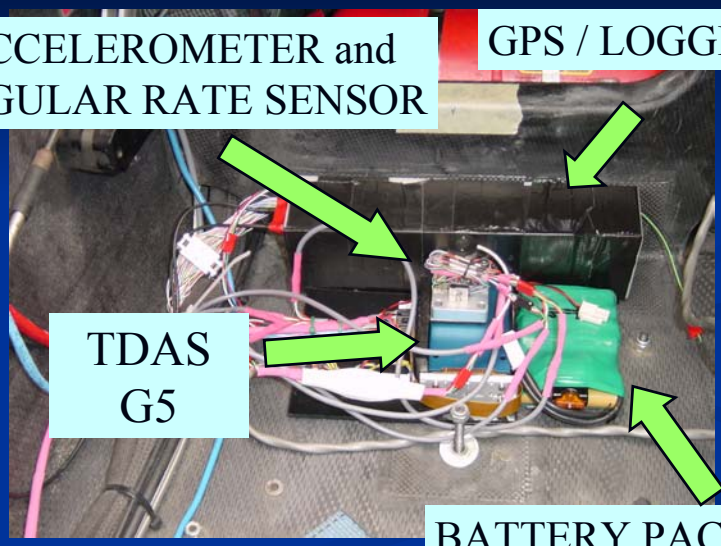

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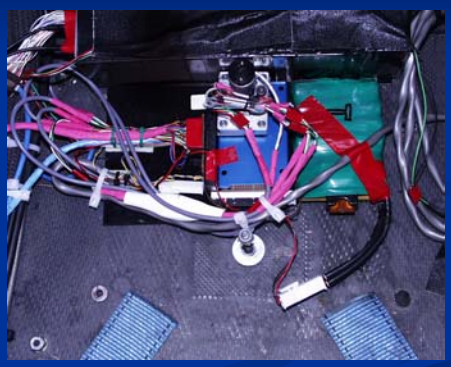
Applications

Race Car Testing



DTS G5 Miniature Data Acquisition System

Applications

Race Car Testing

DTS G5 Miniature Data Acquisition System

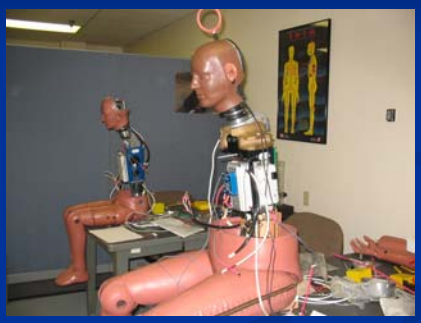
Applications

Ejection Seat Testing

DTS G5 Miniature Data Acquisition System

Applications

Ejection Seat Testing



DTS G5 Miniature Data Acquisition System

Applications

Ejection Seat Testing

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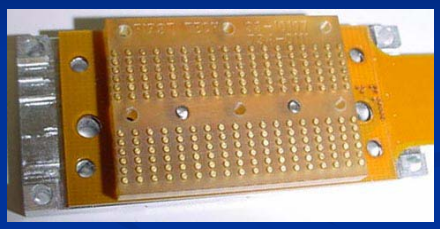
Interposer Interfacing



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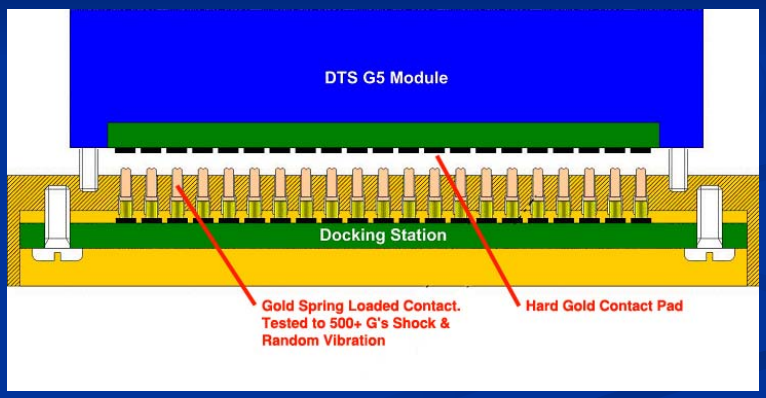
Interposer Interfacing



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Interposer Interfacing

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TDAS G5 Docking Station