# TDAS G5

## 32-Channel Standalone Data Recorder

## APPLICATIONS

- Aerospace analysis
- Amusement ride testing
- Automotive safety
- Biomechanics
- Blast testing
- Embedded monitoring
- Helicopter & aircraft
- Impact testing
- In-dummy
- Injury investigation
- Parachute deployment
- Pedestrian head & leg form
- Ride & handling
- Sound measurement
- Sports & safety equipment
- Vibration testing

## PRODUCTS

DTS offers a full line of data acquisition recorders and sensors for dynamic, high-shock testing.


The TDAS G5 Data Acquisition System is low mass, high speed and rated for severe impact conditions. The modular 32-channel TDAS G5 can be used for a variety of applications including in-dummy and on-vehicle.

The TDAS G5 system by DTS has become the best selling data acquisition system of its kind. There is virtually no limit to the recording flexibility that the TDAS G5 product line offers. The ultra-small design makes it possible to record data in demanding environments that were once considered too difficult or dangerous. Small size, high sampling rates and an expanded range of ancillary products make the TDAS G5 the ultimate data acquisition system available.

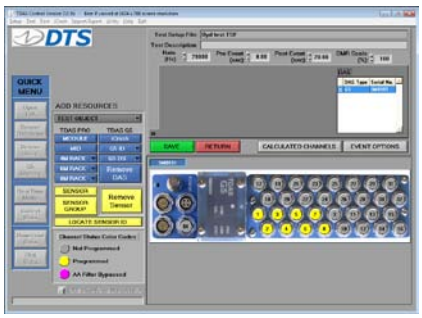
Ancillary products include:
TDAS G5 Vehicle Docking Station
TDAS G5 Docking Port


## Features

- Intuitive, easy-to-use software
- Modular, lightweight, small: 32 channel sensor inputs in a 25 x 54 x 85 mm, 200 gram package
- Durable, rugged, reliable: module factory tested to 500+ g Docking options factory tested to 100+ g
- 100 ksps per channel, high speed 16-bit ADC
- High-bandwidth options up to 40 kHz
- Fully programmable signal conditioning; gains from 1-4000
- Extended memory options available
- Sensor ID
- Integrates into current family of test dummies
- 100BaseT Ethernet & wireless communication options
- Certified to the NHTSA, FAA, ISO 6487 and SAE J211 data acquisition practices

## Software

TDAS Control software provides easy-to-use tools for storing sensor information and performing data collection. Advanced features such as automatic sensor assignment, detailed channel diagnostics, and real-time data display supports successful testing and quality data every time.

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## SERVICES

24/7 Worldwide Tech Support
Calibration & Repair Services
Application Support
Software Integration
OEM/Embedded Applications

## OFFICES

Seal Beach, California USA
Novi, Michigan USA
Sydney, Australia
Shanghai, China
Zorge, Germany
Tokyo, Japan

# Specifications

### PHYSICAL

| | |
|---|---|
| Module Size: | 25 x 54 x 85 mm (0.98 x 2.13 x 3.35") |
| Weight: | 200 g (7.05 oz) |
| Connectors: | 1. Gold plated PCB contact method<br>2. In-line connector options<br>3. LEMO connectors with Vehicle Docking Station<br>4. 4 D-Sub with Docking Port |

### ENVIRONMENTAL

| | |
|---|---|
| Operating Temp.: | 0-50°C (32-122°F) |
| Shock: | 500 g peak, 4 msec half sine (TDAS G5)<br>100 g peak, 12 msec (docking options) |

### ANALOG INPUTS (32)

| | |
|---|---|
| Type: | Differential, individually programmable |
| Maximum Input Range: | 0.5-4.5 V |
| Bandwidth: | D.C. to 4 kHz |
| Protection: | EMI, RFI, ESD |
| Gain Range: | 1.0-4000 |
| Gain Accuracy: | 0.2% - Automatically checked each use by precision voltage insertion |
| Auto Offset Range: | 100% of effective input range |
| Bridge Support: | Yes, under software control |

### CALIBRATION

| | |
|---|---|
| Features: | Software controlled voltage insertion and shunt emulation |
| Voltage Insertion: | |
| Type: | 16-bit DAC |
| Accuracy: | 0.1%, 100 ppm/°C, software compensated |
| Shunt Checks: | |
| Type: | 16-bit shunt emulation |
| Accuracy: | 0.1%, 100 ppm/°C, software compensated |

### EXCITATION

| | |
|---|---|
| Method: | Independent, current-limited sources |
| Voltage levels: | 5.0 V (Vehicle Docking Station 2.0 V, 5.0 V) |
| Accuracy: | 0.1% |
| Rated Current: | 20 mA per channel |
| Short Circuit Recovery: | <1 msec |
| On/Off Control: | Excitation sources turned on/off by software control to minimize power consumption |

### ANTI-ALIAS FILTERS

| | |
|---|---|
| Fixed Low Pass: | 4-pole Butterworth, standard knee frequency of 4.0 kHz (HB option = 40 kHz) |
| Adjustable Low Pass: | 5-pole Butterworth set under software control, 50–5000 Hz (HB option = 40 kHz) |
| Overall Response: | Both filters may be used together to achieve 9-pole effective response |
| SAE J211: | System response exceeds SAE J211 requirements |

### DIGITAL INPUTS (32)

| | |
|---|---|
| Type: | 5 V logic input or contact closure with built-in pull-up resistor |
| Propagation Delay: | <0.05 msec |
| Protection: | EMI, RFI, ESD |

### DIGITAL COMMUNICATION BUS

| | |
|---|---|
| Number of Avail. Lines: | One per channel plus 2 extra |
| Methodology: | Dallas (Maxim) 1-Wire® |
| Typical Uses: | Silicon serial number, TEDs, etc. |

### ANALOG-TO-DIGITAL CONVERSION

| | |
|---|---|
| Type: | One SAR ADC per channel |
| Resolution: | 16-bit |
| Max. Sampling Rate: | 100k samples/sec/channel |
| Relative Accuracy: | ± 4 LSB |
| Storage Technique: | Recorder or circular buffer modes available. Any portion of the memory may be allocated to pre-trigger data. |
| Memory Type/Capacity: | 150 seconds at 10k samples/sec |

### TRIGGERING

| | |
|---|---|
| TDAS G5: | Optically isolated input with trigger received LED indicator |
| Level Triggering: | Available from any channel(s) within each DAS module |
| Trigger Synchronization: | Control architecture supports multiple module installations |

### STATUS OUTPUTS

| | |
|---|---|
| Recording: | 5 V, 20 mA driver (for LED or opto-couplers) |

### POWER

| | |
|---|---|
| Supply Voltage: | 13.8 V nominal (11-15 V) |
| Maximum Power: | Approximately 800 mA per 32-channel system with 350 ohm bridges at 5.0 V excitation (depends significantly upon connected sensors) |
| Protection: | EMI, RFI, ESD, reverse current |
| Power Control: | Remote power control line for switching unit on/off |

### CONTROL SOFTWARE

| | |
|---|---|
| Interface: | Ethernet 100BaseTX |
| Compatibility: | Standard TDAS Control Software |
| Operating Systems: | Windows® XP, Vista, 7 |

Authorized DTS Representative:

909 Electric Ave., Suite 206
Seal Beach, CA 90740 USA
Phone: +1 562 493 0158
Email: sales@dtsweb.com
**www.dtsweb.com**