PRODUCT DATASHEET

TDAS PRO SIM

Sensor Input Standalone Data Recorder

APPLICATIONS

- Aerospace analysis
- Amusement ride testing
- Automotive safety
- Biomechanics
- Blast testing
- Embedded monitoring
- Helicopter & aircraft
- Impact testing
- 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.

TDAS PRO LAB SIM and TDAS PRO SIM (13.7 x 12.2 x 3.4 cm) are standalone data recorders with 8 fully-programmable sensor input channels that work with a variety of sensors.

The TDAS PRO Sensor Input Module (SIM) from DTS is a completely independent data acquisition system that can be used standalone or assembled into large test configurations by linking with DTS rack systems. The inherent 8-channel modularity increases productivity, offers greater flexibility and reduces downtime for calibration services. No other system offers these advantages.

Available in 2 models:
TDAS PRO crashworthy, TDAS PRO LAB stationary

Fits in TDAS PRO 4- or 8-module rugged rack.

Fits in TDAS PRO LAB stationary rack.

Features

- Intuitive, easy-to-use software
- 8 fully-programmable sensor input channels with isolated excitation
- Ultra-low noise, sensor ID, high speed 16-bit ADC
- Lightweight, small size, cost-effective
- Durable, reliable, crashworthy unit tested to 100 g
- Comprehensive fault detection and self diagnosis
- LED indicators for power and event status
- Ethernet, RS-232 and wireless communication options
- Built-in back-up battery with smart charge circuit in modules & racks
- Certified to 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.

DTS

Advanced Measurement Solutions
www.dtsweb.com

REV 6.2010

Specifications

PHYSICAL

Size:	13.7 x 12.2 x 3.4 cm (5.4 x 4.8 x 1.35”) 71 cm³ per channel
Module Weight:	0.77 kg (1.7 lb), 96 g per channel
Compatibility:	Fits standard TDAS PRO Racks
4 Module Rack Size:	14.7 x 19.6 x 12.7 cm (5.8 x 7.7 x 5.0”)
4 Module Rack Weight:	~9 kg (~19 lb) – includes modules
8 Module Rack Size:	14.7 x 33.8 x 12.7 cm (5.8 x 13.3 x 5.0”)
8 Module Rack Weight:	~12 kg (~25 lb) – includes modules

ENVIRONMENTAL

Operating Temp:	0-50°C (32-122°F)
Shock:	100 g peak, 12 msec half sine
Vibration:	6 g rms, 55-1000 Hz, 30 minutes

ANALOG INPUTS

Type:	Differential, software programmed
Common Mode Range:	±6.25 V
Protection:	±50 V
Impedance:	50 megaohm typical
Gain Range:	0.8 to 2000
Overall Bandwidth:	D.C. to 25 kHz
Noise Spectral Density:	0.06 µV/√Hz RTI typical, 0-4000 Hz
Signal to Noise Ratio:	80 dB typical at gains from 1-128
Crosstalk:	<0.25% 10 V pp sq wave signal connected to any channel with all other channels set to a gain of 128 with 350 ohm bridges connected
Accuracy:	0.2%, automatically calibrated each use by internal 16-bit DAC
Auto Offset Method:	Dual 12-bit DACs per channel
Auto Offset Range:	Gain 0.8-31: ±5.0 V, Gain ≥32: ±150 mV
Auto Offset Accuracy:	Typically <0.1% of A/D full scale
Bridge Completion:	Software selected per channel, 1000 ohm std

ANTI-ALIAS FILTER –TWO PER CHANNEL

Fixed Low Pass:	8-pole Butterworth, 4.3 kHz standard (2.9 kHz and 3.0 kHz also available)
Adjustable Low Pass:	5-pole Butterworth, set under software control from 50-3000 Hz
SAE J211:	System response meets SAE J211 requirements

EXCITATION

Method:	Individually galvanically/optically isolated and software controlled
Voltage Levels:	Off, 5.0, 10.0 V (2.0 & 10 V option)
Accuracy:	Each ch software compensated (typ .1%)
Rated Current:	50 mA per channel, continuous operation, individually current limited at ≈ 65 mA
Short Circuit Recovery:	<1 msec typical

DIGITAL INPUTS

Method:	Sensor inputs may be used as event marker channels with filters bypassed
Propagation Delay:	0.02 msec

CALIBRATION

Method:	Software controlled precision voltage insertion with multiple shunt check options
Voltage Insertion Type:	16-bit DAC
Accuracy:	Better than 0.1% 100 ppm/°C, NIST traceable and software compensated
Shunt Checks Using Resistors	
Number:	7 internal and 1 external
Values:	10k to 649k standard values, 0.1% 25 ppm
Switching Resistance:	<2 ohm, connected between +Ex and +Signal
Shunt Checks Using Emulation Method	
Description:	Precision current applied to +Signal. Allows virtually unlimited shunt check resolution.

ANALOG-TO-DIGITAL CONVERSION

Resolution/Method:	Standard 16-bit successive approximation with simultaneous sampling of all channels (up to 25 ksps/channel)
Max. Sampling Rate:	304k samples/sec/module (38k on each of 8 ch., 100k on each of 3 ch., etc.)
Relative Accuracy:	±4 LSB (0.006%)
Storage Technique:	Circular memory buffer. Any portion of the memory may be allocated to pre-trigger data.
Memory Capacity:	1 M samples/channel
Memory Type:	Battery backed SRAM, retention >7 days

TRIGGERING SYSTEMS

Each Module:	Conditioned contact closure input with T=0 received LED indicator
Rack System:	Standard contact closure input, galvanically and optically isolated to 1 kV. 5-12 V optically coupled inputs available.
Level Triggering:	Available from any channel in each module

SENSOR ID

Method:	Serial data read from a digital I/O line in each sensor connector
Types Supported:	Maxim/Dallas

POWER

External Voltage:	12-15 V
Maximum Power:	Depends largely upon connected sensors. Up to 900 mA per 8 channel module with 350 ohm bridges and 10 V excitation on all channels (≈8.0 A maximum for 64 channels)
Protection:	Self-resetting fuses plus reverse current and transient over-voltage protection.
Post-test Power Reduction:	Drops to ≈350 mA per 8 channel module
Back-up Power:	Rack & module contain rechargeable batteries
Back-up Duration:	>10 minutes at full power

PC INTERFACE

Module (standalone):	RS-232 @ 115.2 kHz (USB adapter available)
Rack System (standard):	Ethernet 10BaseT and RS-232 @ 115.2 kHz
Options:	Wireless Ethernet and USB adapter available

CONTROL SOFTWARE

Compatibility:	Standard TDAS Control Software
Operating Systems:	Windows® XP, Vista, 7

SERVICES

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

WORLDWIDE SUPPORT

HELP CENTER (24/7/365 Access)
DTS Technical Centers
Global Sales Partners

HEADQUARTERS

Seal Beach, California USA

CONTACT US

Phone: +1 562 493 0158
Email: sales@dtsweb.com
Web: www.dtsweb.com

Authorized DTS Representative:

DTS
www.dtsweb.com