



TDAS PRO

Sensor Input Module (SIM)

For the discriminating test professional, DTS offers the TDAS PRO Sensor Input Module (SIM). Each 8 channel TDAS PRO SIM is a completely independent data acquisition system that can be used stand-alone or assembled into large test set-ups by linking 4 module and 8 module rack systems. This modularity increases productivity and offers greater flexibility, reduced downtime for calibration or repair, and the opportunity to buy the channel count you need now while planning for expansion. No other system in the world offers these advantages. **Crash** → **Ready**

Features and Benefits:

- 8 fully programmable sensor input channels with isolated excitation
- Stand-alone operation
- L.E.D. indicators for power and event status
- Ultra-low noise design
- Sensor ID
- Comprehensive fault detection and self diagnosis
- High speed, 16-bit A/D converter
- Intuitive, effortless TDAS Control Software
- Ethernet, RS-232 and wireless communication options
- Factory tested to 100+ Gs
- Easy mounting rack configurations include 4 module and 8 module racks
- Small size – each module is 13.7 x 12.2 x 3.4 cm
- Light weight – each module weighs 0.77 kg
- Built in battery with smart charge circuit in modules and racks
- Durable
- Reliable
- Cost-effective

Available in Stationary Configurations:

TDAS PRO LAB SIM
TDAS PRO LAB RACK

The TDAS PRO LAB SIM is designed for laboratory testing where simplicity and reliability cannot be compromised. With the same unsurpassed standard features as the TDAS PRO SIM, the TDAS PRO LAB SIM can be used stand-alone or easily positioned in a 19-inch rack assembly.

All TDAS products are certified to the NHTSA, FAA, ISO 6487 and SAE J211 data acquisition practices.



TDAS PRO LAB SIM and TDAS PRO SIM
 8 fully programmable sensor input channels
 designed for stand-alone operation



TDAS PRO Racks
 Designed for 4 module and
 8 module configurations



TDAS PRO LAB Rack
 Designed for 6 module configurations



TDAS PRO SIM SPECIFICATIONS

ANALOG INPUTS

Type:	Differential, software programmed
Common Mode Range:	±6.25 volts
Protection:	±50 volts
Impedance:	50 MΩ typical
Gain Range:	0.8 to 2000
Overall Bandwidth:	D.C. to 25 KHz
Noise Spectral Density:	0.06 μV/√Hz RTI Typical, 0-4,000 Hz
Signal to Noise Ratio:	80 dB typical at gains from 1 to 128
Crosstalk:	<0.25% 10V pp sq wave signal connected to any channel with all other channels set to a gain of 128 with 350 Ω 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 to 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. 1 KΩ std

ANTI-ALIAS FILTERS – 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 to 3,000 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 volts (2.0 & 10 Volt option)
Accuracy:	Each channel software compensated (typ .1%)
Rated Current:	50 mA per channel, continuous operation, individually current limited @ ≈ 65 mA.
Short Circuit Recovery:	<1 msec typical

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 Ω, connected between +ex and +signal

Shunt Checks Using Emulation Method

Description:	Precision current applied to + signal. Allows virtually unlimited shunt check resolution
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ANALOG TO DIGITAL CONVERSION

Resolution/Method:	Standard 16-bit successive approximation with simultaneous sampling of all channels (up to 25K samples per second per channel)
Maximum Sampling Rate:	304 K samples/sec/module (38K on each of 8 channels, 100K on each of 3 channels, 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/Type:	Battery backed SRAM, retention > 7 days, 1M samples/channel

DIGITAL INPUTS

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

TRIGGERING SYSTEMS

Each Module:	Conditioned contact closure input with T=0 received L.E.D. indicator
Rack System:	Standard contact closure input, galvanically and optically isolated to 1 KV. 5-12 volt optically coupled inputs available.
Level Triggering:	Available from any channel within each module

SENSOR ID

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

PC INTERFACE

Module (stand-alone):	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

POWER REQUIREMENTS AND FEATURES

External Voltage:	12-15 volts
Maximum Power:	Depends largely upon connected sensors. Up to 900 mA per 8 channel module with 350Ω bridges and 10 volt excitation on all channels. (≈ 8.0A 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
Backup Power Sources:	Each rack and each module contains a rechargeable battery.
Backup Duration:	>10 minutes at full power

ENVIRONMENTAL

Operating Temperature:	0-50°C
Shock:	100 G peak, 12 msec half sine
Vibration:	6 G rms, 55-1,000Hz, 30 minutes

PHYSICAL

Module Size:	13.7 x 12.2 x 3.4 cm (5.4 x 4.8 x 1.35", 71 cm ³ per channel)
Module Weight:	0.77 kg (1.7 lb, 96 g per channel)
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:	4.7 kg (10.3 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:	7.8 kg (17.1 lb) – includes modules

CONTROL SOFTWARE

Compatibility:	Standard TDAS Control Software compatible with other TDAS PRO and TDAS G5 hardware
Operating Systems:	Windows® NT, 2000, XP, Vista

Specifications may be revised without notice.



Corporate Headquarters

909 Electric Ave., Suite 206
Seal Beach, CA 90740
USA
Phone: +1 562 493 0158
Fax: +1 562 493 3158
Email: sales@dtsweb.com