

# TDAS PRO TOM

## Squib Fire with Standalone Data Recorder

### APPLICATIONS

- Aerospace analysis
- Automotive safety
- Biomechanics
- Blast testing
- Helicopter & aircraft
- Impact testing
- Injury investigation
- Parachute deployment
- Ride & handling
- Sports & safety equipment



TDAS PRO LAB TOM and TDAS PRO TOM are standalone data recorders that independently fire up to 4 squib channels.

The TDAS PRO Timed Output Module (TOM) from DTS generates precise, high-energy firing signals for a wide variety of squibs used in air bag and pretensioner testing. The system also generates isolated digital outputs often needed to initiate or synchronize other events in the test lab. The TDAS PRO TOM includes 16-bit analog recording of squib voltage and current waveforms.

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



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

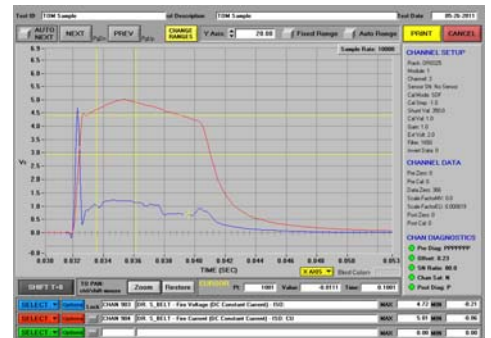
Fits in TDAS PRO LAB 6-module stationary rack.

### Features

- Intuitive, easy-to-use software
- 8 separate digital outputs for controlling other systems requiring timed outputs
- Squib fire and digital outputs have 0.1 msec resolution
- Lightweight, small size, cost-effective
- Durable, reliable, crashworthy unit tested to 100 g
- Inherent safety features integrated in system design
- LED indicators for channel and module status
- RS-232 communication standard; Ethernet and wireless options also available
- Built-in back-up battery in crashworthy module
- Meets NHTSA, FAA, ISO 6487 and SAE J211 data acquisition practices

### Software

TDAS Control software provides easy-to-use tools for configuring output timing for your test. Advanced features such as squib resistance checks and firing to internal loads supports successful testing every time.



### PRODUCTS

Diversified Technical Systems designs and manufactures data acquisition systems and sensors for the experienced test professional



Advanced Measurement Solutions  
www.dtsweb.com

## SERVICES

24/7 Worldwide Tech Support  
ISO 17025 (A2LA) Calibration  
Onsite Calibration & Training  
Application Consulting  
Software Integration  
OEM/Embedded Applications

## TECH CENTERS

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

## Specifications

### PHYSICAL

TDAS PRO TOM	
Size:	13.7 x 3.4 x 12.2 cm (5.4 x 1.35 x 4.8")
Module Weight:	0.82 kg (1.80 lb)
TDAS PRO LAB TOM	
Size:	16.5 x 5.2 x 13.3 cm (6.50 x 2.05 x 5.22")
Module Weight:	0.73 kg (1.60 lb)
Compatibility:	Fits standard TDAS PRO & LAB Racks

### 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

### SQUIB FIRE CHANNELS

Number:	4 per module
Energy Delivery:	Capacitive discharge, constant current, AC
Source Voltage:	15 V
Output Current Range:	1.0-4.0 A software adjustable in 0.1 A increments. Typically better than 1%
Energy Storage:	>300 mJ per channel
Rise Time:	<50 µsec
Output Connector:	One 6-pin LEMO 2B connector per channel (+output, -output, +sense, -sense, +ID, -ID)

### TIMING CONTROL

Method:	Delay for each output channel can be independently programmed via software
Delay Range:	0-99 seconds after trigger input
Squib Duration:	0.2-25.5 msec or continuous
Digital Output Duration:	0.2-1.6 seconds or continuous
Resolution:	0.1 msec

### EVENT INPUT

Each Module:	Standard contact closure input, galvanically and optically isolated to 1 kV
False Trigger:	EMI, RFI, and ESD protection
Multiple Modules:	Event input may be connected in parallel across several modules

### SAFETY FEATURES

General:	Three-layer safety protocol. 1) Software key 2) Software arm signal 3) Hardware arming signal (switch)
Warning Signals:	1) LEDs indicate when the system is armed 2) 5 V, 20 mA output may be used to drive facility warning devices
Output Interlock:	Outputs cannot be armed without physically toggling a locking switch or supplying a remote arming signal
Automatic Disable:	Unless requested to perform a test, energy storage devices are automatically drained

### TEST ARTICLE AUTOMATIC ID

Method:	Serial data read from digital I/O line in output connector
Type Supported:	Dallas

### SQUIB RESISTANCE TESTS

Method:	1 mA applied current, 2- or 4-wire method
Resistance Check:	Software programmed pass/fail tolerance window, measured values recorded
Measurement Range:	0-10 ohms
Resolution:	12-bit

### OUTPUT PULSE WAVEFORM

General:	Two measurements/ch (8 total per module): 1) current waveform 2) initiation signal/voltage waveform
Method:	16-bit successive approximation A/D with simultaneous sampling on all channels
Max. Sampling Rate:	304 ksp/s/module (38k on all channels, 75k on 2 channels, etc.)
Anti-Alias Filters:	Fixed 8-pole Butterworth and 5-pole adjustable Butterworth, may be bypassed
Overall Accuracy:	1.0%
Storage Technique:	Flexible memory allocation. Any portion of the memory may be allocated to pre-trigger data.
Memory Capacity:	Up to 100 seconds at 10 k samples/second
Memory Type:	Battery backed SRAM, retention >7 days

### SELF-TEST FEATURES

General:	Auto checks critical voltages & displays status
Output Verification:	Built-in 2.0 ohm dummy loads are used to test output waveforms during pretest checks
Measurement Channels:	Self-test used to verify channel gains and function
LED Status Indicators:	1) Power (3 color) 4) Squib Channel Status (2 color) 1) Trigger Status (red)

### DIGITAL OUTPUT CHANNELS

General:	8 outputs available on a separate connector
Output Type:	Compatible with devices requiring isolated contact closure and/or CMOS/TTL-compatible levels (0-5 V). Logic polarity is software programmable.
Drive Capability:	20 mA per channel
Connector:	19-pin LEMO 2B

### POWER

External Voltage:	11-15 V
Maximum Power:	800 mA (per 4-channel module)
Protection:	Self-resetting fuses plus reverse current and transient over-voltage protection
Back-up Power:	Each module contains a back-up battery
Back-up Duration:	>5 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

### CONTROL SOFTWARE

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

Authorized DTS Representative:



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Specifications subject to change without notice.