

APPLICATIONS

- Acoustic studies
- Aerospace analysis
- Automotive safety
- Biomechanics
- Blast dynamics
- Ballistics Research
- Helicopter & aircraft
- Parachute deployment
- Pyrotechnic shock
- Ride & handling
- Sound measurement
- Sports & safety equipment
- Vibration testing
- Wind Tunnel

PRODUCTS

Diversified Technical Systems designs and manufactures data acquisition systems and sensors for experienced test professionals.

SLICE PRO

Modular, High-Speed, Rugged Data Acquisition System



SLICE PRO is a complete modular data acquisition system that supports sensor inputs, airbag squib fire, trigger distribution, digital inputs & more. Designed for extreme test environments, data writes directly to flash memory.

Features

- Modular solution, easily configures to create the exact features and channel count needed. Daisy-chain up to hundreds of channels per test.
- Easy and intuitive software, users enter sensor and sampling parameters and the software automatically sets-up the hardware.
- User-selectable sampling rates up to 1M sps/channel
- Data writes directly to 16 GB non-volatile flash memory
- High bandwidth options up to 200 kHz
- Supports a variety of external sensors, including full and half-bridge sensors, strain gages, IEPE, voltage input, thermocouples, etc.
- Compatible with TDAS G5 and TDAS PRO hardware
- Complies with ISO 6487 and SAE J211 recommended practices, as well as NHTSA and FAA requirements

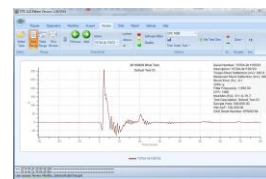
SLICE PRO is a shock-hardened, mega-sample data acquisition system with unmatched flexibility, accuracy and reliability. Modular and configurable, SLICE PRO makes it easy to build test set-ups with different channel counts and features. SLICE PRO is a complete standalone system with signal conditioning, filtering and multiple bandwidth options. SLICE PRO writes data directly to non-volatile flash memory, making it ideal for a variety of critical applications including automotive safety and blast testing.



The SLICE PRO SIM is available with either 9 or 18 (as shown) fully-programmable sensor input channels that provide power and signal conditioning to support a variety of external sensors.

Software

DTS offers two powerful software options for SLICE PRO. SLICEWare provides fast, easy tools for storing sensor information, performing data collection, viewing and exporting data. DataPRO is a fully-featured software package with a comprehensive database and user interface for tracking sensor information, creating test objects and test setups, performing diagnostic routines, and conducting tests. Both software packages offer the most advanced self-diagnostics, plus support for EQX, ISO MME and many other data exchange file formats.



www.dtsweb.com

DSH-002 (REV 05-2018)

COMPATABILITY

Using DataPRO Software, SLICE PRO is compatible with both TDAS PRO and TDAS G5 hardware, making it easy to expand system features and channel counts.

SERVICES

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

WORLDWIDE SUPPORT

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

HEADQUARTERS

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Specifications

SLICE PRO SIM (Sensor Input Module)

Description:	Data acquisition module 9 or 18 channels
Size:	52 x 90 x 80 mm
Mass:	726 g (26 oz)
Sensor Connectors:	LEMO 1B or Tajimi rectangular Insertion and removal tool available



SLICE PRO Ethernet Controller

Description:	Interface for start, status, event, power and 10/100 Ethernet communication signals
System Capability:	Each Controller supports up to 72 channels and provides interconnection compatibility with additional SLICE PRO systems, TDAS PRO & TDAS G5 systems. Hundreds of channels can be combined in one setup.
Start/Trigger Input:	Start: 5 V active high Trigger: Fully isolated contact closure with nominal 20 V open circuit voltage
Size:	26 x 90 x 80 mm
Mass:	305 g (15 oz)
Connectors:	COM: LEMO 2B 19-pin, Power: LEMO 2B 4-pin Note: Ethernet Controller "COM" ports are compatible with TDAS PRO and G5 COM ports



SLICE PRO USB Controller

Description:	Simple connections for start, status, event, power and USB 2.0 communication signals.
System Capability:	Supports up to 72 channels
Start/Trigger Input:	Contact closure, also compatible with 5-volt logic signals, active low.
Size:	52 x 90 x 80 mm
Mass:	454 g (16 oz)
Connectors:	COM: USB B-Type, Power: LEMO 2B 4-pin



INTERNAL BATTERIES (ALL MODULES)

Type:	Lithium Polymer with built-in charger.
Run Time:	One hour fully armed, all channels in use with 5 V excitation (40 min. with 10 V excitation)
Recharge Time:	3-4 hours

POWER

Supply Voltage (SIM):	9-15 VDC; Note: 12-15 VDC required for charging internal battery
Power (Maximum):	15 W per 18-channel unit with 350 ohm loads and battery charging
Power Control:	Push button, not impact critical
Protection:	Reverse current, ESD

START & TRIGGER OPTIONS

Level Trigger:	Positive or negative level on any active sensor channel (first level crossing of any programmed sensor triggers system)
Software Trigger:	Data collection may be started or triggered via software

ENVIRONMENTAL

Operating Temp:	0 to 60°C (32 to 140°F) Contact DTS re: extended temperature ranges
Humidity:	95% RH non-condensing
Shock:	100 g, 12 msec half sine

BRIDGE or VOLTAGE SENSOR INTERFACE

Type:	Differential Instrumentation Amplifier
Common Mode Range:	-2.5 to +6.0 volts
Differential Input Range:	±2.45 volts
Bandwidth:	DC to 200 kHz (see options in AAF section)
Gain Range:	1 to 12,000
Noise (SNR typical):	75-80 dB (100 kHz BW, typical gain)
Gain Check:	Automatic voltage Insertion
Linearity (typical):	0.1% (gain 1 to 400), ≤0.5% (gain ≥640)
Accuracy:	0.2% including reference uncertainty
Auto Offset Range:	2X effective input range at gain ≥2 (typical)
Excitation Voltage:	Off, 2.0, 5.0, 7.5 and 10.0 V selected in software
Excitation Current:	40 mA via independent current-limited source
Bridge Support:	3k ohm half-bridge completion. 120 or 350 ohm 3/4 bridge completion for strain gages, etc.
Shunt Check:	Emulation method, automatically calculated
Sensor ID:	Maxim Integrated (Dallas) "1-wire" silicon serial number

IEPE SENSOR INTERFACE (if so equipped)

Input Range:	0.5 to 23.5 V
Excitation:	10.0 mA constant current with 25 V source. Contact DTS for other options if needed.
Sensor ID:	Works with EID or "TEDS" equipped sensors

ANTI-ALIAS FILTERS (AAF)

Fixed Low Pass:	8-pole fixed Butterworth with factory configured maximum bandwidth. Options: 4.0 kHz, 100 kHz, 200 kHz
Adjustable Low Pass:	5-pole Butterworth set under software control: 50 to 35 kHz (bypassed for maximum bandwidth)
Custom Options:	Contact DTS for any special requirements
Overall Response:	System response complies with SAE J211/ISO 6487 recommended practices

ANALOG-TO-DIGITAL CONVERSION

Type:	16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sample of all channels
Acquisition Time:	80 ns (min)
Conversion Time:	420 ns (max)

DATA RECORDING

Modes:	Recorder, circular buffer and multiple test modes available
Memory:	16 GB non-volatile flash per module
Sample Rate:	User-programmable from 100 sps to 1M sps Maximum 1M sps/ch with 9 channels used or 500k sps/ch with 18 channels used per SIM

CALIBRATION

Calibration Supplied:	NIST traceable
ISO 17025:	ISO 17025 (A2LA Accredited) available
Service Options:	Standard, On-site & Service Contracts available

SOFTWARE

Control:	SLICEWare, DataPRO, API NOTE: Timed Output Module (TOM) requires DataPRO software
Operating Systems:	Windows® 7/8/10 (32- and 64-bit)
Communication:	USB and Ethernet 10/100M

ACCESSORIES

See website for full line of SLICE PRO accessories, including:



SLICE PRO Base Plate
Aluminum mounting plate, available in multiple sizes to support a variety of configurations

Additional SLICE PRO modules also available – see website for details.



SLICE PRO TOM
Timed Output Module



SLICE PRO TDM
Trigger Distributor Module



SLICE PRO DIM
Digital Input Module



SLICE PRO LAB
Non-Rugged System



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APPLICATIONS

- Airbag testing
- Automotive safety
- Biomechanics
- Blast dynamics
- Pre-tensioner testing
- Pyrotechnic devices
- Squib fire

SLICE PRO TOM

Air Bag & Squib Fire with Internal Data Recorder



Each SLICE PRO TOM fires up to 4 pyrotechnic devices with squib firing delays from 0 to 99 seconds with 0.1msec resolution. Need more TOM channels? Simply add more modules.

Features

- 4 independently programmable pyrotechnic/squib fire outputs with 0.1 msec timing resolution
- 8 independently programmable digital outputs for controlling other systems requiring timed outputs
- Continuous monitoring of connected squib resistance
- Software adjustable sampling rates
- Configures with SLICE PRO SIM, SLICE PRO DIM and USB or Ethernet communication via SLICE PRO Controllers
- Shock rated and 100% tested to 100 g
- Small size, low mass – each module is 52 x 90 x 80 mm
- Built-in one hour battery with automatic charging circuit
- Safety features integrated in system design
- LED indicators for channel and module status
- Intuitive DataPRO software

The SLICE PRO TOM (Timed Output Module) generates precisely timed, high-energy firing signals for a wide variety of pyrotechnic devices and squibs used in air bag and pretensioner testing. It also generates isolated digital outputs which are often needed to initiate or synchronize other events in the test lab. The SLICE PRO TOM includes analog recording of firing voltage and current waveforms and can be used standalone or as part of the modular and crashworthy SLICE PRO onboard data acquisition system.



SLICE PRO is a complete solution with Ethernet or USB controllers, plus configurable modules to support sensor inputs, air bag fire, trigger distribution and digital inputs.

Software

DTS DataPRO software offers a full-featured database and user interface for tracking sensor information, creating test objects and test setups, performing diagnostic routines and running tests. It also features the most advanced self-diagnostics available plus support for EQX and numerous data exchange file formats.



PRODUCTS

Diversified Technical Systems designs and manufactures data acquisition systems, sensors, and software for beginning and advanced test professionals.

Specifications

PHYSICAL	
Description:	Timed Output Module
Size:	52 x 90 x 80 mm
Mass:	750 g (26 oz)
Connectors:	LEMO
ENVIRONMENTAL	
Operating Temp.:	0 to 60°C (32 to 140°F) Contact DTS for extended temperature applications
Humidity:	95% RH non-condensing
Shock:	100 g, 12 msec half sine
SQUIB FIRE CHANNELS	
Number:	4 per module
Energy Delivery:	Capacitive discharge, constant current
Source Voltage:	17 V
Constant Current Output:	1.0-4.0 A software adjustable in 0.1 A increments.
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 msec 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 plug
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 inserting a plug 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 squib fire connector
Type Supported:	Maxim Integrated (Dallas) "1-wire" silicon serial number.

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

OUTPUT WAVEFORM RECORDING	
General:	Two measurements/ch (8 total per module): 1) current waveform 2) initiation signal/voltage waveform
Method:	16-bit SAR (Successive Approximation Register) ADC, one per channel, simultaneous sample of all channels.
Sampling Capability:	Up to 500k sps with adjustable anti-alias filter automatically set under software control
Memory Type:	16 GB non-volatile flash per module

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 single 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:	> 5 mA per channel
Connector:	19-pin LEMO 2B

POWER	
External Voltage:	9-15 VDC; Note: 12-15 VDC required for charging internal battery
Maximum Power:	800 mA (per 4-channel module)
Protection:	Self-resetting fuses plus reverse current and transient over-voltage protection
Internal Battery Type:	Lithium Polymer with built-in charger.
Run Time:	One hour fully armed
Recharge Time:	3-4 hours

SOFTWARE	
Control:	DataPRO
Operating Systems:	Windows® XP/Vista/7/8 (32/64-bit)
Communication:	USB 2.0 or Ethernet 10/100M
Part# 13000-40400	SLICE PRO TOM, with accessories
Includes TOM Terminal Box for easy screw-terminal access to up to 8 digital outputs	
Part# 13000-30730	SLICE PRO TOM, no accessories

SERVICES

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

TECH CENTERS

North America
United Kingdom
Europe
Japan
Asia-Pacific

HEADQUARTERS

Seal Beach, California USA

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Authorized DTS Representative:



Designed to support a variety of applications, SLICE PRO is a complete data acquisition solution with software, user-configurable modules and a full line of accessories.


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