SLICE PRO TOM

Air Bag & Squib Fire with Internal Data Recorder

APPLICATIONS

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

PRODUCTS

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

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.

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.

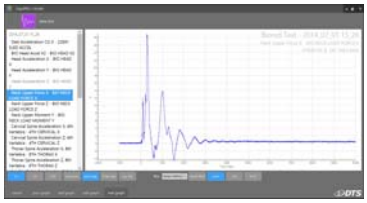
SLICE PRO is a complete solution with Ethernet or USB controllers, plus configurable modules to support sensor inputs, air bag fire, trigger distribution and digital inputs.

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

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.



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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:	SLICEWare, DataPRO, API
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

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.

DTS
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