



# 9730 Series

## Digital Delay Current Generators

Our most capable current generator, the 9730 series provides users with the ability to generate highly precise current pulses, making this unit ideal for applications that require a high level of accuracy and repeatability. Advanced safety features provide user assurance.

### Basic Specifications

- 200 ns Timing Resolution
- 2 or 4 Channel Outputs
- 6 Amps Per Channel
- Easy Programming Interface
- Integrated Bridgewire Resistance Measurement
- Safety Interlocks and Keyed Front Panel Interface



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## Product Information

The Model 9730 Series is designed for airbag and pyrotechnic initiator testing and represents the latest in current pulse generating capabilities with compelling features that provide users with time-saving characteristics of adjustability, simple operation and programmability. The 9730 comes in a 19" 2U form factor as a 2 or 4 channel model with current sensing and resistance measurement capabilities. This unit is ideal for applications that require a high level of accuracy and repeatability.

High functionality, safety, and a rapid return-on-investment are the hallmarks of this new fireset for pyrotechnic initiators. The Model 9730 provides multiple firing channels: all-fire, no-fire, resistance measurement, DC current, capacitor discharge, Bruceton, Neyer, and high current. The performance and advanced features of the 9730 current pulse generator make it ideal for applications such as air bag deployment testing (squib detonation) or igniter deployment that can be done reliably, safely and with repeatability.

## Standard Features

- Up to 4 individual outputs with fully individual programming and control.
- Up to 6A output per channel.
- Front and rear external trigger inputs.
- Current monitor – The current output from the unit is monitored and a voltage representation the waveform is presented at a front panel BNC connector.
- Voltage monitor- The voltage across the load being driven is monitored and a voltage representation is present at a front panel BNC connector.
- \*Instantaneous power and total energy may be derived with the aid of both the current and voltage monitors.
- SAFETY - Keyed front panel fire enable, mechanical and software interlocks.
- Complete channel and system setup stored in memory. Provides 12 memory storage slots.
- Meets Bruceton and Neyer requirements
- Analog signals depicting current and voltage

## Advanced Features/Options

- Integrated 4-wire resistance measurement for each channel with pre and post testing features. Ability to set the mean and upper/lower limits to determine what construes a resistance fault
- Current and voltage monitor outputs.
- Front and rear sync outputs.
- Safety features include remote interlock, removable keyed enable switch and internal error checking.
- RS232, USB, and optional Ethernet computer programming interfaces



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## SPECIFICATIONS

## 9730 Series

### Configurations

9732 – 2 Output Channels

9734 – 4 Output Channels

input module - front and rear trigger

### INTERNAL RATE GENERATOR

|               |   |
|---------------|---|
| rate          | 0.01 Hz to 100 KHz                        |
| resolution    | 100 ns                                    |
| accuracy      | 20 ns                                     |
| jitter        | 10 ns RMS                                 |
| burst mode    | 2 to 250 pulses                           |
| output modes  | single pulse, burst                       |
| control modes | internal rate generator, external trigger |

### EXTERNAL TRIGGER INPUTS

|                       |  |
|-----------------------|--|
| function              | generate individual pulses (single shot or burst)                                  |
| front or rear         | selectable between front or rear panel inputs                                      |
| external trigger rate | min = 1.2 or amplitude (whichever is greater) x longest pulse width<br>max = 200 s |
| insertion delay       | 300 ns   |
| jitter                | 10 ns  |
| impedance             | 1K $\Omega$  |
| Slope                 | rising or falling  |
| trigger filter        | filters out unwanted "glitch" or "runt" pulses                                     |
| range                 | 0.02 $\mu$ s to 1 ms   |
| resolution            | 0.02 $\mu$ s   |
| trigger level         | 0.2 - 15 V   |
| level threshold       | 100 mV   |

### RISE TIMES

|                         |  |
|-------------------------|--|
| rising edge - inductive | 4 $\mu$ s (1 ohm, 50' cable, 6 A) varies with load |
| rising edge - resistive | 550 ns (1 ohm, 2" cable, 6 A) varies with load     |

### SLEW RATES:

|  |  |
|--|--|
| rising edge - inductive<br>(varies with load)  | 2 A/ $\mu$ s @ 6 A<br>1 A/ $\mu$ s @ 3 A<br>0.30 A/ $\mu$ s @ 1 A<br>(1 ohm and 50' cable)           |
| falling edge - inductive<br>(varies with load) | -1.60 A / $\mu$ s @ 6 A<br>-0.90 A/ $\mu$ s @ 3 A<br>-0.30 A/ $\mu$ s @ 1 A<br>(1 ohm and 50' cable) |
| rising edge - resistive<br>(varies with load)  | 6.3 A/ $\mu$ s @ 6 A<br>9.5 A/ $\mu$ s @ 3 A<br>2.2 A/ $\mu$ s @ 1 A<br>(1 ohm & 2" cable)           |
| falling edge - resistive<br>(varies with load) | -5.2 A/ $\mu$ s @ 6 A<br>-4.0 A/ $\mu$ s @ 3 A<br>-1.3 A/ $\mu$ s @ 1 A<br>(1 ohm & 2" cable)        |



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## SPECIFICATIONS

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### OUTPUTS

|                          |               |
|--------------------------|---------------|
| amplitude                | 0.02 – 6 A    |
| resolution               | 1 mA          |
| accuracy                 | +/- 0.5% - 2% |
| compliance voltage level | 19 - 22 V     |
| pulse width range        | 5 us – 100 s* |
| error                    | +/- 0.1 %     |
| resolution               | 100 ns        |
| delay range              | 0-30 s        |
| error                    | +/- 0.1 %     |

\* Maximum pulse width is limited by current amplitude. 1A can go up to 100 s and 6 A is limited to 300 ms.

### MONITOR OUTPUTS

|                            |                                |
|----------------------------|--------------------------------|
| voltage monitor (isolated) | 0.2 V/V                        |
| current monitor (isolated) | 0.5 V/A                        |
| error                      | <4%                            |
| bandwidth                  | Min = 100 kHz<br>Max = 1000kHz |

### RESISTANCE MEASUREMENT

|                      |                 |
|----------------------|-----------------|
| range                | 0.1 to 150 Ohms |
| resolution           | .01 Ohms        |
| error .5 to 15 Ohms  | < 4%            |
| error 16 to 150 Ohms | <10%            |
| measurement current  | 100 mA max.     |

### GENERAL

|                               |  |
|-------------------------------|--|
| synch outputs, front and rear | T0, channels A through D   |
| standard communications       | usb (serial bridge), RS232 (115200, 57600, 38400 19200, 9600, 4800 baud) |
| size                          | 9" 2 U x 10" 2U size rack mount  |
| electrical                    | 100-240 V, 50-60 Hz  |

### SAFETY

|                         |                                   |
|-------------------------|-----------------------------------|
| remote interlock        | shorting interlock                |
| arming key switch       | removable keyswitch               |
| internal error checking | checks control circuit for errors |

### OPTIONS

E- ethernet



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