

Digital Inline Timer

DIT



The Martin-Baker Digital Inline Timer embodies our philosophy of continuous development. The Martin-Baker DIT was developed to replace legacy chemical time delays.

The DIT offers the same form, fit and function for the current range of legacy time delay cartridges and incorporates a high level of redundancy. It receives the same ballistic gas input required by legacy and produces a similar ballistic gas pressure output following a pre-programmed time delay within a range 0.14 to 4 seconds.

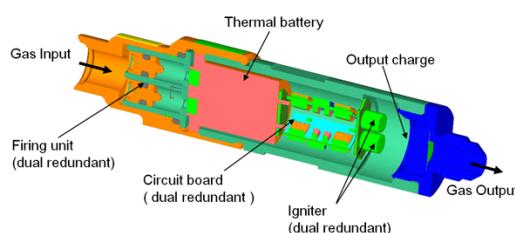
DIT Operating System

- ▼ A gas pressure signal is applied to the firing pin housing.
- ▼ The shear-pin, holding the firing-pins, is broken and two percussion caps are struck.
- ▼ Both percussion caps initiate the thermal battery, however, only one percussion cap is required to successfully fire the thermal battery.
- ▼ The thermal battery then supplies electrical power to the micro-controller units (MCUs), which begin to count up to the programmed time delay. A total of four MCUs are used to achieve the required reliability.
- ▼ When the required time-delay is reached, the MCUs activate MOSFETS which switch the thermal battery electrical power to the two electro-explosive devices (EEDs).
- ▼ Both EEDs are initiated resulting in the pyrotechnic filling ignition, only one EED is required to do so.
- ▼ The internal ballistic gas pressure rise ruptures the burst disc to produce an output ballistic gas pressure signal.

Currently installed in various aircraft such as the T-38, F-5, and Gripen, the DIT has become a standard feature in all newly developed Martin-Baker ejection seats. Additionally, it is adaptable for retrofitting to a variety of existing Martin-Baker ejection seats.



Performance



Time delay:	0.14 – 4.00 seconds programmable in steps of 1 ms
Timing accuracy:	± 25 ms
Installed life:	4 years (possible increase to 6 years subject to life extension study)
Mass (typical):	0.480 lbs (219 g) – dependant on configuration
Initial input pressure:	No-fire < 400 psig (< 2758 kPa) All-fire > 600 psig (> 4137 kPa)
Output pressure	Typical Configuration: 1000 – 2000 psig (6895 – 13790 kPa) when fired directly into a 5 in ³ bomb chamber.

Note: The output pressure can be tailored to match specific application by varying the amount of pyrotechnic filling.

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