

[\[INITIATORS \]](#)

Capacitive Discharge Initiator (CDI)

Redundant Capacitive Pyro Initiator

[\[PRODUCT OVERVIEW \]](#)

Capacitive Discharge Initiator (CDI)

Invocon's Capacitive Discharge Initiator (CDI) module provides rocket/missile control and monitoring capabilities in a single compact unit, enabling safe operation and monitoring of ordnance. The CDI provides four fully redundant output channels, a single input trigger for starting the event timer, 1 ms timing resolution per channel, and four hours of run-time after input trigger. The CDI includes health and status monitoring for altitude switches, SAFE/ARM plug identification, and SAFE/ARM state, along with capacitor voltage monitoring and bad umbilical pull protection.


[\[CAPABILITIES \]](#)

Features & Applications

Key Features

- ◆ **Four Fully Redundant Output Channels**
Four redundant pyrotechnic output channels with 1 ms timing resolution for precise sequencing of ordnance events.
- ◆ **Health and Status Monitoring**
Monitors altitude switches, SAFE/ARM plug identification, and SAFE/ARM state, providing pre-fire system verification.
- ◆ **Capacitor Voltage Monitoring**
Continuously monitors CDI capacitor charge voltage to confirm sufficient energy for reliable squib firing.
- ◆ **Command Trigger Function**
Command trigger capability available on all channels enables ground or flight computer command-initiated event activation.
- ◆ **Bad Umbilical Pull Protection**
Protects against inadvertent initiation caused by accidental or premature umbilical pull during ground operations.

Typical Applications

- ◆ **Rocket Stage Separation**
Fires separation pyrotechnics on a programmable timeline to achieve precise stage separation timing.
- ◆ **Payload Deployment**
Commands pyrotechnic bolt cutters or deployment mechanisms for payload release.
- ◆ **Engine Ignition**
Provides reliable squib ignition for solid rocket motors and liquid engine igniters.

[TECHNICAL DATA]

Key Specifications

SPECIFICATION	VALUE
ELECTRICAL	
Output Channels	4 fully redundant
Timing Resolution	1 millisecond per channel
Run-Time After Trigger	4 hours
Capacitor Voltage Monitoring	Yes
SAFE/ARM Monitoring	Plug identification and state identification
Altitude Switch Monitoring	Open/Closed monitoring
Power Options	Single supply source voltage; smart primary and rechargeable battery support
Input Voltage	27 to 32 VDC
Input Current	Typical 36 mA continuous at 28 V (18 mA per timer)
Connectors	MIL-C-38999 for power, Standard DB-style connectors for all other functions
MECHANICAL	
Size (L x W x H)	9.53 x 8.77 x 3.16 inches (not including connectors)
Weight	10.3 lbs
Case Material	6061 aluminum, Alodine coated
ENVIRONMENTAL	
Operating Temperature	-24 to +61 °C
Qualification Temperature	-34 to +71 °C
EMI Qualification	MIL-STD-461 (200 Volts/meter)