

Mission Success  
Ensign-Bickford Aerospace & Defense Company (EBAD) is dedicated to supporting our customers in the aerospace and defense industry through on-time delivery of innovative products that exceed expectations and assure mission success.

### NEA® Payload Release Module – PRM 9103

The NEA® Payload Release Module - PRM 9103 is designed to mount, hold, and release a spacecraft from the launch vehicle upper stage, or from another carrying spacecraft (OTV for instance). The PRM is designed to be used in a multi-point release system (i.e. 4 or 6 point) for spacecrafts up to 800 kg in mass.

The PRM utilizes the flight proven NEA® 9103 as the primary release mechanism, integrating a load carrying interface, separation springs, a bolt extractor, and optional separation switch or separation connector to offer a turnkey dispensing mechanism that is ideal for multi-point satellite release. In a 4-point mount configuration, the PRM is designed to dispense payloads separating laterally or axially from a central dispensing structure. The PRM is delivered fully preloaded, and no custom tools or on-site training are required for assembly, making integration into space platforms simple and efficient.

### Principle of Operation

The PRM is an ultra-low shock, electrically initiated, single-shot, and factor refurbishable release mechanism that has the ability to carry a high tensile preload until commanded to release. The preload is applied through a release rod held in place by two separable spool halves which are in turn held together by tight winding of restraining wire. The restraint wire is held in place by redundant electrical fuse wires; actuation of either circuit allows release assuring maximum reliability. When sufficient electrical current is applied, the restraint wire unwinds allowing the spool halves to separate releasing the release rod and the associated preload. The tunable separation springs provide the push off force to achieve the required separation velocity.

The PRM 9103 has a location to hold either a telemetry separation switch or 37 pin separation connector. The telemetry switch is commonly used to verify spacecraft separation from the launch vehicle, and the separation connector can be used for separation detection, ground power delivery or communications from the launch vehicle to the spacecraft.

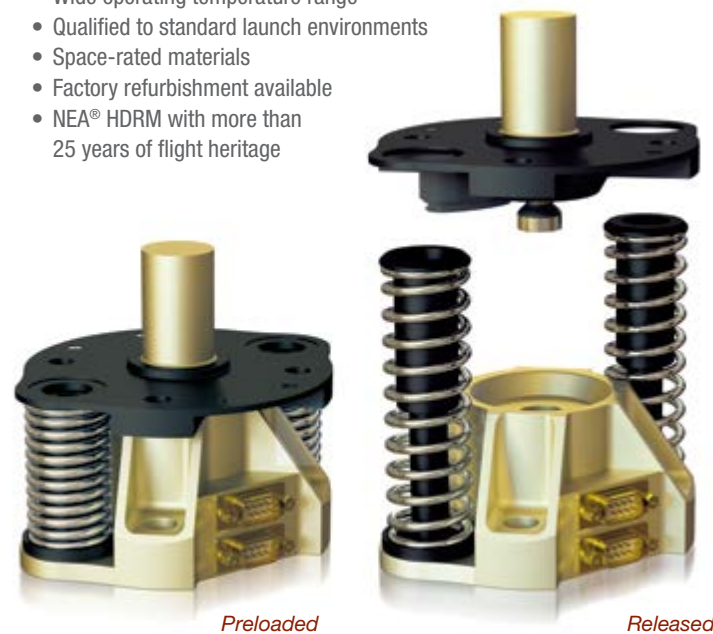


### Applications

- Typical applications include:
- Satellite and spacecraft dispensing
  - Launch vehicle and missile stage fairing separation
  - Missile payload separation

### Key Features

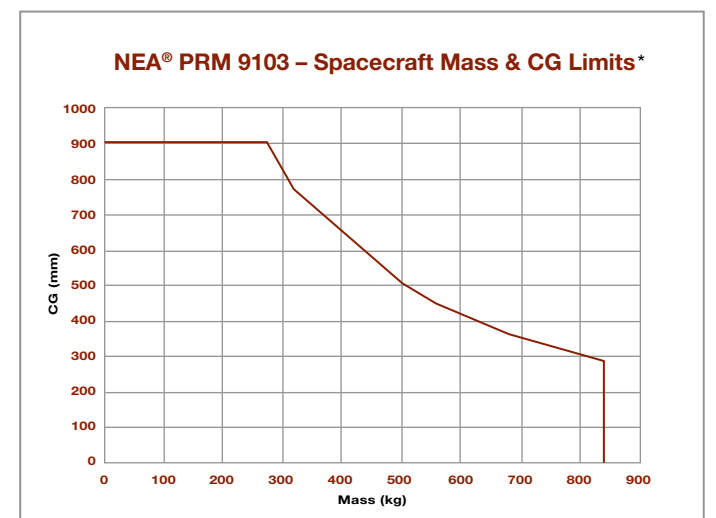
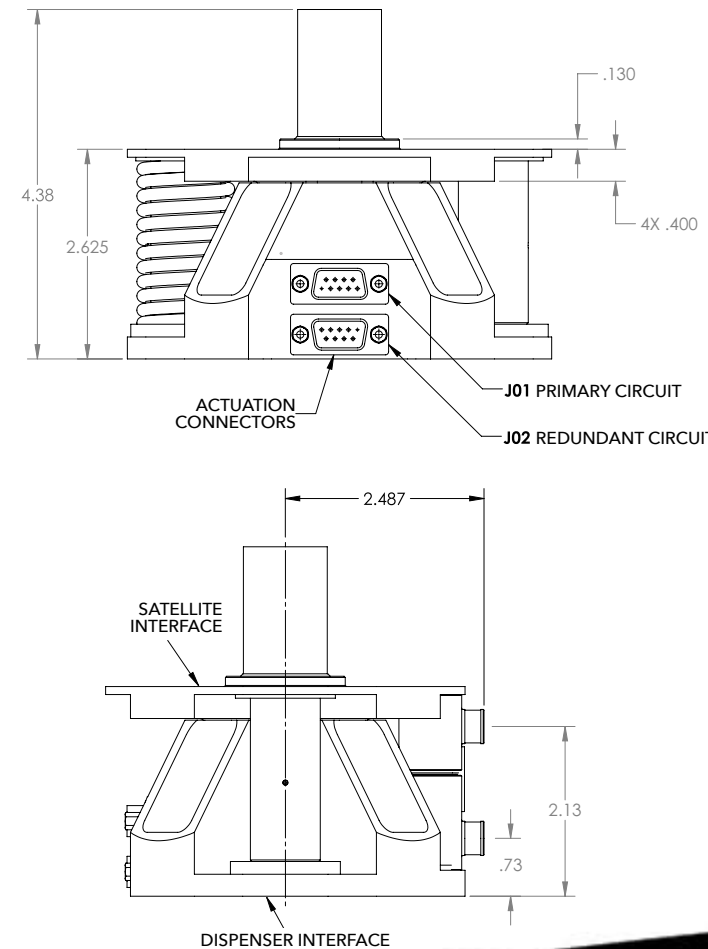
- Ultra-low release shock (<500 g)
- Redundant actuation circuit
- Can be operated with standard launch vehicle firing circuitry
- Launch vehicle to payload connector interface
- Non-explosive hold down & release function
- No debris generation
- High simultaneity of multiple hold-down points
- Customizable separation velocity
- Wide operating temperature range
- Qualified to standard launch environments
- Space-rated materials
- Factory refurbishment available
- NEA® HDRM with more than 25 years of flight heritage



### NEA® Payload Release Module – PRM 9103 Technical Specifications

Parameter	Capability
Axial Preload	Up to 8,500 lbf
Axial Stiffness	2.02 E+6 lbf/in
Shear Stiffness	9.0 E+5 lbf/in
Bending Stiffness	7.5 E+5 in-lbf/rad
Shock Output	<500 g's
Actuation Current	6 Amps for 15 ms
Release Time	<40 ms
Total Mass	2.5 lbm
Flyaway Mass	0.85 lbm
Temperature Range	-90°C to +135°C
Total Spring Energy per PRM (configurable)	~4.1 to ~18.5 Joules
Mounting (Spacecraft Interface)	4X .386" Dia Thru, 3.5" Dia Bolt Circle
Mounting (Dispenser Interface)	4X 1/2-20 UNF-3A, 3.5" Dia Bolt Circle

### NEA® Payload Release Module – PRM 9103 Mechanical Interface Drawing



\*this data does not include local movements or any factors of safety or margin.



Scan to view the PRM 9103 animation.

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