

Small Satellite Release Mechanism



- Benefits-

- *Compact*
- *Reliable*
- *Redundant actuation*
- *Actuation confirmation*
- *Resettable for ground testing*
- *Adaptable to a wide range of applications*
- *Debris free*

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9,546,008*

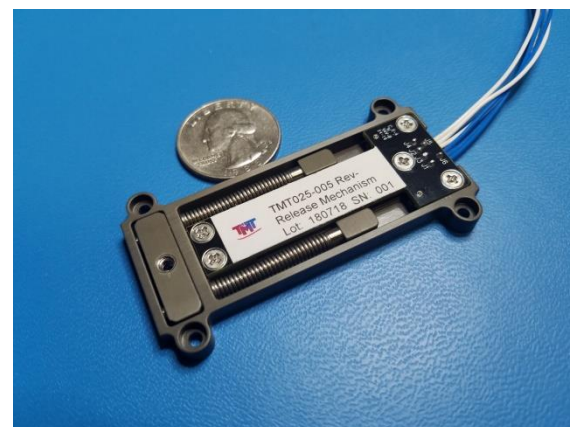
Gecko Release Mechanism: Grips tight with reliable release for small deployables

Release Mechanisms

As small spacecraft continue to evolve and become more capable, use of deployable items will become more widespread.

Deployables are stowed close to the satellite structure during launch and then deployed after ejection from the launch vehicle. Release mechanisms provide the ability to support the part during the rigor of launch and let go of the restraint upon actuation from the spacecraft control.

To support small spacecraft missions, TMT offers a compact, reliable release mechanism for small spacecraft deployables. The entire package fits within a 2.7" x 1.5" x 0.2" volume to fit into tight places.



TMT Release Mechanism

Typical Applications:

- *Solar Arrays*
- *Sun Shades*
- *Radiators*
- *Antennas*
- *Booms*
- *Custom applications*



*Release Mechanism with alternate
connection*

Design

The release mechanism utilizes spring loaded shafts to restrain a release block attached to the deployable. Upon actuation, the springs rapidly retract the shafts and release the deployable. The unit is mounted using four screws and the deployable attaches to a release block using a single fastener. Two independent circuits provide actuation redundancy while a monitor switch provides positive indication of release. The unit is resettable on the ground. The mechanism is designed using a NASA developed and licensed technology.

**Contact TMT to discuss
your application**

Thermal Management Technologies
2465 North 500 West
North Logan, UT 84341
Phone: 435-755-6400
Email: information@tmt-ipe.com
Web: www.tmt-ipe.com

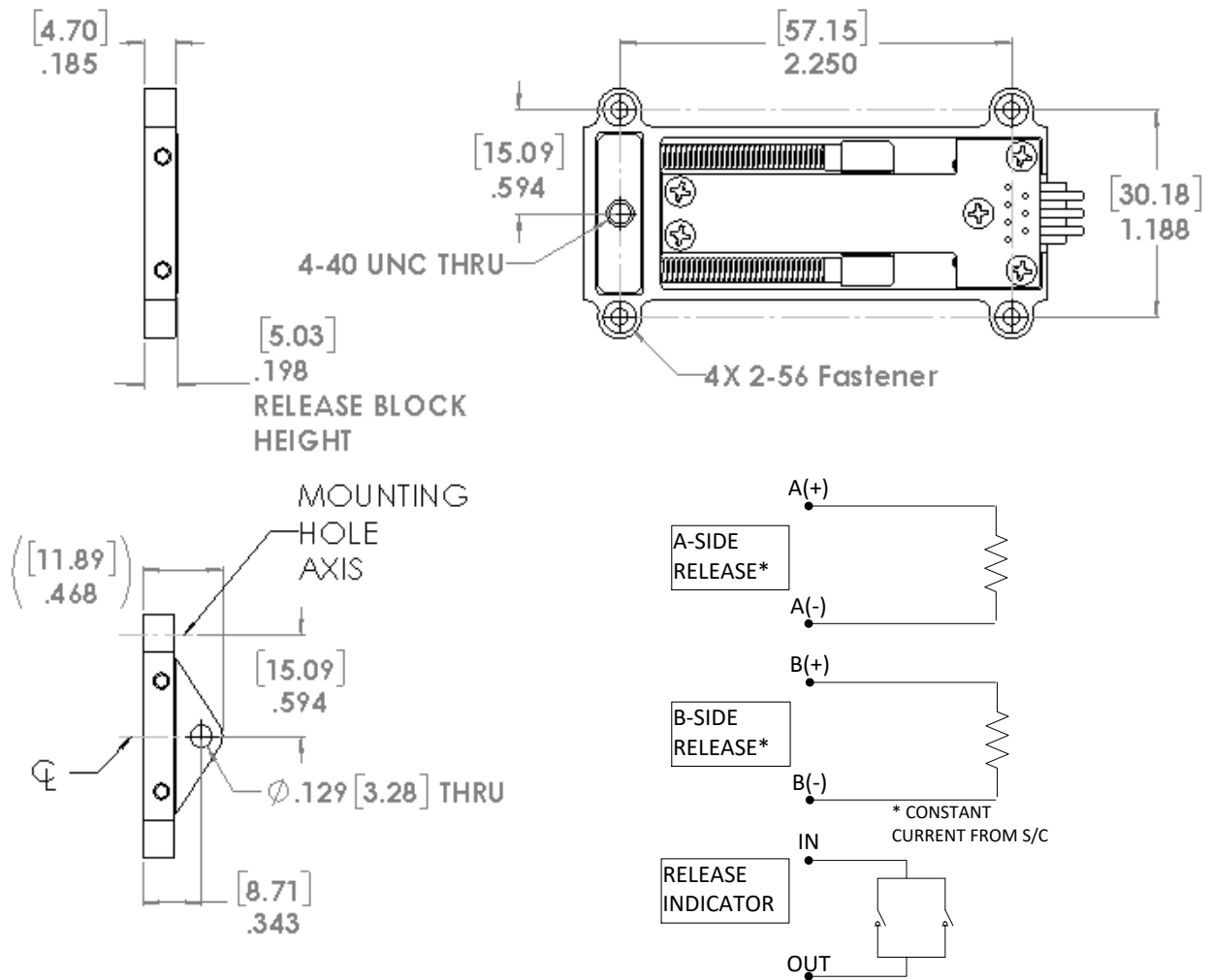
Release Mechanism

Specifications

- Mounting Interface: 4- Mounting holes (see below)
- Size: 2.7" x 1.5" x ~0.2" (69.mm x 38.mm x 5.mm)
- Mass 26 gm
- Resettable on ground for testing (requires additional actuation pieces)
- Operational temperature -20 to +55 °C
- Actuation current ¹: 2.7 +/- 0.2 amps
Resistance 0.5 Ω
- Actuation time <4 sec at room temperature
- Max Load ²: 3 lbf (13 N)- At deployment
300 lbf (1334 N) Launch/ Test

1- Constant current from spacecraft
2- Additional load possible with custom unit

Interface



Testing TMT can perform a wide variety of analysis and testing as an added service

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Web: www.tmt-ipe.com