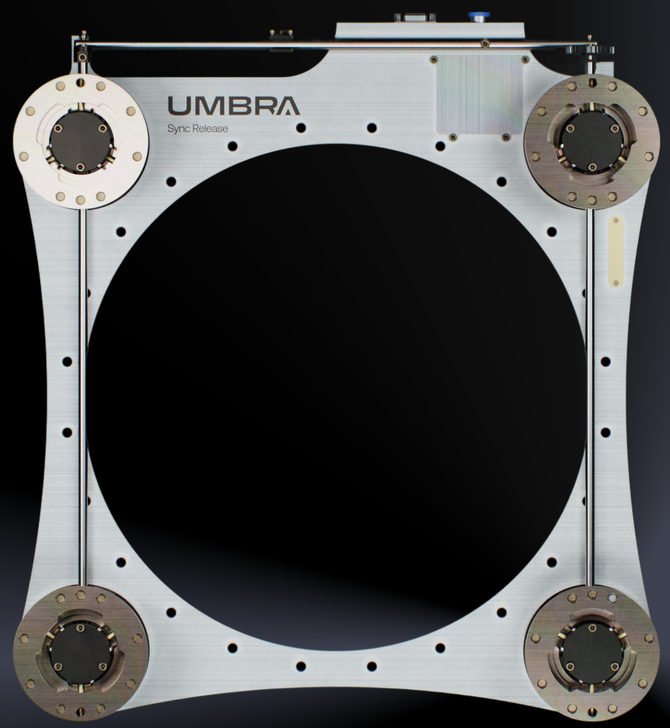
SYNCRELEASE 4

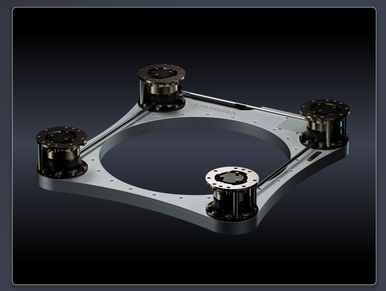
UMBRA

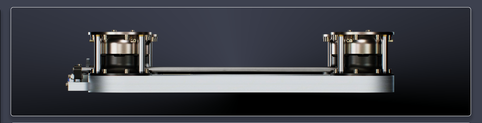
THE UMBRA SYNCHRONIZED RELEASE MECHANISM 4 is a spacecraft separation system designed for precise and controlled deployment from a launch vehicle. The Umbra SyncRelease 4 is engineered for small satellites to ensure low-shock, debris-free separation. Optimized for SpaceX Falcon 9 Rideshare missions, Umbra SyncRelease 4 presents a reliable integration for its associated payload and surrounding mission assets. This lightweight, all-inclusive solution simplifies spacecraft deployment while maintaining the reliability required for extreme launch environments.

RAPID START-UP

SYNC RELEASE







GENERAL SPECIFICATIONS

MAX DIMENSIONS	17.700” x 19.680” x 3.480"
MASS	Lower/Lauch Vehicle Side: 5.48kg Upper/Flyaway Vehicle Side: 0.92kg
BUS VOLTAGE RANGE	17V - 30V
BUS VOLTAGE NOMINAL	24V
PEAK POWER	4.24 W
AVERAGE POWER	3W @ 24V
ELECTRICAL INTERFACE	DE-9 Socket
INTENDED SPACE ENVIRONMENT	Separation occurring within 4 hours of launch
HERITAGE	Qualification testing complete Q3-2025
DESIGN LIFE	1 Launch, >5 I&T actuation cycles
PRODUCTION	Assembled and tested in the USA

ENVIRONMENTAL SPECIFICATIONS

RANDOM VIBE	Qualified to 14.16 gRMS profile enveloping GEVS, Falcon 9, SpaceX Rideshare, and Electron levels
SHOCK	Qualified to 2,000g peak profile
OPERATING TEMPERATURE	-30°C to 70°C
SURVIVAL TEMPERATURE	-40°C to 80°C
QUASI-STATIC LOAD	Qualified to 12.5g axial and 16.88g lateral sine bursts

FEATURES

DEBRIS-FREE DEPLOYMENT | EASY INTEGRATION

The mechanism ensures a simple & synchronized deployment, generating minimal foreign object debris (FOD). Unlike traditional pyrotechnic systems, the Umbra SyncRelease 4 is easily resettable, speeding up integration testing and launch site integration.

VALIDATED | MISSION-READY RELIABILITY

Umbra continuously seeks to expand the envelope of spacecraft mass properties validated for Umbra SyncRelease 4 customers. The Umbra SyncRelease 4 provides simple actuation you can trust. The inherent reliability of the design minimizes mission risk and ensures dependable separation in real-world space environments.

LOW-SHOCK SEPARATION | PROTECT PAYLOAD

Engineered for low-shock separation, the Umbra SyncRelease 4 minimizes the loads on your spacecraft during deployment. This design protects sensitive instruments and components, ensuring their operational integrity after launch.

TAILORED DEPLOYMENT | CUSTOMIZABLE

Offering customization for CG offset, Umbra engineers will work to tailor the deployment parameters to your specific spacecraft and mission needs. This flexibility ensures optimal separation conditions for a wide range of small satellite platforms.

CONFIGURATIONS

TYPE	DESCRIPTION & DETAILS	SPACE READY	LEAD TIME	COST
EDU	Suitable for test fits and Hardware-in-the-Loop testbeds	No	6-Week Lead Time	CONTACT
FLIGHT	Standard 4 actuator small sat configuration	Yes	16-Week Lead Time	CONTACT
CUSTOM	Umbra Space Systems offers custom configurations tailored for your spacecraft mass properties. Please contact.	Inquire	Inquire	CONTACT

DATA SHEET V.2.0-2025.08.01
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