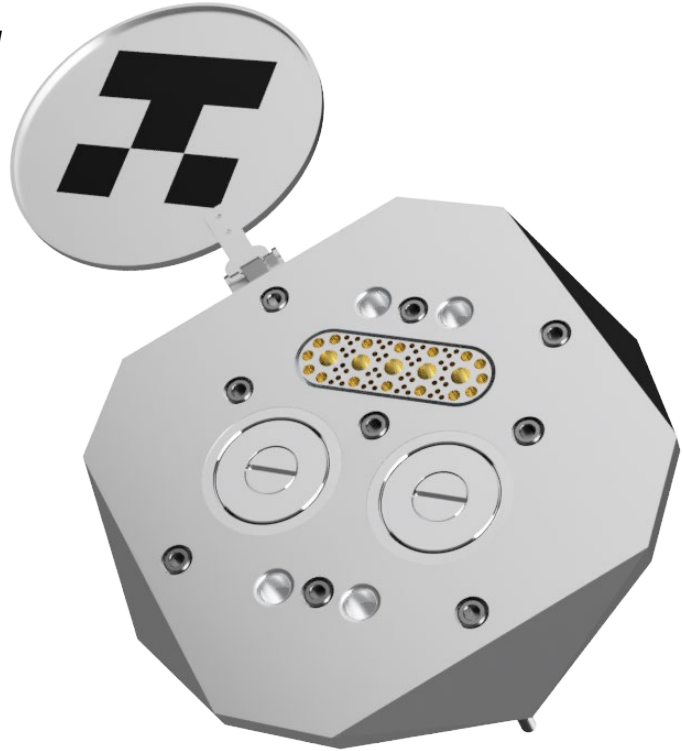


The Puck

A universal interface for satellite servicing



*For satellite owners looking to extend their vehicle's operational lifetime and increase revenue generation, the **Puck** offers a single interface for all future satellite servicing needs.*



Applications

- Satellite ground operations:
 - Fill and drain
 - Electrical power supply
 - Telemetry & satellite health monitoring
- Orbital satellite servicing:
 - Docking
 - Orbit relocation & life-extension
 - Refueling
 - Electrical power supply & regulation
- Orbital hardware replacement units
- Robotic end-effector connect/disconnect
- Planetary exploration

For customization of mechanical, fuel, power, data transfer, fiducials, etc., please contact Obruta.

Features

- Versatile grapple point supporting clamps, magnetism, or snares
- High mechanical load transfer for satellite relocation, deorbiting, or backpacking life-extension
- Orbital refueling
- Orbital power transfer
- Orbital data transfer
- Customizable lid fiducial markers
- Dust protection
- Fail-safe or fail-secure configurable
- Scalable sericultural design

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Puck Overview

The Puck constitutes Obruta's product line of mating interfaces that enable satellite servicing. The Puck is a cost-effective plug-and-play system that replaces existing satellite fuel fill and drain, electrical, and data umbilical lines with a single interface for both ground and orbital satellite servicing operations. With its 4-in-1 design, an equipped satellite can be grappled, docked, refueled, recharged, relocated, deorbited, and augmented with new or replacement hardware while on orbit. The Puck gives new life to old and critically failing satellites, allowing for continued nominal operations well past their intended lifespans.

Mating

In its nominal configuration the Puck is passive and

requires a mating system and complimentary active Puck. Obruta offers a Puck servicing system for orbital service providers. For customers seeking additional mechanical load transfer capabilities, contact Obruta about our integrated docking solutions.

Fuel Transfer

The Puck's flat-faced liquid transfer couplers provide a virtually spillage-free disengagement process while simultaneously delivering a high flow rate. Contact Obruta for configurable fill and drain or double-fill coupler configurations.

Power and Data Transfer

The Puck has no significant passive power draw and can optionally include a PDU and latching current limiter. Data transfer protocols are configurable on request.

| Parameter | Value |
|---|---|
| Mass | 500.0 g |
| Dimensions | 100.0 mm \varnothing x 35.0 mm |
| Operational Temp. Range | -50°C to +100°C |
| Grappling/Docking Misalignment Tolerances | ± 15.0 mm (X,Y), ± 7.5 mm (Z) $\pm 20.0^\circ$ (X,Y), $\pm 39.2^\circ$ (Z) |
| Mechanical Load Transfer | 9000 N (linear), 600 Nm (bending) |
| Liquid Transfer Media | H ₂ O ₂ , N ₂ O, N ₂ O ₄ , N ₂ H ₄ , MMH, UDMH, AF-M315E, Kerosene, Methanol, Isopropyl Alcohol, Water |
| Liquid Transfer Rate | 4.0 L/min @ 15.0 psi Δ P |
| Maximum Operating Pressure | 27.7 MPa |
| Power Transfer Rate | 5x 28 V @ 20 A, 1x 120 V @ 40 A, 1x user defined voltage (up to 120 V) @ 40 A |
| Data Transfer | The Puck natively supports SpaceWire and Ethernet with up to 21 additional user-configurable pins |
| Data Transfer Rate | Up to 10 Gbit/s (Ethernet), up to 400 Mbit/s (SpaceWire) |
| Device Control | CAN Bus controlled |
| Operational Life | 10+ years in LEO (RT avionics), 20+ years in GEO (RT avionics) |