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BARTOLOMEO - THE NEW VERSATILE EXTERNAL CARRIER ON THE INTERNATIONAL SPACE STATION

Abstract

The external payload platform Bartolomeo is in development for the Columbus module on the International Space Station (ISS). As enhancement of Columbus infrastructure Bartolomeo is motivated by the shortage of ISS external sites and the need to improve capabilities to keep the station attractive for new upcoming missions. Available in 2019 the new payload carrier which will be provided by Airbus DS and consortium and operated with ESA and NASA will offer 12 additional external payload sites, all of them at the forward-facing side of Columbus. Payloads are accommodated using the General-Purpose Oceaneering Latching Device (GOLD) as mechanical interface which enables full robotic servicing of the facility. Compatibility with ISS legacy payload designs is assured through the Flight Releasable Attachment Mechanism (FRAM) interface available at some payload sites. Through its various payload interfaces Bartolomeo provides a versatile hosting solution for all payloads in a mass range of 50 to 599 kg. Smaller payloads can be accommodated by sharing a slot. Designed to user requirements from the commercial and institutional sector Bartolomeo complements the space station with its unique capabilities and resupply logistics with unique features: access to best viewing angles in nadir, zenith and limb directions with minimal obstructions from other ISS elements, choice between unpressurized and pressurized launch of payloads to ISS, payload or sample return option, an enhanced data downlink capability of 3.75 Terabyte per day through a 10 Gbps optical communication system provided by DLR, and easy access to space with standardized payload interfaces, integrated mission solution with pre-developed payload modules, and a simplified mission integration scheme. Furthermore, convenient tooling will be provided to end-customers to control their payloads, including a smart gateway with user-defined onboard intelligence, direct web access and development environment. Payload sites on the new facility are accessible through a commercial contract. With a lead time of 18 months the Bartolomeo Mission Service offers end-to-end mission integration with standardized interfaces definition to the user to simplify the process of bringing payloads onboard Bartolomeo. Payloads, thereby, benefit directly from the partnership with the ISS program providing frequent access to space. The Bartolomeo platform will make ISS much more attractive for the commercial space sector to use LEO more frequently, quicker and at lower cost supporting competitiveness and growth of the industrial sector, especially for small and medium enterprises and academic institutions who are yet unexperienced in using space or ISS for their businesses or research.