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ERM, THE DEPLOYABLE MAST FOR COLUMBUS

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Abstract

For the application in the European Columbus project, the ERM (extendable and retractable mast) has been selected as the most universal concept. Both, Resource Module and Polar Platform require large solar generators of different sizes up to 16 kW. The modular design of the ERM can be easily adopted to different deployment lengths. Though the rollable array type has been chosen as the baseline, the ERM is also able to deploy rigid panel arrays. In addition the ERM will be used to position reflector antennas away from the module.

The ERM has been developed by DORNIER under an ESA technology contract. The design is based on the telescopic principle using circular shaped graphite/epoxy tube sections for high stiffness and good thermal stability. The telescope is driven by a spindle/nut system, allowing the extension of the mast section by section. Automatic latching resp. delatching mechanisms assure the proper function of deployment and retraction. A cable follow-up mechanism can be added as a separate module for the antenna mast.