

Appendix

FUNCTIONAL BLOCK DIAGRAM

The following illustration depicts what a simplified architecture of the camera may look like. This diagram is based on an initial functional breakdown provided and meant only as a reference. It is, therefore, subject to further modifications once preliminary design tradeoffs and consolidation activities kick off.

Camera Optical Unit (COU)

The COU is the ultimate unit in charge of image acquisition. It is expected to incorporate at least 3 different operational modes: 1) image acquisition (possibility to expand into photo, video, and livestream sub-modes), 2) image download, and 3) standby. The Position Control Unit will host the actuators in charge of pointing the camera in the correct direction and with the right viewing angle. The Image Processing Unit, part of the CIU, will be in charge of assuring that the Earth falls within the camera field of view while complying with performance requirements.

Camera Interface Unit (CIU)

On the other hand, the CIU, will host the “brain” of the camera payload providing a single power interface connection to the lander (assuming the latter provides all the power required for nominal operations for the duration of the mission), power conversion, protection from and connection to the rest of the components of the camera payload, image and housekeeping data storage, commands and data relay between the payload and the lander (assuming communications between the Mission Control Center (MCC) and the lander is handled by the latter’s own communication subsystem), mechanical and thermal interface connections to the lander payload deck, a thermal status checks (assuming passive/active thermal control is provided by the lander during cruise and by the payload’s own passive control system during surface operations).

