

DOG-M1 Multi-Mission Optical Modem

The DOG-M1 modem is dedicated to support the processing of optical links between space and Earth.



DOG-M1 Multi-Mission Optical Modem

The A-Series is a family of next generation satellite modem platforms built on versatile FPGA- and software-based architecture. The Digital Optical Groundstation (DOG) suite of products is designed for optical communication up to multi-GHz bandwidths, supporting the full variety of space missions from LEO to Deep Space. Exceptional analog and digital engineering provides teleport-grade devices with future-proof expandability.

Through an all-IP structure, the platform supports both native network operation as well as data streaming over IP. Built-in protocol stacks support an increasing number of space data formats as well as streaming of transparent baseband data and synchronized symbols for user-defined processing and integration into virtualized infrastructures.

The **DOG-M1 Multi-Mission Optical Modem** is a modem dedicated to support the processing of optical links between space and Earth. It is designed for multi-mission support to enable effective ground station design. Optical On-Off-Keying (OOK) and High-Photon-Efficiency (HPE) transmissions can be processed via a common input that operates either based on hard-decision decoding or the processing of logarithmic-likelihood-ratios (LLR).

The additional front-end digitizer unit **DOG-F1 Optical Modem Front-End** is available for signal processing from symbol synchronization to LLR computation in combination with the DOG-M1 for soft-decision input signals. That will also allow installations of the DOG-M1 independently from the telescope location.

Product Line: A-Series Digital Optical Groundstation (DOG) suite

Application: Space

Item Number: DOG-M1 Multi-Mission Optical Modem



DIGITAL OPTICAL GROUND STATION

Key Features

- Multi-Mission support
- Hard-decision and soft-decision decoding
- Optical On-Off Keying (O3K)
- High-Photon-Efficiency (HPE) future upgradable extension
- CCSDS 141.0-B-x support
- CCSDS 142.0-B-x support
- O3K symbol rate up to 10 Gbps
- Internal storage for at least 2 LEO passes at maximum bandwidth

- Flexible software architecture for easy extension and future virtualization of functionality
- Teleport-grade M&C capabilities for seamless integration into professional ground station systems

