

Optical Interrogator of Remote Geophysical Sensors

Dangerous locations are often precisely where one wants to deploy a sensor. Considering the deployment costs in such areas, avoiding sensor failure due to severe environmental conditions is crucial. The electronic components within sensors are frequently the weak points of geophysical instruments.

With the LOKI optical interrogator, sensors become electronic-less, and measurement readouts can be obtained from up to 50 kilometers away. This approach ensures system reliability without compromising real-time data availability.

LOKI is compatible with any geophysical sensor based on a displacement readout. Inclinerometers, seismometers, and strainmeters with over five years of heritage have been successfully demonstrated—from underwater environments to the summits of volcanoes. These results have been published and acclaimed by the scientific community.

MAAGM is proud to offer this cutting-edge equipment, developed by ESEO, to a wider community now.



Front panel



Rear panel

Features

Made for geophysicists: SEEDlink – TimeStamping – Datarate GNSS disciplined

Easy to deploy: Web Interface – statusLED – Signal viewer – VPN remote configuration

Field Proven : 5 years heritage – Flight Case=Field station – High reliability

Cost effective : Allow less sensitive sensors => save cost of sensor and deployment

High performance : LOKI optical readout of geophone => seismometer below NLNM in [0.1-1Hz]

	4-Channels		8-channels	
Collimator to target distance	Short base (0-1cm)	Long base (1-5m)	Short base (0-1cm)	Long base (1-5m)
Reference	LOKI-4S	LOKI-4L	LOKI-8S	LOKI-8L
Power consumption	8 Watt		12 Watt	
Optical source	1310 nm	1550 nm	1310 nm	1550 nm
Max Datarate	2 kHz		1 kHz	
Max sensor distance	50 km	10 km	20 km	5 km

Physical characteristics	
Dimensions – Electronic box	250x160x60mm 2kg
Dimensions – Optic box	250x160x130mm 2kg
Flight case integrating the full system	475mmx607mmx275mm 15 kg
Operational features	
Power supply	11 – 36 V (external fuse 2A)
Configuration user	Web interface TCP/IP - Signal viewer included
Configuration admin	USB – Serial 115200 Baud
Temperature monitoring	Up to 4 channels (24bit @ 1Hz)
Internal monitoring	V & I supplied (12bit @ 1Hz) – PPS status – Memory Free Space %
Pannel checking	LED laser status – 1 LED per channel
Data storage and access	31 Go internal – SEED link server embedded – STEIM 2 - miniSEED
Data retrieval	USB – SDcard – SSH – SEEDlink request – Real-time Streaming
Remote configuration	VPN access allowing full configuration and maintenance remote
Time stamping	Internal GNSS antenna and receiver & TCXO 0.5ppm & NTP
Datarate	GNSS Disciplined – Configurable : 1Hz – 1kHz
Performance	

