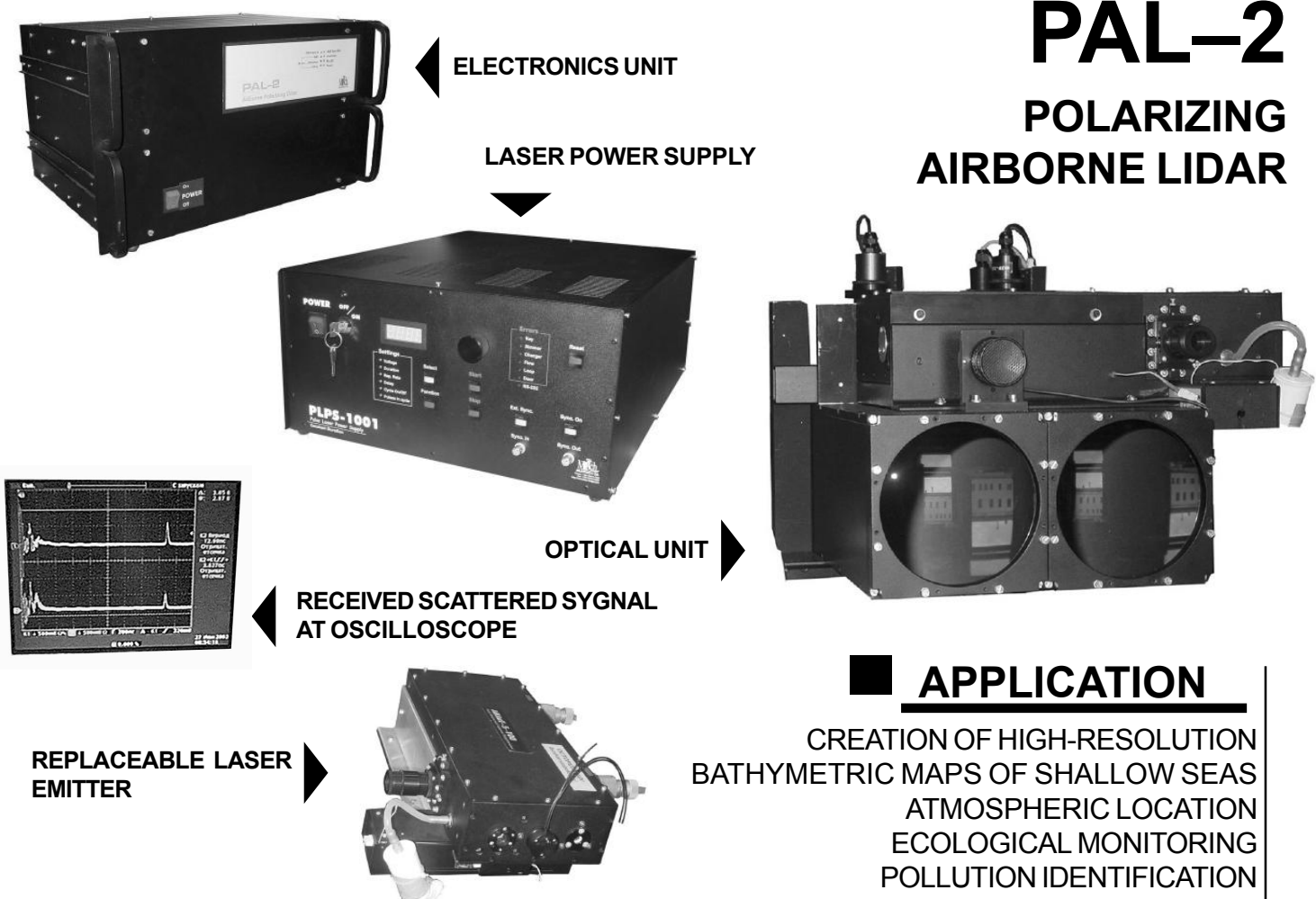


LASER LOCATION LIDARS

LASER. RESEARCH, TECHNOLOGY & DESIGN

PAL-2 POLARIZING AIRBORNE LIDAR



APPLICATION

- CREATION OF HIGH-RESOLUTION BATHYMETRIC MAPS OF SHALLOW SEAS
- ATMOSPHERIC LOCATION
- ECOLOGICAL MONITORING
- POLLUTION IDENTIFICATION
- FISH RESOURCES EXPLORING

COMPOSITION

- OPTICAL UNIT:
 - 2 RECEIVING TELESCOPES
 - 4 RECEIVING PMTs FOR VARIOUS POLARIZATIONS AND SHIFTED WAVELENGTHS
 - LASER EMITTER
 - TV-CAMERA
 - OPTICAL FILTERS
- ELECTRONICS UNIT
 - CONTROL CIRCUITS
 - MEASUREMENT CIRCUITS
 - AUXILLIARY POWER SUPPLIES
- LASER POWER SUPPLY PLPS-1001
- LASER WATER COOLER LCS-25-1000
- PC-LIKE COMPUTER WITH FAST ADCs

MAIN FEATURES

- MODULAR DESIGN
- REPLACEABLE LASER EMITTER
- 532, 1064 nm
- ADDITIONAL TV-MONITORING
- 2 INDEPENDENT OPTICAL CHANNELS
- 4 RECEIVING PMTs
- AUTOMATIC REMOTE CONTROL AND PROCESSING OF INFORMATION
- REMOTE REPLACING OF BUILT-IN FILTERS

DESCRIPTION

Utilization of airborne lidars for sounding of near-surface ocean layers is advanced way for many actual applications: ecological monitoring of man-influenced water areas, location of oil and biogenic films, fast reconnaissance of fishing grounds and migration ways, estimation of water area bioproductivity, oceanology exploring, subsatellite measurements of water properties etc.

The PAL-2 lidar system was designed and created using experience gained while 3-years exploitation of PAL-1 lidar (also developed by MULTITECH Ltd.). The PAL-1 (MULTITECH's 1-st generation of Polarized Airborne Lidars) has been used among airborne research kit of flying laboratory AN-26 "Arctic" owned by KNIPOVICH POLAR RESEARCH INSTITUTE OF MARINE FISHERIES AND OCEANOGRAPHY (PINRO) for integrated exploring of water areas bioproductivity. The PAL-1 and, after modernization, PAL-1M lidar systems were used at White, Barents, Kara and Norwegian seas and has completed more than million of shots.

The lidar system PAL-2 is intended for remote scanning of vertical structure and optical properties of sea water top layers, fish school locations, estimations of plankton productivity, creation of bathymetric maps of sea shallow areas, discovering and measurement petroleum pollution on water. The lidar may be used for atmosphere ecological monitoring and laser scanning for making of 3-D models of large objects.

Distant laser sounding is based on analysis of intensity of received scattered signal, its spectral, polarization, angular and temporal characteristics. PAL-2 sophisticated construction includes 4 independent PMT channels. It allows to analyze ortho- and cross-polarized components of signal and spectral-shifted SRC and chlorophyll-fluorescent signals collected from sounding spot. Set of replaceable optical filters helps for fast correction of processed optical signal without termination of the work.

BASIC TECHNICAL CHARACTERISTICS

Power Supply PLPS-1001

Input power	220VAC/50-60Hz (110VAC/400Hz)
Power consumption	2400 W
Charging rate	2000 J/s
Repetition rate	1-40 Hz
Output voltage, max.	1000 V
Bank capacity	100 uF
Pulse energy, max.	50 J
Pulse duration, typical	180 us
Simmer current	400 mA
Trigger pulse	15 kV

Laser emitter LILIT

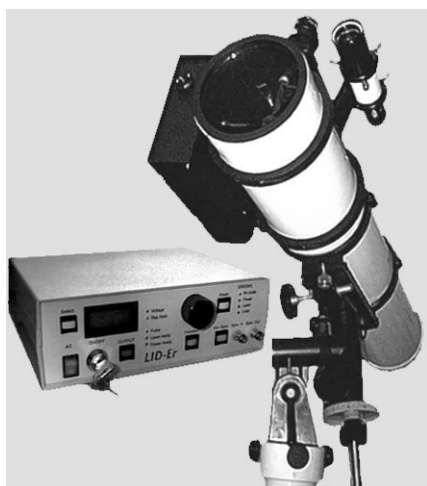
Wavelength	1064, 532 nm
Pulsewidth	10 ns
Pulse divergence, not less	1.5°
Repetition Rate	1-40 Hz
Light	Linearly polarized
Stability	5%
LILIT-30-30:	
Pulse energy@Rep.Rate:	30 mJ@40 Hz
LILIT-5-100:	
Pulse energy@Rep.Rate:	120 mJ@5 Hz

ER-GLASS LIDARS WITH EYE-SAFE LASER RADIATION

Lid-Er

FLASHLAMP-PUMPED
COMPACT LIDAR

EYE-SAFE SPECTRAL RANGE 1535 nm
COMPACT DESIGN
NO WATER COOLING

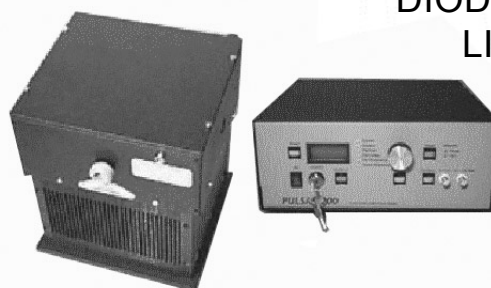


MAIN FEATURES

Flashlamp-pumped
Pulse energy up to 12 mJ
Repetition rate up to 5 pulses/min
No cooling

EI-40

DIODE-PUMPED
LIDAR HEAD



MAIN FEATURES

Diode-pumped
Pulse energy up to 50 mJ
Repetition rate up to 25 Hz
Air cooling

**ATMOSPHERIC LOCATION
RANGEFINDING
EARLY DETECTION OF SMOKES AND FOREST FIRES
DETECTION OF ATMOSPHERIC POLLUTIONS**