DIAGNOVA
TECHNOLOGIES

Advanced larynx imaging system

ALI Cam-HS1

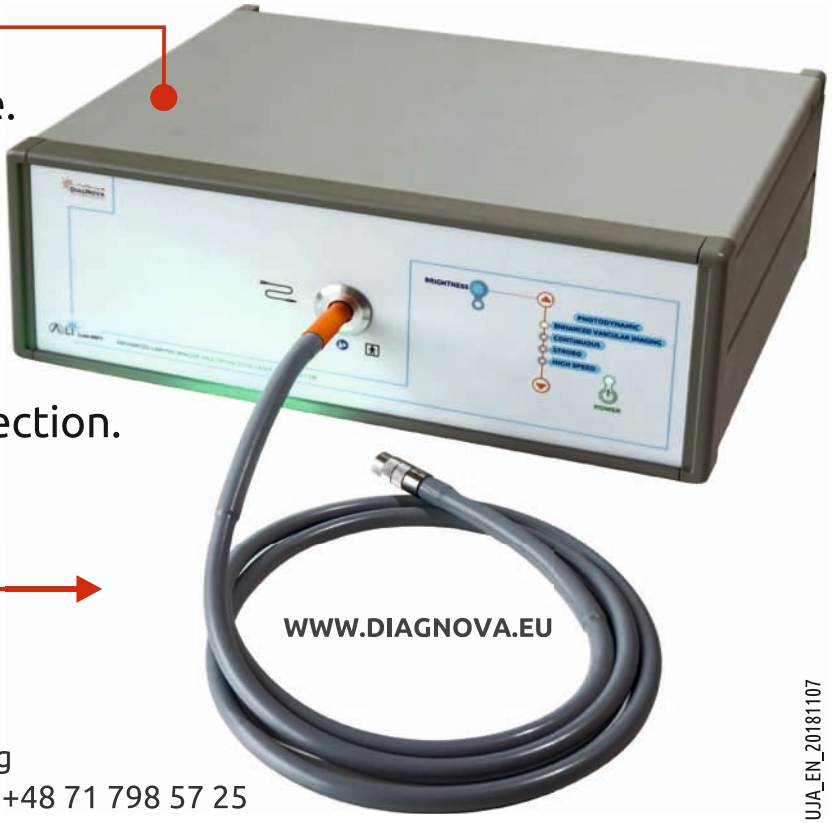
High-speed camera with high-resolution mode and vessel visibility enhancement mode

ALI Lum-C1

Compact design with a lightweight illuminator head mounted to the endoscope.

ALI Lum-MF1

Classic design with a lightguide. Extends the diagnostic functionality of the compact version: adds imaging with enhanced visibility of blood vessels and photodynamic detection.



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High-speed camera attachable to rigid endoscopes, intended for recording the function of vocal folds.

It offers unique functions and features not found in classic endoscopic equipment in order to make the laryngologist's and phoniatrician's work easier and more efficient to a maximum extent:

ALI Cam-HS1

- true „slow motion" records realized in High-Speed mode at speed of up to 4000 frames per second, enabling to conduct fully reliable functional diagnostics, even in the cases where the stroboscopic technique fails – particularly useful in assessment of voices with significant pathologies;
- detailed visualization of vocal folds in the High-Speed mode thanks to optimally chosen image magnification;
- high resolution (HD) mode up to 1024x1024 pixels at normal speed (25 frames per second) for diagnostics of organic changes and general imaging of the whole larynx;
- electronically controlled lens with manual or automatic focusing;
- the manual mode uses a comfortably positioned, precision knob;
- special endoscope attachment preventing its rotation and eliminating the related diagnostic errors;
- improved assessment of the imaged objects thanks to monitoring focus settings and determining the distance of the objects from the endoscope tip;
- ability to record sound in parallel with the high-speed video sequence;
- works with recognized in Poland original software (DiagnoScope Specialist) enabling to conduct full kymographic diagnostics, including vocal fold motion parameterization and generation of phonovibrograms.

BASIC TECHNICAL DATA

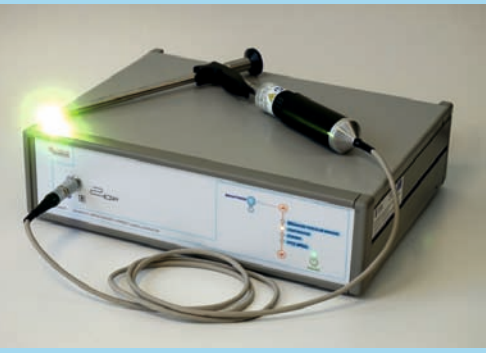
CAMERA	
Sensor	1920x1200 pixels, progressive, 2/3"
Image field	Limited to 1024x1024 pixels in HD mode
Maximum frame rate @ result image resolution	4000 frames/s @ 480 x 240 pixels 3200 frames /s @ 480 x 400 pixels 2400 frames /s @ 512 x 480 pixels 25 frames /s @ 1024 x 1024 pixels
Cable length	180 cm

GENERAL	
Power consumption	max. 2 A
Main module power	220–240 VAC, 47–63 Hz
Dimensions	Main module: 370 x 230 x 100 mm Camera: ø42 x 160 mm
Weight	Main module: 3,6 kg Camera (with lens and endoscope attachment): 0,27 kg
Protection level	IP20

Endoscope light sources of very high intensity. They provide the light flux of intensity required for recording the vocal folds function by a high-speed camera. ALI LUM-MF1 additionally enables advanced oncology diagnostics.

They are innovative devices with unique features:

ALI Lum-C1



- do not cause overheating of endoscope optics – the advanced optical system and the use of laser emitters provide highest efficiency and eliminate the excessive heat production which is typical for classic high-intensity light sources;
- excellent visualization of blood vessels, the edges of vocal folds and irritated mucosa thanks to originally chosen spectral characteristics (colour) of the emitted light;
- maximum image sharpness in the ALI Cam HS-1 camera thanks to optimally chosen light parameters;
- fully automated operation thanks to control of illuminator functions by the software from the computer managing the examination, according to the selected mode of camera operation – besides switching the device on, there is no need to adjust any controls in the front panel;
- long lifetime and quiet operation of the device, important while performing phoniatric examinations.

ALI Lum-MF1

BASIC TECHNICAL DATA

General	ALI Lum-C1	ALI Lum-MF1
Power consumption	max. 1 A	max. 2 A
Main module power	220–240 VAC, 47–63 Hz	
Dimensions	Main module: 370 x 280 x 100 mm Illuminator head: ø35 x 160 mm	Main module: 370 x 280 x 140 mm
Weight	Main module: 3,9 kg Illuminator head: 0,26 kg	Main module: 7,5 kg
Light		
Endoscope attachment	STORZ	
Emitted wavelengths	520 nm, 638 nm	405 nm, 520 nm, 638 nm
	(spectral characteristics adjusted to the sensitivity of CMOS cameras, with reflection characteristics of larynx tissues taken into account)	
Colour temperature	6000 K (approximate – the deviation of chromaticity coordinates from the black body line is larger than 0.04 UV system unit)	
Continuous light	intensity controlled with duty cycle, 16 intensity levels	
Maximum light flux in HIGH SPEED mode	2500 lumens during 250 milliseconds maximum (at illuminator head exit)	2200 lumens during 250 milliseconds maximum (at lightguide exit)
Maximum light flux in continuous mode	600 lumens (at illuminator head exit)	460 lumens (at lightguide exit)

Characteristic features of the models

ALI LUM-C1

- the lightweight and compact illuminator head mounted directly to the endoscope makes the examination with the high-speed camera to be performed without effort and as easy as an ordinary videostroboscopic examination.

ALI LUM-MF1

- enables advanced oncology diagnostics with narrow-band illumination modes for vessel imaging (ENHANCED VASCULAR IMAGING) and violet light for photodynamic diagnostics.