

# DOCUMENTATION, LIGHT SOURCES AND ACCESSORIES FOR OPTICAL ENDOSCOPES



# CAMERAS AND DOCUMENTATION SYSTEMS

Be on the safe side!

The documentation of inspection results is essential in many areas of industrial endoscopy. NDTec provides various options for visualization and documentation that meet individual customer needs while the “plug & play” compatibility of the individual components guarantees the optimal quality of the entire system.

The camera control unit can be used for the transmission of data to a monitor or the compact “all-in-one” unit can be used to save inspection results directly on a connected device – whether notebook, PC or tablet.

## VCAM HD

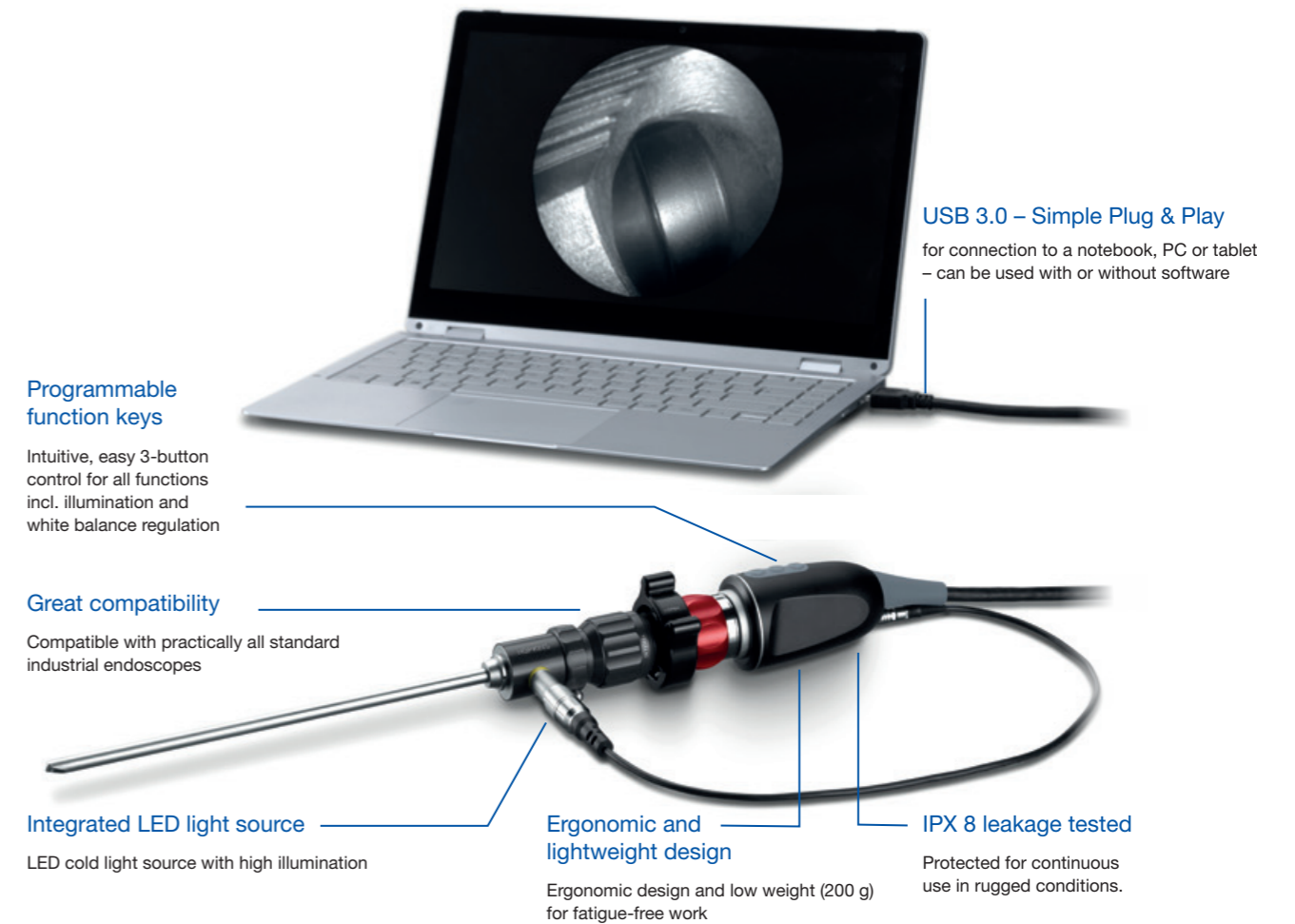
The flexible USB HD camera



The modern and versatile VCam HD camera system is ideally suited for connecting both rigid and flexible optical endoscopes. Its small dimensions and a weight of only about 200 g in combination with the system’s ergonomic design and intuitive control elements make convenient and fatigue-free work possible. The plug & play function enables the VCam HD to be directly controlled at the camera head and allows the user to quickly perform zoom-in/zoom-out as well as automatic or manual white balance.

Thanks to modern HD technology and an integrated, powerful LED light source, the VCam HD delivers first-class image and video quality for precise and informative diagnosis.

The VCam HD camera is a powerful inspection tool that ensures a smooth workflow in the industrial environment. Flexible and ready for immediate use, the VCam HD can be employed in a wide range of applications, whether mobile or stationary. When connected to a mobile end device (notebook, tablet, etc.) or a PC, the USB interface provides lightning-fast storage of all data.



### Special Features:

- Fast and easy handling
- Integrated white light LED light source, also optionally available in UV
- Mobile and stationary use
- Zoom in/Zoom out
- Automatic and manual white balance

# VCAM HD PLUS

The compact documentation system



The VCam HD Plus documentation system is always the system of choice when performing inspections in the rugged industrial environment – at the production line, for example, where the use of a PC is not suitable due to the presence of dirt or dust. With the VCam HD Plus, inspection results can be viewed directly on the provided 3.5" industrial monitor that is connected with the camera. An HDMI connection makes it possible to connect further output devices.

The VCam HD Plus documentation system consists of the VCam HD Plus camera as well as a monitor, connecting cable, exchangeable LED light source, a mains cord and a storage case.

## VCam HD Plus Light Source (optional)



A perfect accessory for the VCam HD Plus, this stationary light source was especially developed for this documentation system and features excellent illumination. Power is supplied directly via the attached monitor unit.

The VCam HD Plus light source is an optional accessory and not included in delivery.

## Specifications

VCam HD	Product No. 4131-00000-00001
Model	Endoscope camera
Scope of delivery	VCam HD, VCam HD-LQ-5 light source, storage case
Image sensor	FULL HD CMOS
Video resolution	1920 x 1080 px, 60 fps
Interface	USB 3.0
USB cable length	3 m
Dimensions	45 mm x 45 mm x 80 mm
Weight	200 g ±10 g
Lens connector	C-Mount connector
Protection class	IPX 8
Power supply	DC 5 V / 0.7A from USB 3.0 port
Operating conditions	0° to 40°, relative humidity 20% to 80% atmospheric pressure 86kPa to 106kPa
Storage conditions	-10° to 60°, relative humidity 5% to 95% atmospheric pressure 86kPa to 106kPa
Minimum requirements for PC/notebook	CPU: Dual Core 2.6 GHz Memory: 4 GB RAM System: MS Windows 10 / 8 / 7 (64 Bit or 32 Bit) Mac OS X memory: 4 GB RAM Monitor: 1920 x 1080 px Electronic protection class: II Voltage: DC 5V / 0.7A via USB Interface 3.0
VCam HD LED Light Source	Product No. 4133-00000-00001
Model	VCam HD-LQ-5 integrated LED cold light source
Illumination	200,000 lx
Performance	5 W
Color temperature	5,700 K
Service life	20,000 h
VCam HD Plus	Product No. 4131-00000-00002
Model	Camera documentation system
Scope of delivery	VCam HD Plus 3.5" system monitor Including: Exchangeable LED light source, storage case, power supply, HDMI connecting cable
LCD monitor	3.5" (1280 x 720)
Storage	SD card 128 GB
Video format	MP4
Connectors	HDMI-Video out
VCam HD Plus System Light Source (optional)	Product No. 4133-00000-00002
Model	VCamHD Plus LQ, stationary docking station light source, no stand-alone unit
Power supply	Via the VCam HD Plus monitor unit
Illumination	>900,000 lx
Color temperature	5,500 K

## VCAM HD MOBILE

Camera for quick attachment



The VCam HD mobile camera provides additional options for rapid inspection: The camera is simply attached to the rigid endoscope and work can begin immediately. The results are displayed on the monitor and can be documented as image or video sequences.

The flexible VCam HD mobile camera is compatible with the rigid endoscopes of renowned manufacturers. It is straightforward and intuitive to use and can be swivelled by 120°. This allows an optimal view of the monitor in narrow or tight spaces.

### Specifications

VCam HD mobile	Product No. 4136-00000-00001
Model	VCam HD mobile camera
Adaptor	C-Mount, 22 mm
Monitor	3.5", LCD display
Tilt range	0° - 120°
Image sensor	2 Mio. px high performance sensor
Video format	1080P, MOV
White balance	Automatic
Storage medium	32 GB Micro SD card
Power supply	AC100-240V 50/60 Hz DC 5V
Battery	Rechargeable and removable Li-ion battery (1,900 mAh 3.7 V)
Operating time	> 4 h
Net weight	210 g ±10 g

## HD CAMERA LENS ADAPTOR

High-quality optics and mechanics



Equipped with a C-Mount camera screw thread made of stainless steel, the focusable adaptor fits all C-Mount cameras in the professional sector. The high-quality, multi-lens optical system has been specifically calculated for HD cameras and provides sharper, contrast-rich images.

### Specifications

HD Camera Lens Adaptor	
Model	VCam HD-F-..., C-Mount adaptor, focusable
Product no.	
4132-00000-00014	VCam HD-F-14, focal length F = 14 mm
4132-00000-00018	VCam HD-F-18, focal length F = 18 mm
4132-00000-00022	VCam HD-F-22, focal length F = 22 mm
4132-00000-00025	VCam HD-F-25, focal length F = 25 mm
4132-00000-00028	VCam HD-F-28, focal length F = 28 mm
4132-00000-00035	VCam HD-F-35, focal length F = 35 mm
4132-00000-01835	VCam HD-F-18-35, focal length zoom F = 18-35 mm

# UNIVERSAL LIGHT SOURCES

More light – for optimal vision

Homogeneous illumination of the cavities to be inspected is a crucial factor for image quality. Highly reflective or light-absorbing surfaces require customized light intensity. Depending on the area of application and the type of endoscope used, different light sources are available.

The NDTec portfolio includes battery-operated LED light sources ranging from 5 W through to stationary cold light projectors with 300 W. The powerful, high-quality light sources are among the decisive factors that ensure reliable inspection and diagnosis as well as informative endoscopic images.

## Stationary LED Light Source

With powerful light output



At 900,000 lux, the stationary LED light source is extremely bright and can thus replace conventional light sources with expensive lamps. The color temperature of 5,500 Kelvin corresponds to daylight and provides true-to-life color rendition during use.

### Special Features:

- Excellent light intensity with state-of-the-art LED technology
- Infinitely adjustable control of light intensity
- Homogeneous color temperature of 5,500 Kelvin throughout the entire operating life
- Robust metal housing specially developed for industrial use

## Hand Light Sources

Lightweight, mobile, ready for immediate use



Battery-operated, high-performance LED light sources feature a universal design so that these can be easily attached to all rigid and flexible endoscopes from NDTec. The powerful 10 W light source is 3x adjustable. At maximum light intensity, even large objects can be easily illuminated.

### Special Features:

- Very bright, portable LED light source with very good output coupling efficiency
- Lightweight
- Intuitive use
- Operating time of 5 hours with rechargeable lithium batteries

### Specifications

Stationary LED Light Source	Product No. 7630-00000-11112
Model	LQ-LED-200, stationary LED light source
Scope of delivery	LED light source, fiber optic light cables, storage case
Illumination	900,000 lx
Color temperature	5,500 K
Power supply	Via a separate power supply unit
Size	170 mm x 120 mm x 90 mm (without case); 370 mm x 280 mm x 150 mm (with case)
Weight	1.85 kg (without case); 2.80 kg (with case)
Battery Hand Light Source	Product No. 7630-00000-11111
Model	LQ-LED-10, battery hand light source – 10 W
Scope of delivery	Hand light source, lithium rechargeable batteries, charging unit
Illumination	200,000 lx
Intensity	3x adjustable
Rechargeable batteries	Lithium battery 18650
Operating time	5 h
Charging time	3 h
Weight	90 g
Inductive Hand Light Source	Product No. 7630-00000-11113
Model	LQ-LED-10i, inductive battery hand light source – 10 W
Scope of delivery	Hand light source, USB docking station
Illumination	120.000 lx
Intensity	4x adjustable
Rechargeable batteries	Lithium rechargeable battery 16340, integrated
Operating time	4 h
Charging time	3 h
Weight	51 g

## Accessories

### Light guides



Various fiber optic light cables are available that transmit the light from a light source to the endoscope. The use of high-quality materials guarantees the highest quality: The fiber bundle is housed in a flexible metal monocoil and a silicone sheath. The light cables are watertight and mineral oil resistant.

### Specifications

#### Fiber Optic Light Cables

Model	LG-GF-..., Fiber Optic Light Cable, outer diameter 10 mm, active light cable 3-5 mm, suitable for all standard light sources
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#### Product No.

7630-00000-11114	LG-GF-1800, length 1800 mm
7630-00000-11116	LG-GF-1800-S, length 1800 mm, light connection 90°, angled at endoscope side
7630-00000-11115	LG-GF-2500, length 2500 mm
7630-00000-11117	LG-GF-2500-S, length 2500 mm, light connection 90°, angled at endoscope side

## Monitors



Monitors serve as output media for inspection results and, depending on the inspection task, allow data to be displayed on larger screens. The inspection solutions have been designed to enable interfaces and data transmission to be compatible with various output media.

### Specifications

#### Monitors

Model	Industrial HD Monitor, metal housing
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#### Product No.

7930-00000-00013	HD13M, size 13 inches, plastic base
7930-00000-00015	HD15M, size 15 inches, metal base
7930-00000-00017	HD17M, size 17 inches, metal base
7930-00000-00019	HD19M, size 19 inches, metal base

## Storage Cases



Specially adapted cases are useful for the storage and transportation of endoscopes and also provide sufficient space for accessories.

### Specifications

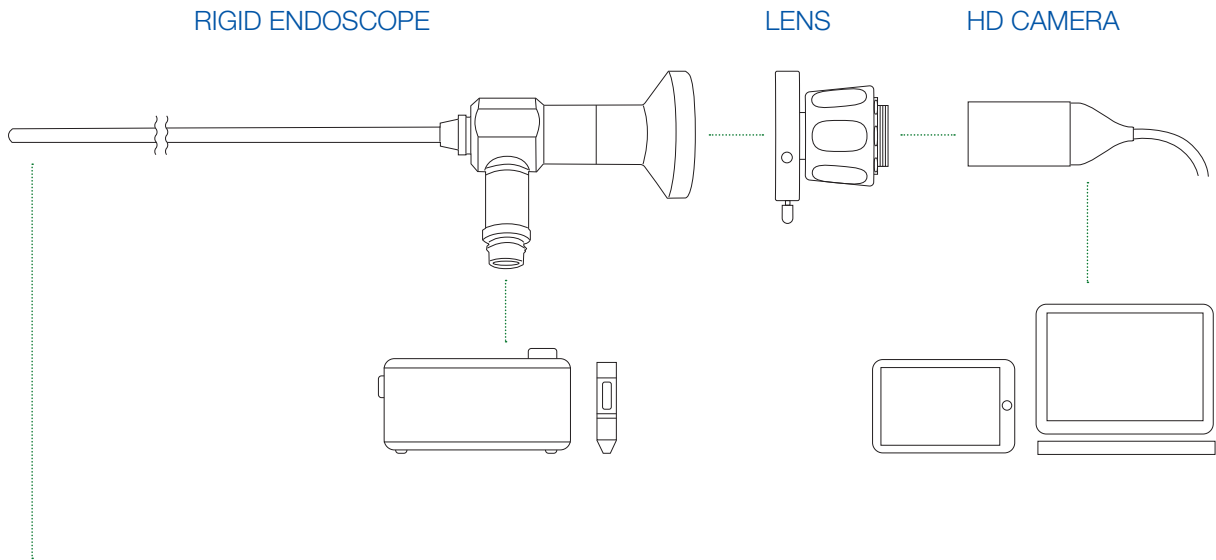
#### Cases

Model	Storage case, adapted to endoscope solutions
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#### Product No.

7630-00000-00003	SE-CASE-4, plastic case for 4 rigid endoscopes up to 350 mm working length plus accessories
7630-00000-00002	SE-CASE-3, plastic case for 3 rigid endoscopes up to 200 mm working length plus accessories
7630-00000-00005	SE-CASE-CAM, plastic case for 1 rigid endoscope up to 200 mm working length plus USB HD camera
7630-00000-00004	FE-CASE, plastic case for 1 flexible endoscope FE38700A75 or FE25700A75 plus accessories
7630-00000-00001	SE-CASE-XL, wooden case for 1 rigid endoscope up to 700 mm working length

# SYSTEM OVERVIEW



## DIRECTIONS OF VIEW

Fixed focal length  
Zoom



## LIGHT SOURCES

Stationary LED light sources  
Battery hand light sources  
Fiber optic light cables

## OUTPUT MEDIUM / DOCUMENTATION

Tablet  
Notebook / PC  
Control monitor VCam HD Plus  
Monitor 11", 13", 17", 19"