

## Camera Systems



A Live Experience. With surgiCam.  
THE MEDICAL CAMERA SYSTEM FROM KLS MARTIN.

**KLS** martin  
GROUP

## Taking the Observer Close to the Operating Table. surgiCam.

*Communication and information nowadays play a vital role in many surgical, endoscopic and other imaging interventions and procedures. Specifically, digital image documentation of surgical procedures and live operations are increasingly gaining importance. surgiCam from KLS Martin gets you directly in touch with what's happening in the OR – live. In conjunction with our novel marLux® operating light generation, the digital camera system offers you everything you need for high-quality visualization and image transmission of entire surgical procedures.*

You have the choice.

surgiCam can either be integrated into the center of a marLux® light head or installed on a separate suspension arm. This ensures an excellent view of the surgical site for any intervention.

surgiCam comes in a modular and highly flexible design so you can easily tailor this versatile system to your specific needs. All variants feature a high-resolution CCD-chip camera with 300x zoom (25x optical) capable of capturing even the smallest image details. Motorized image erection – a function that ensures laterally correct image display on the screen – is optionally available as well. In other words, time-consuming camera or light adjustments by the surgical staff are definitely a thing of the past.





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## The Economy Version. The Low-Cost Single Solution.

*The Economy version allows you to control the zoom and image erection functions directly via the operating light's control panel. No other control units required.*

*Via a TFT monitor, the surgical procedure is visualized for the entire team.*

*Besides, an S-video interface ensures the convenient recording or processing of the video signals.*



*It's that simple. The surgeon positions the light head as required for the intervention. This also focuses the camera located in the light head's optical axis on the surgical site – an automatic process. (1)*

*In addition to light control, the control panel (2) allows you to adjust the zoom and display a laterally correct image on the monitor screen (3).*

## The Basic Version. Convenient and Brilliant.

*The Basic version offers you excellent image quality along with a separate, user-friendly control unit that can be installed either on the platform of a ceiling-mounted supply-and-suspension system or on an equipment trolley. It provides you with a number of additional control functions and allows optional switchover to up to two other video sources (e.g. an endoscopic and a room camera).*



surgiCam basic version

in conjunction with a marLux® X8 light and an Independent® 300 ceiling mount equipped with the control unit and a maxium® electro-surgical unit. The camera is mounted on a separate arm, thus ensuring great flexibility in focusing the camera on the surgical site.

surgiCam integrated into the light head, combined with an additional arm for TFT monitors up to 21".

## The Advanced Version. The Gate to the Digital World.

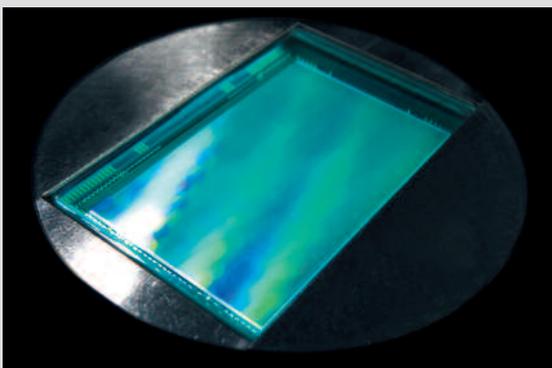
*The Advanced version features a video server capable of digitizing the recorded video signals and streaming them into a network. In this way, the digital image data can be distributed and used throughout a LAN and stored in server-based databases. Besides, live transmissions are easily possible in real time and over large distances. The system is ideal for documentation and training purposes. Password-protected access control ensures that all functions of the camera can be conveniently remote-controlled from PC workstations outside the operating room.*



**The camera's components and available versions (PAL)  
(NTSC also available on request)**

<b>surgiCam specification</b>	<b>Item no.</b>	<b>Wiring</b>	<b>Zoom camera</b>	<b>Control unit</b>	<b>Image erection</b>	<b>CODEC</b>
Economy version, center	84-415-04	yes	yes	no	yes	no
Basic version, control unit, center	84-412-01	yes	yes	yes	yes	no
Basic version, control unit, separate arm	84-310-01	yes	yes	yes,	in preparation	no
Advanced version, center	84-414-01	yes	yes	yes	yes	yes
Advanced version, sep. arm	84-314-01	yes	yes	yes	in preparation	yes
Camera mounting preparation, center	84-410-20	yes	no	no	no	no
Camera mounting preparation, separate arm	84-410-30	yes, incl. arm	no	no	no	no
Camera retrofit set, Economy version, center*	84-416-40 or 84-416-42	yes	yes	no	yes	no
Camera retrofit set, Basic version, center*	84-418-40 or 84-418-42	yes	yes	yes	yes	no
Camera retrofit set, Advanced version, center*	84-420-40 or 84-420-42	yes	yes	yes	yes	yes
Camera retrofit set, Basic version, separate arm*	84-422-40	yes	yes	yes	in preparation	no
Camera retrofit set, Advanced version, separate arm *	84-424-44	yes	yes	yes	in preparation	yes
Control unit retrofit for Economy (upgrade to Basic version)	84-428-01	---	---	yes	---	---
Digital Codec retrofit (upgrade Basic to Advanced version)	84-428-10					yes
Interface for connection to Storz OR1, Olympus EndoAlpha, Smith & Nephew, for one light	89-930-61					in combination with CODEC
Interface for connection to Storz OR1, Olympus EndoAlpha, Smith & Nephew, for two lights	89-930-62					in combination with CODEC
Interface for connection to Storz OR1, Olympus EndoAlpha, Smith & Nephew, for three lights	89-930-63					in combination with CODEC

\* Presupposes an operating light or separate arm fitted with a mounting preparation set for subsequent camera installation



"CCD chip"

## The Essentials at a Glance: medTFT<sup>pro</sup> Monitors

*TFT monitors are not only light-weight and compact, but offer excellent image quality as well. Integration into a ceiling-mounted multi-light setup provides maximum flexibility in positioning the monitor according to specific needs. The advantages of a monitor plus suspension system combination are in fact easy to see: high mobility, low weight, plus easy handling thanks to an optionally available stop-free suspension. First-rate image quality is guaranteed by high resolution and a high frame frequency. Together with advanced interfaces for digital data transfer, the TFT<sup>pro</sup> monitors are bound to satisfy the highest demands in terms of image sharpness and fidelity, especially in endoscopy.*



TFT monitor	Signal inputs	Voltage supply	PSU operation	Item number
19"	VGA, DVI-D, RGBS, S-video (Y/C), SDI	24 VDC	100–240 VAC	84-200-28
19"	VGA, RGBS, Composite (color video signal), S-video (Y/C)	24 VDC	100–240 VAC	84-200-29
19"	Composite (color video signal), S-video (Y/C) VGA, DVI-D	12 VDC	100–240 VAC	84-200-30
Table stand for 19-inch monitor				84-200-40

## Flexibility is the Word. The Suspension Systems.

*KLS Martin offers flexible suspension arm systems for TFT monitors in conjunction with operating lights or ceiling-mounted supply-and-suspension systems. Large working ranges, height adjustment by spring-load balancing, sterile positioning via an exchangeable, sterilizable handle – all of them system hallmarks. To eliminate the inconvenience caused by arm rotation stops, the signal lines are routed through slip rings wherever possible.*

Designation	Stop	Slip rings, poles	Cable duct (Ø)	Sterilizable handle	Spring arm type	Load capacity	Monitor fixation	Rotary canopy	Max. possible wiring	Item number
Standard tracking arm, top position, with "Comfort" TFT support for monitors up to 21"	no	9	2 x 10 mm	yes	AC2000	11 kg	VESA 100 VESA 75	no	Power supply S-video	84-300-10
Light-duty equipment suspension arm, bottom position, with "Comfort" TFT support for monitors up to 21"	yes	–	2 x 10 mm	yes	AC2000	11 kg	VESA 100 VESA 75	no	e.g. 1 x power supply, 1 x VGA, 1 x S-VHS, wire pull	84-300-08
Heavy-duty equipment suspension arm, top position, with "Comfort" TFT support for monitors up to 21"	yes	–	24 mm	yes	AC3000	11 kg*	VESA 100 VESA 75	yes	e.g. 1 x power supply, 1 x VGA, 2 x S-video, wire pull	84-300-11
Heavy-duty equipment suspension arm, top position, with dual TFT support for "Duo TFT", for monitors up to 21"	yes	–	24 mm	yes	OndaSpace	2 x 11 kg	VESA 100 VESA 75	yes	e.g. 2 x power supply, 2 x VGA, 2 x S-video, 1 x control signal lead, wire pull	84-300-14
Light-duty equipment suspension arm, top position, with "Eco" TFT suspension arm	yes	–	2 x 10 mm	no	AC2000	13 kg	VESA 100 VESA 75	yes	e.g. 1 x power supply, 2 x S-VHS, wire pull	84-300-16
Light-duty equipment suspension arm, top position, with "Comfort" TFT support for monitors up to 21"	yes	–	2 x 10 mm	yes	AC2000	11 kg	VESA 100 VESA 75	yes	e.g. 1 x power supply, 2 x S-VHS, wire pull	84-300-17
Light-duty equipment suspension arm, bottom position, with "Eco" TFT suspension arm	yes	–	2 x 10 mm	no	AC2000	13 kg	VESA 100 VESA 75	no	e.g. 1 x power supply, 1 x control signal lead	84-300-18

"Comfort" version: CG-neutral, with max. swiveling range and sterilizable handle

"ECO" version: lockable tilt joint, stainless steel handle (non-sterile), for touch screen

\* Max. load capacity on request: 25 kg

## Technical Data. KLS MartinurgiCam digital.

### KLS MartinurgiCam digital

Image sensor
TV standard
Pixels
Horizontal resolution
Line frequency
Image/frame frequency
Automatic shutter
Minimum illumination
Signal-to-noise ratio (SNR)
Zoom
Focal length (zoom lens)
Iris/aperture
White balance
Ambient temperature
Control unit signal outputs, analog
Control unit signal outputs, digital
Video standard
Video data transfer rate
Audio input
Audio data transfer rate
Network protocols
Power requirements: control unit / camera
Power input: control unit / camera
Dimensions
Camera weight
Dimensions: control unit (complete)
Control unit weight
Protective conductor (PE) terminal
Protection class
Type B
Mark of conformity
Compatibility
Additional signal inputs
Increased patient safety

### Technical Data

1/6" Super HAD CCD chip
PAL (optionally NTSC)
PAL 752 (H) x 582 (V), NTSC 768 (H) x 494 (V)
> 460 TV lines
PAL 15,625 Hz, NTSC 15,750 Hz
50 Hz, 60 Hz
1/1–1/10,000 s
3 lux
49 dB
300x (25x optical + 12x digital)
2.4 to 60 mm
F 1.6–2.7
automatically
0°C to 45°C (32–113°F)
2 x S-video (Y/C), 2 x Composite (color video signal)
MPEG-4 via RJ45
MPEG-4
max. 1.2 Mbit/s, constant and variable
1 mono jack
24 kbps wideband audio-coding
TCP, UDP, HTTP, SMTP, FTP, Telnet, NTP, DNS, DDNS, DHCP, UPnP
100–240 V, 50/60 Hz / 24 V (AC/DC)
max. 24 W / approx. 6 W
131 mm x 88 mm (length x diameter)
approx. 0.85 kg
270 x 120 x 280 mm (W x H x D)
approx. 2 kg
⊕
I
⚡
CE (in conformity with 93/42/EEC)
with medTV <sup>digital</sup> and medTV <sup>pro plus</sup>
1 x S-video and 1 x Composite
Galvanic isolation of input and output signals (≥ 4 kV)



Control unit, front

TheurgiCam control unit allows manual as well as automatic control of all camera functions.



Control unit, rear

The rear panel of theurgiCam control unit features all needed connector sockets.

<b>surgiCam Ordering Data</b>	
84-310-01-04	SurgiCam camera on separate arm, BASIC version, PAL
84-310-02-04	SurgiCam camera on separate arm, BASIC version, NTSC
84-314-01-04	SurgiCam camera on separate arm, ADVANCED version, PAL
84-314-02-04	SurgiCam camera on separate arm, ADVANCED version, NTSC
84-410-20-04	SurgiCam mounting preparation set for camera installation in light head center
84-410-30-04	SurgiCam mounting preparation set for camera installation on separate arm
84-412-01-04	SurgiCam camera integrated into light head, BASIC version, for X8/H8/X6/H6/H5, PAL
84-412-05-04	SurgiCam camera integrated into light head, BASIC version, for X8/H8/X6/H6/H5, NTSC
84-414-01-04	SurgiCam camera integrated into light head, ADVANCED version, for X8/H8/X6/H6/H5, PAL
84-414-05-04	SurgiCam camera integrated into light head, ADVANCED version, for X8/H8/X6/H6/H5, NTSC
84-415-04-04	SurgiCam camera integrated into light head, ECONOMY version, for X8/H8/X6/H6/H5, PAL
84-415-05-04	SurgiCam camera integrated into light head, ECONOMY version, for X8/H8/X6/H6/H5, NTSC
<b>Retrofit Sets</b>	
84-416-40-04	SurgiCam retrofit set for camera installation in light head, ECONOMY version, for X8/H8, PAL
84-416-42-04	SurgiCam retrofit set for camera installation in light head, ECONOMY version, for X6/H6/H5, PAL
84-416-44-04	SurgiCam retrofit set for camera installation in light head, ECONOMY version, for X8/H8, NTSC
84-416-46-04	SurgiCam retrofit set for camera installation in light head, ECONOMY version, for X6/H6/H5, NTSC
84-418-40-04	SurgiCam retrofit set for camera installation in light head, BASIC version, for X8/H8, PAL
84-418-42-04	SurgiCam retrofit set for camera installation in light head, BASIC version, for X6/H6/H5, PAL
84-418-44-04	SurgiCam retrofit set for camera installation in light head, BASIC version, for X8/H8, NTSC
84-418-46-04	SurgiCam retrofit set for camera installation in light head, BASIC version, for X6/H6/H5, NTSC
84-420-40-04	SurgiCam retrofit set for camera installation in light head, ADVANCED version, for X8/H8, PAL
84-420-42-04	SurgiCam retrofit set for camera installation in light head, ADVANCED version, for X6/H6/H5, PAL
84-420-44-04	SurgiCam retrofit set for camera installation in light head, ADVANCED version, for X8/H8, NTSC
84-420-46-04	SurgiCam retrofit set for camera installation in light head, ADVANCED version, for X6/H6/H5, NTSC
84-422-40-04	SurgiCam retrofit set for camera installation on separate arm, BASIC version, PAL
84-422-42-04	SurgiCam retrofit set for camera installation on separate arm, BASIC version, NTSC
84-424-44-04	SurgiCam retrofit set for camera installation on separate arm, ADVANCED version, PAL
84-424-46-04	SurgiCam retrofit set for camera installation on separate arm, ADVANCED version, NTSC
84-428-01-04	SurgiCam ECONOMY upgrade to BASIC version by adding control unit
84-428-10-04	SurgiCam BASIC version upgrade (to ADVANCED version) with digital CODEC retrofit
<b>Suspension Arms*</b>	
84-300-08-04	Light-duty equipment suspension arm for bottom arm position, with "Comfort" TFT support, for monitors up to 21", fully wired, with stops, internal Ø 2 x 10 mm
84-300-10-04	Standard tracking arm for top position, with "Comfort" TFT support, for monitors up to 21", stop-free thanks to 9-pole slip rings
84-300-11-04	Heavy-duty equipment suspension arm for top position, with "Comfort" TFT support, for monitors up to 21", with stops, large cable duct Ø 1 x 24 mm
84-300-14-04	Heavy-duty equipment suspension arm for top position, with "Comfort" dual TFT support for Duo-TFT, for monitors up to 21", Ø 1 x 24 mm
84-300-16-04	Light-duty equipment suspension arm for top position, with "ECO" TFT support and stops, Ø 2 x 10 mm
84-300-17-04	Light-duty equipment suspension arm for top position, with "Comfort" TFT support, for monitors up to 21", Ø 2 x 10 mm
84-300-18-04	Light-duty equipment suspension arm for bottom position, with "ECO" TFT support and stops, Ø 2 x 10 mm
<b>Monitors</b>	
84-200-28-04	19" NDS RADIANCE TFT monitor
84-200-29-04	19" NDS ENDOVUE TFT monitor
84-200-30-04	19" KERN DFM FLATMEDIC TFT monitor
84-200-40-04	Table stand for 19" TFT monitor

\* "Comfort" version: CG-neutral, with max. swiveling range and sterilizable handle

"ECO" version: lockable tilt joint, stainless steel handle (non-sterile), for touch screen

**Gebrüder Martin GmbH & Co. KG**

A company of the KLS Martin Group

Ludwigstaler Str. 132 · D-78532 Tuttlingen

Postfach 60 · D-78501 Tuttlingen

Tel. +49 7461 706-0 · Fax +49 7461 706-193

info@klsmartin.com · www.klsmartin.com