

## DIGITAL VIDEO CAMERA 3-CCD



### DIGITAL VIDEO CAMERA

Made in Germany

# TRistar ZOOM

with digital zoom 100% - 150%

**optional:**

Digital Video Output IEEE-1394 or SD-SDI

- < high-end video image quality
- < natural colour reproduction
- < on-screen-menu
- < remote camera head
- < new high-sensitive-CCD
- < electronical zoom
- < character generator
- < high speed shutter
- < flex filter

## TRistar ZOOM

TRistar ZOOM is a 3-CCD video camera of the latest generation with excellent image quality and outstanding colour reproduction for professional requirements. The TRistar ZOOM can be used for every endoscopic application with high demands. It is easy and flexible to use.

Via multifunctional push-buttons on the camera head it is possible to remote more than two camera functions.



The TRistar ZOOM can be adjusted individually via integrated On-Screen-Menu. Settings are stored in an internal memory. High speed, complete digital image processing, separated for red, green and blue colour channels, enables high end image quality.

TRistar ZOOM camera head is very small and light weightedly designed.

A wide range of different TV-Adapters can be attached to the C-Mount thread to choose the best focus length to the procedure.

### < DIGITAL ZOOM

100-150% switch able up to 49 steps

### < FLEX FILTER

This electronically FLEX Filter avoids MOIRÉE Effects when working with flexible fibre endoscopes.

### < ON-SCREEN-MENU

Camera settings (like contrast, brightness, color, area) can be made in the On-Screen-Menu. Settings are stored in memory.

### < 3 USER SETTINGS STORABLE

### < AREA FUNCTION

Is a multitude of different brightness measurement fields. Quantity of measurement fields and form of this area is changeable. This Function controls the Shutter-Level for best illuminated picture.

### < STERILISATION

Camera head with cable and connector (using attached cap) can be immersed in a disinfectant solution.

### < CHARACTER GENERATOR

Creates on-screen-information on all video outputs by using standard PS2 keyboards (keyboard optional).

### < DIGITAL VIDEO OUTPUT

TRistar ZOOM-D is equipped with an digital video output. With IEEE-1394 the camera can be connected directly to a PC (with OHCI compatible controller) to store video files or images with standard software.

TRistar ZOOM-SDI output enables a low loss digital connection to other video equipment by using a single cable.

## MODELS


TRistar ZOOM Basic version

TRistar ZOOM-D include IEEE-1394

TRistar ZOOM-SDI include SD-SDI output

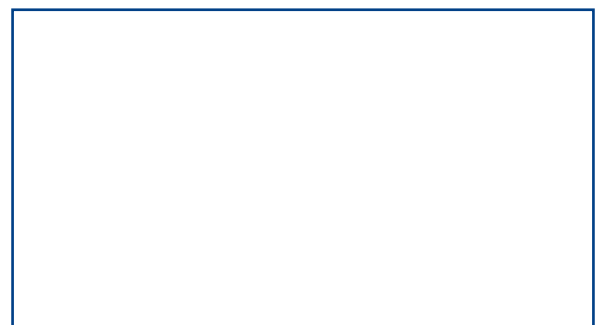
## DIGITAL 3-CCD VIDEO CAMERA

### Technical Data

|                              |   |                    |
|------------------------------|---|--------------------|
| Video system                 | PAL   |                    |
| CCD sensor                   | 3 x 1/3" with 440.000 active pixel  |                    |
| Video resolution             | 850 TV-lines horizontal   |                    |
| Shutter control              | 1/50 to 1/50000   |                    |
| S/N                          | 63 db   |                    |
| Sensitivity                  | < 1lx   |                    |
| Video system                 | NTSC  |                    |
| CCD sensor                   | 3 x 1/3" with 380.000 active pixel  |                    |
| Video resolution             | 800 TV-lines horizontal   |                    |
| Shutter control              | 1/60 to 1/50000   |                    |
| S/N                          | 64 db   |                    |
| Sensitivity                  | < 1lx   |                    |
| Outputs                      | 1 x RGB/ COMP<br>2 x Y/C (only 1 x Y/C at -D/ SDI version)<br>2 x CVBS<br>1 x IEEE-1394 output (only -D version)<br>3 x SD-SDI output (only -D version) |                    |
| Settings                     | On-Screen-Menu  |                    |
| Power supply                 | 100 - 240 VAC   |                    |
| Dimensions (WxHxD)           | CCU   | 353 x 103 x 253 mm |
|                              | Head  | 30 x 40 x 68 mm    |
| Weight                       | CCU   | 4,7 kg             |
|                              | Head  | 115 g              |
| Head                         | C-Mount thread, immersable<br>two push-buttons for remote<br>high flexible cable: 3 meter<br>(6,5 meter optional)                                       |                    |
| Class / Type                 | 1 / BF  |                    |
| Manufactured and tested acc. | IEC 601-1 / <br>EN 60601-1<br>93/42 ECC                            |                    |

### Delivery contains

CCU, camera head with 3 meter cable  
Mains cable  
RGB cable, Y/C cable, BNC cable  
User manual  
IEEE-1394 cable (only -D version with IEEE-1394 output)



## DIGITAL VIDEO CAMERA 1-CCD

SwiftCAM X



option: camera head with control buttons

**DIGITAL  
VIDEO CAMERA**

Swift **CAM** X

optional:

- IEEE 1394-DV output
- USB-capture system integrated

- < professional image quality
- < natural colour reproduction
- < on-screen-menu

Made in Germany

## Swift CAM X

SwiftCAM X represents the center of our range of 1-CCD-cameras for endoscopic applications. Full digital signal processing guarantees true colour reproduction and outstanding image quality. A high sensitive, high resolution 1/3" CCD ensures high clarity and sharp detailed images for every endoscopic application. It is easy and flexible to use. The **SwiftCAM X** can be adjusted individually via integrated On-Screen-Menu.

Camera head is very small and light-weight. It can be immersed in disinfectant solution for sterilisation (using attached cap).

### < WHITE BALANCE

White Balance is done automatically via push-button.

### < WINDOW FUNCTION

Window Function is programmed for different brightness measurement fields in case of difficult illumination conditions. Size can be adjusted via On-Screen-Menu.


### < ON-SCREEN-MENU

Camera settings (like contrast, brightness, window size) can be made in the On-Screen-Menu. Settings are stored in memory.


### < FREEZE FUNCTION (only -F version)

SwiftCAM X-F can freeze the image on the screen via remote buttons on the camera head or footswitch (optional).

### < USB-CAPTURE SYSTEM (only -USB version)

 SwiftCAM X-USB contains a capture system to store images easily on a standard USB-Flash-Stick. The files can be exported in several standard formats to a PC.

### < IEEE 1394-DV OUTPUT (only -D version)

 SwiftCAM X-D is equipped with an IEEE 1394 output. The camera can be connected directly to a PC (with OHCI compatible controller) to store video files or images with standard software.

### < RGB-OUTPUT (only -RGB version)

 SwiftCAM X-RGB has an additional RGB output for best colour reproduction.

## MODELS

|                |   |
|----------------|---|
| SwiftCAM X:    | Basic version   |
| SwiftCAM X-D:  | + IEEE 1394 output  |
| SwiftCAM X-USB | + USB-Stick capture system                                    |
| SwiftCAM X-F:  | + Freeze-board and Remote camera head for Freeze/Live control |
| SwiftCAM X-RGB | + RGB output  |

## OPTIONS

Remote camera head to control front panel functions or external video devices

Footswitch (only for -USB and -F versions)

## DIGITAL 1-CCD VIDEO CAMERA

### Technical Data

|                              |  |        |
|------------------------------|--|--------|
| Video system                 | PAL / NTSC   |        |
| CCD sensor                   | 1/3" with 440.000 pixel  |        |
| Video resolution             | 470 TV-lines   |        |
| Shutter control              | automatic  |        |
| Shutter range                | 1/50 sec - 1/100.000 sec   |        |
| Sensitivity                  | 0,9 lux (f=1,4)  |        |
| Outputs                      | 2 x Y/C, 2 x VBS<br>1 x IEEE 1394 (only -D version)<br>1 x RGB video (only -RGB version) |        |
| Settings                     | On-Screen-Menu   |        |
| Power supply                 | 100 - 240 VAC  |        |
| Dimensions (WxHxD)           | CCU 353 x 103 x 253 mm<br>Head 29 x 58 mm  |        |
| Weight                       | CCU  | 3,5 kg |
|                              | Head   | 65 g   |
| Head                         | C-Mount thread, immersable<br>3 meter, high flexible cable                               |        |
| Class / Type                 | 1 / BF   |        |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC  |        |

### Accessories

#### TV-Adapter / Rigid endoscopes (with Quick-Lock)

Fixed focus length f: 15mm / f: 21mm / f: 28mm / f: 35mm / f: 40mm

Zoom f: 15 - 25mm / f: 25 - 40mm

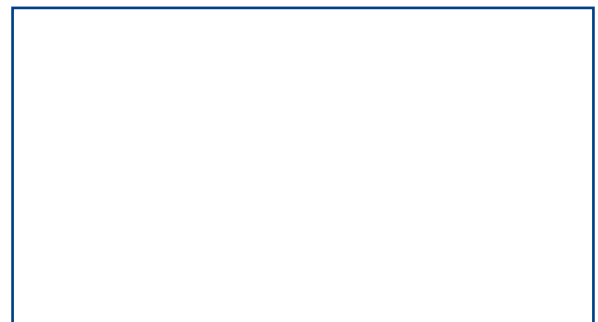
Beamsplitter f: 25mm / f: 30mm

#### TV-Adapter / Flexible Fibre endoscopes

Fixed focus length f: 15mm / f: 21mm / f: 28mm  
available for OES / Fuji / Pentax

### Delivery contains

CCU, camera head with 3 meter cable  
Mains cable  
Y/C cable / BNC cable  
User manual  
IEEE 1394 cable (only -D version)  
Remote cable (only -R version)  
USB-Flash stick (only -USB version)  
RGB cable (only -RGB version)



## DIGITAL VIDEO CAMERA 1-CCD

ecoCAM X



option: camera head with control buttons

**DIGITAL  
VIDEO CAMERA**  
Made in Germany

ecoCAM X

- < high video image quality
- < natural colour reproduction  
for all endoscopic requirements
- < for rigid, flexible and micro endoscopes

## ecoCAM X

ecoCAM X represents the new economy for single-chip CCD-cameras for endoscopic applications.

Full digital signal processing guarantees true colour reproduction with outstanding features and options. A 1/3" high resolution CCD-chip and a fast acting control electronic ensure best image quality, high clarity and sharp detailed reproduction.

The high-sensitive microlens CCD and a highspeed-shutter allow optimal image display under extreme illumination situations.

Different options increase the variety of different applications.

Camera head (not connector) can be immersed in a disinfectant solution.

### < WHITE BALANCE

White Balance is done automatically via push-button.

### < WINDOW FUNCTION

Window Function is programmed for different brightness measurement fields in case of difficult illumination conditions.

### < BOOST FUNCTION

BOOST function is used under low illumination conditions to gain the brightness of the image.

### < ANTI-MOIRÉE-FILTER

For using flexible fibrescopes the electronic Anti-Moirée-filter increases image quality by decreasing matrix-effects.

## MODELS

**ecoCAM X** Basic version with White Balance, WINDOW and BOOST function

**ecoCAM X-F** ecoCAM X-f is equipped with a FREEZE-Board to freeze the actual image on the monitor. ecoCAM V-f comes in a little bigger housing.

## AVAILABLE OPTION

All ecoCAM X are available with Remote push buttons on the camera head. They can be used to control camerafunction.

## DIGITAL 1-CCD VIDEO CAMERA

### Technical Data

|                              |  |
|------------------------------|--|
| Video system                 | PAL / NTSC   |
| CCD sensor                   | 1/3" with 440.000 pixel  |
| Video resolution             | 470 TV-lines   |
| Shutter control              | automatic  |
| Shutter range                | 1/50 sec - 100.000 sec   |
| Sensitivity                  | 0,9 lux (f=1,4)  |
| Outputs                      | 1 x Y/C, 1 x VBS   |
| Power supply                 | 110/115 VAC or 230/240 VAC<br>(ecoCAM X-f: 100 -240 VAC)                       |
| Dimensions (WxHxD)           | CCU: 176 x 72 x 202 mm<br>(ecoCAM X-f: 353 x 103 x 253 mm)<br>Head: 29 x 58 mm |
| Weight                       | CCU: 1,6 kg<br>(ecoCAM X-f: 3,5 kg)<br>Head: 65 g                              |
| Head                         | C-Mount thread<br>immersable<br>3 meter, high flexible                         |
| Class / Type                 | 1 / BF   |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC                                      |

### Accessories

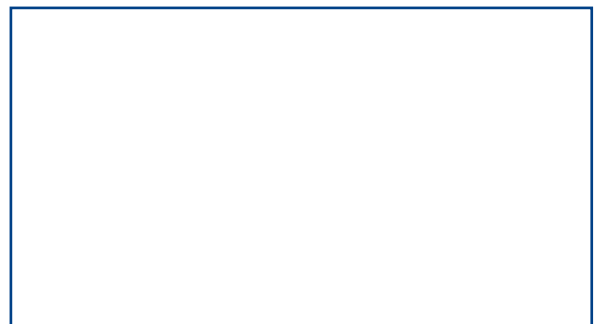
|  |  |
|--|--|
| <b>TV-Adapter / Rigid endoscopes (with Quick-Lock)</b> |  |
| Fixed focus length                                     | f: 15mm / f: 21mm / f: 28mm /<br>f: 35mm / f: 40mm |
| Zoom   | f: 15 - 25mm / f: 25 - 40mm                        |
| Beamsplitter   | f: 25mm / f: 30mm                                  |

### TV-Adapter / Flexible Fibre endoscopes

|                    |  |
|--------------------|--|
| Fixed focus length | f: 15mm / f: 21mm / f: 28mm<br>available for OES / Fuji / Pentax |
|--------------------|--|

### Delivery contains

CCU, camera head with 3 meter cable  
Mains cable  
Y/C cable  
BNC cable  
User manual



## DIGITAL VIDEO CAMERA 1-CCD

StarCAM X



option: camera head with control buttons

### DIGITAL VIDEO CAMERA

Made in Germany

optional:

anti-moirée-filter

IEEE 1394-DV output

USB-capture system integrated

- < digital signal processing
- < natural colour reproduction
- < easy to use

STAR **CAM X**

## STAR **CAM X**

StarCAM X is an economical 1-CCD camera system for all endoscopic applications. Full digital signal processing guarantees true colour reproduction and high contrast. A high sensitive, high resolution 1/3" CCD ensures high clarity and sharp detailed images. Basic functions are preadjusted for easy and flexible use. The small camera head (using the attached cap) and cable can immersed in disinfectant solutions for sterilisation.

### < WHITE BALANCE

White Balance is done automatically via push-button.

### < WINDOW FUNCTION

Window Function is programmed for different brightness measurement fields in case of difficult illumination conditions.

### < BOOST FUNCTION

In case of low illumination, the image brightness can be gained with the BOOST function.

### < ANTI-MOIRÉE-FILTER

For using flexible fibrescopes the electronic Anti-Moiree-filter increases image quality by decreasing matrix-effects.

### < FREEZE FUNCTION (only -F version)

StarCAM X-F can freeze the image on the screen controlled with a push button on the front panel. Optional remote via camera head push buttons or footswitch.

## MODELS

StarCAM X Basic version

StarCAM X-F + Freeze-board

## OPTIONS

-R Remote camera head to control front panel functions, external video devices, freeze function (only -F version) or USB capture system

-S Footswitch (only for -USB and -F versions)

## DIGITAL 1-CCD CAMERA-SYSTEM

### Technical Data

|                              |  |                    |
|------------------------------|--|--------------------|
| Video system                 | PAL / NTSC   |                    |
| CCD sensor                   | 1/3" (440.000 pixel) 752 (H) x 582 (V)                           |                    |
| Video resolution             | 470 TV-lines   |                    |
| Shutter range                | 1/50 sec - 1/100.000 sec   |                    |
| Sensitivity                  | 0,9 lux (f=1,4)  |                    |
| Outputs                      | 1 x Y/C (S-VHS), 1 x VBS (VHS)<br>1 x IEEE1394 (only -D version) |                    |
| Power supply                 | 100 - 240 VAC  |                    |
| Dimensions (W x H x D)       | CCU  | 355 x 103 x 253 mm |
|                              | Head   | 29 x 58 mm         |
| Weight                       | CCU  | 3,5 kg             |
|                              | Head   | 65 g               |
| Class / Type                 | 1 / BF   |                    |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC                        |                    |

### Accessories

#### TV-Adapter / Rigid endoscopes (with Quick-Lock)

Fixed focus length f: 15mm / f: 21mm / f: 28mm / f: 35mm / f: 40mm

Zoom f: 15 - 25mm / f: 25 - 40mm

Beamsplitter f: 25mm / f: 30mm

#### TV-Adapter / Flexible Fibre endoscopes

Fixed focus length f: 15mm / f: 21mm / f: 28mm  
available for OES / Fuji / Pentax

### Delivery contains

CCU, camera head with 3 meter cable

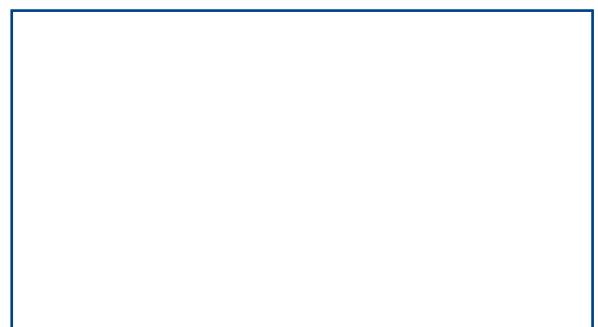
Mains cable

Y/C cable, BNC cable

User manual

Remote cable (only -R version)

IEEE 1394 cable (only -D version)



## DIGITAL VIDEO CAMERA 1-CCD

SinoCAM II



### DIGITAL VIDEO CAMERA

Made in Germany

SinoCAM II

- < useable with rigid / flexible / micro endoscopes
- < very high image quality

## SinoCAM

SinoCAM is a new economical single-chip CCD-camera for endoscopic applications.

High integrated digital signal processing guarantees true colour reproduction. A 1/3" high resolution CCD-chip and a fast acting control electronic ensure a very good image quality, high clarity and sharp detailed reproduction.

The high-sensitive microlens CCD and a highspeed-shutter allow optimal image display under extreme illumination situations.

### < WHITE BALANCE

White Balance is done automatically via push-button.

### < WINDOW FUNCTION

The Window Feature is used to improve the image illumination under difficult conditions. Only a central area of adjustable size is used to evaluate image brightness, outer margins are disregarded.

### < BOOST FUNCTION

BOOST function is used under low illumination conditions to gain the brightness of the image.

### < CAMERA HEAD

The light-weight camera head of the SinoCAM is waterproof and designed ergonomically. All lenses and couplers with C-Mount-Thread can be connected.

## DIGITAL 1-CCD VIDEO CAMERA

### Technical Data

|                              |   |
|------------------------------|---|
| Video system                 | PAL, NTSC                                 |
| CCD-sensor                   | 1/3", 752 (H) x 582 (V) 440.000 px.       |
| Shutter speed                | max. 1/100.000 sec.                       |
| Sensitivity                  | 2 lux, f=1,4                              |
| SNR                          | > 44 db                                   |
| AGC                          | max. 18 db                                |
| Video output                 | 1 x CVBS / 1 x Y/C                        |
| Power supply                 | 110/115 VAC or 230/240 VAC                |
| Dimensions (WxHxD)           | 176 x 72 x 202 mm                         |
| Weight                       | 1,6 kg, camera head: 85g                  |
| Class                        | 1   |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC |

### Accessories

#### TV-Adapter / Rigid endoscopes (with Quick-Lock)

Fixed focus length f: 15mm / f: 21mm / f: 28mm / f: 35mm / f: 40mm

Zoom f: 15 - 25mm / f: 25 - 40mm

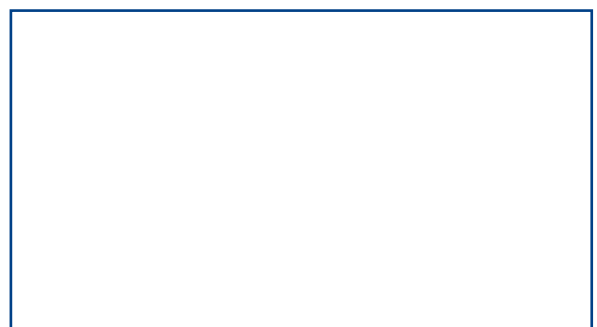
Beamsplitter f: 25mm / f: 30mm

#### TV-Adapter / Flexible Fibre endoscopes

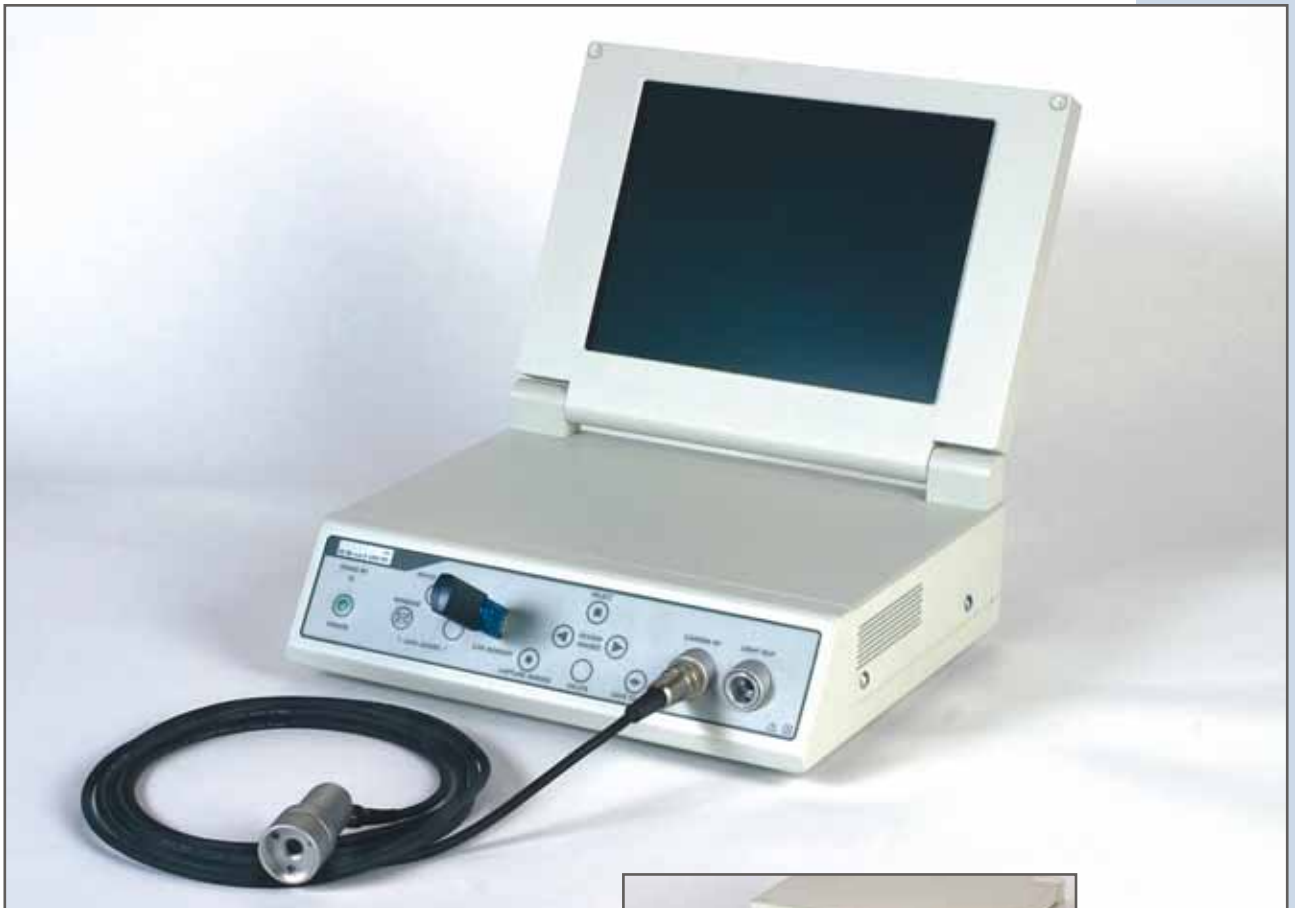
Fixed focus length f: 15mm / f: 21mm / f: 28mm  
available for OES / Fuji / Pentax

### Delivery contains

CCU, camera head with 3 meter cable  
Mains cable  
BNC cable  
User manual



## MULTIFUNCTION VIDEOSYSTEM



### **XE30-EcoX-TFT/USB** **XE50-EcoX-TFT/USB**

Made in Germany

A compact system which incorporates:

- Light source
- Camera
- Archiving system
- Monitor

## XE30-EcoX-TFT/USB / XE50-EcoX-TFT/USB

The XE30-EcoX-TFT/USB / XE50-EcoX-TFT/USB multifunction videosystem incorporates light source, camera, USB archiving feature and TFT monitor in one system. This compact unit combines everything needed for documentation.

This system is characterised by its compactness, easy handling, excellent value and attractive design.

- The integrated silent running light source features high intensity 24 Watt or 50 Watt metal halide lamp options with a very small focal spot to produce maximum light output to the light guide.
- The camera features a high resolution SONY sensor. Camera control functions: White balance, Window, Boost, Anti-Moiré.
- Archiving system: Pictures are stored onto a USB stick. Data from the USB stick can be easily transferred to the computer via a standard USB Port.
- TFT-Monitor 10,4" with 800 x 600 dots resolution.

### MODELS

- XE30-EcoX-TFT/USB 24 Watt lamp
- XE50-EcoX-TFT/USB 50 Watt lamp

### OPTIONS AVAILABLE:

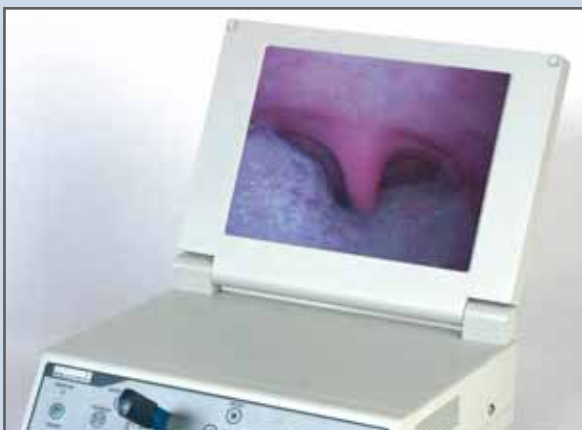
- Push-button-head
- Foot switch

### FURTHER CONFIGURATIONS (without archiving)

- XE30-EcoX-TFT 24 Watt lamp
- XE50-EcoX-TFT 50 Watt lamp

### OPTIONS AVAILABLE:

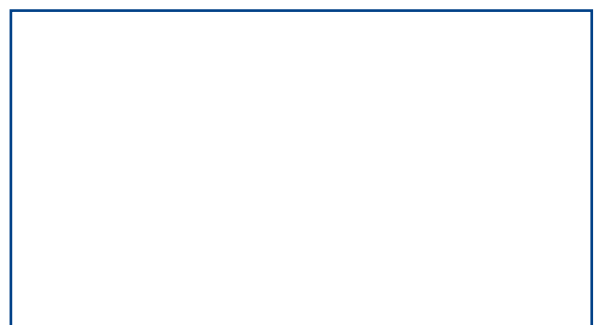
- Freeze function
- Digital output IEEE1394
- Push-button-head
- Foot switch



## Multifunction videosystem

### Technical Data

|                              |  |
|------------------------------|--|
| Video System                 | PAL / NTSC   |
| CCD-Sensor                   | : PAL 440.000 pixel 752 (H) x 582 (V)<br>: NTSC 380.000 pixel 768 (H) x 494 (V)<br>(Please state which required)   |
| Video Resolution             | 470 TV-lines   |
| Shutter Range                | 1/50 sec - 1/100.000 sec   |
| Sensitivity                  | 0,9 Lux (f:1,4)  |
| Video Outputs                | 1 x Y/C (S-VHS), 1 x BNC   |
| Lamp                         | <b>XE30-EcoX-TFT/USB</b><br>XENON metal halide short arc lamp, 24 Watt<br>5.500 °K colour temperature<br><b>XE50-EcoX-TFT/USB</b><br>XENON metal halide short arc Lamp, 50 Watt<br>5.500 °K colour temperature |
| Monitor                      | 10,4" TFT with 800 x 600 dots resolution   |
| Archiving system             | USB-Stick  |
| Power Supply                 | 90 VAC - 260 VAC<br>50 - 60 Hz   |
| Dimensions (WxHxD)           | 294 x 95 x 250 mm  |
| Weight                       | CCU: 6 kg<br>Camera head: 65 g   |
| Class                        | 1  |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC  |



# erbrich



technik für die medizin



■ **XE30 - MOTION**  
XE30-EcoX-TFT/USB

■ **XE50 - MOTION**  
XE50-EcoX-TFT/USB

## *Watch it Digital*

ILO electronic GmbH  
Carl-Zeiss-Str. 3, 25451 Quickborn, GERMANY  
Tel.: +49 (0) 41 06 - 77 58 - 0  
Fax: +49 (0) 41 06 - 77 58 - 33

<http://www.ilo.com> Email: [info@ilo.com](mailto:info@ilo.com)



## PURE COMPACTNESS & EFFICIENCY

Multifunctional videosystems for all endoscopic applications.

These high compact systems incorporate light source, camera, archiving system and TFT monitor.

Our compact units combine everything needed for documentation, efficient patient diagnosis and treatment.

They are characterised by their compactness, easy handling, excellent value and attractive design.

- The integrated silent running light source features high intensity 24 Watt or 50 Watt metal halide lamp options with a very small focal spot to produce maximum light output to the light guide.
- The camera features a high resolution SONY sensor. Camera control functions: White balance, Window, Boost, Anti-Moiré.
- **USB-Version: archiving system**  
Still pictures are stored onto a USB stick. Data from the USB stick can be easily transferred to the computer via a standard USB Port.



USB Stick

- **MOTION-Version: Video clips archiving system**  
Video clips can be stored on a SD card. The MPEG4-SD file format allows high picture quality and high record time.



SD Card

- TFT-Monitor 10,4" with 800 x 600 dots resolution.

### MODELS

**XE30-MOTION** 24 Watt lamp  
**XE30-EcoX-TFT/USB**

**XE50-MOTION** 50 Watt lamp  
**XE50-EcoX-TFT/USB**

#### OPTIONS AVAILABLE:

- Push-button-head
- Foot switch
- Title generator
- Microphone (only -MOTION version)

#### FURTHER CONFIGURATIONS (without archiving)

**XE30-EcoX** 24 Watt lamp  
**XE30-EcoX-TFT**

**XE50-EcoX** 50 Watt lamp  
**XE50-EcoX-TFT**

#### OPTIONS AVAILABLE:

- Freeze function
- Digital output IEEE1394
- Push-button-head
- Foot switch
- Title generator

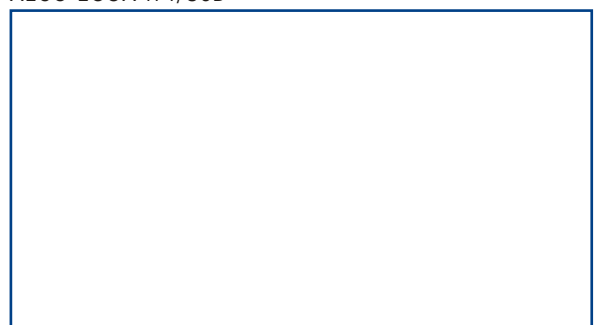
## Multifunction videosystem

### Technical Data

|                              |  |
|------------------------------|--|
| Video System                 | PAL / NTSC   |
| CCD-Sensor                   | : PAL 440.000 pixel 752 (H) x 582 (V)<br>: NTSC 380.000 pixel 768 (H) x 494 (V)<br>(Please state which required)   |
| Video Resolution             | 470 TV-lines   |
| Shutter Range                | 1/50 sec - 1/100.000 sec   |
| Sensitivity                  | 0,9 Lux (f:1,4)  |
| Video Outputs                | 1 x BNC  |
| Lamp                         | <b>XE30-MOTION, XE30-EcoX-TFT/USB</b><br>XENON metal halide short arc lamp, 24 Watt<br>5.500 °K colour temperature<br><b>XE50-MOTION, XE50-EcoX-TFT/USB</b><br>XENON metal halide short arc Lamp, 50 Watt<br>5.500 °K colour temperature |
| Monitor                      | 10,4" TFT with 800 x 600 dots resolution   |
| Archiving system             | USB-Stick (USB system),<br>SD card (Motion -version)   |
| Power Supply                 | 100 VAC - 240 VAC<br>50 - 60 Hz  |
| Dimensions (WxHxD)           | 294 x 95 x 250 mm  |
| Weight                       | CCU: 6 kg<br>Camera head: 65 g   |
| Class                        | 1  |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC  |



XE30-EcoX-TFT/USB



## HALOGEN LIGHT SOURCES 250 WATT

HL-250



HL-250 DUO



HL-250 SINGLE

### HL-250 HL-250 DUO HL-250 SINGLE

Made in Germany

- < compact design
- < exchangeable light guide adapter
- < mechanical diaphragm
- < low heat conduction

## HL-250 / HL-250 DUO / HL-250 SINGLE

The **HL-250** series is a universal and easy to use series of high-intensity Halogen light sources. They can be used for nearly every endoscopic application. Variants with 2 lamps ensuring uninterrupted working if one lamp breaks down or expanding possibilities with using different adapters for different light guide systems.

Special reflector lamps and infrared filters standing for best light coupling.

A softstart electronic expands the life time of the Halogen lamps.

The intensity is controlled by mechanical diaphragm without changing the colour temperature.

### MODELS

|                      |   |
|----------------------|---|
| <b>HL-250</b>        | 2 lamps - 1 output                        |
| <b>HL-250 DUO</b>    | 2 lamps - 2 outputs (no simultaneous use) |
| <b>HL-250 SINGLE</b> | 1 lamp - 1 output                         |

## Halogen Light Sources

### Technical Data

|                              |   |
|------------------------------|---|
| Lamp                         | 1 or 2 Halogen reflector lamps<br>250 Watt, 24V |
| Colour temperature           | 3.600°K   |
| Intensity control            | stepless / mechanical diaphragm                 |
| Light guide adapter          | exchangeable                                    |
| Power supply                 | 110/115 VAC or 230/240 VAC,<br>switchable       |
| Dimensions (WxHxD)           | 355 x 110 x 347 mm                              |
| Weight                       | 8 kg  |
| Power consumption            | 260 Watt  |
| Class / Type                 | 1 / BF  |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC       |

### Accessories

#### Glass fibre light guides

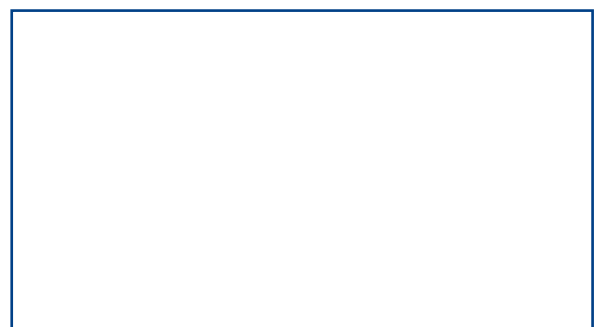
|          |                           |
|----------|---------------------------|
| Lengths  | 1800, 2300, 3000, 5000 mm |
| Diameter | 3,5 mm, 4,8 mm            |

#### Fluid light guides

|          |                           |
|----------|---------------------------|
| Lengths  | 1800, 2300, 3000, 5000 mm |
| Diameter | 3,5 mm, 5 mm              |

### Delivery contains

Light source  
Mains cable  
User manual



## HIGH INTENSITY XENON LIGHT SOURCES

Xenon XL-300A-T



Xenon XL-A100-T



Xenon XL-A180

### **Xenon XL-A100** **Xenon XL-A180** **Xenon XL-300A**

Made in Germany

optional:

turret adapter

- < low noise
- < daylight quality
- < motor-driven light control
- < low heat conduction
- < life time indicator

## XL-A100 / XL-A180 / XL-300A

The **Xenon XL-A100 / Xenon XL-A180 / Xenon XL-300A** offers the professional user the **most advanced pure day light sources** (5600°K colour temperature).

It contains an improved **high intensity and low heat conductive** xenon lamp, which life duration is indicated by an **operating-time indicator**.

The automatic **high speed light level control** works perfectly with video cameras.

### < LAMP

The built-in lamp is a new developed xenon gas discharge lamp, filled with non-polluting xenon gas. The lamp design is optimized for endoscopic applications. Its design features a high efficiency reflector (and lens-system - Xenon XL-300A) which focusses light more effectively on the fiberoptic light guide. When the lifetime of the lamp (500 hrs.) has expired, the lamp is simply replaced by a new one within seconds - no tool and no adjustment is required.

### < LIGHT CONTROL

The output intensity is controlled steplessly via a mechanical diaphragm. This ensures a constant colour temperature. The output intensity can be set by push buttons.

### < CONNECTION

An interchangeable adapter system for all types of endoscopes, fibrescopes and microscopes ensures that the light sources can be operated in all applications. For more flexibility the light source is available with a TURRET-adapter system. The TURRET-adapter contains four adapters (Storz / Wolf / Olympus / ACMI) in a simple turning mechanism.

### < QUALITY

The light-sources fulfill all essential safety demands. The rugged desk housing and the flat, waterproof touch control panel withstands all daily-use requirements.

## MODELS

|         |                     |
|---------|---------------------|
| XL-A100 | 100 Watt Xenon lamp |
| XL-A180 | 180 Watt Xenon lamp |
| XL-300A | 300 Watt Xenon lamp |

## OPTIONS

|           |                            |
|-----------|----------------------------|
| XL-....-T | with TURRET-adapter system |
|-----------|----------------------------|

## Xenon Light Sources

### Technical Data

|                              |   |
|------------------------------|---|
| Type                         | XL-A100   XL-A180   XL-300A   |
| Power supply                 | 110/115 VAC and 230/240 VAC, switchable                             |
| Dimensions (WxHxD)           | 355 x 110 x 347 mm  |
| Weight                       | 9,5 kg   11,5 kg   13,5 kg  |
| Power consumption            | 185 W   280 W   370 W   |
| Light guide adapter          | interchangeable   |
| Video input                  | 1 x VBS, 1 x S-VHS (Y/C)  |
| Lamp                         | xenon short arc gas discharge lamp, elliptical cold light reflector |
| Class / Type                 | 1 / BF  |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC                           |

### Accessories

#### Glass fibre light guides

|          |                           |
|----------|---------------------------|
| Lengths  | 1800, 2300, 3000, 5000 mm |
| Diameter | 3,5 mm, 4,8 mm            |

#### Fluid light guides

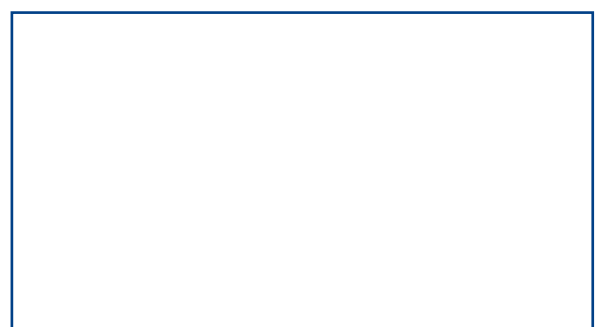
|          |                           |
|----------|---------------------------|
| Lengths  | 1800, 2300, 3000, 5000 mm |
| Diameter | 3,5 mm, 5 mm              |

### Delivery contains

Light source  
Mains cable  
User manual



TURRET-adapter



## HIGH INTENSITY XENON LIGHT SOURCES

Xenon XL-300M-TC



Xenon XL-M100-T



Xenon XL-M180

### Xenon XL-M100 Xenon XL-M180 Xenon XL-300M

optional:

life time indicator

turret adapter

halogen spare lamp

- < low noise
- < low heat conduction
- < motor-driven light control
- < daylight quality

Made in Germany

## XL-M100 / XL-M180 / XL-300M

The XL-M100 / XL-M180 / XL-300M offers the professional user the most advanced pure day light sources (5600°K colour temperature).

It contains an improved high intensity and low heat conductive xenon lamp.

### < LAMP

The built-in lamp is a specially developed xenon gas discharge lamp, filled with non-polluting xenon gas. The lamp design is optimized for endoscopic applications. Its design features a high efficiency reflector (and lens-system XL-300M) which focuses light more effectively on the fiberoptic light guide. When the lifetime of the lamp (500 hrs.) has expired, the lamp is simply replaced by a new one within minutes - no tools and no adjustments are required.

### < LIGHT CONTROL

The output intensity is controlled steplessly via a motor driven, mechanical diaphragm. This ensures a constant colour temperature. The output intensity is set by push buttons.

### < CONNECTION

An interchangeable adapter system for all types of endoscopes, fibrescopes and microscopes ensures that the light sources can be operated in all applications. For more flexibility the light source is available with a TURRET-adapter system. The TURRET-adapter contains four adapters (Storz / Wolf / Olympus / ACMI) in a simple turning mechanism.

### < QUALITY

The light sources fulfill all essential safety demands. The rugged desk housing and the flat, waterproof touch control panel withstands all daily used requirements.

For highest safety requirements, we offer the XL-M series also with built-in 150 Watt Halogen lamp as emergency illumination. In case of lamp defects during operation the emergency lamp is automatically switched on.

## MODELS

|               |                                     |
|---------------|-------------------------------------|
| XL-M100       | 100 Watt Xenon lamp                 |
| XL-M180       | 180 Watt Xenon lamp                 |
| XL-300M       | 300 Watt Xenon lamp                 |
| XL-....-HL150 | with built-in 150 Watt Halogen lamp |

## OPTIONS

|            |   |
|------------|---|
| XL-....-T  | with TURRET-adapter system                  |
| XL-....-C  | with life time indicator (electronical)     |
| XL-....-TC | with TURRET-adapter and life time indicator |

## Xenon Light Sources

### Technical Data

|                              |   |
|------------------------------|---|
| Type                         | XL-M100   XL-M180   XL-300M   |
| Power supply                 | 110/115 VAC and 230/240 VAC, switchable                             |
| Dimensions (WxHxD)           | 355 x 110 x 347 mm  |
| Weight                       | 9,5 kg   11,5 kg   13,5 kg  |
| Power consumption            | 185 W   280 W   370 W   |
| Light guide adapter          | interchangeable   |
| Video input                  | 1 x VBS, 1 x S-VHS (Y/C)  |
| Lamp                         | xenon short arc gas discharge lamp, elliptical cold light reflector |
| Class / Type                 | 1 / BF  |
| Manufactured and tested acc. | IEC 601-1 / CE<br>EN 60601-1<br>93/42 ECC                           |

### Accessories

#### Glass fibre light guides

|          |                           |
|----------|---------------------------|
| Lengths  | 1800, 2300, 3000, 5000 mm |
| Diameter | 3,5 mm, 4,8 mm            |

#### Fluid light guides

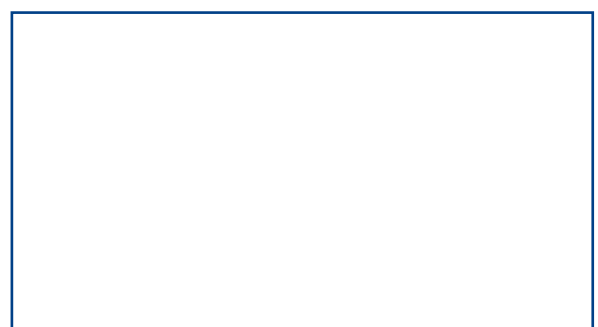
|          |                           |
|----------|---------------------------|
| Lengths  | 1800, 2300, 3000, 5000 mm |
| Diameter | 3,5 mm, 5 mm              |

### Delivery contains

Light source  
Mains cable  
User manual



TURRET-adapter



## CO<sub>2</sub>-INSUFFLATOR

MF



SYSTEM GAS HEATER (-H models)

**MF-43**  
**MF-30**  
**MF-20**  
**MF-15**

**MF-43-H**  
**MF-30-H**  
**MF-20-H**  
**MF-15-H**

optional:  
video data display

Made in Germany

## MF-43 / 30 / 20 / 15 MF-43-H / 30-H / 20-H / 15-H

The MF-series is a complete new designed line of CO<sub>2</sub> insufflators with outstanding technical features. The units are controlled by microprocessors of the latest generation. Stable pressure balance in the abdomen is guaranteed by high gas flow performance and low insufflation pressure.

**MF-series** meets all your needs in minimal invasive surgery. Its unique feature is a **15, 20, 30 or 43 liter per minute gas insufflation** that delivers **maximum performance and highest level of patient safety.**

### < ADVANCE CONTINUOUS FLOW

The MF-series stands for ACF (**advanced continuous flow insufflation**) that means **no more disruptions** between gasflow and pressure reading phases.

**No more guessing** - indicated gasflow is the actual gasflow.

### < SOFTWARE

**Software controlled pressure** release mechanism prevents dangerous pressure build up in the abdomen when using such apparatus as laser or argon beamers.

### < SAFETY

**Automatic self check**, activated **each time unit is switched on**, makes sure all electronic and pneumatic components are in **good running order**. This safety feature carries a **guarantee for the lifetime** of the unit. The **changeable sterile filter** prevents reflux of liquids and contamination of the gas way.

### < SYSTEM GAS HEATER

For reduction of post surgery problems the MF-series is available with a high efficient gas heater. The gas heater is preadjusted and works on a plug and play base full automatically. The heat exchanger can be autoclaved with the tube set.

### < VIDEO OSDD (optional)

The OSDD (On-Screen-Data-Display) gives the surgent the possibility to display the important values on the video monitor of the endoscopic camera.

### < FLEXIBLE GAS SUPPLY

The MF-series can be used with gas bottles or central gas supply systems. The gas supply mode can be changed very easily by integrated software.

## MODELS

### max. gasflow

|          |          |          |          |
|----------|----------|----------|----------|
| 15 l/min | 20 l/min | 30 l/min | 43 l/min |
| MF-15    | MF-20    | MF-30    | MF-43    |

### with gas heater

|         |         |         |         |
|---------|---------|---------|---------|
| MF-15-H | MF-20-H | MF-30-H | MF-43-H |
|---------|---------|---------|---------|

## OPTION

with OSDD - Video On-Screen-Data-Display

## CO<sub>2</sub>INSUFFLATOR

### Technical Data

|   |   |                           |
|---|---|---------------------------|
| Insufflation pressure                   | 0 - 30 mmHg   |                           |
| Power supply                            | 100 - 240 VAC, 50 - 60 Hz, 65 W                           |                           |
| Dimensions (WxHxD)                      | 355 x 103 x 253 mm  |                           |
| Weight                                  | 7 kg  |                           |
| Gas                                     | carbon dioxide (medical)                                  |                           |
| Gas connection                          | UNF 7/16"   |                           |
| Video connection:<br>(only -V versions) | Input:  | 1 x FBAS (BNC)<br>1 x Y/C |
|   | Output:   | 1 x FBAS (BNC)<br>1 x Y/C |
| Class / Type                            | 2b / BF   |                           |
| Manufactured and tested acc.            | IEC 601-1 / CE <sub>0124</sub><br>EN 60601-1<br>93/42 ECC |                           |

### Accessories

Sterile filter packages with 50, 250, 500 pcs.

Silicone tube set with ISO/LL-M or ISO/Large-Bore-M connection

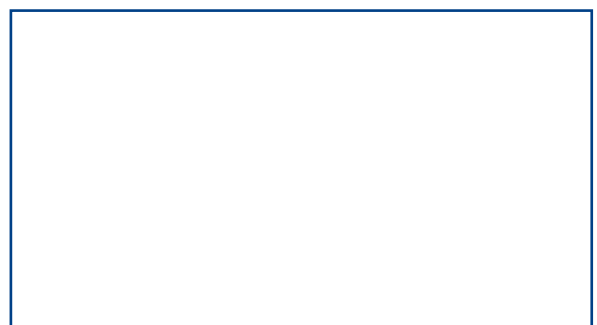
High pressure tube UNF - UNF

### CO<sub>2</sub>adapters to:

Pin Index  
ISO 5145

### Delivery contains

Insufflator  
Mains cable  
CO<sub>2</sub>high pressure tube UNF to German gas connection  
Wrench set: SW15 / SW30  
Sterile filter  
Standard silicone tube set (not -H versions)  
System gas heater with tube set (only -H versions)  
Video cable (only -V versions)  
User manual



## SUCTION IRRIGATION PUMP



### SIP 3000

Suction-Irrigation pump for all surgical applications

Made in Germany

- < high flow system with 3 liters/minute
- < filter system for sterility
- < full automatic, no adjustments required
- < stand-by function for noise and wear decrease

## SIP 3000

The **SIP 3000** is a powerful suction and irrigation pump for all surgical applications. The system works fully automatic. During the work, no adjustments are necessary. Overpressure in the irrigation bottle and underpressure in the suction bottle are controlled and balanced by high sensitive electronical sensors and microcontroller. The automatic stand-by function keeps the pressures available and reduces the noise if the system is not used.

The use of disposable sterile air filters avoids contamination of the **SIP 3000** and the irrigation liquide by contaminated air.

All accessories like tubes, suction bottle and punture tube are full autoclavable.

The **SIP 3000** is very simple to install and easy to use.

## SUCTION IRRIGATION PUMP

### Technical Data

|                              |   |
|------------------------------|---|
| Power supply                 | 115 VAC / 230 VAC switchable                              |
| Irrigation                   | max. 3000 ml/min (1)                                      |
| Suction                      | max. 3000 ml/min (1)                                      |
| Dimensions (WxHxD)           | 353 x 105 x 253 mm  |
| Weight                       | ca. 4,5 kg  |
| Class / Type                 | 2a/ BF  |
| Manufactured and tested acc. | IEC 601-1 / $\text{CE}_{0124}$<br>EN 60601-1<br>93/42 ECC |

(1) depending on tube set and instrument

### Delivery contains

- SIP 3000
- 2 liter suction bottle with holder
- 2 Sterile filter
- 1 Silicone tube set for suction
- 1 Silicone tube set for irrigation
- 1 Puncture tube for rinsing bottle

