

OLYMPUS

Your Vision, Our Future

Systems Integration

ENDOALPHA

Operating Room

Creating the best working environment
for the surgical team



ENDOALPHA



ENDGALPHA



Better information and control in an optimised OR environment

ENDOALPHA integrates all surgical equipment and support systems to create the ideal OR environment for efficient, comfortable surgery. The workspace is custom designed with all equipment on boom arms in an ideal ergonomic location. Control of all aspects of the OR is centralised using convenient touch screens, providing advanced external communication and access to any information, whether images or patient data, at the touch of a button.

Olympus systems integration specialists work with the hospital to create a customised solution, which is then installed to the highest standards and certified by the prestigious company TÜV to ensure a long lifespan and top notch maintenance.

Optimising the OR for today's surgery



DR ANTONIO LACY,
HEAD OF GASTROINTESTINAL SURGERY,
HOSPITAL CLINIC BARCELONA,
BARCELONA, SPAIN

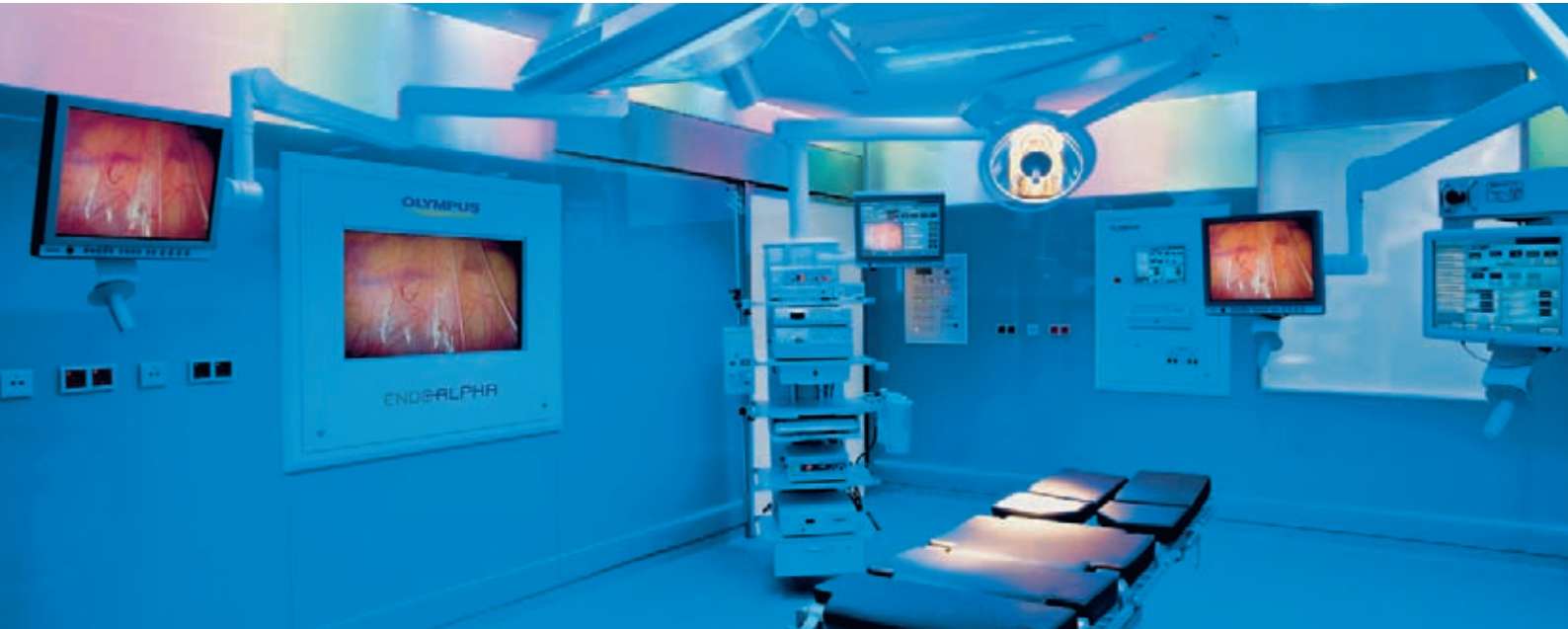
*"Integration is the next step
for technological development
in the OR."*

As the possibilities for laparoscopic surgery continue to expand, there is a greater need to develop all aspects of the OR environment. Image quality has improved dramatically with developments such as HDTV, and the technology for improving ergonomics and access to information in the OR are following the same trend.

This positive cycle of surgical and technological progress pushes surgery forward for the good of society as a whole. Integration makes the interchange of scientific knowledge

easier, places new information at the disposal of the surgical team and allows for new workflows, which in turn facilitate the development of new techniques.

More efficiency through integration



DR THOMAS E. LANGWIELER,
HEAD OF SURGERY,
AMALIE SIEVEKING HOSPITAL,
HAMBURG, GERMANY

*“We are able to work
more efficiently and
communicate better.”*

ENDOALPHA allows all our OR functions to be controlled from a single, sterile control panel. This gives the operating surgeons significantly more control at their fingertips and optimises our workflows during surgery, therefore increasing efficiency.

The OR is also integrated into a communication network, which is great for training and allows us to transmit images to meetings and congresses around the world. Perhaps one of the biggest time-saving aspects is that since we make images from the OR

available outside the room, staff outside can see how an operation is going and know when to enter – and that includes the surgeon for the next scheduled procedure.

Expert planning and a guaranteed gold-standard installation



ENDOALPHA
PROJECT MANAGEMENT

The planning of installation processes is managed by local systems integration experts, backed by best-practice standards and the profound knowledge of an international support team with the experience of hundreds of successful installations.

A local team of systems integration experts analyses the specific needs of the hospital and presents an integration system perfectly tailored to the needs of the surgical team, the surgical block and the hospital as a whole. Elements of communication, information flow and control are combined according to the needs of each room, team and department in order to form a high-value system which is easy to use and focused on efficiency.

Installation is performed to the gold-standard established by extensive international experience and guaranteed by independent certification. Local systems integration experts apply these standards to the specific situation of your OR and hospital with the support of the international team. ENDOALPHA ORs must be certified by TÜV, assuring that all technical aspects fulfil specifications and that there is detailed documentation for effective long-term maintenance.



Ergonomic design for optimised efficiency and comfort



ENDGALPHA WORKSPACE DESIGN

Systems integration experts work with the hospital and all major OR infrastructure manufacturers to design optimal ergonomics and workflows for the type of surgery and operating team within the OR.

Olympus systems integration experts work with the hospital and surgical team to design ergonomically optimised ORs, leading to greater efficiency and improvement in hospital staff satisfaction. Equipment is placed on boom arms which are placed according to the specific needs of the specialists who will use the room.

A 3-D software tool is used to design the workspace, including suspending of equipment from boom arms, centralising control of equipment using convenient touch panels and making all necessary information (graphical, data or settings) instantly and

conveniently available, thus significantly enhancing workflow and throughput. The improved ergonomics reduce work-related injury and increase staff satisfaction.

Access to all desired data and images, as well as control of the equipment, is centralised using touch screens, which can be used by both sterile and non-sterile surgical team members, greatly improving workflow.



Centralised control of the entire OR



ENDGALPHA CONTROL

All medical and peripheral equipment can be controlled from the sterile and/or non-sterile fields, allowing for more efficiency and improved ergonomics during interventions.

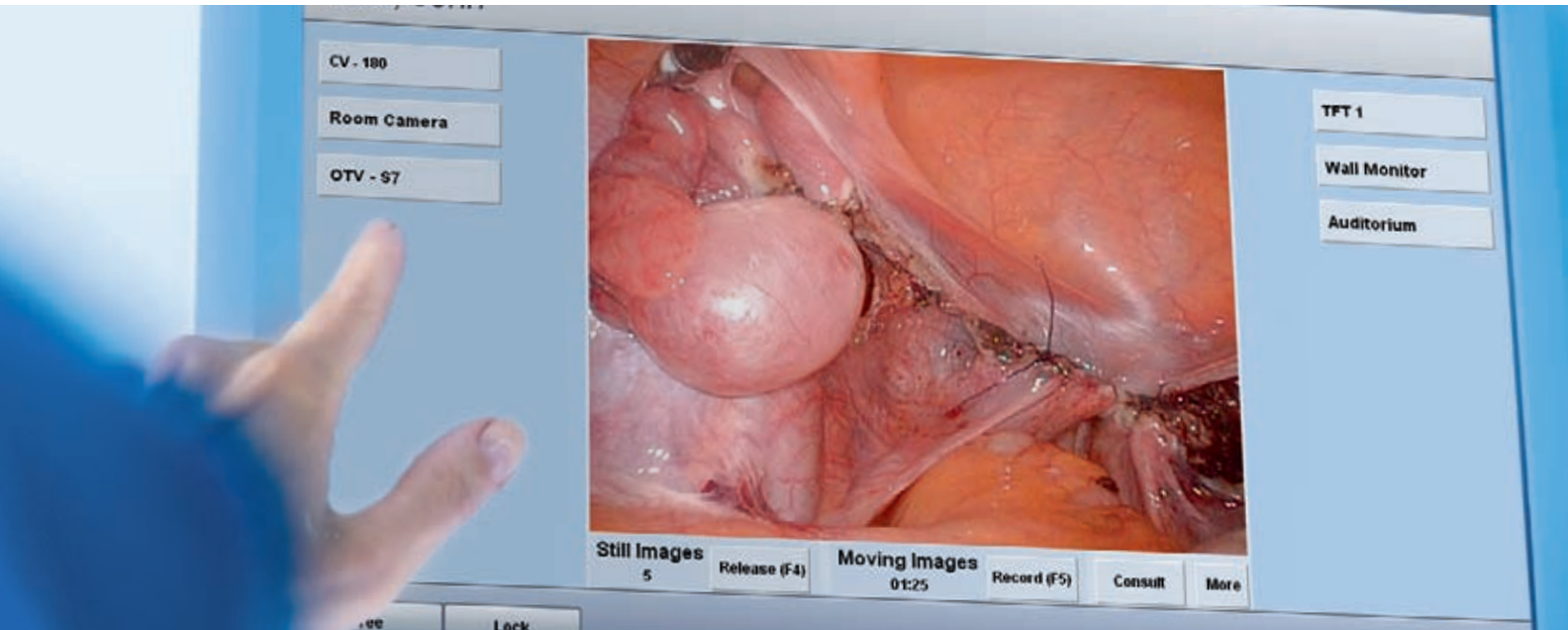
Centralised control of medical equipment, including Olympus EXERA II, insufflator, HF generator, and other medical equipment produced by Olympus and other leading manufacturers as well as peripheral equipment including room lights, surgical lights and video management via touch panel and/or voice improves workflow during procedures. Sterile staff members enjoy improved autonomy by being able to control all equipment with a few touches on a sterile touch panel or by voice. The adjustment of equipment is made more convenient and speed is improved while miscommunication and the need for auxiliary staff intervention is reduced.

Auxiliary staff members also have an improved workflow by being able to control all appropriate equipment from a wall-mounted touch panel, keyboard and mouse.

Medical equipment is also set up and adjusted more efficiently and accurately. The equipment settings and standard notes for different procedures and for different stages of these procedures are easily saved and recalled. This can reduce operating and turn-around times. It also prevents set-up errors and reduces stress during the change from one step in the procedure to the next.



Videos when and where you want them



ENDOALPHA

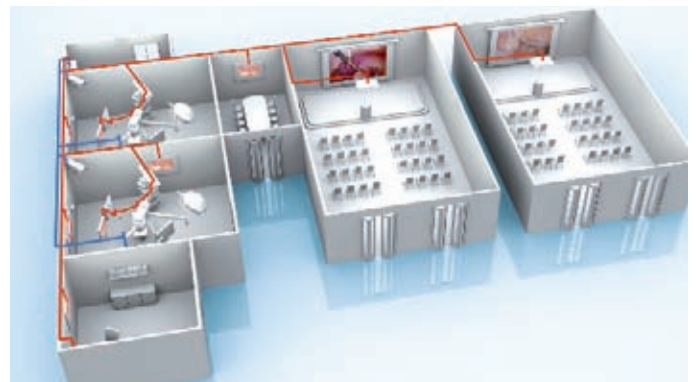
VIDEO MANAGEMENT

Live video images are available wherever needed.
Image storage is centralised and can be accessed easily for archiving, teaching or reference.

The ENDOALPHA Video Management System creates a video network which allows videos to be easily streamed, stored and retrieved from any point in the network. Live or stored video images can be readily displayed throughout the hospital (and beyond) for teaching, mentoring or supervision.

Within the OR, relevant live or stored still images and videos are optimally placed for being viewed by surgical team members. From outside the OR, team members can monitor intervention progress from any point on the network to reduce waiting time, and senior members can mentor without needing to go into the room.

Videos can be automatically linked to patient data from the Hospital Information System, facilitating storage onto PACS systems via DICOM or creating a reliable autonomous archive for reference, legal requirements or organisational needs.



Easy video capture and display of stored images



ENDOALPHA
DOCUMENTATION



Images and other information are efficiently captured into a modular documentation system. Stored information is easy to access and display for reference or analysis, including images and video in the hospital's IT system.

Still images and video can be captured with the touch of a button on the laparoscope or convenient touch panels and stored in PACS or other central databases with attached patient information. Automatic exchange of data between new and existing systems (PACS, HIS) eliminates inefficiency caused by double-entry and reduces errors.

Electronic patient records containing all information relevant to the procedure, including lab reports and stored images, can

be accessed directly from the OR. Data and images captured during the procedure can be automatically added to the patient record.

With ENDOALPHA Documentation information is stored in a centralised database which can be made available from anywhere in the hospital network. Images can be stored in standard or HDTV quality for later analysis, reference, export to PACS system or for use in teaching. Images captured but not considered relevant can be automatically deleted.

Reporting of procedures can be facilitated with centralised data capture, using integrated structured text. Powerful analytical tools allow for workflow and efficiency analysis and transparency.

Customised service plans for long-term high performance



ENDOALPHA SERVICE SOLUTIONS

Maximum usability and the longevity of the system are ensured by a local service team backed by international support. Modular service options allow for the creation of the ideal service plan.

Once the gold-standard installation, including independent certification, is completed, continuously high system performance during the complete life cycle is guaranteed by combining regular training, phone support, preventative and corrective maintenance plus other service elements in the ideal service plan. The hospital works with Olympus to determine which modules should be included to cater for the hospital's needs.

There are two Olympus modular service plans available:

The ALPHA CARE^{basic} plan that comes with all ENDOALPHA OR installations includes third-party certification by TÜV, standard technical reviews, application and technical training and help desk support from dedicated systems integration specialists.

ALPHA CARE^{plus} features a wide range of optional modules, including extended service levels, advanced training, re-certification, all-risk coverage and more, allowing full flexibility and guaranteeing the ENDOALPHA OR a long, useful life.



Integration – in the OR and beyond



The ENDOALPHA system is the total integration solution for endoscopy, consisting of modular components that are combined for the hospital's individual needs. Each room and department is equipped with components which create an ergonomic environment with optimised workflows and maximum efficiency. ENDOALPHA Documentation, Video Management and Control are selectively installed according to Olympus' gold-standard specifications and maintained with top notch service.

The OR is integrated in itself, into the hospital systems and beyond. The centralised control of all desired equipment, advanced external communication as well as access to any information, whether live or stored, is available with a touch of the convenient touch panels. The workspace is uncluttered, readily reconfigurable and custom designed for the surgery to be carried out within the room.



ENDGALPHA

Autonomy and efficiency with central control of medical devices

Medical control allows centralised control of medical equipment produced by Olympus and other leading manufacturers, including surgical lamps and tables from a sterile and/or non-sterile touch screen. Settings of equipment can be easily stored and recovered for each stage of the procedure.

Controlling the medical equipment from central touch screens improves the workflow and ergonomics in the OR. All equipment can be adjusted by sterile or non-sterile staff. This control can improve the autonomy of all surgical team members thereby reducing the time between requests and action. Since the non-medical equipment and information flow can also be controlled from the same touch screen, all equipment and activity supporting the surgical team is managed more efficiently and easily. The ability to easily save and recover the settings of all medical equipment for specific operations and for the stages of each operation by using the scene selection functionality speeds up set-up and operating time and eliminates the possibility of incorrect configuration.



ENDOALPHA Control Software

- **Centralised control via touch panel / voice activation**
- **Scene Selection provides an intelligent combination of user and procedure specific functions via one-touch control**
- **Rapidly save and recall medical tower settings**
 - Save the desired settings by surgeon, procedure, or room name
 - One-touch button remotely adjusts the medical and surgical devices
- **Supports easy and safe smoke as well as mist evacuation automatically**
- **System security via password protected login**
- **Optional universal display shows endoscopic tower settings and/or key data**





■ Centralised control of medical devices

Olympus:

- Electrosurgical units
- Ultrasonic units
- Irrigation units
- Insufflators
- Video processors
- Light sources

Partner companies:

- Electrosurgical units
- Surgical Lights
- Surgical cameras
- Insufflators
- OR tables
 - Control of multiple types of tables in a single OR
 - Mechanical stop-button for increased safety
- Video recorders
- Image capturing units
- Video printers



Centralised control of the OR environment

Peripheral control provides centralised control of the non-medical equipment from touch screens in the sterile or non-sterile areas.

Centralised control of the non-medical equipment improves the workflow and ergonomics within the OR, improving efficiency. The ability to readily “fine tune” the environment with better lighting, the placement of images where best viewed and the easy recording and music control has a positive effect on team performance and satisfaction.

Centralised control on touch panels of the peripheral equipment, medical equipment and information improves the autonomy of individual team members. Team members can adjust both sterile and non-sterile equipment from either field, managing all aspects of the OR more efficiently and conveniently.



OR Controller

Control of all peripheral equipment is done from a single device located outside or inside the operating room. The MDD approved controller includes standard video routing in standard definition and HDTV, communication, ambiance control and archiving functions. Custom controllers include advanced features which can be customised for the OR team.

Specifications

■ Centralised peripheral device control

- The OR Controller integrates devices and equipment controllers for remote use
- Fully touch-screen operated: all aspects of the system are designed to be used via a graphical touch screen user interface.
- Integration of medical device controller with harmonized graphical user interface
- Touch screen control located in the sterile work area (suspended from boom arm)

■ Image Management

- Video routing for SD and HDTV (Option: VMC-10/VMR-10) signals
- Video signals coming from imaging devices can be viewed on any display destination
- Preview function of all image sources

- SD Video routing via Y/C matrix switcher (8x8)
- HDTV Video routing via HD-SDI matrix switcher (6x5)
- Integrated up-scaling allows viewing of SD source on HD destination

■ Video conferencing

- Standard Definition IP video conferencing
- One-touch selection to send any video signal to video conference
- Split-screen display of transmitted and received image on touch screen
- User-definable contact list
- Manual dial of destination network addresses and computer names
- One-touch, quick hang-up always accessible on top user interface
- Wireless microphone
- Supporting H.323 and SIP protocols via IP
- Supported audio codecs: G.711
- Supported video codecs: H.261 and H.263 support
- 4CIF Resolutions 704 x 576 (H.261 Annex D and H.263 Base)
- Maximum Bandwidth: 2 MB/s

■ Video Streaming over IP networks

- Streaming of any video source or sources to Video Network
- Decoding and display of any video source from Video Network
- MPEG-2 and/or MPEG-4 streaming with configurable bandwidth of 1-9 MB/s
- Supporting video-push (active routing, broadcast) and video-pull

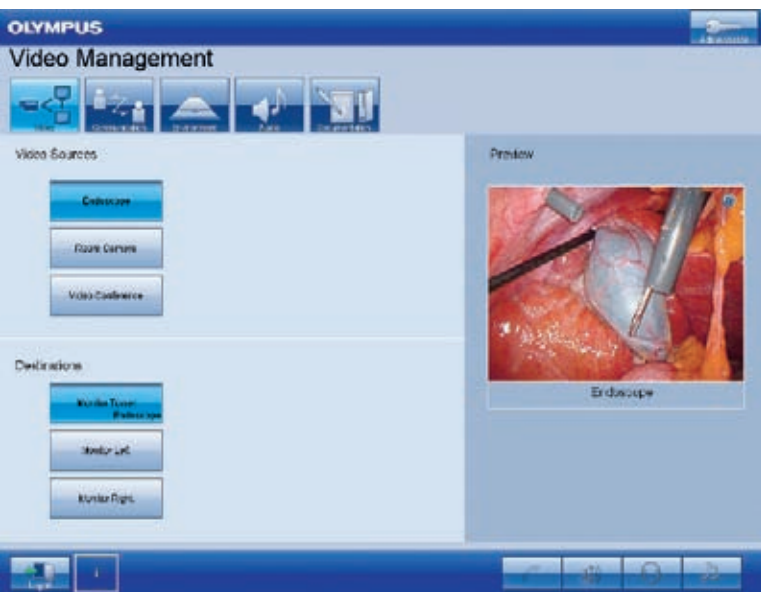
■ Audio control

- One-touch mute functions for individual audio sources
- Multi-channel volume level mixing (Speakers, Headset, Conferencing, Music)
- Quick access one-touch mute functions for microphone and speakers
- Up to 4 user-defined volume mix presets for quick one-touch volume mix setting



Precisely Right.

ENDOALPHA Installations are audited and certified by TÜV (an independent third-party certification company), to guarantee the strict adhesion to high quality standards of the installation.



■ Music control

- iPod media playback with Playlist functionality

■ Ambient lights control

- Two separate light circuits with analogue voltage between 0V-10V
- Controlled via digital DMX512 interface
- Up to 4 user-defined light presets for quick one-touch light scene setting
- Dedicated quick access all-lights-on / all-lights-off presets

■ Integrated image storage and documentation system

- Multidisciplinary medical documentation and workflow management system
- Stand-alone system or client-server documentation network
- Remote control connection to video processor and scope (control via scope button control)
- Still image capturing and video recording (SD and HDTV)
- Video editing and still image annotation
- Import and export of images/videos
- Review of still images and video sequences
- User-configurable overview for scheduled patients
- Checklist of materials used
- Manual or Automatic Data entry via HL7 interface or DICOM Worklist
- PACS compatibility via DICOM

■ Hardware

- Medical Device Directive 93/42/EEC Class I Device
- One-button start / restart
- Plug-and-play standard connectors
- Dimensions VMC-7 / VMC-10: 370 mm x 150 mm x 470 mm, 15.8kg
- Dimensions VMR-10: 370 mm x 100 mm x 470 mm, 8.6kg
- Mains Voltage VMC-7/VMC-10 : 90-265V
- Mains Voltage VMR-10: 100-240V
- Mains Frequency: 50 Hz / 60 Hz
- Maximum current consumption VMC-7 / VMC-10: 400W
- Maximum current consumption VMR-10: 60W
- Conformance to EMI/EMC standards in accordance IEC 60601-1-2
- Custom OR Controller options
- ISDN Videoconferencing (3 or 6 line capacity)
- CD Player
- Audio mixing and amplification hardware
- Uninterruptible power supply
- Configurable I/O switches for control of any electrical device
- 16 x 16 Y/C matrix
- Multiple HDTV-SD scalars
- Integrated video streaming hardware
- Configurable picture-in-picture and picture-out-picture with any video source
- Control of network PC from touch screen
- Medical DVD player control

Capture and display of images and data

The powerful ENDOALPHA documentation software ENDOBASE manages graphical, patient and examination information. Before, during and after each procedure, information flows automatically and conveniently to and from central databases in standard formats.

ENDOALPHA Documentation/ENDOBASE satisfies the increasing information and documentation needs of hospitals. Proven interfaces such as HL7 and DICOM guarantee seamless integration into the existing IT environment. All relevant data, including images and videos are stored in a central database and are readily available for editing and reference throughout the hospital.

With more than 500 installations, ENDOALPHA Documentation/ENDOBASE sets the standard for effective and efficient documentation. The capabilities of the software go beyond mere documentation. High-end tools such as ENDOCLICK/+ provide valuable insights into processes and financial parameters of all involved departments.



Documentation System

■ Procedure data management

- Centralised management of scheduling, including automatic updating from Hospital Information Systems
- Detailed user-configurable overview and checklist including capacity indication and event scheduler
- Overview of all examination data including responsible surgeons and staff

■ Centralised electronic patient information and patient data

- Management of all relevant patient data and information; data capturing via patient card, HL7 or manually

■ Examination data

■ Image recording

- Still image recording via firewire, HD-SDI and other interfaces

■ Video recording

- Video recording via firewire, HD-SDI and other interfaces

■ Post examination

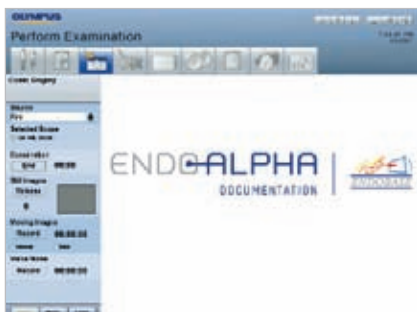
- Reviewing and editing of images and video sequences, report preparation and creation of laboratory requests

■ Report writer

- Creation of reports including related images, based on templates, text blocks, structured terminology and free text

■ Procedure code identification

- Different code types for procedures and diagnosis can be integrated and transferred to the Hospital Information System



Patient History

NAME: SWIRMAN, VWR
 Patient ID: 21638
 CURRICULAR NUMBER: 427487

Name of Birth: SWIRMAN, VWR
 Date of Birth: 12.04.1941
 Sex: Male

Risk: [] Male [] Female
 Former Operators: []
 Case of Misses: []

DEPARTMENT: []
 Exam Date: 23.10.2008
 Department: Default
 Medication: 1.5 mg Oxycodone
 Is Out: []
 Urgency: []
 Address Number: 627607
 Examination Number: []
 Referred by: []

History: []
 Reference: 23.10.2008
 Reference: 23.10.2008
 Reference: 23.10.2008
 Reference: 23.10.2008
 Reference: 23.10.2008
 Reference: 24.10.2008 09:29
 Reference: 24.10.2008 08:21
 Reference: 24.10.2008 08:21
 Reference: 24.10.2008

Type: []
 Report: []
 Patient name: SWIRMAN, VWR
 Patient ID: 24535
 Date of Birth: 12.04.1941
 Scope 1: 2006348
 Scope 2: []
 Assessed by: []
 Referring Physician: []

Date: 24.10.2008
 Time: 09:29
 Template: []
 GASTROSCOPE: []
 AUTHORIZED BY: []
 Administrator: []

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Print
 Save
 Close



■ Patient history

- Overview of all examination and patient related data including images and video

■ Statistics

- User-definable queries for medical and examination data including images and video, valuable statistical analysis

■ Material management

- Keeps track of material consumption and facilitates stock management

■ Patient care documentation

- Full patient care documentation including preparation protocol, consent form, examination and discharge documentation



■ Labelling

- Printing of individual labels

■ Maintenance documentation

- Keeps track of all maintenance and repair activities

■ Vital sign monitoring system interface

- Documentation of vital sign data

■ ETD interface

- Automatic documentation of reprocessing protocols and link to respective examination data

■ HL 7

- Proven interface for full HIS integration

■ DICOM

- Full integration to PACS

■ EndoView

- Internet browser based access to view complete patient files including images and video

■ ENDOCLICK/ +

- High-end statistical analysis of processes and costs

Complete management of video and still images in and beyond the OR

ENDOALPHA features a powerful video management system, allowing video streaming (digitalised and placed on LAN), video routing (switching video between displays via matrix) and the storage of videos within the OR and throughout the network. Bi-directional audio communication is also integrated into the easy-to-use system.

The video management system makes video more available and more useful in a “video network” that includes videos sources and destinations in ORs, endoscopy rooms, lecture rooms, doctor’s offices, archiving servers and any other place where video could be used or produced. The system combines video matrices, codexes (which digitalises the video), servers and powerful, easy to use software. Videos can be routed in the OR between various destinations for display or sent to points in the network outside the OR for teaching, mentoring, supervision, reference etc. Video can also be automatically linked to patient data and then stored for later reference, or organisational archiving.



Video Management System

■ Digital video streaming /routing

Via the TCP/IP protocol, the Video Management software allows video streaming and routing throughout the network from one source to any number of destinations.

■ Digital audio streaming /routing

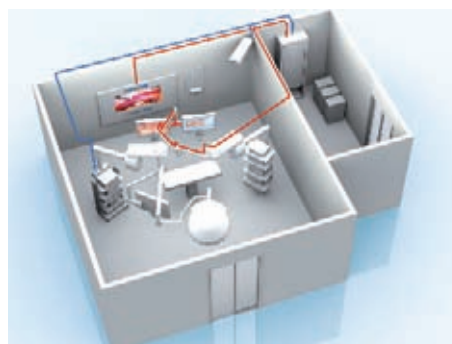
As a consultation tool, ENDOALPHA Video Management offers bi-directional communication via the network plus recording of a combined video/audio stream.

■ Integration

ENDOALPHA Video Management is part of the Olympus Systems Integration concept and is therefore seamlessly compatible with all Olympus image sources and can be fully integrated with ENDOALPHA Control as well as ENDOALPHA Documentaion and the hospital IT environment.

■ Video recording /image capturing

Using the Olympus EXERA or Visera systems, video recording can easily take place. It is possible to record video streams from multiple sources and to capture and store images from the streams. It goes without saying that ENDOALPHA Video Management also provides a function for replaying the stored video files.





■ Easy-to-use

The ENDOALPHA Video Management touch screen user interface allows the transmission of the selected video stream to its destination – with just two clicks.

■ Application fields

- Consulting
- Documentation
- Live transmission during congresses/workshops
- Teaching



Improved aesthetics and functionality

The Technical Panel provides a central point for touch panel control and an attractive and easily disinfected wall monitor for the display of any image.

The technical panels comprise two components, Control Panel and TFT Panel, and are an aesthetically pleasing and practical addition to the OR. The Control Panel includes the user interface for controlling the OR, allowing complete control of equipment via the touch panel or the integrated mouse and keyboard. A configurable patch panel located on the same panel allows video from equipment brought in temporarily to be included in the video and image management system.

The large HD TFT monitor included in the Panel is the ideal complementary display for teaching, reference images, video-conferencing or to display the surgical image for auxiliary staff.



Technical Panels

■ Wall-mounted monitor housing

■ Keyboard tray storage compartment

■ Video in- and outputs

■ In-wall installation of screens and control

■ Gasket sealed compartments:

- Integrated ergonomically designed keyboard for text input
- Integrated patch panel to connect temporarily available video sources (i.e c-arm systems)
- Integrated storage compartment
- Optional: integrated MP3 music player docking station



The GOOD DESIGN Award:

The award is one of the most important global design awards and is awarded since almost 60 years by the Chicago Athenaeum (Museum of Architecture and Design) in cooperation with the European Centre of Architecture Art Design and Urban Studies. 2008/2009 the Technical Panels manufactured by Olympus received the GOOD DESIGN Award.

Digital images brought to life

The Digital Lightbox®, a product of Olympus' partner BrainLAB, is a large touch panel for displaying, interactive manipulation and fast access to stored images and videos from PACS or other sources. The images are displayed in high definition and the multi-touch panel control facilitates advanced manipulation of these images.

The Digital Lightbox's high definition display is an excellent medium for displaying reference images during surgery, consultation or in meeting rooms. It is a multi-touch-enabled panel driven by powerful software, allowing the intuitive and fast interactive manipulation of 2-D images and 3-D image sets without the need for a mouse or keyboard. Images can be merged together, zoomed, measured and otherwise analysed, improving the understanding of reference images and providing useful perspectives to facilitate the planning and performance of surgery.



Digital Lightbox

■ Two integrated high-resolution 20- and 30-inch flat screen displays

■ Software is intuitive and touch optimised, resulting in easier interaction and quicker manipulation of images

■ Intuitive unified multi-touch image manipulation and viewing platform

■ Connectivity

- Seamless integration with all major PACS vendors
- Access to existing web-based enabled services – HIS, RIS, EMR
- Integration with ENDOALPHA Documentation and Video Management
- Import/export of images stored on DVD, CD or USB compatible devices
- Supports multiple formats, including DICOM, bmp, jpg and video formats
- Visualisation and manipulation of all major image modalities
- Automatic image fusion ensures more accurate imaging in critical areas
- Image fusion and blending possible between CT, MR, and PET/SPECT image sets
- Panning, zooming and scrolling through patient data sets
- Multi-planar reconstruction provides sagittal, axial and coronal perspectives all in one comparative side-by-side view
- Limitless annotations, 2D and 3D measurements can be added and saved to images
- Compatible in a sterile environment with the use of stylus (no use of drapes)

Technical Data	
Cabinet (D x H x W)	143 mm x 553 mm x 1195 mm
Weight	40 kg
Display (viewing panel)	30 inch
Resolution	2560 x 1600 pixels
Display (control panel)	20.1 inch
Resolution	1200 x 1600 pixels
Power Input	3.0 A @ 100V; 1.5 A @ 240V; 50/60Hz
Power Consumption	360 VA
Certificates and Classifications	EN 60601, UL2601-1/CSA, CE

Specifications, design and accessories are subject to change without any notice or obligation on the part of the manufacturer.

OLYMPUS

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