

iRis **DVR** 360°
Digital Video Recorder



Operation Manual





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Preamble

We congratulate you on buying your iRis DVR 360° Industrial Videoscope, in the following just named iRis. It unites Light Source, TFT Display plus Image Storage and Video Recording Device.

The diversity of inspection objects, materials and lightning conditions often makes it difficult to get high-quality images. It is easy to adjust the iRis to your application to receive optimal inspection images even in extreme situations.

Always keep the Operation Manual with the iRis. It contains all information for safe and efficient operation. However, should you have further questions, feel free to contact our Service Team.

Warning Notices and Precautions



Read the Operation Manual carefully before using the iRis.



Caution! The iRis has to be employed by skilled and qualified personnel appropriate to the application. The iRis is designed for a diversified field of applications in Industry, Building and Science. Only use the iRis as intended.



Caution! Never use the iRis in running machines.



Caution! The iTool has not to be used in specially designated or prohibited areas (e.g. Explosion Prevention).



Electric Shock! No unauthorised opening of the casing. There is high danger of electric shock due to parts being under voltage. For higher abrasion resistance the flexible and bendable probe is sheathed with tungsten. This can lead to electric shock at contact with

live parts. Therefore the iRis is never to be used in or at objects under tension.



Caution! Never look directly into the light emitting part of the iRis. It can cause injuries of eyes. Always switch off the Light Source before changing, controlling or cleaning the objective or the distal end of the Videoscope.



Caution! Use the iRis in dry environments only. According IP53 the housing is protected against splash water. The housing of the iRis is never to be immersed in water or cleaned directly under running water.



Caution! Using mains adapter without earth conductor and without galvanic isolation can lead to a tungsten braid being under electric tension. Therefore only use mains supplies delivered with the iRis.

Warnhinweise und Vorsichtsmaßnahmen



Caution! If the objective is dirty the distal end may heaten up. This can lead to ignition of highly combustible materials. Furthermore it can lead to burns at direct contact. Regular cleaning should be made.



Caution! When inspecting hot objects the probe may heat up according ambient temperature. Avoid direct contact to the probe after such applications – High risk of burns.



Do not throw battery into fire.
Do not recharge defect battery, but replace it immediately.



The iRis is an electric device and must not be disposed in domestic waste. Pursuant to European Directive 2002/96/EG on waste electrical and electronic equipment (WEEE) and its transposition to national law used up power tools have to be collected separately and returned to environmentally compatible recycling.



Recycling. Withdrawal of batteries pursuant to the Battery Policy: According to the German Battery Policy (BattV) we are obliged to inform you about the rules and liabilities for disposal and withdrawal of used batteries and accumulators. According to §7 German Battery Policy the end-user is obliged to return used batteries and accumulators. Contaminant-laden batteries and accumulators are marked with a crossed dustbin with the chemical symbol of the contained heavy metal under it (Cd for cadmium, Hg for mercury, Pb for lead). Batteries and accumulators must not be disposed in domestic waste and can be handed free of charge to any designated collection and withdrawal point. Of course batteries and accumulators you got from IT Concepts can be handed or sent to us.

Scope of Delivery

The iRis is delivered with the components shown in adjacent images.

Further interchangeable objectives or additional accessories are not included. These items you will find in this manual on page 42ff., in our accessories catalogue or on our homepage www.itcworld.de. We are certainly pleased being at your disposal for personal consulting as well.



Lens Box



Charger



Rechargeable Battery
(in device when delivered)



ITC Case Pocket



Neck Holder



Operation Manual

System Presentation



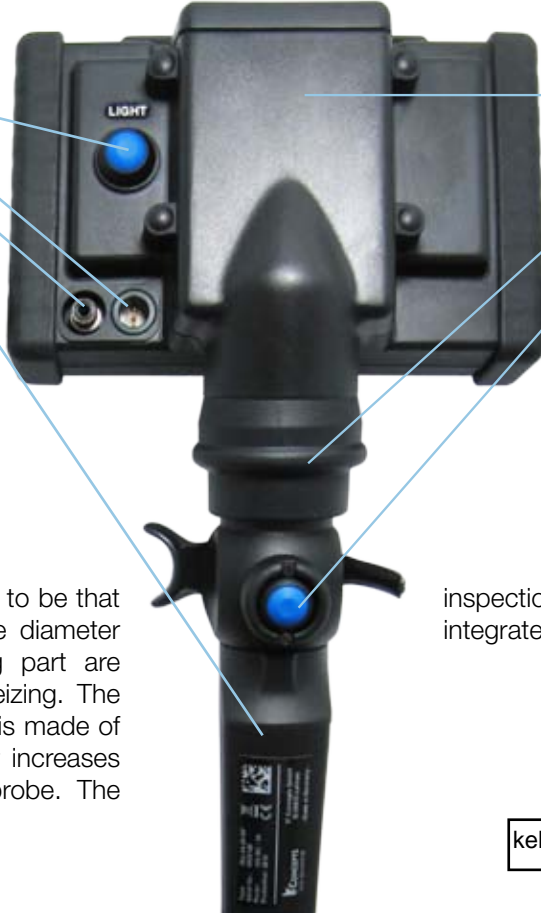
Live and saved images as well as video recordings are shown on the TFT Display. Image captures and video recordings can be marked with overlay text. The probe can be inserted to a cavity, e.g. a tube. The user can lock the articulating head of the probe in the desired position during

inspections. The articulation can be moved in four directions (up/down and left/right) which really facilitates passing multiple co-vings.

System Presentation

ON/OFF LED Light Source
12V DC Plug
Cinch OUT for Hard Disk,
Monitor, etc.
Handle

Battery Compartment
Swivel Lock Mechanism
Capture Button



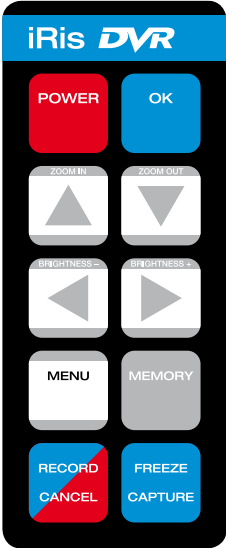
The region to be inspected has to be that large that movements with the diameter and length of the articulating part are possible and don't result in seizing. The sheathing of the insertion tube is made of tungsten netting and particular increases the durability of the flexible probe. The

inspection area can be illuminated with the integrated LED Light Source.

System Presentation

The Control Panel

Using the control panel you can navigate through the menu structure, select and confirm functions.



POWER	Switching-on or off the device
OK-BUTTON	Confirming action/Image capture
ARROW KEYS ▲▼	Navigate (up/down) / Zoom in and out
ARROW KEYS ◀▶	Navigate (left/right) / Adjusting brightness
MENU	Open/Close on-screen menu
MEMORY	Open/Close Memory Mode
RECORD/ CANCEL	In Live Mode: Start/Stop video recording / In Memory Mode: Quit submenu
FREEZE/ CAPTURE	Pause video recording / Freeze image / Image capture

System Presentation

Charging the Battery

Before charging please pay attention to the included manual for the charger. For charging the accumulator has to be removed from the housing. For this the cover of the battery compartment has to be detached by releasing the locking screw.

To charge the battery place it in the charger. Charging process is finished when charge indicator lamp continuously glows green. Caution! Only use the delivered charger to charge the battery. Otherwise there is high risk of damages to the cells.

The operating voltage is shown in the status indicator line on the iRis display. The fully charged battery is placed in the device when delivered.



Charger



Rechargeable Battery
(in device when delivered)

Preparing the iRis

Working with external Power Supply

As an option the iRis can be powered as follows:

- 1) AC Adapter + Power Supply Cable
Item Nr.: 820-00001-003-V
- 2) PowerBelt
Item Nr.: 900-06000-0030-V
- 3) Car Battery Cable
Item Nr.: 900-05000-0004
- 4) Cigarette Lighter Cable
Item Nr.: 900-00002-0012

Note: The 12V DC plug as well as the socket is marked with a red dot. Assure that both red dots are visibly opposed when connecting the 12V DC plug to the iRis.

Preparing the iRis

Inserting the SD Card

Slightly remove the right edge protector and put a formatted SD Card (32GB max.) into the card slot. The SD Card included in the scope of delivery is already inserted and properly formatted.

If the SD Card is not formatted you have to format it as described on page 17.



Starting Inspection

Switching-on the iRis

After having prepared the iRis according this operation manual switch it on by pressing POWER. Please inspect the iRis probe as described on page 40 before inserting the endoscope into the inspection object!

Status Indicator Line

At start-up the iRis always is in Live Mode. At the bottom of the display the status indicator line can be seen. It shows the status of zoom, image flip, camera, power supply and light intensity.

Switching-on the LED

The LED is switched on or off by a long push on the Light Source Button. With short push the intensity of the LED can be adjusted in three steps.



Starting Inspection

Language Selection

At delivery status the iRis should already be set to your language or to English.

At initial operation you should check if the appropriate language is set and adjust if necessary. The following languages are available:

- English (default setting)
- German
- French
- Spanish
- Italian

Image Control
Camera Control
Annotation
Dimension
System Setting
Safety remove SD

If you want to change the language set proceed as follows:

- MENU
- System Setting - OK
- Select language – ◀ ▶
the menu will immediately be shown in the selected language.
- To quit press MENU again

Status Line	: ON
Freeze Frame	: OFF
Language	: English
Date/Time	: Press OK
SD info	: Press OK
SD format	: Press OK
Fabric Settings	: Press OK
Software Status	: P010 55
Serial Number	: 20110815

Starting Inspection

Format SD Card

The SD Card delivered with the iRIS is already formatted. To format a SD Card proceed as follows:

Press MENU, select menu item System Setting and press OK. Using the arrow keys select the menu item Format SD and press OK. A confirmation prompt appears on the display. Select via arrow keys and confirm with OK.

- Image Control
- Camera Control
- Annotation
- Dimension
- System Setting**
- Safety remove SD

Status Line	: ON
Freeze Frame	: OFF
SD format	: Press OK
Date/Time	: Press OK
SD info	: Press OK
SD format	: Press OK
Fabric Settings	: Press OK
Software Status	: P010 55
Serial Number	: 20110815

Starting Inspection

Setting Time and Date

In the delivery status time and date should already be set.

At initial operation you should check time and date and set them if necessary.

If you want to change time and/or date proceed as follows:

Press MENU, select menu item System Setting and press OK. Using the arrow keys select menu item Date/Time and press OK. Set the desired time and date via the arrow keys and then confirm by pressing OK.

- Image Control
- Camera Control
- Annotation
- Dimension
- System Setting**
- Safety remove SD

- Status Line : ON
- Freeze Frame : OFF
- SD format : Press OK
- Date/Time : Press OK**
- SD info : Press OK
- SD format : Press OK
- Fabric Settings : Press OK
- Software Status : P010 55
- Serial Number : 20110815

Starting Inspection

Resetting to Default Settings

By selecting the menu item Fabric Settings all manually changed and adjusted parameters can be put back to factory setting, except for date, time and text generator.

- MENU
- System Setting - OK
- Fabric Settings - OK

You are in Live-Mode again afterwards.

Image Control
Camera Control
Annotation
Dimension
System Setting
Safety remove SD

Status Line : ON
Freeze Frame : OFF
Language : English
Date/Time : Press OK
SD info : Press OK
SD format : Press OK
Fabric Settings : Press OK
Software Status : P010 55
Serial Number : 20110815

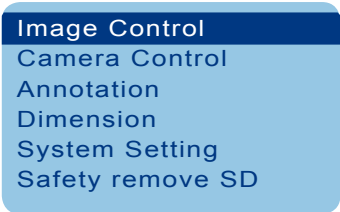
Starting Inspection

Image Control

Image parameter (brightness, contrast and colour as well as zoom and image flip) can be adjusted under Image Control in the menu.

Change the select parameter by using the arrow keys. New settings will immediately be effective. Pressing OK will reset the marked parameter to default setting. Using the MENU button will bring you back to Live Mode.

Caution! The image parameter are effective to the image displayed as well as to images and videos being saved. Image captures and video recordings will be saved as displayed.



Starting Inspection

Turning the Display

By lifting the locking ring under the rubber cover the detent of the display is released. Now the display can be turned in two directions.



Controlling the Articulation

The articulation section can be moved in two planes by means of the levers on the handle (see fig.). If the levers are released during movement the articulation section will be locked in the current position.

On the image the levers are shown in „neutral“ home position. In this position the articulation section is straighten.



Starting Inspection

Changing and adjusting Objectives

Different interchangeable objectives are available for the iRis (except 4mm). Therefore an optimal field of view and f-stop can be chosen at any time. The objectives are differently coloured to discern them easier.

The objectives can be adjusted and exchanged by using the lens tool. The working distance is continuously adjustable by screwing the objective in or out the distal end. For easier adjusting the lens tool is equipped with an adjusting hole. Through that hole you can check the image during adjustment in live mode.

It is recommended to adjust the objective to the required working distance before starting the inspection. The working distance gets farther by turning the objective into the distal end.

Caution! Never turn in the objective with force.

Mounting the Side View Tip Adapter

If a lateral view is necessary (e.g. in tubes or narrow cavities) a 90° Side View Tip Adapter can optionally be mounted. Depending on diameter of the scope the adapter is available with different working distances. With 6 and 8mm probe it is simply screwed into the distal end after having removed the objective and on the distal end without removing the objective at 4mm probes.

Do not torque the Side View Tip down with force and never use tools (e.g. tongs) for it.

Starting Inspection

Passing Covings

Size and covings of the object to be inspected have to be large enough to allow the movements of the articulating part and the distal end. The feasibility should be verified visually or by means of design drawings before the inspection. The actions described in the following have to be carried out at every coving analogue to the described procedure. If a resistance or any other problem occurs retract the probe carefully.

Fig. A

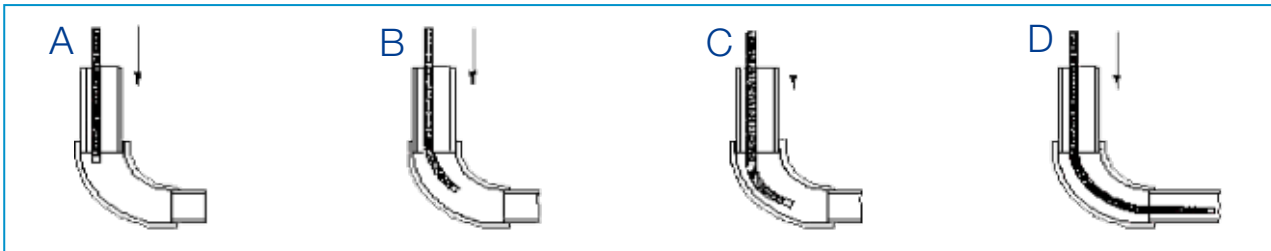
Carefully push the probe to the beginning of the coving while observing on the display.

Fig. B

Still observing on the display adapt the articulating section to the coving of the cavity by using the levers.

Fig. C and D

Continue the insertion process while always observing on the display. The angle of the articulating section has to be adapted step by step to the coving of the object. After having passed the coving the articulating section has to be straightened by putting the levers to neutral position.



Starting Inspection

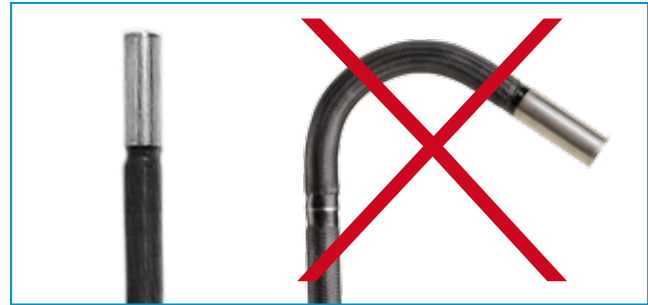
Retracting the Endoscope

To retract the endoscope the articulating section has to be straighten first, i.e. the levers have to be put to neutral position.

By observing on the display and appropriate movement of the levers an equal distance of the distal end to the walls of the cavity has to be kept. Avoid contacts of the distal end with the walls of the surrounding.

At resistance during the retraction it is recommended to slightly twist the probe in both senses around its longitudinal axis and at the same time carefully push and pull until the probe is released again.

Caution! Put both levers to neutral position (as shown) before retracting the scope!



Caution! Put both levers to neutral position (as shown) before retracting the scope!



Creating and saving Image Captures and Video Recordings

There are two standard settings available. Decide whether you want to work in Mode Freeze Frame ON or OFF for image captures and video recordings (see pages 27-29) before starting the inspection.

Press MENU, select the menu item System Setting and press OK. Using the arrow keys select Freeze Frame and choose ON or OFF.

Image Control
Camera Control
Annotation
Dimension
System Setting
Safety remove SD

Status Line : ON
Freeze Frame : OFF
Language : English
Date/Time : Press OK
SD info : Press OK
SD format : Press OK
Fabric Settings : Press OK
Software Status : P010 55
Serial Number : 20110815

Creating and saving Image Captures and Video Recordings

Inserting Text

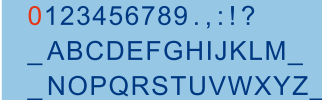
With the text generator you have the possibility to mark all images with a text commentary (a single line of 31 characters). Please insert text before saving the image.

Press MENU, select menu item Annotation and press OK,

Use the arrow keys to select the desired character and press OK. To quit and save the text press RECORD, to quit without saving press MENU. You can delete single characters by pressing FREEZE.



Image Control
Camera Control
Annotation
Dimension
System Setting
Safety remove SD

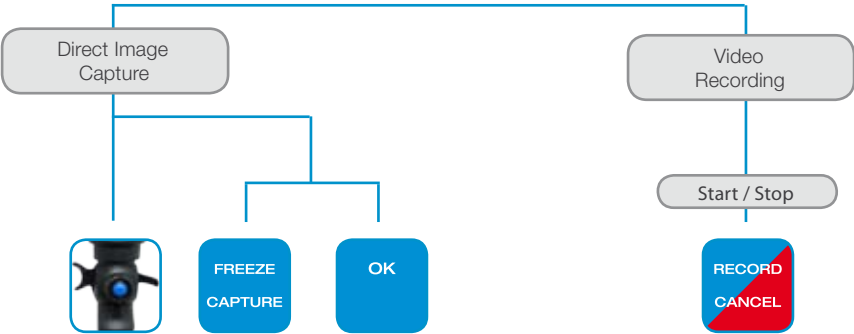


```
—  
0123456789.,:!?  
_ABCDEFGHIJKLM_  
_NOPQRSTUVWXYZ_  
—
```

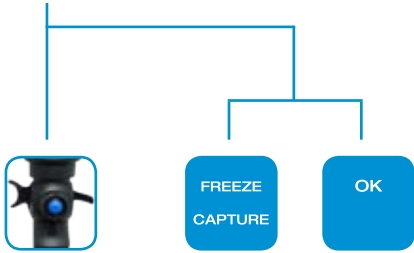
arrows - move cursor
<OK> - add symbol
<RECORD> - close editor, save the changes
<MENU> - close editor, cancel the changes
<FREEZE> - delete last right symbol

Creating and saving Image Captures and Video Recordings

Standard Setting Nr. 1 „Freeze Frame OFF“

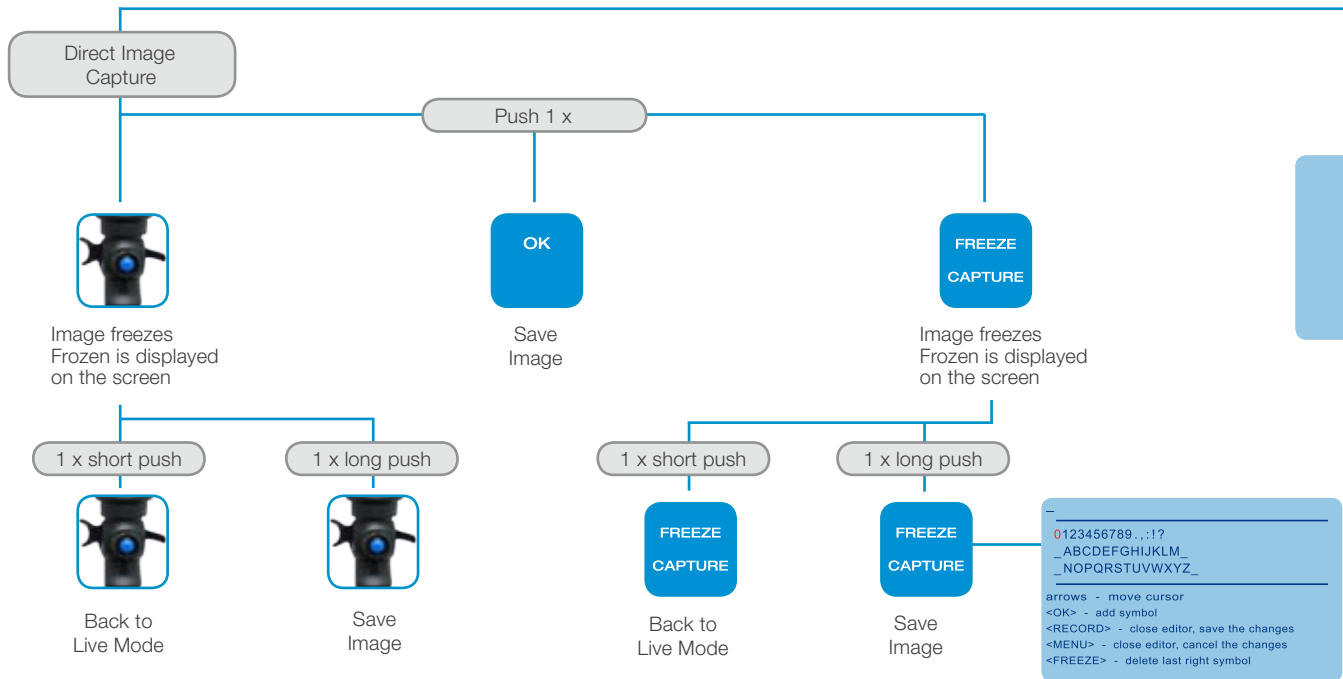


During recordings single images can be saved as follows:



Creating and saving Image Captures and Video Recordings

Standard Setting Nr. 2 „Freeze Frame ON“



Video Recording

(Text - Optionally insert in advance (see page 26))



Start/Stop recording

Push 1 x



Start recording

Press 1 x



Pause/Continue recording

1 x short push



Pause/Continue recording

1 x short push



Save image

Press 1 x



Save image

Press 1 x



Stop recording

Calibrating and Comparative Measuring with the iRIS

The iRIS provides the possibility of point-to-point measuring within the image. This can be used in the Live Mode as well as in the Memory Mode.

Press MENU on the keypad. Select the menu item Dimension, select Calibration confirming with OK each time - two flags appear on the display. The distance in pixels is shown in the status indicator line.

Before you can use the Comparative Measuring you need to make a calibration as follows: Hold the distal end in your defined working distance to an object of known size (e.g. ruler). Move the active flag (displayed in white) to one side of the geometry. Press OK to switch between the flags and lead the second flag to the end of the geometry. When both flags are on the desired positions, press MENU twice, choose Dimension and Calibration afterwards, always confirming with OK.

Please insert the measure as value in front of the ":" and the unit (e.g. mm) behind of it. To save and quit Calibration press RECORD. To quit without saving press MENU. After having pressed RECORD the inserted unit appears in the display, while being

in Live Mode with visible flags. Now you may save as usual (see pages 27-29). Your measuring value occurs in the saved image and video recording.



```
100_ :  
0123456789 .:!?  
_ABCDEFGHIJKLM_  
_NOPQRSTUVWXYZ_  
arrows - move cursor  
<OK> - add symbol  
<RECORD> - close editor, save the changes  
<MENU> - close editor, cancel the changes  
<FREEZE> - delete last right symbol
```

Playback of saved Images or Video Recordings

You can access all saved data.

The iRis System saves images and video recordings automatically to the SD Card as follows:

Image:

Format: bmp
Resolution: 640 x 480 pixel
Location: Folder Picture

Video:

Format: avi
Resolution: 800 x 600 pixel
LOCATION: Folder HVR

Name:

All files (image as well as video recording) are named by the system. Each image and video gets an automatically created file name consisting of date and time.

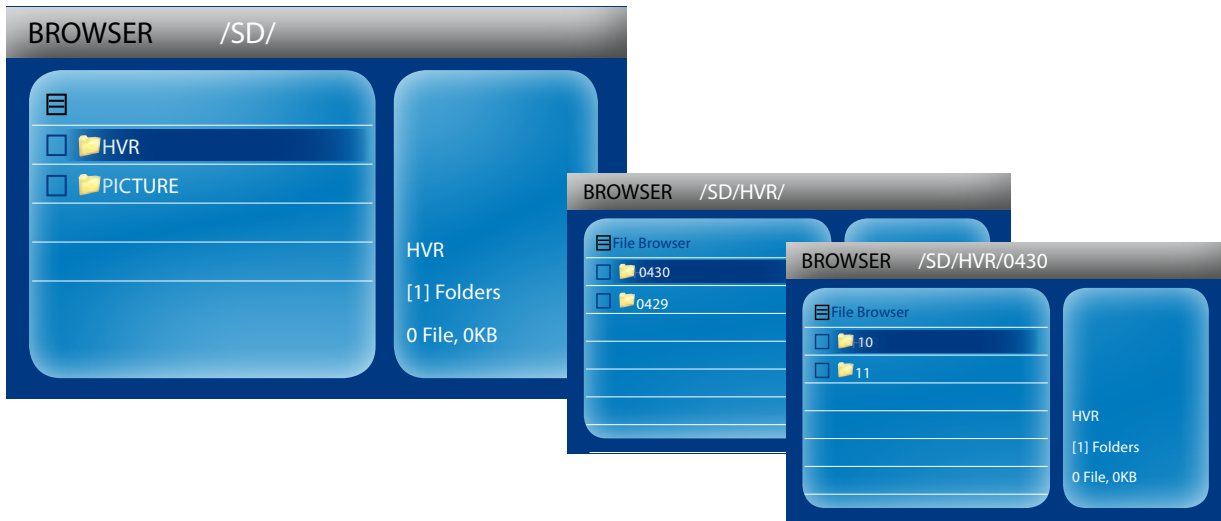


Playback of saved Images or Video Recordings

How to access files.

Press MEMORY to access the Browser Mode. Navigate through the folder structure to the desired file by using the arrow keys and the OK button

Note! The LED Light Source is automatically switched-off in Memory Mode and reactivated when changing to Live Mode again.



Playback of saved Images or Video Recordings

Images

After having accessed the desired file you can control it as follows by using the arrow keys and the OK button:

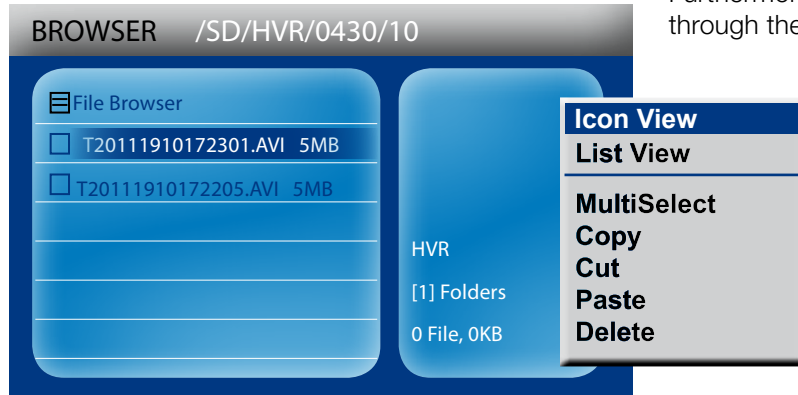
OK	=	Open/Flip image
Arrow keys	=	Leaf for- and backwards
Cancel	=	back to browser

Video Recordings

After having accessed the desired file you can control it as follows by using the arrow keys and the OK button:

"OK"	=	Start / Stop / Pause video
"Left"	=	rewind
"Right"	=	Fast forward
"Cancel"	=	Quit

Furthermore you may select additional functions through the context menu.



Optimising Camera Settings

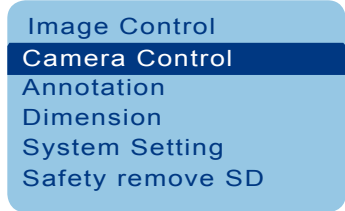
Camera Setting

The camera settings help to optimal adjust the videoscope or camera to your application to get perfect images.

In addition to the STANDRAD setting the iRis System provides three other camera settings:

- SHORT INTEGRATION
- LONG INTEGRATION
- MANUAL INTEGRATION

Press MENU, select the menu item Camera Control and press OK. Choose the desired camera setting by using the arrow keys.



Integration	:	Standard
Detector Type	:	Mean
Manual Shutter	: 50%
Manual Gain	: 50%
AGC Level	: 50%
Gamma	: +2
White Balance	:	Press OK

Optimising Camera Settings

Camera Setting STANDARD

The standard setting is approved for a variety of applications to get clear and expressive inspection images.

This setting produces an automatic optimising of the camera settings.

In this setting you can influence two further parameter:

Integration	:	Standard	
Detector Type	:	Mean	
Manual Shutter		50%
Manual Gain		50%
AGC Level		50%
Gamma		+2
White Balance	:	Press OK	

White Balance

The white balance can only be executed in the camera setting STANDARD.

How colours of an image or video recording are displayed is depending on the colour temperature of the light source. For optimal colour reproduction it is required to make a white balance.

1. Place the distal end of the videoscope in front of a white non-reflecting sheet of paper.
2. Switch on the light source
3. Put the distal end in a position where no irradiations are visible in the picture.
4. Select the menu item White balance and hold the OK button until the white balance is carried out.

Gamma

With Gamma the video signal is corrected regarding brightness and contrast.

Optimising Camera Settings

Camera Setting SHORT INTEGRATION

The camera setting Short Integration is particularly recommended for inspections with disadvantageous (dark) lighting conditions.

This setting provides an optimal live image by means of a high signal gain and a long exposure time. This allows a particular well orientation in the hollow during inspections.

Integration	:	Short integration
Detector Type	:	Mean
Manual Shutter		50%
Manual Gain		50%
AGC Level		50%
Gamma		+2
White Balance	:	Press OK

Detector Type

Here you have the choice between two modes:

Mean Detector: The camera control system detects the brightness of the whole image (multi-zone measuring) and adjusts the signal brightness based on the AGC-level and the brightness measured.

Peak Detector: The camera control system adjusts the image brightness depending on the brightest line detected. Application: Better perceptibility of details in image areas with high brightness.

AGC Level (Auto Gain Control): This features adjusts the optimal image brightness with the brightness adjustment level being predefined by the AGC Value (high value = high gain).

Gamma

With Gamma the video signal is corrected regarding brightness and contrast.

Optimising Camera Settings

Camera Setting LONG INTEGRATION

The camera setting Long Integration is particularly recommended for image captures and video recordings with very disadvantageous (dark) lighting conditions.

With the distal end fixed this setting provides optimal image captures and video recordings

Integration	:	Long integration	
Detector Type	:	Mean	
Manual Shutter		50%
Manual Gain		50%
AGC Level		50%
Gamma		+2
White Balance	:	Press OK	

Detector Type

Here you have the choice between two modes:

Mean Detector: The camera control system detects the brightness of the whole image (multi-zone measuring) and adjusts the signal brightness based on the AGC-level and the brightness measured.

Peak Detector: The camera control system adjusts the image brightness depending on the brightest line detected. Application: Better perceptibility of details in image areas with high brightness.

AGC-Level (Auto Gain Control): This features adjusts the optimal image brightness with the brightness adjustment level being predefined by the AGC Value (high value = high gain).

Gamma

With Gamma the video signal is corrected regarding brightness and contrast.

Optimising Camera Settings

Camera Setting MANUAL

The camera setting Manual gives you the possibility to individually change the camera setting without the influence of the automatic camera control system.

Integration	:	Manual	
Detector Type	:	Mean	
Manual Shutter		50%
Manual Gain		50%
AGC Level		50%
Gamma		+2
White Balance	:	Press OK	

Manual shutter

Setting image brightness by adjusting the relative exposure time of the sensor. This allows image capture at poor lighting conditions.

Manual gain

Setting image brightness by adjusting the signal gain. But this will increase electric signal noise and reduce image quality.

Gamma

With Gamma the video signal is corrected regarding brightness and contrast.

Cleaning and Care

Basics

The following procedures have to be carried out after each use of the iRis. A want of care can lead to corrosion and damages. The grade of the required cleaning depends on the degree of pollution.

Cleaning the Housing

Clean the housing with a soft and moist cotton cloth. If necessary use mild detergent and dry carefully afterwards. Do not clean display or housing under running water or immerse in liquids!

Cleaning the Probe

Wipe off dust and dirt with a soft cotton cloth. Wash the flexible part with a moist sponge. Dry with a clean and soft cotton cloth after cleaning.

The distal end has to be cleaned with cotton swabs (Q-Tip®) soaked with high-proof alcohol. Do not use rough cloths for cleaning!

Gehäuse



Sonde



Cleaning and Care

Inspecting the iRIS Probe

The probe of the iRIS has to be controlled regarding visible external damages before every use. Furthermore the objective's surface has to be checked and cleaned if necessary (see page 39).

The manoeuvrability of the articulating section has to be checked: First push the lever U/D towards the housing and move it from one extreme position to the other, so that the articulation moves in an angle ca. $+160^\circ$ to ca. -130° in the vertical plane.

Then bring the lever back to the neutral position and release it. Analogical move the lever R/L, so that the articulation moves in an angle of ca. $\pm 100^\circ$ in the horizontal plane. Bring the lever back to the home position afterwards and release it.

At occurrence of any problem stop operating and contact the Customer Service of IT Concepts (see page 37).



Storage

Storing the System

The System needs to be dry and cleaned for storage. The levers have to be brought to neutral position.

Carefully insert the probe into the reel in the case. Push the probe slowly into the reel until you are able to place the housing in the corresponding recess without bending the probe too much. Afterwards push the rest of the probe thoroughly into the reel until the probe is securely placed and cannot be damaged by the case or any accessories. Avoid bending the probe to an arc radius less than 45mm.

In case of storing the system outside the transport case it should be hung at the housing. The storing location should be protected against humidity, direct sunlight and high temperature fluctuation. At hanging take care that the probe hangs free and doesn't butt at something.



Spare Parts and Accessories

iRis Accessories

830-00001-0003	SD Memory Card
900-00003-0009	Neckholder
900-00002-0025	iRis DVR Clamp
900-05000-0036	Li-Ion rechargeable Battery NC2040A24
900-05000-0037	Charger for Li-Ion rechargeable Battery NC2040A24
820-00001-0003-V	iRis AC Adapter 12V DC / 5,50A
900-06000-0050	iRis Case
860-00003-0003	Lens Box for Objective Lenses
900-00003-0013	ITC Case Pocket

Accessories	Description	Colour code	f-Stop	DOV	FOV	Working Distance
930-00100-0004-V	4.0mm Side View Tip Adapter (only for 60°-Version)		90°	60°		
930-00200-0012-V	4.0mm Side View Tip Adapter Tool		90°	60°		
930-00200-0008-V	6.0mm Lens Tool					
930-00100-0002-V	6.0mm Side View Tip Adapter		1:5.2	90°	60°	5.0mm - 15.0mm
930-00100-0003-V	6.0mm Side View Tip Adapter		1:5.2	90°	90°	7.0mm - infinity
930-00200-0006-V	6.0mm Objective Lens	RED	1:4.3	0°	90°	7.0mm - infinity
930-00200-0007-V	6.0mm Objective Lens	BLACK	1:5.2	0°	90°	7.0mm - infinity
930-00200-0005-V	8.0mm Lens Tool					
930-00100-0001-V	8.0mm Side View Tip Adapter		1:6.4	90°	60°	5.0mm - infinity
930-00200-0013-V	i8 Adjustment Tool for 8.0mm SVTA					
930-00100-0001-V	8.0mm Objective Lens	RED	1:7.6	0°	90°	5.0mm - infinity
930-00200-0002-V	8.0mm Objective Lens	SILVER	1:3.9	0°	90°	5.0mm - infinity
930-00200-0003-V	8.0mm Objective Lens	BLACK	1:7.0	0°	60°	10.0mm - infinity
930-00200-0009-V	8.0mm Objective Lens	GOLD	1:2.5	0°	60°	8.0mm - infinity
930-00100-0004-V	8.0mm Objective Lens	BLUE	1:5.3	0°	28°	25.0mm - infinity

Service

To help us to efficiently execute any maintenance or repair of the product please directly contact us.

Thank you!

Contact

KELCO Industrial
248 421 9882
andykopec@kelcoindustrial.com

Technische Daten

Operating Unit

Display Size:	3,5" (9cm) TFT Colour
Display Resolution:	VGA (640x480 Pixel)
Operating System:	Realtime operating System, with On-Screen-Menu
User Interface:	Direct Action Keys, Function-Keys, Arrow-Keys
Languages:	Englisch, French, Spanish, Italian, German
Video interface:	Composite Video-out
Power Supply, primary:	changable Li-Ion-Battery (Charger is provided)
Power Supply, secondary:	12V Adapter

Measurement

Method	Comparative Measurement Function
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Documentation

Video Format:	AVI (.avi)
Image Format:	BMP (.bmp)
Storage:	SD-HC-Memory Card up to 32GB (FAT32)

Camera Control

Image Sensor:	High-Resolution Color SUPER HAD™ CCD
Camera Control / Exposure:	Integration modes: Automatic, Short, Long, Manuell
White Balance:	yes, factory default or user defined
AGC-Level:	yes, adjustable
Gamma:	yes, adjustable

Image Control

Zoom:	x3.5 (Digital)
Invert:	horizontal and vertical Image Inversion
Brightness, Contrast, Colour:	yes, adjustable
Text Annotation:	Built-in full screen text overlay generator

Technische Daten

Illumination

Type:	High-Power Whitelight-LED's with fiber optic light guides		
Illumination Control:	yes, 3-steps		
Colour Temperature:	ca. 6500K		
Average Lamp Lifetime:	ca. 5000h		

Probe

Diameter:	4,0mm	6,0mm	8,0mm
Working Length:	4.9 - 13.1ft (1.5 - 4.0m)	4.9 - 13.1ft (1.5 - 7.5m)	4.9 - 13.1ft (1.5 - 7.5m)
Articulation:	4-way (Control Levers)	4-way (Control Levers)	4-way (Control Levers)
Articulation Angle* L/R U/D:	100°/100° 100°/100°	100°/100° 160°/130°	100°/100° 160°/130°
Integrated Objective Lens:	x	-	-
Interchangeable Objective Lens:	-	x	x
Side View Tip Adapter:	O (only with Int. Objective Lens)	X	X
Braid:	Tungsten Braid on PU-Jacket		

Construction

Ergonomics:	± 90° rotatable Display Unit, alt. ±90° rotatable Scope Handle
System Weight:	2.97lb (1.35kg) Operating Unit
Dimensions:	370mm x 175mm x 75mm
Housing:	rugged PU, with integrated rubber shock caps
Frame:	Alloy
Protection Class:	IP53

Operating Environment

Tip Operating Temperature:	+14°F to 176°F (-10°C to +80°C)
System Operating Temperature:	-13°F to 115°F (-25°C to +45°C)
Storage Temperature:	-13°F to 115°F (-25°C to +45°C)
Relative Humidity:	95% max. - non condensing
Waterproof:	Probe and distal end up to 14,7 psi (1 bar- 10,2 m H ₂ O)
Hazardous Environments:	Not rated for use in hazardous environments

Interchangeable Objective Lenses & SVTA

Probe	DOV	FOV	DOF	CODE	ART. NR.
4,0mm	0°	60°	7-50mm		-
4,0mm	0°	60°	4-10mm	SD	-
4,0mm	0°	90°	15mm-∞		-
4,0mm	0°	90°	10-30mm	SD	-
4,0mm**	90°	60°	5-45mm	SVTA	930-00100-0005
6,0mm	0°	60°	5mm-∞	BLACK	930-00100-0002
6,0mm	0°	90°	5mm-∞	RED	930-00200-0006
6,0mm**	90°	60°	5-15mm	SVTA-CF	930-00100-0002
6,0mm**	90°	60°	15-50mm	SVTA-FF	930-00100-0003
8,0mm	0°	28°	25mm-∞	BLUE	930-00200-0004
8,0mm	0°	60°	8mm-∞	YELLOW-B	930-00200-0009
8,0mm	0°	60°	10mm-∞	BLACK	930-00200-0003
8,0mm	0°	90°	5mm-∞	SILVER-B	930-00200-0002
8,0mm	0°	90°	5mm-∞	RED	930-00100-0001
8,0mm**	90°	60°	5mm-∞	SVTA	930-00100-????

DOV = Direction of View

FOV = Field of View

DOF = Depth of Focus

SVTA = Side View Tip Adapter

CF = Close Focus

FF = Far Focus

B = Bright objective lens

** Compatible to FOV60 °



CE Konformitätserklärung

We declare of our own responsibility that this product (iRis 360° DVR Art.Nr.: 900-03001-0002) complies with the following directive or normative documents:

EN61326-1 (2006) Emission and Immunity, according to directive 2004/108/EG Electromagnetic Compatibility (see image).

Lahnau, 2011-04-13



The image shows a CE Declaration of Conformity for the iRis DVR 360°. At the top right is the logo for CONCEPTS Inspection Technology Concepts. The title reads 'EG Konformitätserklärung EC Declaration of Conformity iRis DVR 360°'. Below the title is an image of the iRis DVR 360° device, which is a handheld video endoscope with a 100° rotating handle and a rotatable 100° screen. To the right of the device is the large CE mark. Below the device image, there is a paragraph in German: 'Das iRis DVR 360° ist die weltweit best ausgestattete Videoendoskopie mit einem 100° rotierendem Handgriff und einem rotierendem 100° Bildschirm.' This is followed by a list of standards: 'Art. Nr. 2004-108/EG', 'Art. Nr. 2004-108/EG', 'Art. Nr. 2004-108/EG', and 'Art. Nr. 2004-108/EG'. To the right of the CE mark, there is a paragraph in English: 'Electromagnetic compatibility (directive 2004/108/EC) with reference to the harmonized standard EN61326-1 (2006) Emission and Immunity.' Below this is a paragraph in German: 'Elektromagnetische Verträglichkeit (Richtlinie 2004/108/EG unter Bezugnahme des Harmonisierten Norm EN61326-1 (2006) Emission und Immunität.' At the bottom left, there is contact information for 'iRIS GmbH' in Lahnau, including a phone number and website. At the bottom right, there is a signature and the name 'Frank Schlegelmüller, Manager Product Development', dated 'Lahnau, 31. Januar 2011'.

Notizen



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