a product from the company

minCam

User Guide

mC30

camera system for optical pipe inspection

,

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The Control-Unit

Next to the camera head, the control-unit is the heart of the camera system.
According to the options you ordered, the system can be built with

- location transmitter (sonde with 512Hz or 33kHz)
- battery
- meter counter
- USB video-out (instead of BNC video-out)

Starting up the camera system

The camera has a normed video signal and can be connected via Scart-BNC or Cinch with nearly every (video-in) monitor TV-System or recorder which is able to display a PAL signal. Before you start up the camera system, please be sure, that the camera head is connected correctly.

- If the camera system has no battery, please connect the power cable with the jack
- using a monitor from minCam, you can connect the monitor via the multi purpose plug, unless it is already connected
- you can connect a external monitor or recording unit via the BNC video out
- switch on the camera unit
- continuous LED light regulation is possible with the potentiometer

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Using the meter counter

The meter counter can be served via three push buttons

Push the "-" and "+" at the same time and the counter is set to 0.
Forward counting: push the "+"
Backward counting: push the "-"

The "meter on/off" toggles between three different inserts:

- date and meter (only without text generator)
- meter
- no insert

Technical details

KK29

- camera head out of stainless steel
- 3mm Sapphire glass protected lens
- fix focus from 5cm to infinite
- high resolution color camera module; 365k pixel; 0.2Lux / F1.2; 380 TV-lines
- light ring with 12pcs Chip-LEDs
- outer diameter 29mm
- adapter with gold plated collector ring and spring-pins to enable fast changes of camera-heads
- water protection: 6 bar
- temperature: -10° bis +40°C

or KK29SL

- "self leveling" camera head; round stainless steel housing
- diameter 29mm, length 38mm
- rest of the specs like KK29

or KK17

- camera head out of stainless steel
- Sapphire glass protected lens
- fix focus from about 5cm to infinite
- high resolution color camera module; 365k pixel; 0.2Lux / F1.2; 380 TV-lines
- light ring with 8pcs extra bright mini-LEDs
- diameter 17mm
- adapter with gold plated collector ring and spring-pins to enable fast changes of camera-heads

control-unit

- on/off button
- button to switch from the big reel to the small reel (only for the Duo version)
- potentiometer for continuous light regulation
- BNC video-out

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- multifunction jack to connect minCam monitors
- 3 push buttons to serve the meter counter (meter counter optional)
- 1 push button to switch on/off the locator (optional)
- Battery (optional)
- internal power supply unit with 85 - 265V AC input

camera cable
- 30m / 5.5mm glass fibre push rod cable with inner conductors (max 50m)

if the camera system is equipped with a meter counter
- revolution sensor
- + or - to set meter value
- + and – sets meter value to zero
- middle push button to toggle between meter and date, meter, no insert

measurements and weight
- about 420 x 230 x 480 mm (l x w x h)
- about 9 kg

optional

- various skids and brushes
  for KK29 , KK29SL: spacer D=45, brush D=75, D=105, D=145mm
  for KK17: aluminum spacer D=29mm (to fit into the spacer and brushes of the KK29, KK29SL)
- variable cable length
- battery
- sonde 512Hz or 33kHz(location transmitter)
- USB video-out for direct connection to a Notebook (minREC, WinCan, or different software)
- text generator
- monitor 5.6"TFT LCD in a carbon housing, attached to the reel with
  digital storage of videos, audio and pictures, stored on a SD-card (max. 32GB)
  - video (MPEG-4; resolution 800 x 600pixel)
  - stills (*.bmp; resolution 640 x 480pixel)

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Safety hints

- This operation manual shall help you to get aquainted with this camera system.
- The camera system is made for optical pipe inspection. It is not made for medical inspection. Please use the camera system only for the predetermined functions.
- Do not alter or reconstruct this camera system.
- Do not open the camera system.
- Do not try to repair the camera system on your own.
- Take care of the product. It can be harmed by mechanical impact.
- Beware of moisture and extreme heat, especially for the monitor and control-unit.
- If the operation time of the battery is a lot lower than it was at the beginning, the batteries life time has probably expired.
- Damage, forced by inappropriate use or handling, may suspend the guarantee.
- Technical enhancements and errors excluded.

Directions for use

- This camera system is made for optical pipe inspection. It is not made for medical inspection. Please use the camera system only for the predetermined functions.
- Protect the control unit of dirt and wetness
- Do not clean the camera with high water pressure
- Do not clean the camera head with any alcohol or alcoholic suspensions
- Do not deposit heavy goods on the camera
- Avoid extreme temperatures (hot/cold)
- The camera cable might brake if it is pushed/pulled too hard
- Avoid extreme mechanical strain for the camera head
- Beware the camera head and camera cable of extreme traction and pressure
- Do not use the inspection system if the camera cable is broken
- In order to avoid mud and dirt, use a cloth to clean the camera cable while recoiling
- Keep the lens clean (clean it with Q-tips)
- Should there be any need of repair, please contact minCam GmbH or an authorised dealer

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User manual

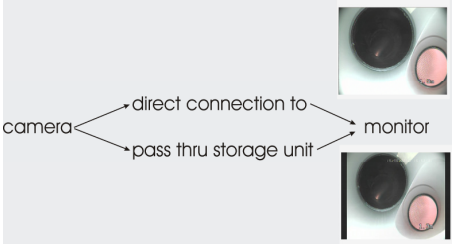
Digital Storage TFTC

to store videos and stills on a SD-card

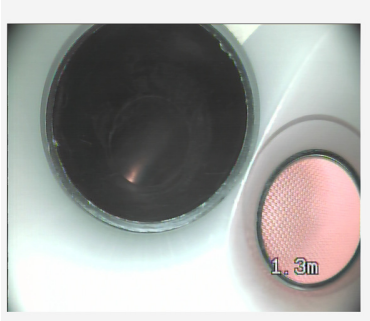
Videos will be stored as MPEG-4 file with the extension *.avi
stills as *.BMP.

Resolution setup when delivered:
video: 800 x 600 pixel
picture: 640 x 480 pixel

Schematic setup of the storage unit



The camera signal can be transferred tot he monitor directly ot thru the storage unit.
To toggle, press the LED (**L**ife **E**nable **D**isplay) button on the remote l.



life signal directly passed to the monitor
picture format 4:3 (width : height)

toggle

life signal passed thru the recording unit
black bars on the left and right

How to store a video

- 

toggle, so you see the life picture with the black bars on the left and right side
- 

start recording

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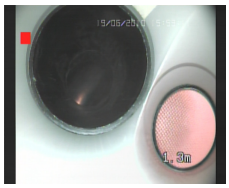
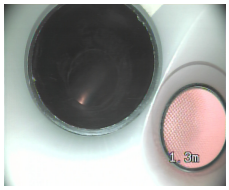
 as soon as you start recording, you can see the red square in the upper left edge

-  in order to achieve a better (4:3) picture, toggle to the direct camera connection

 although you do not see the red square now, you are still recording

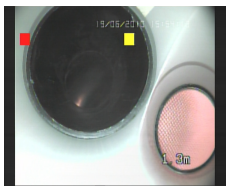
-  Pause function

 storage of the video is paused, till Esc is pressed again

-  stop video recording

How to store a picture

-  toggle, so you see the life picture with the black bars on the left and right side
-  press to store a picture
  While the picture is stored a yellow square is displayed in the middle of the screen

 storing picture  storing picture and video at the same time

Storing a picture while a video is recorded, the video stream will not be stored for about 2 sec.

It does not matter, whether you start the recording while video signal is directly displayed or passed thru the recording

unit, once you pressed 

or 

, the recording (video) or storage (picture) will be started.

Remote Control Unit

no function	preview	menu
go left	upwards affirm / store picture downwards	go right
back / pause		record video
no function	toggle monitor display	lock input

The remote control unit is delivered with a Lithium 3V battery.

- Buttons for storage

  LED (**L**ife **E**nable **D**isplay) button to toggle between monitor display

  start / stop video recording

  pause function

  store picture

- 
  play stored video / picture

- 

  menu / parameters

File system of the stored pictures and videos

- Filename of picture or video
  Pictures and videos will be stored with the filename „TYYYYMMDDhhmmss“

YYYY	year
MM	month
DD	day
hh	hour
mm	minute

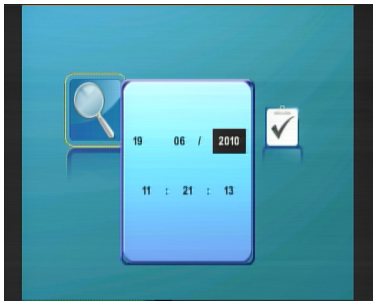
ss second
File extension
pictures have the extension *.BMP
videos have *.avi

- File folder
  pictures are stored sequentially in the folder „PICTURE“
  videos in the main folder „HVR“
  sub folder „MMDD“ (MM=month, DD=day)
  sub folder „hh“ (hh=hour, in which the storage was started)

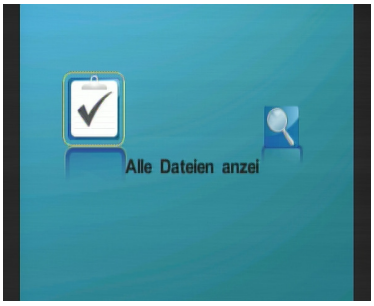
Preview video / picture

-  to enter the preview menu

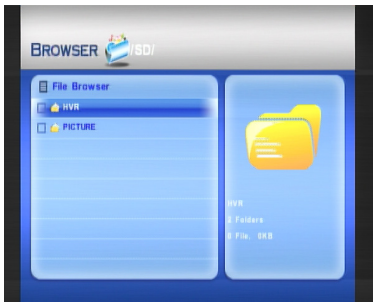
- Search according to storage date / display all

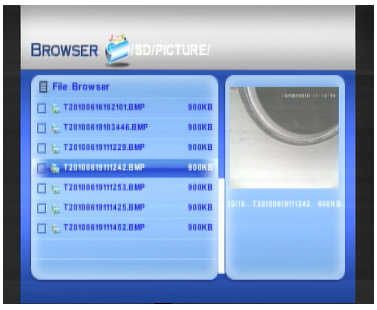


according date, time



all



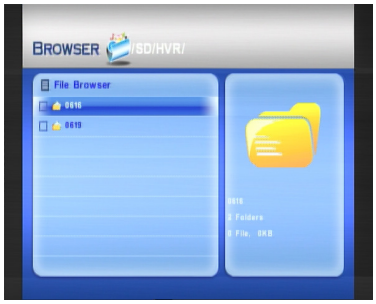


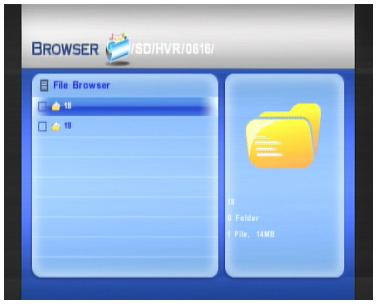
 ,  go to prior or next picture

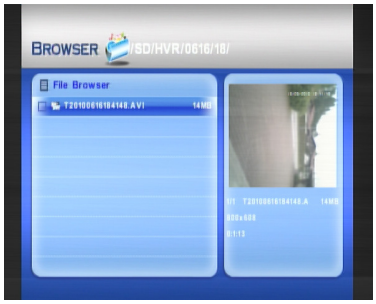
 ,  go to top or bottom. Confirm with 

.

- Pick video
  in order to pick the correct video, you have to handle 2 sub folders first







Folder date and folder time, before you get to the video file



go to prior or next picture



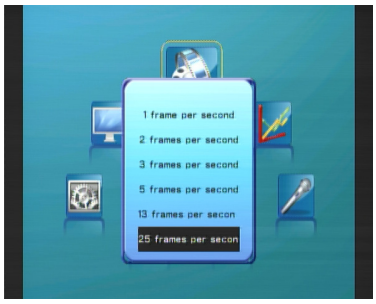
go to top or bottom. Confirm with 

.

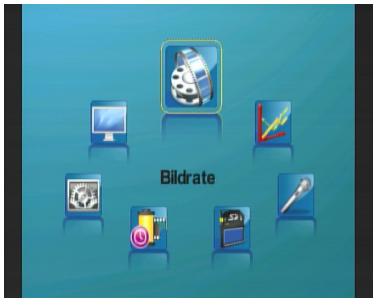
Menu / set parameters

the menu has 7 subitems:
video resolution
frame rate
video bit rate
micro
storage
duration
system

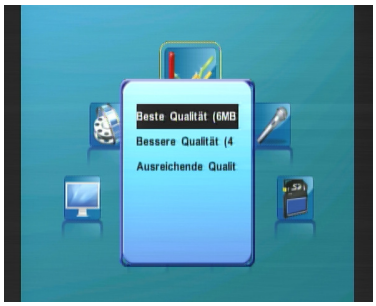
- Video Resolution



- Frame rate



- Bit rate



- Micro is active
- Storage card

Time recording

- System

Settings for date and file overwrite function

Technical details

- unit to store videos and pictures
- resolution (basic settings)
  video: 800 x 608 pixel; *.AVI (MPEG4 simple profile codec)
  picture 640 x 480 pixel; *.BMP
- medium SDHC-card with up to 32GB
- power supply 12V DC
- remote control with Lithium 3V battery

Directions for use

- Protect the control-unit of dirt and wetness
- In order to guarantee optimal storage, format the SD-card device once in a while
- Keep away the SD-card from magnetic surroundings
- Should there be any need of repair, please contact minCam GmbH or an authorized dealer

How to use the TFTC recording function

1. Be sure, that the SD-card is put in the correct way

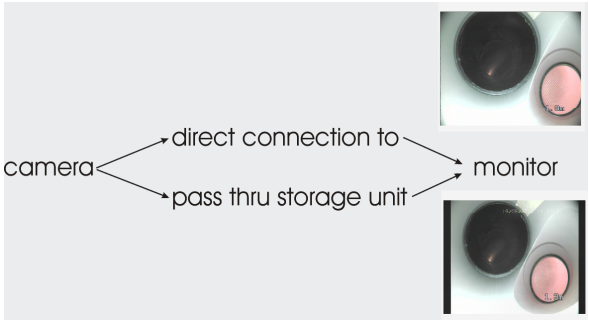
2. The remote control is positioned on the right side of the monitor housing

The control unit can stay in the safekeeping place.
You don´t have to take it out in order to work with it.

Always keep in mind, that the control unit has a IR sender which corresponds to a IR receiver.
The IR receiver is placed in the TFTC housing.
The yellow line shows where the IR receiver is positioned.

If you want to use the remote control outside the safekeeping place, use it, so it will show to the monitor from the front or the right side.

3. Schematic setup of the storage unit

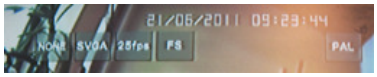


life signal directly passed to the monitor, best picture,
no insert on top of the screen,

to toggle between display modes

black bars on the left and right side of the monitor,
insert on top of the screen

4. How to use the recording the save way



Be sure you see the insert on top of the monitor and the black bars on the left and right

If not, press the LED (**L**ife **E**nable **D**isplay) button on the remote
Press the button for a short time, you can hear a beep, wait 2 seconds till the unit reacts

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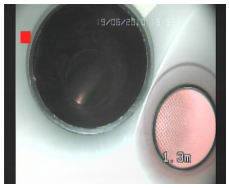
No matter what function you choose, always
press the button for a short time, you can hear a beep, wait 2 seconds till the unit reacts.

Storing a video

start recording


red square indicates, that video is recorded

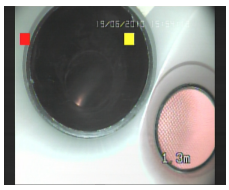
Storing a picture

press to store a picture


yellow square indicates, that picture is stored

Storing a picture while video is recorded

press to store a picture


shows red and yellow square

When you are sure everything works the way you want, press

LED (**L**ife **E**nable **D**isplay) in order to get the optimal picture quality with a 4:3 ratio and no inserts, to fully concentrate in the camera signal for inspection

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