

Instruction Manual



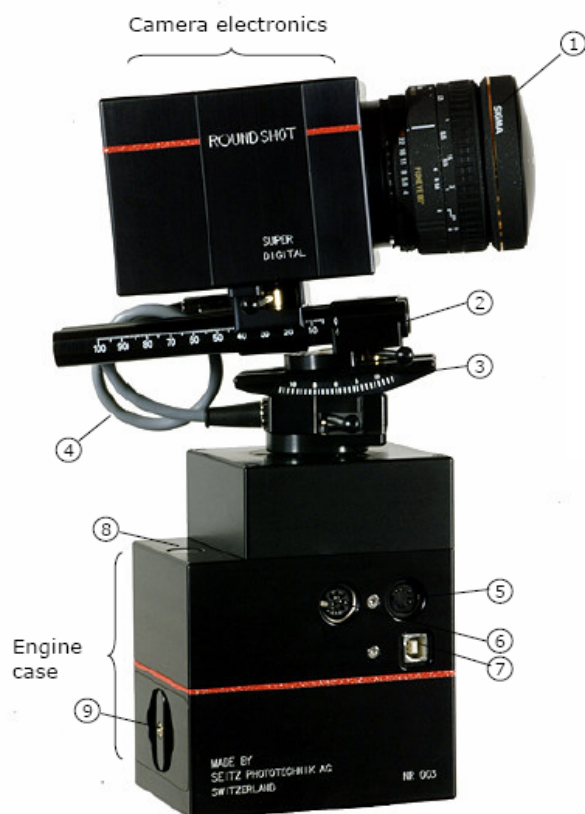
Roundshot Super Digital II Software Version 4.05

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1. System Overview

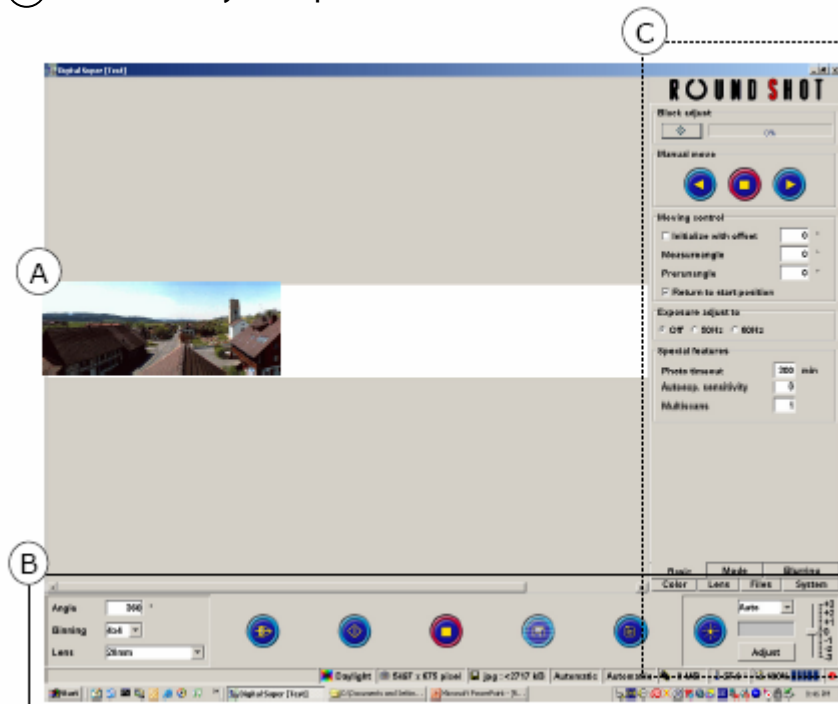
1.1 Hardware Roundshot Super Digital II



- ① Lens
- ② Optical bench
- ③ Pantilt head (optional)
- ④ Connecting cable electronics-engine
- ⑤ Socket for power cable to recharge / power supply
- ⑥ Socket for connecting cable for turntable
- ⑦ Socket for USB cable
- ⑧ Water bubble for calibration
- ⑨ Handle to open battery case

1.2 Software Roundshot Super Digital II

- (A) Image preview window
- (B) Control and information panel
- (C) Menu for system parameters



Start/Program Files/Digital Super/Start

(C:\Program Files\Digital Super\Start)

2. Control & Functions

2.0 Install the software

Step 1: Copy driver (Windows 2000 / XP) to desktop

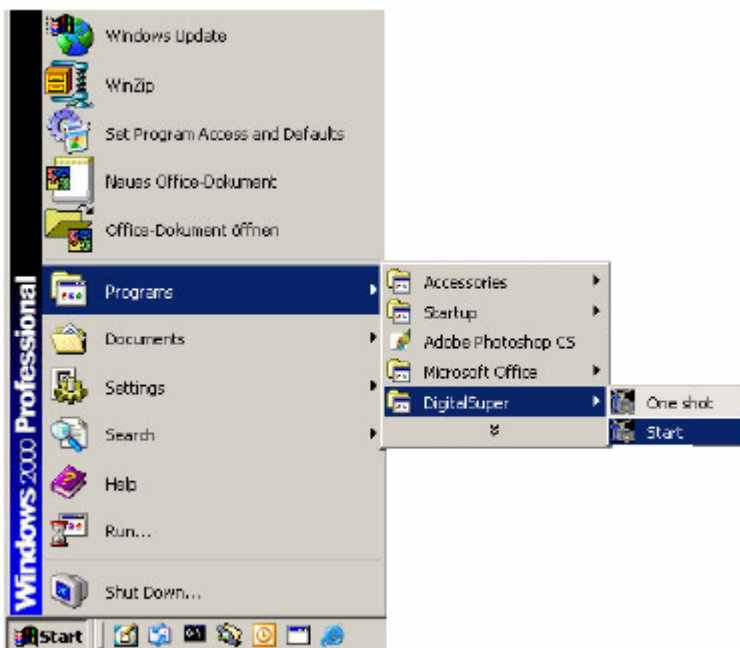
Step 2: Install Java

Step 3: Install Super Digital

Step 4: Connect camera with USB cable to computer and load driver from computer (not from CD)

Important: Always install JAVA before Super Digital!

2.1 Start the software



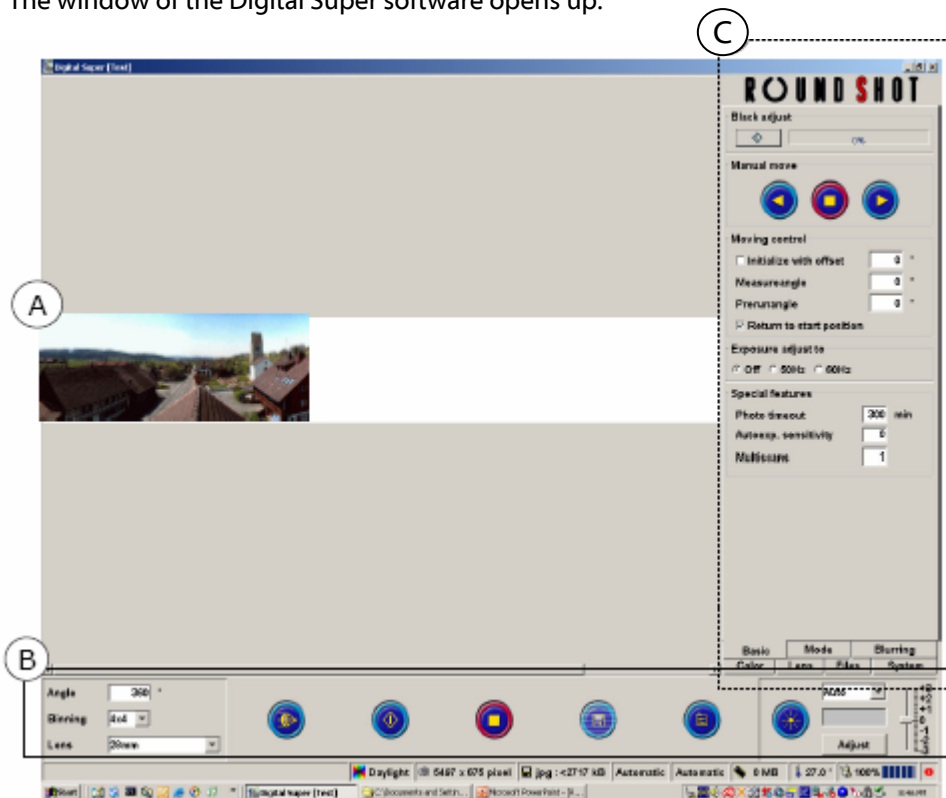
Start / Program Files / DigitalSuper / Start

Opens the program to set the parameters and for image taking

Start / Program Files / DigitalSuper / Autostart

Opens the program, creates a panorama with the preset parameter settings, saves the image and closes the program

The window of the Digital Super software opens up:



The **image preview window (A)** shows the image as it builds up line by line.

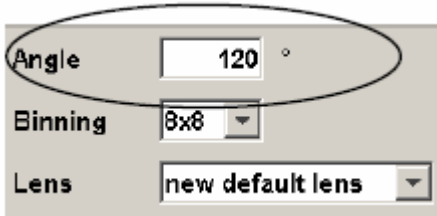
The proportions of the window (height x width) correspond to the proportions of image height and width, depending on the selected lens (focal length) and parameter (i.e., degree of panorama). The shorter the focal length, the higher the window and the image.

The **control and information panel (B)** allows specific settings for a single image (image angle, resolution, selected lens, function buttons (focusing, start, stop, save), general settings and light meter and exposure correction). Equally, an information field is displayed with colour mode, image resolution, file size, duration of image capture, temperature of the camera as well as battery status.

The **menu for system parameter (C)** contains all values that remain generally unchanged for an image (black adjust, white adjust, moving control, mode (panorama, turntable), distance settings, blurring, colour adjustment, lens list and sensor resolution, file format and system settings).

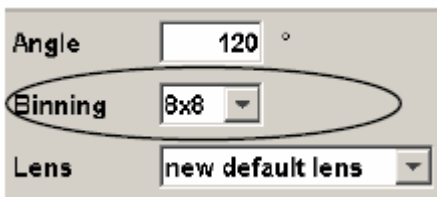
2.2 Functions of the control and information panel

2.2.1 Image angle



Enter the desired angle from 1° to 400° in units of 1°
Confirm by pressing „enter“

2.2.2 Resolution

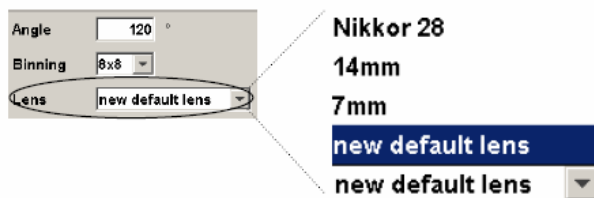


Choose the image resolution (binning) from the list:
1 x 1: Full resolution
2 x 2: High resolution
3 x 3: Medium resolution
4 x 4: Low resolution
8 x 8: Preview

The desired resolution depends on the specific situation and desired end result. For a web panorama a low resolution can be practical, thus reducing the time for taking the image. For panoramas for which printing quality is required, full or high resolution is appropriate.

Changing the resolution also changes the file size, which is shown in the information panel.

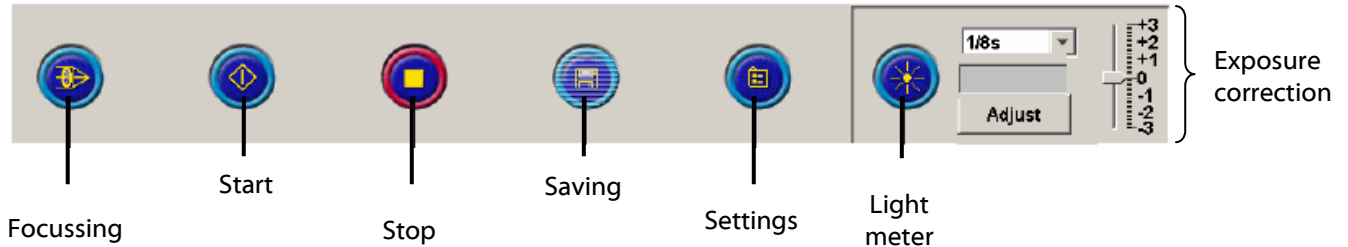
2.2.3 Lens



Select the desired lens from the list. The lens mounted on the camera must correspond with the lens selected from the list. The list can be expanded with special or custom lenses (see section 2.3: Functions of the menu for system parameter).

2.2.4 Function buttons

The function buttons are positioned in the middle of the control panel:

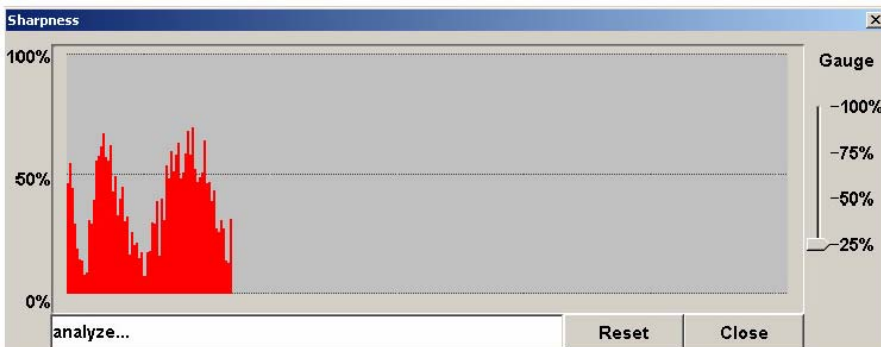


2.2.4.1 Focussing



The focussing assistant allows to determine the best sharpness electronically. To do this, choose the highest aperture of the lens (for example: 2.8) to allow as much light as possible to pass onto the sensor.

Position the camera on a contrast-rich object (with clear changes between bright and dark areas). Click on the button „focussing“. This opens up a window with the focussing assistant:



After loading the data the focussing assistant shows the sharpness on a scale from 0 to 100%. This value changes by varying the distance setting on the lens. The better the focus (more sharp), the higher the percentage value indicated. If a value drops, the point of greatest sharpness has already been passed.

When reaching a point with high sharpness the reset button allows to set the measure scale back to zero, which translates into higher sensitivity for further focusing adjustments.

The brighter the environment the faster the focussing measurement reacts. Do not turn the camera during focussing.

For shorter focal lengths it is recommended to set the gauge to 25%. By doing this, only the middle part of the sensor is used for the measurement.

2.2.4.2 Start



The start button initiates the image capture using the selected parameters.

2.2.4.3 Stop



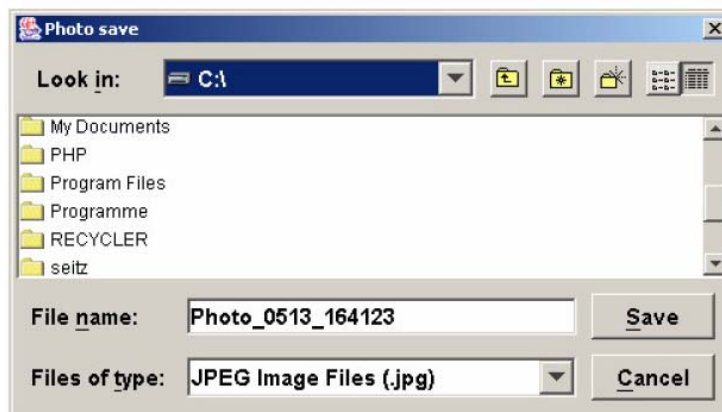
The stop button ends an ongoing image capture. If the function „return to start position“ is activated, the camera moves back to its starting position.

2.2.4.4 Save



The save button opens a window for saving the images in jpg or bmp format. More indications on file format are given in section 2.3.6 „File“.

When choosing file format BMP -90° the image is automatically saved after every image capture. This format produces images in raw format that are not yet turned by 90° (horizontally). This allows automated and faster work but requires subsequent turning of the image in an image editing software.



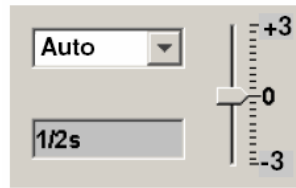
2.2.4.5 Exposure



This button activates the automatic light meter. To do this, turn the camera into the most relevant section of the image. After pressing the exposure button the best exposure is displayed in the lower field (exposure reading). This process can last longer when there is little light.

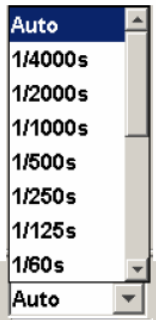
Exposure selection

Exposure reading



Exposure correction

Selection of exposures

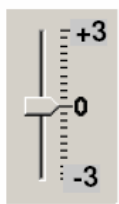
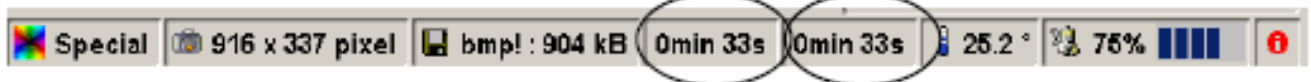


The desired exposure can either be set constant for the entire panorama or can be variable for every degree of the image by choosing the auto-mode.

Fixed exposures can be selected in a range from 8 seconds to 1/4000 sec. The estimated duration of the image capture is given in the information field below.

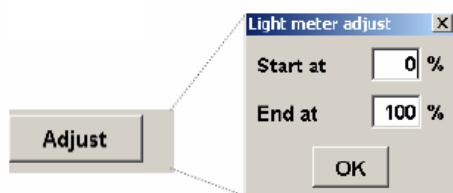
Estimated duration of image capture

Duration for file transfer to the computer



In auto-mode the camera reads the light continuously throughout the image capture and adapts the rotation speed accordingly. Ideally, the camera should start in a darker area (i.e., by choosing a pre-angle).

Using the lever for exposure correction the exposure can be corrected by +/- 3 f-stops. If the image is too dark, move the lever upwards, if too bright, downwards.

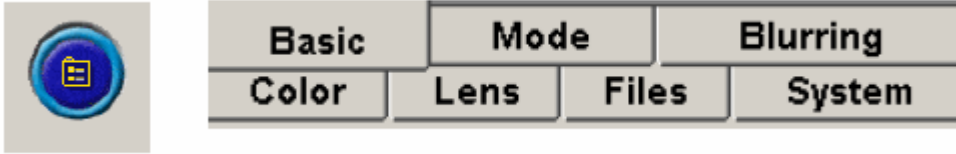


With the adjustment of the light meter the position of light reading can be adjusted as follows:

Start at: lower mark (in % of sensor height)

End at: upper mark (in % of sensor height)

2.3 Functions of the menu for system parameter

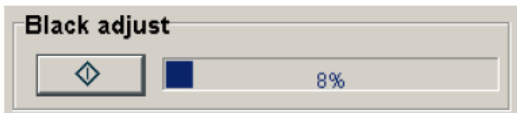


The button „settings“ opens a window with system parameter for the following functions:

- Basic: general settings
- Mode: panorama and turntable
- Blurring: Optional unsharpening of selected areas in the image
- Color: Colour management
- Lens: Creation of a personal lens list
- Files: Saving of the settings
- System: Special settings for calibrating the sensor

2.3.1 Basic: General settings

2.3.1.1 Black adjust



The black adjust function equalises the sensor values (counts) for each pixel without exposure.

To do this, press the button for black adjust. A pop-up window appears with the request to cover the lens with the safety lid. By pressing the „OK“ button the black adjust process is initiated.



By pressing „OK“ the black adjust process is initiated.

Especially for images using long exposure times and applying full resolution (binning 1 x 1) the black adjust feature can result in better image quality. To achieve best results it is crucial that the black adjust process and the following image capture are completed immediately one after the other, i.e., at the same temperature of the sensor.

2.3.1.2 Manual move



Move the camera left or right by pressing the dash buttons. To stop press the middle button. The camera can also be moved manually (by turning the camera head with your hands).

2.3.1.3 Dreh-Kontrolle (Moving control)



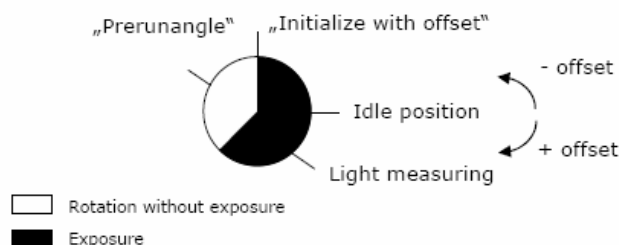
As a first step you can define the image angle by entering an „offset“ angle. A positive (+) value translates the image field clockwise (to the right), a negative value (-) counter-clockwise (to the left). Press „enter“ to confirm.

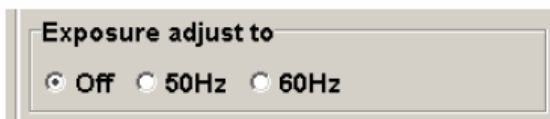
You can define a measure position by using the function „Measureangle“. In this position the camera reads the available light as a precondition to start the camera in the „Oneshot“ mode. A positive value (+) moves the measuring position clockwise (to the right), a negative value (-) counter-clockwise (to the left). Press „enter“ to confirm.

Now enter the „prerunangle“. The camera moves without exposure to the point where the image actually begins. A prerunangle can balance differences in brightness between beginning and end (after 360°) of the image. Press „enter“ to confirm.

Activate the „Return to start position“ to bring the camera after the exposure back to its initial position. This can be advantageous when holding the idle camera in a weather-protected position.

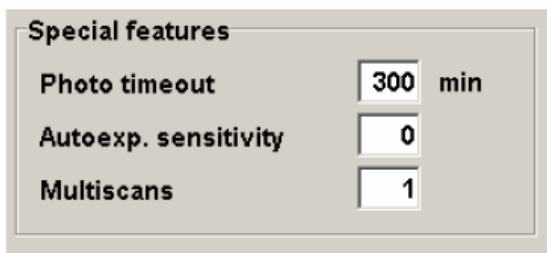
Example:





„**Exposure adjust to**“ allows to correct for artificial light. Artificial light may create vertical stripes in the image. This is prevented by a correct selection of exposure frequency (in Hz):

- Off: for exterior and interior images with flicker-free light
- 50 Hz: For interior images with pulsating/flickering (neon), network frequency 50 Hz (Europe)
- 60 Hz: For interior images with pulsating/flickering light (neon), network frequency 60 Hz (USA)



With „**Photo timeout**“ a maximum duration for the exposure can be set. If the exposure takes longer, it is automatically stopped. Limiting the exposure time can be desirable with rapidly changing light conditions, for example at sunset when the camera moves into the night (and therefore has too little light for the image).

With „**Autoexposure sensitivity**“ (0 to 8) you can define to what degree the camera rotation adapts to the actual light conditions in the image. 0 = full sensitivity, 8 = no sensitivity.

„**Multiscans**“ makes it possible to create multiple images. Confirm the number of images by pressing enter. The exposure of these multiple images is scaled and the images superposed (recomputed).

2.3.2 Mode: Panorama and turntable

2.3.2.1 Mode

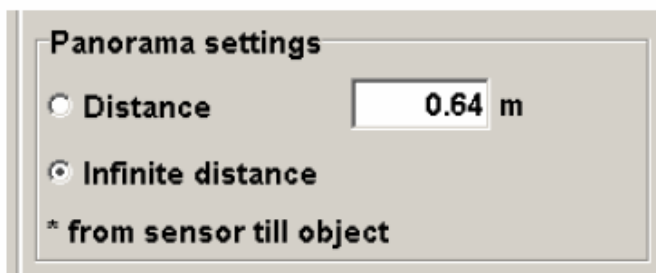


Two modes are available:

- Panorama
- Turntable

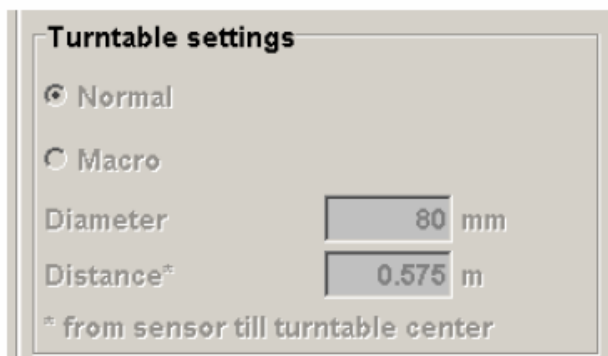
In panorama mode the camera rotates in a circle to create a cylindrical panorama.

2.3.2.2 Panorama settings



In general, the distance settings are set on infinite. The best focusing is achieved through the focusing feature (2.2.4.1).

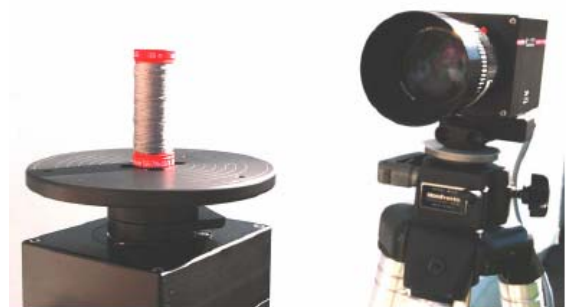
For shorter distances the actual distance can be entered manually. Confirm by pressing enter.



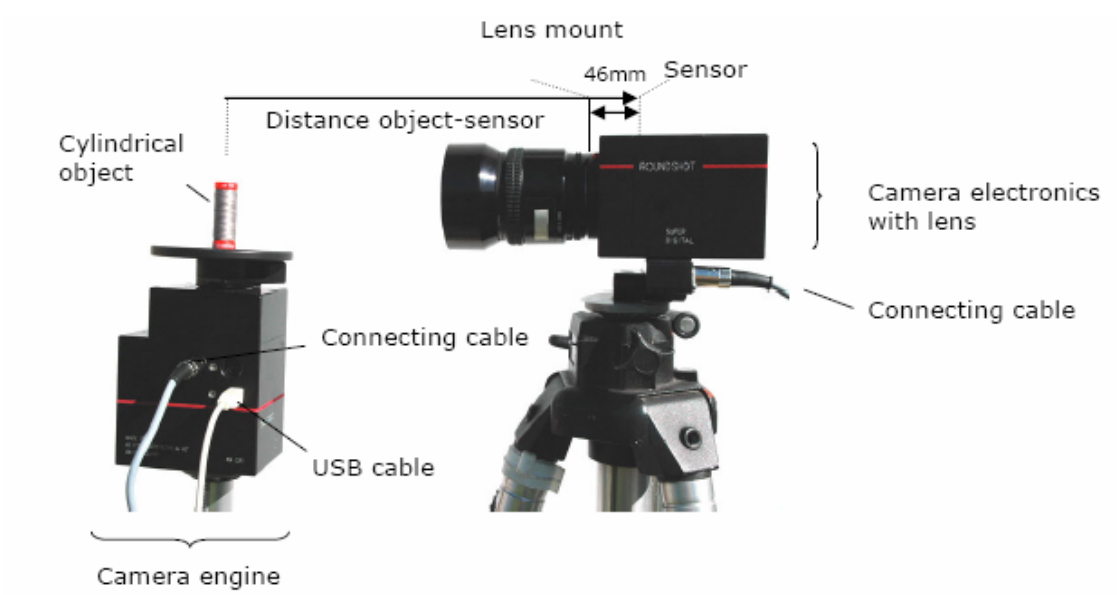
The settings for the turntable mode are:

- Diameter (diameter of the object, in mm)
- Distance from the sensor to the object, in metres

The digital camera uses these values to control the rotation speed in function of the scanning speed of the sensor



Set up for turntable mode



Positioning of objects on turntable

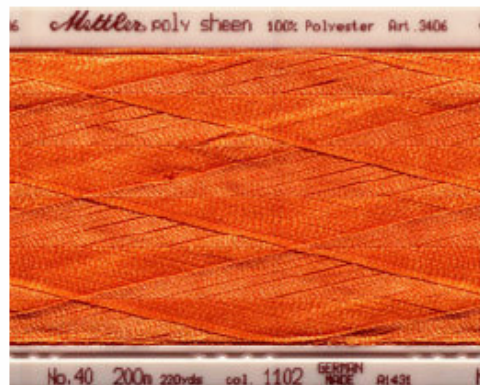
Correct (object placed at the centre)



Incorrect (off centre)



Results



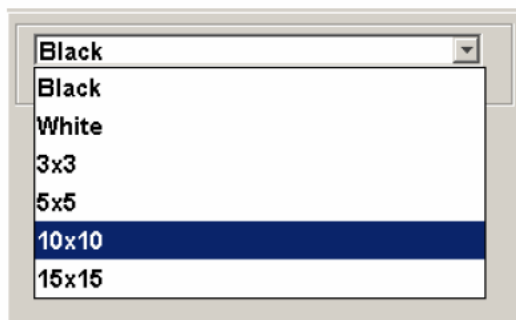
2.3.3 Blurring: Optional unsharpening of selected areas in the image

For Livecam images it can be necessary to cover up certain areas of the image due to legal issues. This is especially important for residential areas (private areas). No people or their mobile belongings (by which individuals may be identified) may be visible. No systematic people surveillance is allowed except if the camera is used on private grounds only.

Examples for areas that need to be covered are:

- Terraces and balconies of private houses
- Windows that allow viewing into private grounds
- Private parking spaces
- Entries of private houses
- Private gardens
- Cemeteries

To blur sections of the image complete a panorama with the usual image angle. Then select the blurring function. You have the choice between different blurring levels:



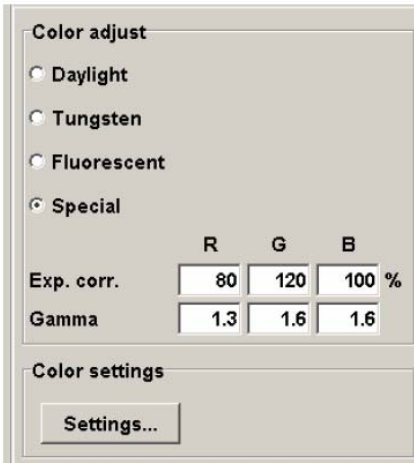
For close objects/areas we recommend a 10 x 10 pixel blurring level.

Draw rectangles with the mouse over those areas that need to be covered. You can remove the blurring rectangles with a right mouse-click.



The pixelated areas fit seamlessly into the panorama. The high quality of the image is thus preserved.

2.3.4 Colour



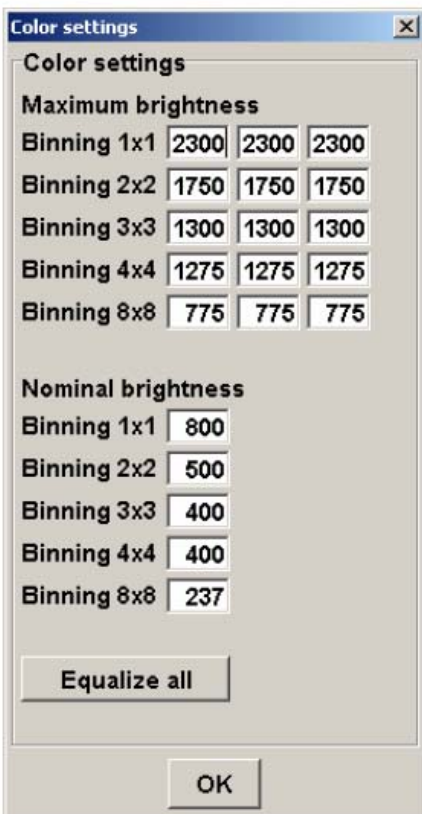
Colour adjust

The digital camera has 3 fixed and 1 special colour scale:

- Daylight
- Tungsten (studio light)
- Fluorescent (pulsating light)
- Special (special light)

These fixed colour scales are optimised for certain image conditions.

For special light the red, green and blue values along with the gamma values of the digital image can be customised.



Colour settings

The higher the selected image resolution the higher the sensitivity and possible brightness of the image.

„Maximum brightness“: these values are given in the first table.

Example:

For Binning 3 x 3 the spectrum of sensitivity is 0 to 1'300. Pixels with a brightness above 1'300 are displayed in full white.

„Nominal brightness“ (general brightness). This setting defines the brightness spectrum for all colour channels (RGB).

2.3.5 Lens: Creation of your personal lens list

2.3.5.1 Add a new lens

Nikkor 28	
New	Delete
Edit	Save
Name	Nikkor 28
Focal	28.0 mm
Sensor Start	1 pixel
Sensor. height	2700 pixel
Scans 360° *	21991 pixel
Angle *	42 °
Calculate	

In the menu „lens“ the parameters for a new lens can be defined.

To do this:

- Select „new default lens“ in the menu
- Press the button „new“
- Press the button „edit“
- Enter the name of the lens and confirm by pressing enter
- Enter the focal length (in mm) of the lens in the field „focal“ and confirm by pressing enter
- Press the button „calculate“

The exact image proportions are calculated.

The maximum vertical resolution is 2'700 pixels.

If the image circle of the lens does not cover the entire vertical resolution of the sensor, reduce the vertical resolution in „sensor height“:

Example: Pentax 6.5mm (only covers 2'000 pixels):

- Enter „Sensor start“: 350
- Enter „Sensor height“: 2'000
- Confirm by pressing enter

To finish press the button „save“.

2.3.5.2 Change the parameter of a lens

Select the desired lens from the list. Press the button „edit“. Enter the parameters as explained in section 2.3.4.1 and confirm by pressing enter.

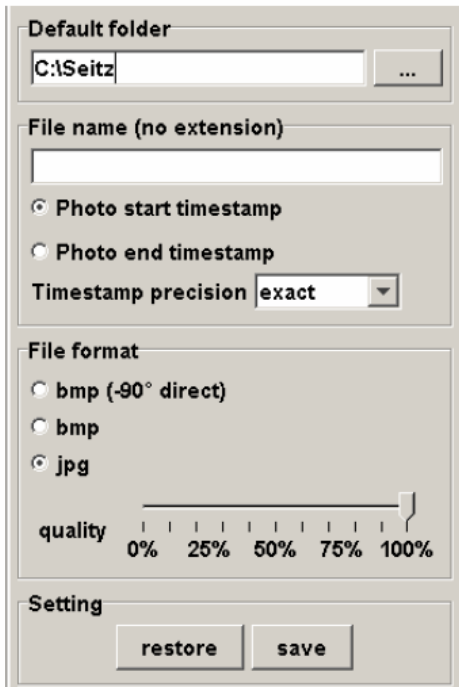
2.3.5.3 Delete a lens

If you want to delete a lens from the list, select the lens and remove it by pressing „delete“.

2.3.6 File: Saving of the settings

This menu function allows it to define the parameters for data storage that remain the same over a series of images

- Default folder
- File name conventions
- Image quality



The field „default folder“ indicates the path of the file that is used as default. By pressing the button „...“ this directory can be changed.

„File name“ determines the designation under which the settings are saved.

The „Timestamp“ functions set the time format for the file name. „Photo start timestamp“ sets the time at the start, „Photo end timestamp“ at the end of the exposure. With „Timestamp precision“ this format can be set exactly (in minutes/seconds) or rounded to full minutes.

3 data formats are possible:

- Bmp (-90° direct)
- Bmp
- Jpg

The format Bmp (-90° direct) saves the resulting image automatically in vertical layout using the date and the time of the image (_mmdd_hhmmss : m: month, d: day, h: hour, mm: minute, s: second). This format requires a 90° rotation (vertically) by subsequent editing in an image editing software and is suitable for fast image storage.

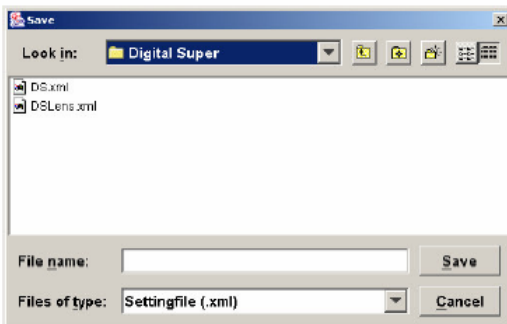
Bmp (bitmap) saves the image in horizontal panorama format.

Jpg saves the image in a compressed panorama format (horizontal).

With the „quality“ lever you can compress the file further.

Setting „restore“ opens a window to select and activate pre-defined settings.

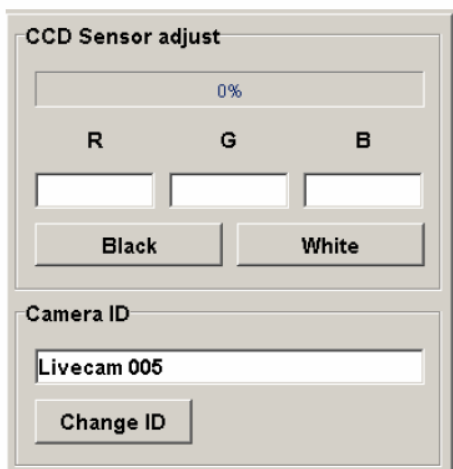
Setting „save“ saves the selected parameter using the given file name.



2.3.7 System: Special settings for sensor calibration

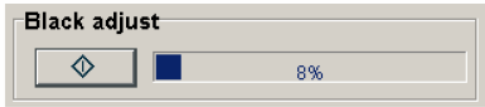
This menu function calibrates the settings of the colour sensor

Password: **27183**



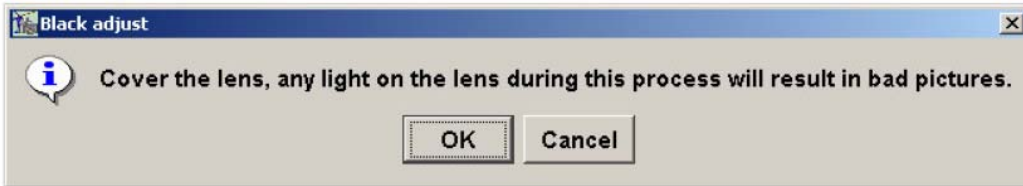
The image shows a web-based control interface for a camera system. It is divided into two main sections. The top section is titled "CCD Sensor adjust" and contains a progress bar showing "0%". Below the progress bar are three input fields labeled "R", "G", and "B". At the bottom of this section are two buttons labeled "Black" and "White". The bottom section is titled "Camera ID" and contains a text input field with the value "Livecam 005" and a button labeled "Change ID".

2.3.7.1 Black adjust



The black adjust function optimises the dark tones of the image.

To do this, press the button for black adjust. A pop-up window appears with the request to cover the lens with the safety lid.



By pressing „OK“ the black adjust process is initiated. This process lasts for approximately 60 seconds.

Especially for images using long exposure times and applying full resolution (binning 1 x 1) the black adjust feature can result in significantly enhanced image quality. To achieve best results it is crucial that the black adjust process and the following image capture are completed immediately one after the other, i.e., at the same temperature of the sensor.

2.3.7.2 White adjust

For performing the white adjust position a tinted (white) glass in front of the lens. It is important to conduct this test with flicker-free daylight.

Set a clean tinted glass in front of the lens (or tape it to the lens). Press the button „White“. A pop-up window appears with instructions for the white adjust procedure.



By pressing „OK“ the white adjust process is initiated.

The white values are displayed in the fields R, G and B. These values should not exceed 2'300.

A scale of 0 to 100% shows the progress of the white adjust test.

If the values are too high, close the aperture of the lens and observe the change in values. Optionally move the camera into a darker area.

If the values are too low, close the aperture of the lens and observe the change in values. Optionally move the camera into a lighter area.

When the best settings of aperture and brightness are found, repeat the entire process (from 0 to 100%). To do this, press the button „white“ without making any changes to the values.

This procedure can be stopped at all times by pressing the stop button. However, this may cause that incorrect values are saved, possibly leading to vertical lines.

3. Possible Error Messages & Problem Resolution

We recommend to close all other applications during the work with the digital camera. For the transfer of high resolution images the full computing capacity is required.

3.1 „Camera not found“



Possible causes:

- No connection from the camera to the computer
- The drivers of the camera software cannot be located
- The program has been activated twice
- The battery of the camera is empty (in battery mode)

Solution:

- Check the USB cable connection
- Reinstall the drivers of the camera software (from desktop)
- Shut down the Digital Super program (directly or via task manager (alt+control+delete))
- Remove battery from the camera, recharge and reinsert into camera. The battery can also be recharged in the camera when the camera is connected to a power source

3.2 „GetDeviceInfo [6]“



Possible causes:

- There has been an error in transferring data between digital camera and computer

Solution:

- Confirm error message („OK“) and restart the program
- Detach the USB cable from the camera and reconnect it
- Close the program via task manager (alt+control+delete) and restart

3.3 „GetDeviceInfo [17]“



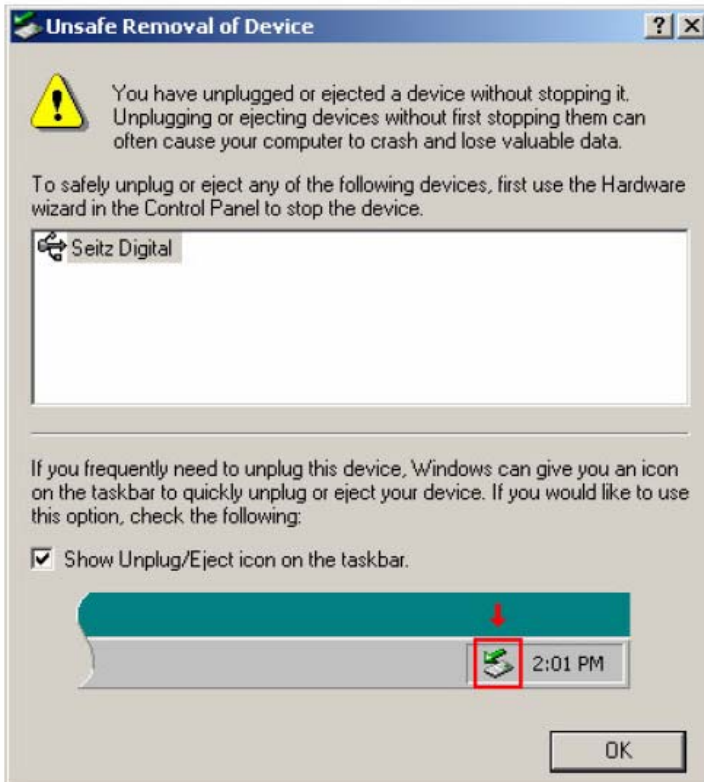
Possible causes:

- There has been a data overflow in the temporary storage (when using very long focal lengths, exposures and resolution)

Solution:

- Confirm error message („OK“) and restart the program
- Detach the USB cable from the camera and reconnect it
- Close the program via task manager (alt+control+delete) and restart
- Reduce the amount of data transferred per second by increasing the exposure time, by stopping down the aperture or by reducing resolution (increase binning factor)

3.4 Unsafe Removal of Device



Possible causes:

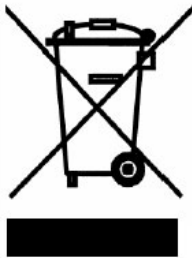
- The connection between the digital camera and the computer has been interrupted
- The USB cable has been removed from the computer
- The battery of the camera is empty (in battery mode)

Solution:

- Confirm error message („OK“)
- Check the USB cable for connection
- Detach the USB cable from the computer and reconnect it
- Remove battery from the camera, recharge and reinsert into the camera. The battery can also be recharged while inserted in the camera when the camera is connected to a power source
- Restart the computer

4. Return of Equipment

Your Roundshot product and the accessories are produced from highest quality materials and parts and will provide you continued pleasure. Should you nevertheless want to dispose of your Roundshot equipment one day, it should not be placed in normal waste. The correct disposal of your old equipment is a contribution to preventing possible negative causes for the environment.



For optimum recycling we kindly ask you to return us your camera (with accessories) to the following address:

Seitz Phototechnik AG
Abteilung Umwelt & Recycling
Hauptstr. 14
8512 Lustdorf / Switzerland

This return shipment to the manufacturer is **free of charge**.
The service is available **worldwide**.



Please contact us to arrange the return shipment and prepare the materials for the delivery. Your camera and accessories will be picked up by our courier service and will be recycled in our factory.

In the meantime we wish you continued success and fun with your Roundshot Super Digital camera!

5. Technical Data

Sensor type	3 line RGB sensor
Vertikale resolution	2,700 Pixel maximum (can be reduced electronically for speed)
Lens	Variable focal lengths from 4mm to 105mm
Lens mounts	Exchangeable lens mounts
Lens brands	Nikon, Leica R, Contax and Canon FD; more on request
Image length for 360°	Depending on focal length, maximum 50,000 Pixel (360°)
Number of 360° shots	Depending on storage capacity of harddisk
Viewfinder	Integrated in software (pre-scan)
Distance setting	Infinite to macro
Slit	3 x 1 pixel
Light meter	integrated
Dimensions (L x W x H)	80 x 120 x 260 mm
Weight	3.7 kg
Control	via laptop
Display	via laptop
Additional functions	Focussing help, data compression, data storage, file size, artificial light mode, battery indicator, temperature indicator
Shutter speeds	1/4000 to 8 seconds
Slit	2.0mm
Fastest scan for 360°	20 seconds
Multiple exposures (Bracketing)	Manual
Degree of panorama	Selectable in increments of 1° from 1° to 400°
Exposure variation	During the shot; automatic
Timer	Delay: --; Intervall: manual
Power supply	NiMh battery 12V 4.5A for 4 hours
Power charger	Universal speed charger 110-240V
Calibration	1 water bubble indicator
Standard accessories	Power charger, NiMh battery, USB cable 50cm, active USB extension
Possible additional accessories	Super Digital II Ni Mh battery, Laptop holder, pantilt head, turntable Set